

# Closing the Child Labor and Forced Labor Evidence Gaps

Endline Report for the Randomized Controlled Trial Evaluation of the NNAT Program in Costa Rica

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## Abstract

IMPAQ International worked together with the Government of Costa Rica to conduct a randomized controlled trial (RCT) of the Working Children and Adolescents (Niños, Niñas y Adolescentes Trabajadores or NNAT) program. The RCT's main goal is to build rigorous evidence to determine if the intervention contributed to the reduction of child labor and hazardous child labor among program beneficiaries. The NNAT program is implemented by the Ministry of Labor and the Mixed Institute of Social Aid (Instituto Mixto de Ayuda Social or IMAS) of the Government of Costa Rica. NNAT identifies working youth and provides them with a monthly cash transfer, on condition that they regularly attend school and complete their current grade. The main objective of the intervention is to reduce child labor and improve schooling through financial support. The program was expected to decrease child labor by offsetting the opportunity cost of not working and reducing the time available for labor. The conditional transfer subsidy was also expected to increase school enrollment, regular attendance, and completion rates.

The confirmatory research questions examine the effect of the cash transfer on: (1) child labor and hazardous child labor participation, (2) number of hours worked, and (3) school outcomes. These questions were answered through an RCT involving 551 eligible participants. A treatment group of 276 participants was selected through a lottery to receive the cash transfer in the 2017 school year. A control group of 275 eligible participants received delayed treatment—waiting until 2018 to become NNAT beneficiaries. Qualitative data were gathered at the same time as quantitative data to document how the program was implemented and the mechanisms that changed participants' behaviors. Baseline data were collected between October and December 2016 to ensure the groups were balanced after randomization. Endline data to measure the program's impacts were collected between March and May 2018.

The cash transfer's effect on child labor was a statistically significant reduction in hours worked by children by more than four hours per week, accounting for a 25 percent reduction of their child labor hours. The estimates also show that girls decreased their weekly hours worked by over 8 hours, accounting for a 50 percent reduction in their child labor hours. The likelihood of child labor participation among program participants also fell, but this finding was not statistically significant. There was statistically significant evidence of girls having a larger reduction of hours worked than boys, a reduction that was larger for girls aged 15 to 17 years than for those aged 12 to 14 years.

The evaluation found no statistically significant effects on school outcomes, nor were statistically significant effects found on participants' school, well-being, their income, or their aspirations. The main mechanism contributing to the reduction in child labor was, according to the qualitative evidence, the reduced opportunity cost of not working through the provision of financial subsidies. Triangulating quantitative and qualitative findings showed that the conditional cash transfer reduced the need for children to work but was not sufficient to eliminate child labor completely. The evaluation also showed that the subsidy alone was not enough to improve schooling outcomes, thus justifying the scope for additional education policies to complement NNAT.

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## List of Acronyms

ATT	Average treatment effect on the treated
CCT	Conditional Cash Transfer
CNA	Código de la Niñez y la Adolescencia
ENAH	Encuesta Nacional de Hogares
GCR	Government of Costa Rica
ICLS	International Conference of Labor Statisticians
ILAB	U.S. Department of Labor's Bureau of International Labor Affairs
ILO	International Labour Organization
IMAS	Instituto Mixto de Ayuda Social
IRB	Institutional Review Board
MTSS	Ministerio de Trabajo y Seguridad Social
NNAT	Niños, Niñas y Adolescentes Trabajadores
RCT	Randomized Controlled Trial
USD	U.S. dollar

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## Chapter 1. Introduction

The U.S. Department of Labor’s Bureau of International Labor Affairs (ILAB) selected IMPAQ International, LLC (IMPAQ) in 2014 to design and implement five randomized controlled trial (RCT) evaluations to investigate the effects of interventions to combat child labor and hazardous child labor. As part of this project, IMPAQ conducted RCTs in Costa Rica, Ecuador, India, Malawi, and Rwanda to generate rigorous evidence on child-labor-mitigation interventions in different contexts. This endline report discusses the evaluation of the Working Children and Adolescents (Niños, Niñas y Adolescentes Trabajadores or NNAT) program under the Government of Costa Rica (GCR).

NNAT is a conditional cash transfer (CCT) program, in which working youth receive financial support for regular school attendance. In collaboration with GCR, IMPAQ carried out an RCT evaluation of the NNAT program.<sup>1</sup> The evaluation of this public program offers a unique opportunity to explore the effects of a monetary subsidy to working children in a middle-income country. This final report details the context of the program, the evaluation design, the primary data collected, the findings, policy implications, and conclusions and recommendations.

### 1.1 Background

#### 1.1.1 Child Labor in Costa Rica

Although Costa Rican children have widespread access to school, some are still involved in child labor and hazardous child labor. In Costa Rica, child labor is a multi-causal problem whose roots include poverty and economic inequality, lack of interest in formal education, youth pregnancy, embedded cultural work values, and family disintegration. Child labor is particularly prevalent in the most economically vulnerable households. Many of these families lack the income needed to cover their food, utilities, and rent expenses; and they send their children to work in order to cover these basic needs. Child-labor rates in Costa Rica have been significantly reduced in recent years. The remaining cases are concentrated primarily in agriculture and fishing, although construction and manufacturing, domestic work, and street vending are also still employing children. The worst forms of child labor still remaining in Costa Rica are in commercial sexual exploitation.<sup>2</sup> The Costa Rican National Household Survey (*Encuesta Nacional de Hogares*, ENAHO) includes a module that collects data on working children every five years.<sup>3</sup> Exhibit 1 shows declining child-labor rates between 2011 and 2016.

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<sup>1</sup> IMPAQ collaborated actively with GCR in designing and conducting the impact evaluation but did not participate in implementation or funding of program activities.

<sup>2</sup> United States Department of Labor, Bureau of International Labor Affairs. (2017). *Child Labor and Forced Labor Reports: Costa Rica*. Available from <https://www.dol.gov/sites/default/files/documents/ilab/CostaRica.pdf>.

<sup>3</sup> *Encuesta Nacional de Hogares* (ENAHO). (2011, 2016). Módulo Trabajo Infantil y Adolescente. INCE. Available from <http://www.inec.go.cr/encuestas/encuesta-nacional-de-hogares>

**Exhibit 1. Child-Labor Rates in Costa Rica, 2011 and 2016**

	2011	2016
<b>Child-Labor Rates by Age</b>		
Ages 5–17	4.26%	3.09%
Ages 5–11	1.58%	0.63%
Ages 12–14	2.74%	2.13%
Ages 15–17	10.5%	8.88%
<b>Child-Labor Rates by Gender</b>		
Boys	5.51%	4.59%
Girls	2.90%	1.52%
<b>Child-Labor Rates by Zone</b>		
Urban	3.21%	2.53%
Rural	6.43%	4.32%
<b>Total Children Working</b>	<b>42,571</b>	<b>30,369</b>

Source: IMPAQ calculations using Resultados generales, Módulo de Trabajo Infantil y Adolescente. ENAHO 2011 and 2016.

### 1.1.2 Child Labor and Hazardous Child Labor Operational Definitions

GCR acknowledges child labor and hazardous child labor as social problems that adversely affect the physical, intellectual, moral, emotional, social, and educational development of working children and adolescents. As part of its efforts to eliminate child labor and hazardous child labor, GCR has ratified all major international conventions on child labor and has established corresponding national laws. GCR has ratified without exception Conventions 138 and 182 of the International Labour Organization (ILO). And Costa Rica's National Childhood and Adolescence Code (Código de la Niñez y la Adolescencia or CNA) goes beyond ILO's conventions by prohibiting minors under age 15 from participating in any form of labor, including light work and unpaid household work. Domestic work, whether paid or unpaid, is protected by the same rules and regulations as labor outside the household. A complete list of laws protecting working children is presented in Appendix A.

This study's operational definitions of child labor and hazardous child labor adhere to the international standards determined by ILO's International Conference of Labor Statisticians (ICLS) and the national legislation of GCR. The 18<sup>th</sup> ICLS Resolution concerning statistics on child labor,<sup>4</sup> with an amendment approved at the 20<sup>th</sup> ICLS,<sup>5</sup> is the current international standard for child-labor statistics. ICLS also determines that each national government is responsible for defining hazardous child labor. In Costa Rica, child labor is illegal for all persons under age 15, and hazardous labor is illegal for all persons under 18, the age of adulthood in Costa Rica. Based on these standards, the statistical measure of illegal child labor includes all persons aged 5 to 15 years engaged in any kind of work. The definition of child labor is determined solely by labor participation status and age. Youth between the ages of 15 and 17 working under conditions prohibited by CNA are considered to be engaged in hazardous child labor. The definition of hazardous child labor is determined by working hours and schedule, work activities, and working conditions. Youth between the ages of 15 and 17 may not work more than six hours a day or 36 hours a week; they are also generally forbidden to work between 7 p.m. and 7 a.m., with a few exceptions allowing

<sup>4</sup> 18<sup>th</sup> International Conference of Labor Statisticians. (2008). Report III: Child Labour Statistics. Available from [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms\\_099577.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_099577.pdf)

<sup>5</sup> 20<sup>th</sup> International Conference of Labor Statisticians. (2018). Resolution to Amend the 18<sup>th</sup> ICLS Resolution Concerning Statistics of Child Labor. Available from [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms\\_647347.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_647347.pdf)

work until 10 p.m. CNA includes a list of prohibited hazardous occupations and economic activities, as well as a list of hazardous conditions and environments prohibited because they may be harmful to the health, security, or morality of minors.

Exhibit 2 summarizes the definitions of permissible and non-permissible work used in this evaluation. Appendix A presents details of our operational definition of child labor in Costa Rica.

**Exhibit 2. Permissible and Non-Permissible Forms of Child Labor in Costa Rica**

Age	Forms of Child Labor		
	Domestic Work	Non-Hazardous Work	Hazardous Work
Children under 15 years old	Not permitted	Not permitted	Not permitted
Adolescents 15 to 17 years old	Permitted under	Permitted under special	Not permitted

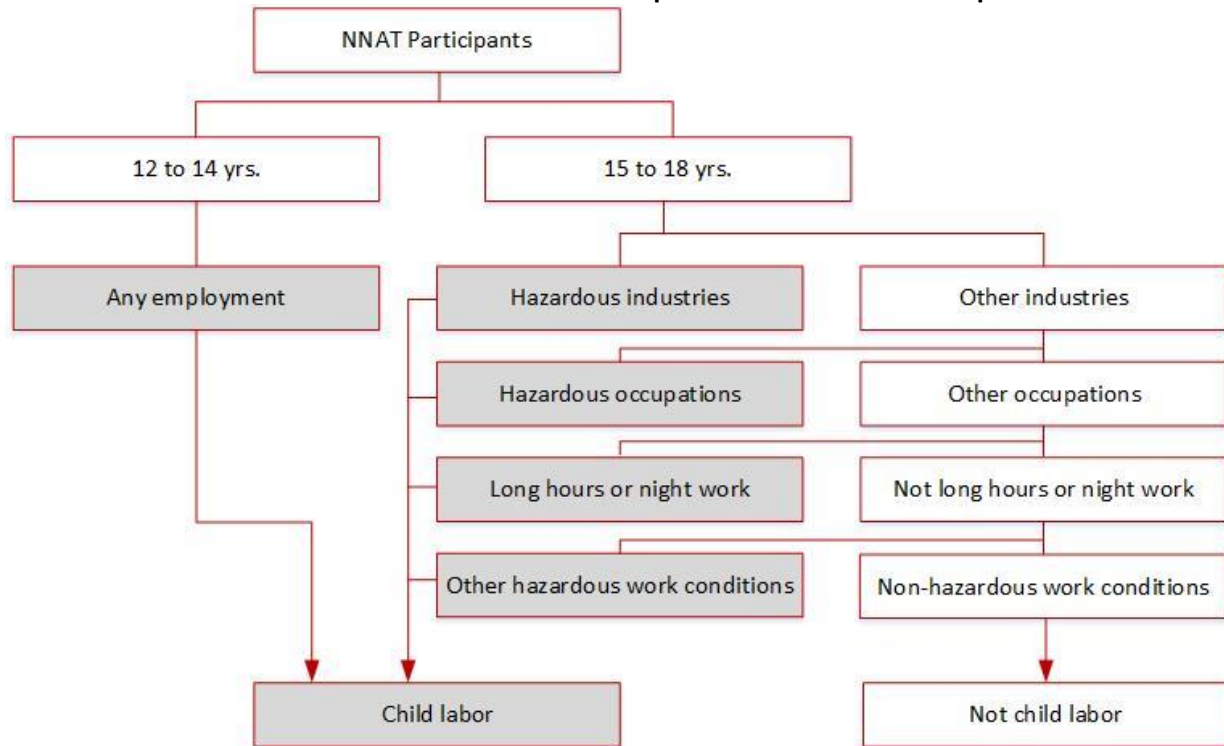
### 1.1.3 The Working Children and Adolescents (NNAT) Program

GCR designed the NNAT program to address child labor and hazardous child labor. The NNAT program's objective is to reduce child labor by facilitating school retention and reinserting youth into public secondary schools. The program was designed to compensate the family for the **opportunity cost** of the lost income when the child attends school instead of working. At the NNAT evaluation's baseline, children beneficiaries reported earning on average 10 U.S. dollars (USD) per day and between 120 to 240 USD per month. By covering this opportunity cost, the program enables the family to cover other costs of living and schooling, such as transportation and supplies. The monthly amount of the subsidy, 90,000 Costa Rican colones, is approximately 200 USD. The NNAT program is implemented by the Ministry of Labor of Costa Rica (Ministerio de Trabajo y Seguridad Social or MTSS) in collaboration with another government agency: the Mixed Institute for Social Aid (Instituto Mixto de Ayuda Social or IMAS). The Ministry of Labor provides the technical expertise to identify and assess youth participating in child labor who are eligible for financial support through public funds. IMAS serves as the program administrator—entering beneficiaries into its database and service delivery system and distributing the subsidies to participating families on a monthly basis. NNAT eligibility requirements are outlined below.

- Youth must be either between the ages of 12 and 15 and working in any occupation (for pay and not for pay) or be between 15 and 17 and working in a hazardous occupation.
- Households must be in the IMAS objective population system and qualify under their poverty or extreme poverty criteria.
- Youth parents must provide IMAS with proof of school enrollment.

Exhibit 3 presents a flow chart of NNAT eligibility based on prohibited child labor.

**Exhibit 3. Child-Labor Verification Requirement for NNAT Participants**



Once a working youth is approved, the subsidy is given to the mother or legal guardian every month. The monthly subsidy continues throughout the school year, as long as the child continues attending school.

#### 1.1.4 Theory of Change

The GCR provides the **inputs** and **activities** for NNAT implementation. The Ministry of Labor provides the dedicated funding to support provision of the monetary subsidy and also provides technical staff to conduct the fieldwork needed for the verification of child-labor cases. IMAS contributes to the NNAT program by providing the administrative personnel and the systems needed to process the beneficiaries and distribute the subsidy on a monthly basis. IMAS also monitors compliance with the grade-completion requirement to continue in the system in the next school year.

This impact evaluation of the NNAT program developed a theory of change through which program **outputs** achieved through the program's implementation are expected to generate **mechanisms of change** within the participant group and ultimately lead to participant **outcomes** that can be measured quantitatively for hypothesis testing. Two main program outputs are expected to generate change. The first is the monthly cash transfer provided to families with working children. The second output is school enrollment due to the conditionality associated with the cash transfer, which mandates that students be enrolled in school and complete the grade they are in to receive (and continue receiving) the subsidy.

**The monthly cash transfer** provides beneficiary households with consistent income. The subsidy is designed to offset the households' income needs from their children, thus reducing the families' dependency on child labor. Before the program, households were sending their children to work to bring in income to purchase their families' basic necessities, such as food and utilities. After becoming beneficiaries, the households receive a cash transfer that compensates for the income the child was bringing home when working. This is expected to lead to behavioral change among households, as they

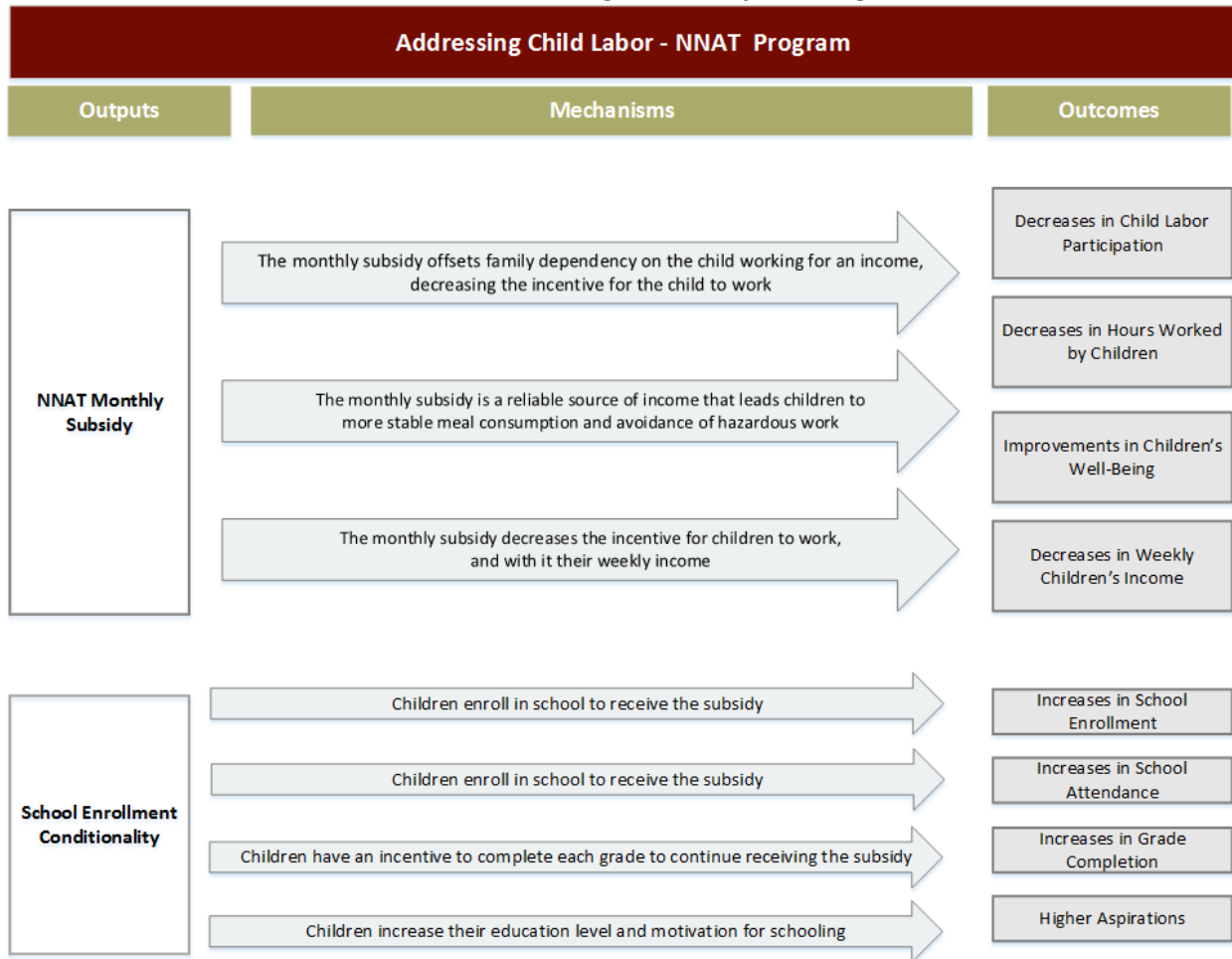
no longer need the children to work and can now invest in their children's education. This behavioral change is expected to decrease the likelihood of child labor participation, and also to a decrease the number of hours the children work, if any.

The monthly subsidy is also expected to generate additional outcomes. The consistency of the income provision, in turn, relaxes households' financial constraints—leading to more stable consumption of nutritious meals and enabling children to avoid hazardous activities in times of need, such as fishing at night or working with pesticides. Finally, the subsidy is expected to redistribute the households' income toward the adults in the household, since it is provided directly to the mothers or legal guardians, while the children earn less income as they reduce their child labor.

**School enrollment**, the second NNAT-generated program output, is expected to increase due to the conditionality associated with the cash transfer. As opposed to an unconditional transfer, the NNAT program intends to impact educational outcomes by mandating that the children be enrolled in school and by requiring them to complete the grade they are in to continue receiving the benefit in the next school year. This conditionality incentivizes children to enroll, attend school, and complete school. This mandated behavioral change is expected to displace the time available to engage in labor activities and thereby increase those three schooling outcomes. Finally, increasing schooling permanence is expected to increase the motivation of students and their families to support the children's completion of secondary school and their pursuit of higher education.

Exhibit 4 depicts the outputs and the mechanisms of change through which they are hypothesized to lead to the intended outcomes of interest.

**Exhibit 4. NNAT Program Theory of Change**



### 1.1.5 Existing Literature and the Evaluation's Contribution to Fill Knowledge Gap

According to the ILO's International Programme on the Elimination of Child Labor, at least 152 million children aged 5 to 17 worldwide are child laborers, accounting for almost 11 percent of the global child population. Within the population of child laborers, almost one-half (73 million) are in hazardous work that endangers their safety, health, or morals.<sup>6</sup> The determinants of child labor are diverse, depending on the context. The policies to combat child labor are similarly diverse, including poverty-alleviation programs, changes to social and cultural norms, educational interventions, rights-awareness campaigns, and child-protection policies. Unconditional and conditional cash transfers have been used as a means to reduce household poverty and child labor.

Unconditional cash transfers have had mixed outcomes on child labor and well-being, according to the literature. De Hoops, Groppo, and Handa evaluated the effects of cash transfers and household engagement in entrepreneurial activities on children in Malawi and Zambia. The authors found that these programs led to an increase in the number of hours worked and exposure to work hazards by children in

<sup>6</sup> International Labour Organization, International Programme on the Elimination of Child Labour. (2017). Marking Progress Against Child Labour: Global Estimates and Trends 2012–2016. Available from: [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms\\_575499.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_575499.pdf).

both countries, but as an improvement in the material well-being of their families. Additionally, school attendance increased substantially as a result of a household's program participation in both Malawi and Zambia, and health improved in Malawi.<sup>7</sup> A study conducted by Edmonds and Theoharides in the Philippines found assets transfers led to increased child employment for children who had not worked before.<sup>8</sup> Handa et al. examined the impacts of Zambia's Child Grant Program, an unconditional cash transfer program for households with children under three years of age, on school enrollment and work for the older children in the household. They found a significant improvement in school enrollment for children aged 11 to 14, which also coincides with the age of school dropout in Zambia.<sup>9</sup>

CCT programs aiming to reduce child labor and improve educational outcomes are currently being implemented in more than 80 countries.<sup>10</sup> CCTs have been found to be more effective than unconditional subsidies in discouraging child labor and improving educational outcomes for youth. In a recent study, De Hoop and Rosati argue that CCTs enable household-consumption smoothing and that the cash transfers prevent youth from pursuing work to support their families during economic shocks.<sup>11</sup> Dammert, de Hoop, Mvukiyehe, and Rosati conducted a systematic review of different programs to reduce child labor. As part of their review, they found that CCTs in most cases helped reduce child labor, especially when transfer programs were combined with supply-side factors like health and education. These effects were found to be strongest for boys and for older children. The authors also find that programs that increase income-generating activities (through direct capital provision, entrepreneurship training, or microfinance) may increase a household's dependency on children working in the family business or within the household.<sup>12</sup>

Additionally, De Hoop and Rosati conducted a systematic review of 30 cash-transfer programs across 12 countries. They found that cash transfers lowered participation in child labor and hours worked, and discouraged parents from using child labor to meet their economic needs.<sup>13</sup> Additionally, transfers had greater economic impacts on boys, while girls experienced larger decreases in household chores. The authors found little evidence that including schooling as a condition for the transfer reduced child labor. Additionally, CCTs lowered the risk of students dropping out due to economic shocks but did not reduce child labor as a risk-coping strategy for families.

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<sup>7</sup> de Hoop, J., Groppo, V., & Handa, S. (2017). Household Micro-Entrepreneurial Activity and Child Work: Evidence from Two African Unconditional Cash Transfer Programs. Unpublished manuscript, accessed on 2(22), 2018.

<sup>8</sup> Edmonds, E., & Theoharides, C. (2019). The Impact of Productive Assets and Training on Child Labor in the Philippines, IPA. Available from <https://www.poverty-action.org/publication/impact-productive-assets-and-training-child-labor-philippines>.

<sup>9</sup> Handa, S., Natali, L., Seidenfeld, D., & Tembo, G. (2016). The impact of Zambia's unconditional child grant on schooling and work: results from a large-scale social experiment. *Journal of Development Effectiveness*, 8(3), 346-367.

<sup>10</sup> Parker, S., & Vogl, T. (2018). Do Conditional Cash Transfers Improve Economic Outcomes in the Next Generation? Evidence from Mexico (No. w24303). Cambridge, MA: National Bureau of Economic Research. Available from <https://doi.org/10.3386/w24303>.

<sup>11</sup> de Hoop, J., & Rosati, F. C. (2013). The Complex Effects of Public Policy on Child Labour, UCW. Available from [http://www.ucw-project.org/attachment/Effects\\_public\\_policy\\_child\\_labour20130501\\_112337.pdf](http://www.ucw-project.org/attachment/Effects_public_policy_child_labour20130501_112337.pdf).

<sup>12</sup> Dammert, A. C., de Hoop, J., Mvukiyehe, E., & Rosati, F. C. (2017). Effects of Public Policy on Child Labor: Current Knowledge, Gaps, and Implications for Program Design. The World Bank. Available from <https://doi.org/10.1596/1813-9450-7999>.

<sup>13</sup> De Hoop, J., & Rosati F. C. (2014). Cash Transfers and Child Labor. World Bank Research Observer. World Bank Group. Available from [https://openknowledge.worldbank.org/bitstream/handle/10986/24189/wbro\\_29\\_2\\_202.pdf?sequence=1&isAllowed=y](https://openknowledge.worldbank.org/bitstream/handle/10986/24189/wbro_29_2_202.pdf?sequence=1&isAllowed=y).

In a study of the long-term effects of CCTs for youth, Parker and Vogl found positive long-term effects on labor-market outcomes, including lower unemployment, fewer transitions from informal to formal labor, and higher earnings for program participants, with the effects being greatest for women.<sup>14</sup> Exhibit 5 depicts children in a public secondary school in Costa Rica.

Three previous studies have focused specifically on Costa Rica, which has implemented two CCTs to increase education completion: (1) Superémonos, which began in 2000 and was suspended in 2002; and (2) Avancemos, which was established in 2006, expanded to national coverage in 2007, and is still ongoing. Duryea and Morrison evaluated the role Superémonos played in slowing the growth of child labor and increasing school attendance among program participants.<sup>15</sup> These authors found that program beneficiaries were more likely to attend school than their non-beneficiary counterparts.

However, the program did not lead to measurable reductions in child labor. Hernández and Mata, as well as Meza-Cordero et al., found that Avancemos beneficiaries completed more years of schooling than students not participating in the program, but neither study focused on changes in child labor.<sup>16 17</sup>

**Exhibit 5. Secondary School Children in Costa Rica**



The evaluation of the NNAT program that is the subject of this report provides evidence of the effectiveness of a CCT targeted to working youth in a middle-income country. It is the first experimental evaluation conducted on a program designed to reduce child labor and improve educational outcomes in Costa Rica. This NNAT evaluation also provides GCR with data-driven findings estimating the effects on education and labor outcomes—enabling policymakers to better understand the current child-labor problem in the country, assess NNAT’s impacts, and make timely corrections based on outcomes data.

## 1.2 Evaluation Objectives

The main objective of the evaluation was to estimate the effects of the NNAT program on students’ educational and labor-market outcomes—school enrollment and attendance, grade completion, child

<sup>14</sup> Parker, S., & Vogl, T. Do Conditional Cash Transfers Improve Economic Outcomes in the Next Generation? Evidence from Mexico (No. w24303). Cambridge, MA: National Bureau of Economic Research. Available from: <https://doi.org/10.3386/w24303>.

<sup>15</sup> Duryea, S., & Morrison, A. (2004). The Effect of Conditional Transfers on School Performance and Child Labor: Evidence from an Ex-post Impact Evaluation in Costa Rica. Inter-American Development Bank. Working Paper 505. Available from <http://www.iadb.org/res/publications/pubfiles/pubWP-505.pdf>.

<sup>16</sup> Hernández, K., & Mata, C. (2015). Evaluación de Impacto de Transferencias Monetarias Condicionadas Para Educación Secundaria en Costa Rica. Ciencias Económicas. Available from <http://dx.doi.org/10.15517/rce.v33i1.19964>.

<sup>17</sup> Meza-Cordero, J., Kugler, M., Gulemetova, M., Salas-Ocampo D., Rodríguez-Barrantes, C., & Campos-Barrantes, V. (2015). Informe Final de Evaluación: Apoyo Técnico para la Revisión y Evaluación del Programa de Transferencia Monetaria Avancemos del Instituto Mixto de Ayuda Social (IMAS) para Contribuir a la Reducción de la Deserción y el Abandono Escolar. A report prepared for the United Nations Children’s Fund (UNICEF) Costa Rica. IMPAQ International. Available from [http://www.unicef.org/evaldatabase/files/Informe\\_Final\\_Evaluacion\\_AVANCEMOS\\_CostaRica\\_2015-001.pdf](http://www.unicef.org/evaldatabase/files/Informe_Final_Evaluacion_AVANCEMOS_CostaRica_2015-001.pdf).

labor and hazardous child-labor participation, and hours worked. The secondary objectives involved assessing the effects of the program on students' well-being, income, and aspirations.

### **1.3 Research Questions**

The evaluation developed five research questions in a quantitative study to address the main evaluation objectives.

Two confirmatory research questions address child-labor outcomes:

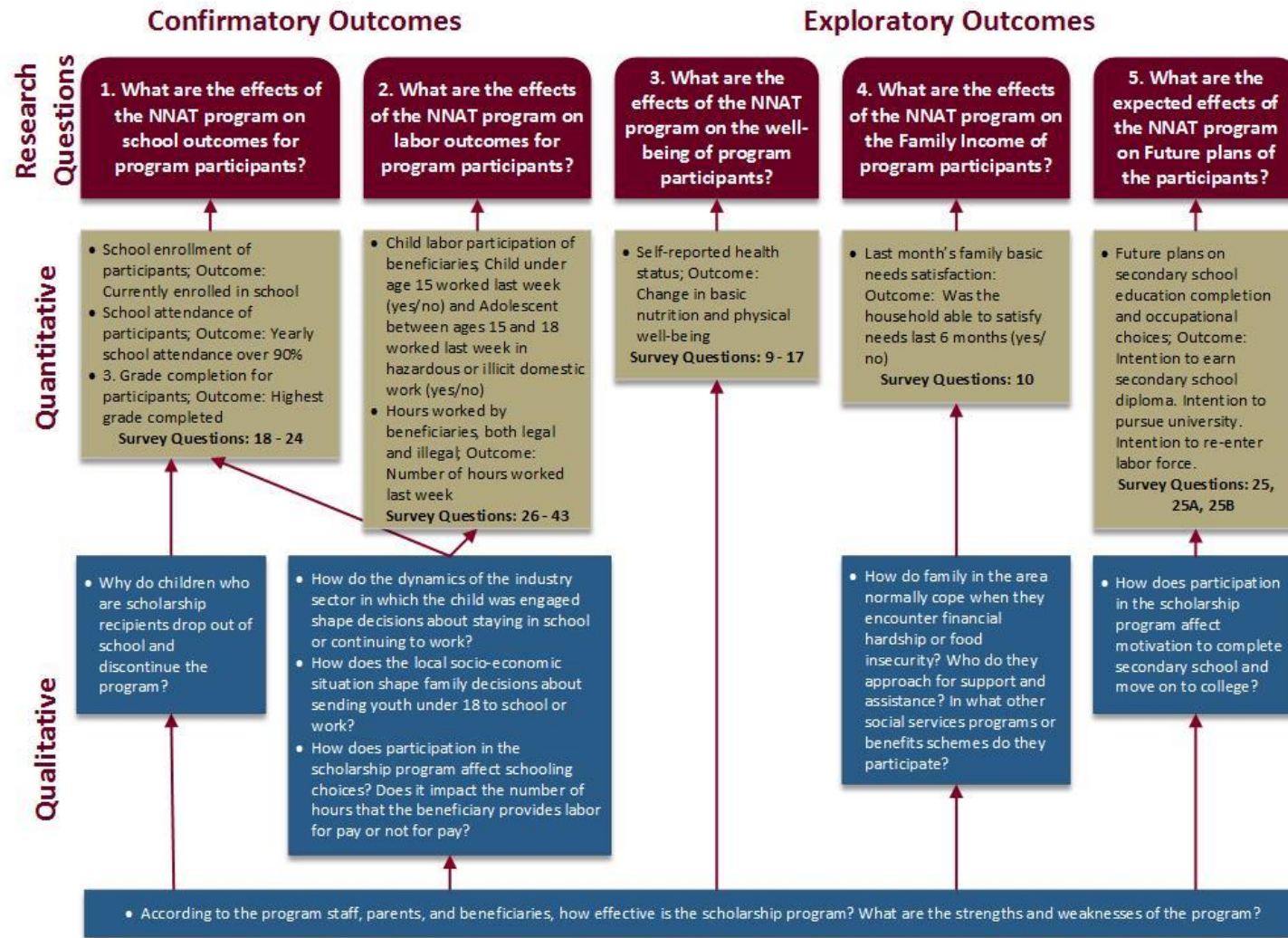
1. What are the effects of the NNAT program on labor outcomes for program participants?
2. What are the effects of the NNAT program on school outcomes for program participants?

Three exploratory research questions address well-being, income, and aspirations outcomes:

1. What are the effects of the NNAT program on the well-being of program participants?
2. What are the effects of the NNAT program on the income of program participants?
3. What are the effects of the NNAT program on future plans of participants?

The evaluation team also developed a qualitative study to better understand and interpret the quantitative findings. The qualitative research questions are mapped to the quantitative research questions in Exhibit 6.

Exhibit 6. Quantitative and Qualitative Research Questions Mapping



## 1.4 Hypotheses

This evaluation tested two main underlying hypotheses:

- A. The NNAT financial subsidy reduces child labor by offsetting the income needed from the children.

The NNAT program was designed to directly influence the main cause for child labor in Costa Rica, the need for income in vulnerable households. It is crucial to assess if, and to what extent, the subsidy offsets family income sufficiently to reduce child labor and hazardous child labor. The expected mechanism is that the subsidy will supply families with the income needed to satisfy their basic needs in the short term, decreasing their need to send their children to work. This study tests the hypothesis that the subsidy *does not* reduce child labor. Rejection of this hypothesis would provide evidence of the program generating impacts on reducing child labor by offsetting income needs—that is, school enrollment conditionality improves schooling outcomes by elevating the incentives to enroll in school and complete grades.

- B. The school enrollment conditionality improves schooling outcomes by elevating the incentives to enroll in school and complete grades.

The literature suggests that conditional cash transfers are more effective at reducing child labor than unconditional transfers. The conditionality of the NNAT program mandates that participants be enrolled in school and requires them to complete the school year in order for them to continue receiving the subsidy in the next year, to ensure a positive long-term social outcome as a result of the subsidy's investment in the children. The expected mechanism for improving schooling outcomes is the requirement that participants enroll in school, and the incentive to complete their grade will increase enrollment, attendance, and completion rates. In addition, the expected reduction in child-labor hours will enable participants to dedicate additional time to their school attendance and homework, thus improving their overall performance.<sup>18</sup> This evaluation also tests the hypothesis that schooling conditionality **does not** lead to effects on school enrollment, school attendance, and school completion. By rejecting this hypothesis, the evaluation would show that the conditionality leads to improved schooling outcomes.

In addition to the two main hypotheses (A and B), this study reviews how reducing child labor and returning to school is expected to improve beneficiaries' well-being and overall health and to raise aspirations to secondary school completion and university enrollment. By providing a consistent source of family income, NNAT is expected to improve families' ability to meet basic needs, such as providing regular meals. Since child labor and hazardous child labor are associated with physical and emotional health risks, a reduction in child labor would serve as a mechanism for better overall health and fewer injuries. Finally, improved schooling outcomes are assumed to increase the aspirations of beneficiaries to finish secondary school and continue their post-secondary education. This evaluation will test the hypothesis that NNAT **does not** affect measures of well-being, overall health, and educational aspirations. By rejecting this hypothesis, the evaluation would show that reducing child labor and returning to school does lead to improved beneficiary well-being and overall health.

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<sup>18</sup> Students who attend secondary school regularly must dedicate six hours a day to being in class and must also spend time commuting and doing homework. Therefore, this conditionality also displaces the daytime hours students could spend in child labor, contributing to a further reduction in child labor.

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## Chapter 2. Evaluation Design and Methodology

### 2.1 Evaluation Design

The evaluation was designed to show whether the NNAT program generates effects by comparing the outcomes of beneficiaries to those of the control group (randomly selected non-beneficiary children to represent what would have happened in the absence of the program). NNAT's limited budget led IMPAQ to reach an agreement with GCR to study 550 child laborers. In late 2016, these 550 children were randomly assigned: 275 went into the treatment group to receive the cash subsidy during the 2017 school year, and 275 constituted the control group, who received the subsidy during the 2018 school year in a process known as **delayed treatment**.

The RCT method enables determination of the short-term effects of the NNAT program without bias by comparing the outcomes of the beneficiaries after a full year of the program to the outcomes of the control group representing the counterfactual condition. The estimators from this design measure the average treatment effect on the treated, which reflects the outcomes of students who received the program subsidy during the 2017 school year.

### 2.2 Sample Size

GCR and IMPAQ closely collaborated in 2016 to identify a population of child-labor cases. Over 600 cases of child labor were reported to the Ministry of Labor's Child Labor Attention Office by school principals and counselors that year. These potential cases were visited and interviewed by social workers trained by the Ministry of Labor,<sup>19</sup> who prepared a required technical report for 554 child-labor cases and also conducted the evaluation's baseline survey.<sup>20</sup> These 554 cases constituted the final study sample of young people who either both worked and attended school or left school in 2016 in order to work.<sup>21</sup> This entire sample was surveyed at baseline, before being randomized into a treatment and a control group, and participants were informed that: (1) participation was conditional on satisfying all program eligibility requirements, and (2) they would be randomly selected into the NNAT program in either 2017 or 2018.

### 2.3 Random Assignment

In January 2017, IMPAQ and GCR used a lottery to randomly assign the sampled youth to the treatment and control groups. At the time of random assignment, three sampled youth turned 18, therefore becoming ineligible. The lottery randomly assigned the remaining 551 participants—276 to the treatment group and 275 to the control group. After random assignment, IMPAQ shared the list of treatment-group members with the Ministry of Labor in order that their age and child-labor condition could be verified by the Ministry. After verification, the cases were sent to IMAS through an official notification to process them into program participants.

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<sup>19</sup> The social workers do not complete an interview or write a technical report for cases that they assess are not child labor.

<sup>20</sup> This is the exact same process that the Ministry of Labor follows, the only difference is that IMPAQ worked with them to ensure that these 550 cases could be visited within 2 months and processed as a group to align with the evaluation timeline. Their usual procedure is to process cases throughout the year as they come in.

<sup>21</sup> Approximately 5 percent of the sampled individuals had dropped out of the 2016 school year at the time of the survey.

## 2.4 Program Participants

The criteria for NNAT eligibility are described in Section 1.1.3. The process of accepting beneficiaries had two stages: verification and processing. First, each youth's child-labor status was verified through the technical report noted in Section 2.2. This technical report documented the child-labor status and age of the child. After verifying child-labor status and age, the Ministry of Labor sent an official note to IMAS requesting the case be processed as a NNAT beneficiary. Second, IMAS checked that the child met the age and poverty-condition requirements and requested proof of school enrollment and the bank account information of the mother (or legal guardian) of the child.

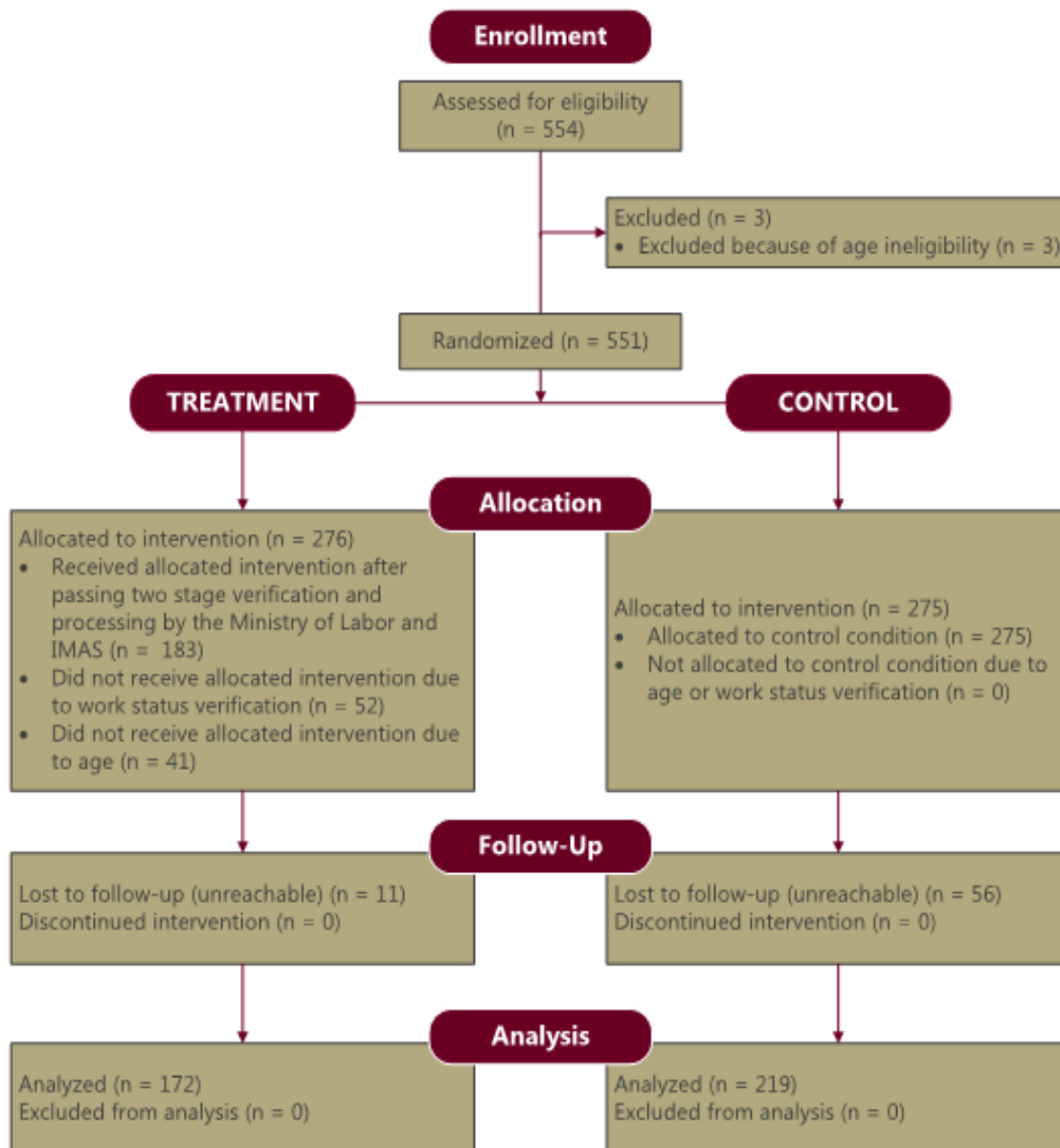
The Ministry of Labor began verifying the work status and age of the treatment-group members in January 2017. The Ministry then sent the official notes to IMAS for the processing stage. IMAS gathered the age, poverty-condition level, proof of enrollment, and bank account, and then processed the cases. This process resulted in 183 young people becoming NNAT participants; these beneficiaries were notified of approval and began receiving the intervention in May 2017. Ninety-one (91) cases from the treatment group failed to become program-eligible during the verification and processing stages; 41 turned 18 years old during the verification and processing period; another 52 failed to meet at least one of the verification or processing requirements. Section 4.2 provides further information on the cases that failed incorporation into the program.

## 2.5 The NNAT Intervention

For the 183 NNAT young people who became program participants, IMAS distributed the monthly cash subsidy to the mother's (or legal guardian's) bank account from May through December of 2017. To continue receiving the subsidy, as noted, the participants were required to be enrolled in school and maintain regular attendance. They were also required to complete their current grade to continue receiving the subsidy in the next academic year. Beneficiaries who turned 18 after verification continued to receive the subsidy as long as they satisfied the attendance and completion requirements.

Endline data were collected in March, April, and May of 2018. At that time, 11 youth in the treatment group were unreachable, and 56 youth in the control group either were unreachable or declined the interview. We could not locate 37 of these control cases; the other 19 control cases were contacted but refused to be interviewed. It is important to note that control-group participants were expected to decline the interview at higher rates than those in the treatment group because they had not yet received any program benefits. Exhibit 6 depicts the RCT evaluation phases.

**Exhibit 7. RCT Evaluation Phases**



## 2.6 Outcomes of Interest

The outcome variables of interest, together with an additional battery of explanatory variables, were collected at baseline in 2016 and at endline in 2018. Exhibit 8 presents the outcomes of interest, with their descriptions and a crosswalk of the outcomes to the questions on the baseline and endline surveys.

**Exhibit 8. Outcomes of Interest Crosswalk**

Research Question			
1. What are the effects of the NNAT program	Participant worked last week	Participant reports being engaged in any	28. Did you perform any of the following activities inside or outside your house last week? (List of work activities follows.)

Research Question	Outcome	Description	Survey Question(s)
on labor outcomes for program participants?		type of work in the past week	
	Youth under age 15 worked last week	Participant under age 15 reports being engaged in any type of work in the past week	Baseline Survey Question 3. When were you born (day, month, year)?
			28. Did you perform any of the following activities inside or outside your house last week? (List of work activities follows.)
	Youth aged 15 to 17 worked last week in hazardous or illicit work	Participant aged 15 to 17 reports at least one of the following hazardous child-labor triggers: working in a hazardous environment, working in a hazardous industry, working between 7 p.m. and 7 a.m., working over 6 hours on any day in the past week, working more than 36 hours during the past week	Baseline Survey Question 3. When were you born (day, month, year)?
			35. In the last month, were you exposed to any of the following in any of your jobs? (List of workplace conditions follows.)
			36. In the past 6 months, did you experience in any of your jobs the following? (List of workplace abuses follows.)
			37. In the past 6 months, did you have any of the following health problems as a result of any of your jobs? (List of health problems follows.)
			38. Is there any of your jobs you would not be allowed to quit if you wanted to?
			31. What kind of work do you usually do in the jobs/activities that you performed last month? (List of work activities follows.)
			32. Without counting household chores, how many hours did you work last week, from Monday to Sunday, in each of the following schedules? (Interviewer asks number of hours for each day of the week during each of four time periods—morning, afternoon, night, and late night.)
	Number of hours worked last week	Total number of hours worked last week, as reported by participant	32. Without counting household chores, how many hours did you work last week, from Monday to Sunday, in each of the following schedules? (Interviewer asks number of hours for each day of the week during each of four time periods—morning, afternoon, night, and late night.)
	Hours worked last week—youth under age 15	Total number of hours worked last week, as reported by participant under age 15	Baseline Survey Question 3. When were you born (day, month, year)?
			32. Without counting household chores, how many hours did you work last week, from Monday to Sunday, in each of the following schedules? (Interviewer asks number of hours for each day of the week during each of four time periods—morning, afternoon, night, and late night.)
	Hours worked last week—youth aged 15 to 17	Total number of hours worked last week, as reported by participant aged 15 to 17	Baseline Survey Question 3. When were you born (day, month, year)?
			32. Without counting household chores, how many hours did you work last week, from Monday to Sunday, in each of the following

Research Question	Outcome	Description	Survey Question(s)
			schedules? (Interviewer asks number of hours for each day of the week during each of four time periods—morning, afternoon, night, and late night.)
2. What are the effects of the NNAT program on school outcomes for program participants?	Currently enrolled in school	Participant reports being currently enrolled in school	19. Are you currently enrolled in school?
	Yearly school attendance more than 90 percent	Participant reports school attendance of more than 90 percent during the school year	20. Are you currently attending school? 20a. Was your attendance higher than 90 percent?
	Highest grade completed	Highest grade completed, as reported by participant	18. What is your highest grade completed? 22. What grade were you in when you last stopped attending school?
Exploratory Research Questions	Outcome	Description	Survey Question(s)
3. What are the effects of the NNAT program on the well-being of program participants?	Change in basic nutrition and physical well-being	Health status and number of meals missed last week, as reported by participant	11. In general, how is your health? Would you say it is... (Interviewer lists 5 options – excellent, very good, good, regular, poor.)
			9. Considering meals as breakfast, lunch, and dinner, how many meals did you miss last week?
4. What are the effects of the NNAT program on the income of program participants?	Youth's income last week; household's ability to satisfy basic needs in the last 6 months	Whether basic needs of household were met over the past 6 months, as reported by participant (yes/no); participant-reported income from the past week	10. During the last 6 months, did you have shelter, food, water, and clothing (the basic needs)?
			33. Approximately how much money did you earn in the last week in total across all your jobs?
5. What are the expected effects of the NNAT program on future plans of participants?	Intention to earn secondary school diploma; intention to pursue higher education (technical/vocational, university, or post-graduate)	Participant-reported plan to complete secondary school only or to complete higher education (technical/vocational, university, or post-graduate)	25a. What is the highest level of education you would like to complete? (Options are primary school, secondary school, trade school, university, or post-graduate.)

## Chapter 3. Data

This chapter describes the collection of primary data at baseline and endline. The first section describes the design, cognitive testing, and piloting of the survey instrument. The second and third sections describe the baseline and the endline data collection, respectively. The fourth section describes the qualitative data collection. The fifth section presents the system used to track participants between baseline and endline data collection.

### 3.1 Instrument Design

IMPAQ designed a project-specific survey to be administered to potential program participants (that is, to individuals engaged in child labor). The survey was designed to identify child labor and hazardous child labor according to the operational definitions in Section 1.1.2 and to address the research questions. The instrument's five sections covered personal and sociodemographic information, educational information, work information, workplace conditions, and household-chore information, as detailed in Exhibit 9.

**Exhibit 9. Survey Instrument Sections**

Section	Topics
Personal and demographic	Name, birth date, gender, contact information, type of home, household size, household head education, basic needs
Education	Current educational status, last grade completed, reason for dropping out, educational aspirations
Work	Age when respondent began working, types of activities performed, primary role/function, hours worked, income, income given to family
Workplace conditions	Exposure to workplace hazards, abuse, health problems
Household chores	Types of household chores completed, hours spent on household chores

Because the initial sample of program beneficiaries was limited, the survey included an extended module of contact information questions to reduce sample attrition by increasing the likelihood of tracking participants through endline data collection. In addition to asking for the participant's contact information, the baseline survey asked for contact information on relatives.

The survey instrument, presented in Appendix B, was finalized in collaboration with MTSS and ILAB and was approved by Chesapeake Institutional Review Board (IRB). The final instrument was translated into Spanish for local validation with vulnerable Costa Rican children. Cognitive testing was conducted to make sure that the target population understood the questions, response categories were adequate, transitions between topics were smooth, and interviewer instructions were clear. Exhibit 10 depicts the cognitive-testing activity.

**Exhibit 10. Cognitive Testing**



## 3.2 Baseline Data

Baseline data collection began in October 2016. Because of the vulnerability of the young target population, IMPAQ and the Ministry of Labor asked the data collection partner to hire social workers as enumerators. The social workers were trained by both the Ministry of Labor and the data collection partner. The Ministry of Labor trained enumerators on child-labor legislation and on guidelines for interviewing vulnerable children. The data collection partner trained the enumerators on proper use of the survey instrument and on how to enter the data into tablets. Exhibit 11 depicts an enumerator training session. After training, a survey pilot was conducted among youth served by a nonprofit organization (suggested by the Ministry of Labor) that serves vulnerable youth between the ages of 12 and 17. Baseline data collection began immediately after the pilot and was finalized in December 2016.

The entire sample averaged 15.51 years of age at baseline and was 57 percent male. As expected, given the targeted participant selection, over 94 percent of the sampled youth appeared to be engaged in child labor or hazardous child labor. Appendix D offers baseline equivalence statistics.

**Exhibit 11. Enumerator Training**



After random assignment, baseline-equivalence analysis was conducted to check that treatment and control groups were balanced, on average, in terms of their observable characteristics. T-tests proved that the two groups were nearly identical, as expected. For full descriptive statistics and additional baseline results, refer to the Baseline Data Report for RCT Evaluation of the NNAT program in Costa Rica.<sup>22</sup>

## 3.3 Endline Data

### 3.3.1 Endline Data Collection

The endline instrument was nearly identical to the baseline instrument. IMPAQ and the data collection partner trained the new enumerators on March 13, 2018. The survey was piloted with 16 secondary-school children receiving NNAT subsidies. IMPAQ researchers then provided pilot feedback to enumerators, including clarification on how to pose a few particular questions to ensure study participants understood them. The pilot yielded no recommendations for major changes to the instrument.

Endline data were collected between March and May of 2018. Enumerators tried to visit each study participant individually. They crossed the country looking for the 183 students who received the NNAT subsidies and the 275 students in the control group. In the treatment group, 11 participants had changed their contact information and had left their schools, so they were unreachable. In the control group, 37 participants were unreachable, and 19 refused to answer the survey. The final number of completed endline surveys was 391, with 172 from the treatment group and 219 from the control group.

<sup>22</sup> United States Department of Labor, Bureau of International Labor Affairs. Closing the Child Labor and Forced Labor Evidence Gaps: Impact Evaluations (2017). *Baseline Data Report for RCT Evaluation of the NNAT Program in Costa Rica*.

### 3.3.2 Endline Descriptive Statistics

The endline survey captured sociodemographic and outcome variables; full descriptive statistics for treatment and control groups are in Appendix C. The average age of the treatment group was 16.65 years at endline; approximately 54 percent were male. The average age of the control group was 16.67 years at endline; approximately 58 percent were male. At endline, approximately 95 percent of respondents in both groups reported being enrolled in school, and approximately 79 percent of youth in the treatment group and 87 percent in the control group were engaged in some type of work. Appendix E. shows that more than 88 percent of sampled adolescents aged 15 to 17—specifically, 85.5 percent of youth in the treatment group and 90.5 percent of youth in the control group—were engaged in hazardous child labor at endline. Exhibit 12 shows endline data collection.

**Exhibit 12. Endline Data Collection**



### 3.4 Qualitative Data Collection

Qualitative data collection took place during baseline and endline quantitative data collection. The information gathered through qualitative survey instruments related to the context, program design, fidelity of the implementation, implementation effectiveness, and ability of the NNAT program to generate changes in the outcomes of interest. The data sources were key informant interviews and focus group discussions. The topics covered and data sources are presented in Exhibit 13. The qualitative analysis in combination with quantitative analysis enables triangulation of study findings to better understand the effects of conditional cash transfers on child labor, hazardous child labor, school outcomes, well-being, and aspirations. The qualitative findings also provide insights into the mechanisms through which the program led to changes in the behaviors of NNAT beneficiaries. Additionally, these findings facilitate interpretation of the quantitative effects and their magnitude. Exhibit 6 maps the quantitative and qualitative research questions and data sources. Appendix F contains a Qualitative Study. Appendix G presents the qualitative instruments used.

**Exhibit 13. Qualitative Data Sources**

Topic Covered	Data Source	Respondents
Context of child labor	Interviews and focus groups	Government Officers from the Ministry of Labor and IMAS Program Managers at UNICEF, World Vision, and Fundación Telefónica Child beneficiaries Parent beneficiaries
The design and planning of NNAT, including program successes, challenges, and best practices	Interviews	Government Officers from the Ministry of Labor and IMAS
Impact and effectiveness of NNAT in reducing child labor and meeting the needs of families	Focus groups	Child beneficiaries Parent beneficiaries
		Government Officers from the Ministry of Labor and IMAS

Topic Covered	Data Source	Respondents
Fidelity of NNAT implementation	Interviews and focus groups	Child beneficiaries Parent beneficiaries

The key informants were selected based on topic expertise. Focus group participants were students sampled for the quantitative study and their parents in five representative regions of the country. All participants gave informed consent prior to their participation.

The study protocol and data collection tools, as noted, were approved by Chesapeake IRB before the start of data collection. The baseline data were collected in October 2018 in the capital city, San José, and in four other project locations: Cedral, Costa Pájaros, Río Frío, and Tucurrique district. These four districts were chosen because they had many NNAT program participants and together were representative of Costa Rica’s geographic and economic regions.

Before students were notified of their random assignment into the treatment or the control group, four focus group discussions were held with students and four with their parents. These discussions provided insights into the needs of the families with children engaged in child labor. Six baseline key informant interviews were conducted with government officials and local experts: two of the officers in charge of NNAT at the Ministry of Labor, one with the officer in charge of NNAT at IMAS, one with the officer in charge of child labor at UNICEF, and two with representatives of nongovernmental organizations that work on child labor in Costa Rica (Fundación Telefónica and World Vision). Information from these interviews was used to understand the context of child labor and provide insights on the design of NNAT.

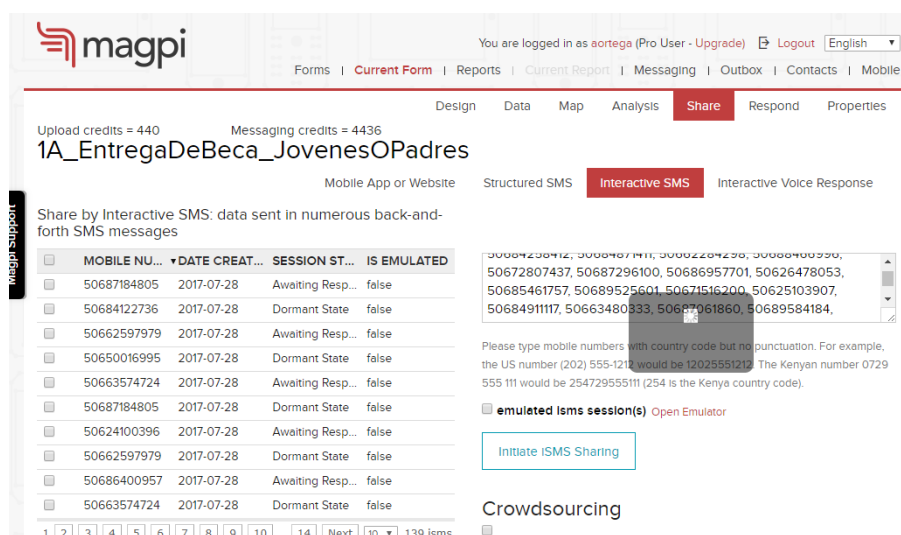
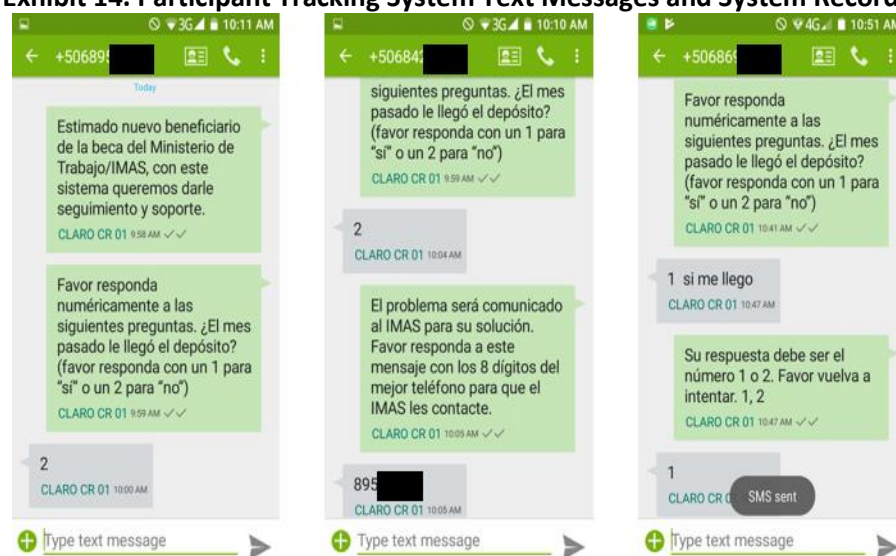
Endline qualitative data were collected in March 2018 in government offices in the capital and in three of the four representative regions: Cedral, Costa Pájaros, and Río Frío. Two key informant interviews, conducted with the officers from the Ministry of Labor and IMAS, helped identify how the child-labor context had changed since baseline data collection. The same two interviews also allowed us to document and assess challenges, successes, and best practices of NNAT implementation. Six focus group discussions, three with benefiting students and three with their parents, enabled us to better understand the experiences of program beneficiaries. The findings from the qualitative data can be found in Appendix F.

## 3.5 NNAT Participant Tracking System

### 3.5.1 Objective

To improve the chances of finding baseline participants at endline, IMPAQ developed a participant tracking system to maintain ongoing interaction with study participants and monitor their status. The system consisted of a mobile phone texting platform operated by Magpi. The system regularly sent automated text messages to treatment-group participants, asking them to choose numbers corresponding to their answers to questions about school enrollment, employment status, and location of residence, as shown in Exhibit 14. Individuals who reported substantive changes in location were contacted for additional information.

**Exhibit 14. Participant Tracking System Text Messages and System Records**



### 3.5.2 Tracking System Development

The IMPAQ team piloted the Magpi system in Costa Rica in October 2016, which enabled IMPAQ to test the platform’s functioning among all carriers and mobile plans in the country. The initial pilot revealed glitches in the question ordering of the survey, skip logic, and out-of-range responses. As a result, IMPAQ worked with Magpi to improve the data-syncing software. The development timeline of the participant tracking system is presented in Exhibit 15.

**Exhibit 15. Participant Tracking System Timeline**

Date	Action
October 2016	Test Magpi system in Costa Rica
November 2016	Set up local mobile phone with plan to send and receive messages with the Magpi data sync system
June 2017	Send pilot text messages to NNAT beneficiaries and work with Magpi to resolve issues
July 2017	Wave 1: Follow up with NNAT beneficiaries on subsidy provision
December 2017	Wave 2: Follow up with NNAT beneficiaries about grade completion
January 2018	Wave 3: Update NNAT beneficiaries’ contact information

After the pilot, the tracking system was used to contact treatment-group participants in three waves. The first wave gathered information related to subsidy distribution; the second asked about school completion and work status; the final asked about participants’ contact information and residency.

### 3.5.3 Participant Tracking System Findings

The participant tracking system allowed the project to obtain real-time information from NNAT beneficiaries. The first wave, while it confirmed that most treatment-group members had received their subsidies, provided information about 19 beneficiaries who had not received the subsidy during the previous month. These reports were immediately shared with the Ministry of Labor and IMAS so they could resolve the issue. In the second tracking wave, 62 respondents confirmed that they had completed their grade and two said they had not. In the third and final wave, 27 beneficiaries reported having moved to a different location and school. These beneficiaries were contacted by telephone to update their contact information for the endline data collection. Exhibit 14 shows results recorded from the participant tracking system.

### 3.5.4 Challenges and Lessons Learned

The participant tracking system proved to be a novel approach, with the potential to improve response rates by enabling closer follow-up and monitoring of program participants. As with any innovation, the implementation of the system experienced numerous challenges. The main challenge of tracking youth in the treatment group was that they frequently changed their telephone numbers. We learned throughout the evaluation that these vulnerable youth commonly use prepaid cell phones and are price-conscious. When participants were offered better cell phone plans, their numbers changed, making response rates progressively lower. Tracking systems used with vulnerable youth need to find ways to function despite changes in contact information. One way to mitigate the challenge of changing participant telephone numbers is to collect parent or guardian contact information or landline telephone numbers as a secondary contact method to reach participants. Use of landlines is disappearing among all generations, but adults are more likely than youth to keep the same mobile phone (and number) for longer periods.

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## Chapter 4. Data Analysis and Results

The NNAT evaluation strategy relies on the random assignment of students to treatment and control groups to ensure that any differences in outcomes between the two groups can be causally attributed to the program with a known degree of statistical confidence. The program impacts were measured by applying a multivariable regression model to information collected on the endline survey. This chapter presents the models used and the estimation of program impacts. The chapter also includes subsections with the triangulation of quantitative and qualitative findings. The final section describes study limitations.

### 4.1 Empirical Strategy

To measure the program impacts with statistical efficiency, we estimated a multivariate regression model using endline survey data. The benchmark regression model used for this estimate is equation (1):

$$Y_i = \alpha + \beta T_i + \gamma X_i + u_i, \quad (1)$$

where:

- $Y_i$  determines the outcome of interest for individual  $i$  (such as hours worked or grade completion).
- $T_i$  determines the treatment indicator, which equals 1 if individual  $i$  was assigned to the treatment condition and 0 otherwise.
- $X_i$  is a set of individual observable characteristics of individual  $i$  to be included as covariates. Covariates include age, age squared, gender, district, size of household, gender of head of household, and education of head of household.
- $u_i$  is an independently and identically distributed error term with a pooled mean of zero and variance of  $\sigma^2$ .

The parameter of interest in this model,  $\beta$ , is the regression-adjusted average effect of the intervention.

To disaggregate the results by age group, gender, and rural/urban zone, the study calculated three additional specifications that include interaction terms. Equations (2), (3), and (4) include interaction terms between the treatment indicator and gender, age group, and urban zone dummies, respectively, to estimate the differentiated effects generated by each:

$$Y_i = \alpha + \beta T_i + \lambda T_i G_i + \gamma X_i + u_i \quad (2)$$

$$Y_i = \alpha + \beta T_i + \mu T_i A_i + \gamma X_i + u_i \quad (3)$$

$$Y_i = \alpha + \beta T_i + \eta T_i Z_i + \gamma X_i + u_i \quad (4)$$

In these equations,  $G$  is a dummy equal to 1 for boys,  $A$  is a dummy equal to 1 for the age cohort between 12 and 14 years, and  $Z$  is a dummy equal to 1 for participants living in urban zones.  $\lambda$  represents the differentiated effect of being a boy,  $\mu$  represents the differential effect of being in the 12 to 14 age group, and  $\eta$  represents the differential effect of living in an urban zone.

Equation (5) is an additional model that includes all three interactions to assess how the estimators change:

$$Y_i = \alpha + \beta T_i + \lambda T_i G_i + \mu T_i A_i + \eta T_i Z_i + \gamma X_i + u_i \quad (5)$$

Each outcome variable was estimated using all five models. Power calculations are in Appendix E.<sup>23</sup>

## 4.2 Implementation of the RCT Evaluation

This evaluation was designed to detect the average treatment effect on the treated (ATT). To measure the effects, the study created a panel composed of baseline and endline observations of each treatment and each control individual. Baseline data collection was conducted between October and December 2016. After data baseline collection, a treatment group was randomly selected to receive a CCT between May 2017 and December 2017. Endline data were collected between March and May 2018. The final number of participants in the RCT from which endline data were collected was 391, of which 172 belonged to the treatment group and 219 to the control group.

During implementation of the program, 52 selected treatment cases failed to meet at least one of the administrative requirements for inclusion (being under age 18 at the time of processing; being validated as in poverty by IMAS; having their school provide physical proof of enrollment; and submitting the mother's, or guardian's, bank account number for the deposits). These youth are not expected to differ from the rest of their assigned group, given that their date of birth and the administrative verification and processing of the transfer were not related to child-labor or schooling outcomes. To verify that these cases did not carry systematic bias on observable or unobservable characteristics, however, we performed an ex-post baseline equivalence analysis, presented in Appendix D. The results show no significant differences across treatment and control group—providing no credible reason to believe that the administrative process generated any systematic bias. For a flow diagram detailing the RCT refer to Exhibit 7 in Section 2.5.

## 4.3 Estimates of Program Impacts

This section presents in tables the estimation of program impacts on the outcomes of interest. Each table presents the average treatment effect on the treated estimator,  $\beta$  in the model. The standard error is reported in parentheses underneath. Significance levels are measured at the 5 percent, 1 percent, and 0.1 percent levels. Each table also describes the additional interaction terms in each model, as well as the inclusion of covariates, the mean of the outcome variable in the control group, the R-squared, and the number of observations used.

Binary outcomes, such as child-labor participation or school enrollment, were estimated using logistic regressions. Their estimators represent the change in the likelihood of the outcome happening (for example, the change in the probability of continuing to work). Continuous outcomes, such as hours worked or income, were estimated using linear regression models. Their estimators represent the numeric change in the outcome (for example, the difference in weekly hours worked).

The first column of each table presents the estimates using our basic model, which includes only the treatment indicator and the set of covariates serving as control variables. The second model (Basic with Gender Interaction Term) presents the estimates from the treatment indicator but adds a gender interaction term to reflect the incremental effect of being a boy. The third model (Basic with Age-Group Interaction Term) uses an age-group interaction term to reflect the additional effect of being in the 12 to

<sup>23</sup> Additional details on the power calculations and minimum detectable effects can be found in the Evaluation Design Report.

14 age cohort. The fourth model (Basic with [Urban] Zone Interaction Term) includes a zone interaction to show the differential effect of living in an urban area. Finally, the fifth column presents the estimates from a model that gathers all three additional interaction terms (Basic with Gender, Age-Group, & Zone Interaction terms), allowing comparison of different model specifications.

We first present our estimates for child-labor and hazardous-child-labor outcomes, followed by school outcomes. We then present findings on household-chore activities. Finally, we present the estimates for well-being, income, and aspirations.

#### 4.3.1 Impacts on Child Labor

We used the models outlined above to estimate the effects of the program on child-labor participation, hours worked, and hazardous child labor.

Findings on **child-labor participation** include all children aged 12 to 17 who reported working, for pay or not, during the past week. Exhibit 16 shows that the NNAT program reduced the likelihood of child-labor participation between -15.7 and 0.6 percentage points. While these findings appear to show large effects for some of the models, the effects are not statistically significant at the 5 percent level. The results also show that boys and younger students (under age 15) had smaller program effects on the likelihood of child labor, also not statistically significant.

**Exhibit 16. Program Impacts on Child-Labor Participation, All Youth**

Child-Labor Participation					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-0.006 (0.047)	-0.052 (0.066)	-0.080 (0.118)	0.006 (0.068)	-0.157 (0.142)
Gender*Treatment		0.103 (0.105)			0.111 (0.106)
Under 15 Age Group*Treatment			0.149 (0.108)		0.151 (0.108)
Zone*Treatment				-0.054 (0.084)	0.046 (0.101)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	0.898	0.898	0.898	0.898	0.898
R <sup>2</sup>	0.352	0.355	0.358	0.126	0.361
N	390	390	390	390	390

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Exhibit 17 presents the NNAT program's effects on **child-labor participation among children under 15** who reported working, for pay or not, during the past week. The estimates show that the NNAT program reduced the likelihood of child-labor participation of younger beneficiaries between 4.7 and 21.5 percent, depending on the model used, with none of the estimates statistically significant.<sup>24</sup>

<sup>24</sup> Many results from the age-subgroup analyses show child-labor reductions; however, the corresponding loss to a 50 percent subsample leads them not to be statistically significant.

**Exhibit 17. Program Impacts on Child-Labor Participation, Youth Under 15**

Child-Labor Participation					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-0.047 (0.077)	-0.116 (0.106)	†	-0.093 (0.097)	-0.215 (0.151)
Gender*Treatment		-0.026 (0.094)	†		-0.015 (0.095)
Under 15 Age Group*Treatment			†		†
Zone*Treatment			†	-0.134 (0.069)	-0.109 (0.236)
Covariates	YES	YES	†	YES	YES
Control Group Mean	0.830	0.830	†	0.830	0.830
R <sup>2</sup>	0.428	0.434	†	0.204	0.445
N	202	202	†	202	202

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001 † Age-group interactions omitted due to collinearity

Exhibit 18 presents the program effects on illegal **hazardous child-labor participation among youth aged 15 to 17**. These estimates are provided separately from those of the younger cohort because of differing triggers for illegal or hazardous child labor, depending on age. These estimates include all working children aged 15 to 17 who reported working in a hazardous occupation during the past month, in hazardous conditions during the past six months, or with hazardous hours during the past week. The estimates are inconclusive, showing both positive and negative effects on the likelihood that older beneficiaries would participate in hazardous child labor. These effects range from -6.4 to 5.0 percent, none of which is statistically significant.

**Exhibit 18. Program Impacts on Hazardous Child-Labor Participation, Youth Aged 15 to 17**

Hazardous Child-Labor Participation					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	0.050 (0.073)	-0.003 (0.090)	†	-0.064 (0.087)	-0.053 (0.157)
Gender*Treatment		0.035 (0.121)	†		0.061 (0.114)
Under 15 Age Group*Treatment			†		†
Zone*Treatment			†	0.033 (0.076)	0.413 (0.327)
Covariates	YES	YES	†	YES	YES
Control Group Mean	0.868	0.868	†	0.868	0.868
R <sup>2</sup>	0.487	0.491	†	0.156	0.502
N	188	188	†	188	188

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001 † Age-group interactions omitted due to collinearity

Exhibit 19 presents the effects of the NNAT program on the **number of hours worked by all study participants aged 12 to 17** who reported working, for pay or not, during the previous week. The estimates show that the NNAT program reduced the number of hours worked among beneficiaries between 3.1 and

8.3 hours. The basic model shows a reduction of 4.5 hours, which is statistically significant at the 5 percent level. The basic model with the gender interaction term shows a reduction of 8.3 hours worked among girls, which is statistically significant at the 1 percent level. Boys showed a change in hours worked of 5.8 hours more than girls, equal to a reduction of 2.5 hours for boys, which is statistically significant at the 5 percent level. The basic model with age-group interaction term shows that the program had a larger (but not statistically significant) effect on the hours worked for the younger cohort (under 15) than on the older cohort (15 to 17).

**Exhibit 19. Program Impacts on Hours Worked, All Youth**

Hours Worked					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-4.486* (2.206)	-8.314** (2.927)	-4.016 (2.916)	-3.137 (2.381)	-4.694 (4.164)
Gender*Treatment		5.797* (2.927)			5.169 (3.017)
Under 15 Age Group*Treatment			-1.658 (4.981)		-1.464 (4.931)
Zone*Treatment				-3.423 (2.579)	-4.927 (5.250)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	16.096	16.096	16.096	16.096	16.096
R <sup>2</sup>	0.383	0.393	0.383	0.153	0.398
N	391	391	391	391	391

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Exhibit 20 presents the effects of the NNAT program on **hours worked among all children under age 15** who reported working, for pay or not, during the reference period of the previous week. The estimates show that the NNAT program reduced the number of hours worked among beneficiaries between 0.6 and 7.0 hours, with none of the estimates statistically significant.

**Exhibit 20. Program Impacts on Hours Worked, Youth Under 15**

Hours Worked					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-2.263 (3.223)	-7.031 (4.294)	†	-0.557 (3.432)	-0.642 (5.568)
Gender*Treatment		3.861 (4.263)	†		2.789 (4.428)
Under 15 Age Group*Treatment			†		†
Zone*Treatment			†	-4.573 (3.676)	-9.419 (6.976)
Covariates	YES	YES	†	YES	YES
Control Group Mean	14.319	14.319	†	14.319	14.319
R <sup>2</sup>	0.425	0.443	†	0.187	0.462
N	203	203	†	203	203

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001 † Age-group interactions omitted due to collinearity

Exhibit 21 presents the effects of the NNAT program on **hours worked among older youth**. It reports on the number of hours worked by all children aged 15 to 17 who reported working, for pay or not, during the past week. The estimates show that the NNAT program reduced the number of hours worked among beneficiaries between 5.2 and 12.6 hours. The basic model with gender interaction term shows a reduction of 10.3 hours worked for girls, which is statistically significant at the 5 percent level. This model also showed that boys worked more hours than girls and that this difference, though not statistically significant, nearly offsets the 10.3-hour reduction among girls. Additionally, the basic model with an [urban] zone interaction term found a statistically significant reduction (at the 5 percent level) in hours worked among rural youth of 7.9 hours. The other models did not show a statistically significant change in number of hours worked.

**Exhibit 21. Program Impacts on Hours Worked, Youth Aged 15 to 17**

Hours Worked					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-5.223 (3.659)	-10.287* (4.501)	†	-7.881* (3.905)	-12.615 (6.884)
Gender*Treatment		9.184 (4.855)	†		10.369 (5.099)
Under 15 Age Group*Treatment			†		†
Zone*Treatment			†	-0.177 (3.907)	18.443 (7.781)
Covariates	YES	YES	†	YES	YES
Control Group Mean	18.028	18.028	†	18.028	18.028
R <sup>2</sup>	0.638	0.649	†	0.258	0.656
N	188	188	†	188	188

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001 † Age-group interactions omitted due to collinearity

#### 4.3.1.1 Triangulation of Child Labor Findings

This study seeks to understand the impact of CCTs on child labor and hazardous child labor, as well as their underlying mechanisms. As shown, there was a significant decrease in hours worked for all youth of approximately 4 hours per week (Exhibit 19); a reduction in hours worked for girls aged 15 to 17 of 10.3 hours; and a reduction of 7.9 hours worked for rural youth aged 15 to 17 (Exhibit 21).

Qualitative findings suggest the CCT provides a mechanism through which beneficiaries are able to cover their expenses and decrease their number of hours worked. Beneficiaries and parents both said that the subsidy reduced their dependency on work, by securing sufficient income for the family to cover basic household expenses, and allowed students to focus on school instead. The program beneficiaries expressed how the monthly subsidy also allowed them to avoid the most harmful and exhausting activities (hazardous child labor), such as fishing in open waters, handling pesticides, and working at late hours, among others.

Although most child-labor estimates presented above move in the expected direction (showing a decrease), several are not statistically significant at the 5 percent level. The qualitative evidence supports the idea that many students reduced their hours worked but did not fully stop working. Some students

who continued working stated that the CCT allowed them the flexibility in their chosen activities and number of working hours to select only the most profitable activities. Students also reported increased empowerment to refuse working in activities that were riskier to their health or that they felt were more physically demanding.

In agricultural labor, some youth reported that, although they had a higher incentive to spend more time in school and doing homework, they were accustomed to working and wanted to help their parents meet quotas during harvest. This shows a possible embedding of child labor within the family structure that may need either more than a CCT, or a longer period of service provision, for child labor to be fully eliminated.

It is important in interpreting the quantitative findings to note that the qualitative evidence also revealed payment uncertainties and delays that likely help account for the continuation in child-labor practices. These issues also likely led to underestimations of the point estimates found in this study, as better service provision would likely have led to lower child-labor participation and hours worked. Youth and parents argued that students continued to work due to the inconsistency of the subsidy provision and lack of communication with the service providers. Parents also expressed that lack of information and communication with the service providers was a barrier to them in timely meeting the requirements needed for continual enrollment. Both parents and students said that, if they are to avoid child labor altogether, they would rather receive smaller subsidies or other forms of government assistance that are more consistent and reliable.

#### 4.3.2 Impacts on Schooling Outcomes

This section presents the findings on the NNAT program's impacts on schooling outcomes, including enrollment, attendance, and grade completion.

The impacts on **school enrollment** ranged from a 1.0 percent to a 5.4 percent increase from the control-group mean of 93.6 percent (Exhibit 22). Although the treatment estimates show a positive likelihood of enrollment, they are not statistically significant. This result was expected, because most youth in the treatment and control groups were enrolled in school at baseline. Boys and youth in the older age group (15 to 17) were more likely to be enrolled in school; however, these results also are not statistically significant.

**Exhibit 22. Program Impacts on Participant-Reported School Enrollment**

School Enrollment					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	0.026 (0.024)	0.010 (0.030)	0.032 (0.025)	0.042 (0.030)	0.054 (0.059)
Gender*Treatment		0.027 (0.039)			0.025 (0.041)
Under 15 Age Group*Treatment			-0.038 (0.051)		-0.034 (0.052)
Zone*Treatment				-0.041 (0.033)	0.093 (0.066)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	0.936	0.936	0.936	0.936	0.936

School Enrollment					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
R <sup>2</sup>	0.423	0.424	0.424	0.219	0.433
N	390	390	390	390	390

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

The program impacts on self-reported school attendance of over 90 percent show effects ranging from 0 to 5.8 percent (Exhibit 23). While four of the models do not show a significant impact, the zone-interaction model shows an increase of 5.8 percent in school attendance among treatment-group youth in rural areas, a finding that is statistically significant at the 5 percent level.

**Exhibit 23. Program Impacts on Participant-Reported School Attendance**

School Attendance over 90%					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	0.027 (0.026)	0.000 (0.034)	0.033 (0.023)	0.058* (0.026)	0.058 (0.056)
Gender*Treatment		0.016 (0.039)			0.010 (0.042)
Under 15 Age Group*Treatment			0.001 (0.052)		0.005 (0.052)
Zone*Treatment				-0.040 (0.034)	0.037 (0.069)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	0.935	0.935	0.935	0.935	0.935
R <sup>2</sup>	0.363	0.366	0.363	0.160	0.376
N	387	387	387	387	387

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

The program effects on grade completion were positive, ranging from 0.05 to 0.48 grade levels on average. However, as Exhibit 24 shows, none of these effects is statistically significant.

**Exhibit 24. Program Impacts on Participant-Reported Grade Completion**

Grade Completion					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	0.050 (0.189)	0.245 (0.244)	0.099 (0.239)	0.160 (0.249)	0.477 (0.389)
Gender*Treatment		-0.230 (0.246)			-0.292 (0.248)
Under 15 Age Group*Treatment			0.215 (0.416)		0.226 (0.418)
Zone*Treatment				-0.344 (0.200)	-0.709 (0.483)
Covariates	YES	YES	YES	YES	YES

Grade Completion					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Control Group Mean	8.522	8.522	8.522	8.522	8.522
R <sup>2</sup>	0.423	0.427	0.425	0.176	0.432
N	369	369	369	369	369

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

#### 4.3.2.1 Triangulation of Schooling Findings

The study, as noted, found no statistically significant effect of the subsidy on schooling outcomes. At baseline, surveyed youth were found to have high rates of school enrollment and attendance, while engaging in child labor. Hence, it is not surprising that school outcomes did not change with NNAT implementation. Focus group discussions supported this finding, in which youth revealed a tendency to still work, but to find work that better accommodated their school and exam schedule. Focus-group youth also described being able to focus better in school as a result of the subsidy.

#### 4.3.3 Impacts on Household-Chore Activities

In addition to child labor and schooling, the evaluation investigated the NNAT program's impacts on engagement in household-chore activities. Household chores include the production of goods or services not to be sold outside the household. Although these activities cannot be strictly considered as work, it is important to measure the magnitude of these chores, because they engage children in time-consuming activities for the household's benefit. The tables below present these findings.

Exhibit 25 presents the program impacts on household-chore participation among all youth. The estimates are inconclusive, showing both positive and negative effects on the likelihood that NNAT beneficiaries would participate in household chores. These effects range from -2.2 to 5.1 percent, none of which is statistically significant.

**Exhibit 25. Program Impacts on Household Chore Activities**

Household Chore Activities					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	0.013 (0.027)	0.041 (0.037)	0.051 (0.053)	-0.022 (0.036)	0.046 (0.069)
Gender*Treatment		-0.052 (0.031)			-0.047 (0.030)
Under 15 Age Group*Treatment			-0.152 (0.057)		-0.131 (0.057)
Zone*Treatment				-0.000 (0.028)	0.047 (0.043)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	0.954	0.954	0.954	0.954	0.954
R <sup>2</sup>	0.373	0.377	0.375	0.157	0.382
N	391	391	391	391	391

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Exhibit 26 describes the program impacts on **hours of household-chore participation** among the 331 youth who reported participating in household chores. The estimates show both positive and negative effects that range from -1.9 to 1.9 hours, none of which is statistically significant.

**Exhibit 26. Program Impacts on Hours of Household Chores**

Hours of Household Chores					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-0.524 (1.257)	-1.913 (1.876)	1.867 (2.528)	-0.299 (1.519)	-1.003 (3.850)
Gender*Treatment		0.664 (1.464)			0.818 (1.517)
Under 15 Age Group*Treatment			-1.522 (2.630)		-0.470 (2.659)
Zone*Treatment				-0.619 (1.155)	-1.785 (2.701)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	10.402	10.402	10.402	10.402	10.402
R <sup>2</sup>	0.298	0.304	0.304	0.100	0.317
N	331	331	331	331	331

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

#### 4.3.4 Impacts on Well-Being

To address exploratory research questions related to program impacts on well-being, participants were asked questions related to their health and eating habits. This subsection explores whether receiving the NNAT program led to improvements in self-reported health, from the reduction of time in dangerous work activities to having a more stable diet from the monthly income. Exhibit 27 and Exhibit 28 show these findings.

Estimates of program impacts on well-being begin with the effect on **participant-reported health**, defined as the difference between treatment and control groups in self-reported “good health.” **Good health** is defined as participants who reported their health as “regular,” “good,” or “very good” during the endline survey. Exhibit 27 shows negative program impacts ranging from -4.8 to -0.5 percent, suggesting that the NNAT program may have had a negative impact on participant-reported health, although none of these findings is statistically significant.

**Exhibit 27. Program Impacts on Participant-Reported Health**

Good Health					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-0.005 (0.048)	-0.012 (0.065)	-0.023 (0.065)	-0.012 (0.063)	-0.048 (0.097)
Gender*Treatment		0.013 (0.073)			0.009 (0.074)
Under 15 Age Group*Treatment			0.034 (0.106)		0.031 (0.107)
Zone*Treatment				-0.006 (0.060)	-0.240 (0.194)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	0.808	0.808	0.808	0.808	0.808
R <sup>2</sup>	0.358	0.358	0.359	0.058	0.366
N	391	391	391	391	391

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Exhibit 28 presents program impacts on **total number of meals missed** in the past week. All five models show that treatment-group members missed fewer meals over the past week than did control-group members, with estimates ranging from 0.8 to 1.2 fewer meals, none of which is statistically significant.

**Exhibit 28. Program Impacts on Number of Missed Meals Last Week**

Missed Meals					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-1.050 (0.596)	-0.823 (0.809)	-0.757 (0.914)	-1.179 (0.774)	-0.741 (1.406)
Gender*Treatment		0.602 (0.944)			0.535 (0.969)
Under 15 Age Group*Treatment			0.153 (1.239)		0.119 (1.246)
Zone*Treatment				1.117 (0.744)	-2.033 (1.880)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	3.573	3.573	3.573	3.573	3.573
R <sup>2</sup>	0.384	0.385	0.385	0.124	0.389
N	390	390	390	390	390

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

#### 4.3.5 Impacts on Income

The study measured program impacts on two income-related outcomes: satisfaction of household basic needs and participant income. Satisfaction of **household basic needs** is defined as having shelter, food, water, and clothing over the past six months. Exhibit 29 shows that the treatment group was slightly less likely to report that their households' basic needs had been met than the control group. These estimates range from -7.0 to -1.7 percent. The model with a zone-interaction component shows a 7 percent decrease in the likelihood of satisfying basic needs in rural areas, which is significant at the 5 percent level.

Basic Needs Satisfaction					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-0.046 (0.027)	-0.029 (0.036)	-0.033 (0.031)	-0.070* (0.035)	-0.017 (0.063)
Gender*Treatment		-0.034 (0.024)			-0.038 (0.026)
Under 15 Age Group*Treatment			-0.011 (0.058)		-0.012 (0.058)
Zone*Treatment				-0.002 (0.020)	-0.100 (0.075)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	0.982	0.982	0.982	0.982	0.982
R <sup>2</sup>	0.322	0.324	0.323	0.073	0.329
N	391	391	391	391	391

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Exhibit 30 shows that the NNAT program had variable effects on **youths' weekly income**, depending on the model used. These effects ranged from -4,556 to 472 colones, with none of the findings statistically significant. Any decrease in income is likely explained by the fact that beneficiaries worked fewer hours per week and are not statistically significant.

**Exhibit 30. Program Impacts on Participant Weekly Income, in Colones**

Participant Income					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-2,083.04 (2,174.11)	-4,555.90 (2,913.32)	471.76 (2,297.18)	-524.39 (2,115.74)	-1,844.71 (3,682.98)
Gender*Treatment		3,911.66 (2,459.89)			3,712.70 (2,450.16)
Under 15 Age Group*Treatment			-8,454.30 (5,752.40)		-8,479.49 (5,731.34)
Zone*Treatment				-1,561.86 (2,290.94)	242.03 (4,461.66)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	10,826.12	10,826.12	10,826.12	10,826.12	10,826.12
R <sup>2</sup>	0.369	0.374	0.380	0.206	0.384

Participant Income					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
N	391	391	391	391	391

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

#### 4.3.6 Impact on Aspirations

The survey collected information on participants' **educational aspirations related to secondary school completion**

Exhibit 31 presents the findings for **completing secondary school** as the highest educational aspiration, i.e., not aspiring to continue on to college.<sup>25</sup> The five models present varying, yet mostly positive program impacts, ranging from -0.9 to 8.9 percent. The basic model with age-group interaction term shows that the older age group (15 to 17) was 8.9 percent more likely to aspire to conclude their educational plans by obtaining a secondary school degree, which is significant at the 5 percent level. The results from the basic model; basic model with gender interaction term; basic model with zone interaction term; and basic model with gender, age-group, and zone interaction term are not statistically significant. The negative incremental effect of 7.9 percent found for the younger cohort (under 15) nearly offsets this impact, which could indicate that the younger cohort has lower aspirations to earn a secondary degree; however, this finding is not statistically significant.

<sup>25</sup> Educational aspirations are captured through Question 25A in the survey instrument presented in Annex B.

**Exhibit 31. Program Impacts on Participant Aspiration to Complete Secondary School**

Participant Aspiration to Complete Secondary School					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	0.048 (0.033)	0.050 (0.053)	0.089* (0.044)	-0.009 (0.033)	0.057 (0.070)
Gender*Treatment		0.039 (0.048)			0.041 (0.045)
Under 15 Age Group*Treatment			-0.079 (0.071)		-0.084 (0.070)
Zone*Treatment				0.000 (0.032)	0.021 (0.055)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	0.045	0.045	0.045	0.045	0.045
R <sup>2</sup>	0.304	0.304	0.314	0.138	0.317
N	356	356	356	356	356

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Exhibit 32 shows that the NNAT program had negative effects on **participants' aspirations to earn a technical/vocational, university, or post-graduate degree**. These effects ranged from -10.6 to -0.7 percent, with the majority not statistically significant. The basic model with age-group interaction term shows a statistically significant reduction in aspirations to earn a higher education degree of 10.6 percent among the older (15 to 17) cohort, which is statistically significant at the 5 percent level. The incremental effect among the younger cohort nearly offsets this impact; however, it is not statistically significant.

Participant Aspiration to Pursue Higher Education					
Models	Basic Model	Basic with Gender Interaction Term	Basic with Age-Group Interaction Term	Basic with Zone Interaction Term	Basic with Gender, Age-Group, & Zone Interaction Terms
Treatment Estimate	-0.058 (0.035)	-0.069 (0.056)	-0.106* (0.048)	-0.007 (0.037)	-0.098 (0.081)
Gender*Treatment		-0.040 (0.045)			-0.039 (0.045)
Under 15 Age Group*Treatment			0.078 (0.071)		0.081 (0.070)
Zone*Treatment				-0.002 (0.032)	-0.006 (0.057)
Covariates	YES	YES	YES	YES	YES
Control Group Mean	0.955	0.955	0.955	0.955	0.955
R <sup>2</sup>	0.299	0.299	0.310	0.131	0.312
N	356	356	356	356	356

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

#### 4.3.6.1 Triangulation of Well-Being, Income, and Aspirations Findings

Estimates of improvement in **self-reported well-being, income, and future aspirations** are in most cases not statistically significant. This may possibly be because changes in health outcomes are likely to take longer to observe; and the effects of the NNAT are too recent to detect through self-reporting mechanisms. Exhibit 28 shows no impacts on the number of missed meals, while one specification in

Exhibit 29 shows a significant decrease in the satisfaction of basic household needs in rural areas. In the context of Costa Rica, changes in housing and food might be harder to detect in areas with more accessibility to basic needs. However, youth and parent focus groups did report enjoying better overall health as a result of receiving the subsidy—reporting an increase in both number of hours beneficiaries slept and ability to purchase better food for the household. Additionally, the study found a decline in students’ reported income from work (Exhibit 30), as well as a reduction in the number of hours worked (Exhibit 19). These two findings suggest that the subsidy is changing behaviors.

Focus groups with parents and students also found education to be highly valued. Recipients reported wanting to do well in school. Quantitative findings, as noted, show a tendency for the 15 to 17 age group to aspire to complete their secondary education and receive a diploma. However, no effects were found for aspirations to complete college degrees. These findings about educational aspirations respond to the fact that this vulnerable population is unlikely to complete secondary school, so wanting to obtain a secondary school diploma would be a first step for them before considering college. Focus groups with students revealed that beneficiaries felt the need to work to help their families with financial obligations. This could suggest a more internalized understanding of family obligation for the older age group, who may feel that higher education is out of reach due to their financial situation. When subsidies were provided, beneficiaries in focus groups reported higher levels of motivation and were more likely to say they planned to continue into higher education.

## **4.4 Limitations**

The evaluation of the NNAT program faced three types of limitations: program implementation delays and disruption, data collection challenges, and potential sources of bias. Implementation limitations relate to challenges faced by program implementers or beneficiaries. Data limitations relate to challenges faced during baseline and endline data collection. Potential sources of bias relate to empirical issues discovered throughout the evaluation. This section describes each kind of limitation and the actions taken to address them.

### **4.4.1 Program Implementation Delays and Disruption**

The main issue that affected the service delivery for this program in 2017 was the delay in disbursing the transfers to the beneficiaries. This implementation challenge was partially caused by the limited number of government staff responsible for the NNAT implementation. For program implementation, Ministry of Labor staff was responsible for the visits to observe, and prepare the reports of, child-labor cases. However, staffing limitations affected the number of potential child-labor cases that could be verified in the short period of time permitted by evaluation requirements. In addition, all reports had to be approved by senior officials in the central office. During the implementation phase, IMPAQ and the Ministry of Labor reached an agreement to conduct this experimental evaluation. The staff limitation was addressed by coordinating efforts and training additional social workers to field the cases. Ultimately, the child-labor verification process was successful but took up to five months, leading to disbursement delays and potential beneficiaries aging-out of eligibility.

Another issue that faced the NNAT evaluation was staff turnover and temporary leave among key implementing partners. This challenge affected the government partners’ capacity and led to additional delays in the participant verification and processing agreed upon for the evaluation timeline in 2017. An example of this limitation is that many youth who were eligible at the time of randomization and selected for NNAT treatment turned 18 during processing, rendering them ineligible by the time of approval. The

approach used to address this potential source of bias from the treatment-group-processing delays is described in Section 4.6.3.

Another closely related challenge was the program requirement to verify school enrollment before the cash subsidies were disbursed in 2018, which coincided with the endline data collection timeline. Schools were often delayed in providing beneficiaries with their new enrollment certificates, and the IMAS regional offices required parents to schedule an appointment to receive the 2018 school year certificates. In some cases, this process disrupted provision of the subsidies for the treatment group of NNAT beneficiaries. The program effects presented in this evaluation report are expected to be underestimates, due to these delays and disruption during the transition between the two school years.

#### **4.4.2 Data Collection Challenges**

The first data challenge was that school administrative records were not available. Originally, the research team planned to use administrative records to complement the primary data, which consisted of student self-reports. Early on, however, the research team found that the Ministry of Education would not participate in verifying NNAT school attendance or performance. The research team also found that schools' own administrative records on attendance and performance were not comparable across project schools. This lack of administrative records forced the team to rely solely on student self-reports to measure school outcomes.

Another data challenge was gaining access to program administrative data on verification and approval of NNAT participants. Participants were verified by the Ministry of Labor, which transferred their data to the IMAS central office for processing. Approved student cases were then sent to IMAS regional offices, which verified school enrollment and distributed the cash subsidy. This process made it very difficult for the research team to track the status of students in the treatment group. In addition, every time there was turnover in the main government points of contact, the team had to establish new relationships and secure buy-in in order to continue having access to project administrative records.

Limitations to the survey instrument were identified and addressed during pilot testing. Originally, the survey asked student respondents about household income, but it became evident during cognitive testing that youth did not possess accurate information on this topic. The team therefore decided to ask about student income rather than family income and to include questions about satisfaction of basic needs as a proxy for household income.

A problem that evolved into a lesson learned was the fact that youth frequently changed their telephone numbers, which affected the usefulness of the mobile phone system to track participants. A final limitation of this evaluation was that the data collection timelines only allowed exploration of the short-term effects of the CCT intervention. Existing literature has investigated the longer-term effects of CCTs on labor-market outcomes such as employability and earnings. However, this study could not measure such outcomes due to its timeframe and design.

#### **4.4.3 Potential Sources of Bias**

The only potential source of bias that emerged in this evaluation was the delayed verification of the treatment group and provision of the transfer to the mother's or the guardian's bank account information. Participants who turned 18 during the verification process or were missing any paperwork throughout the process were not able to receive cash subsidies. This raised a potential concern of selection bias from the assigned treatment cases that failed to be completely verified and processed. This concern was addressed by conducting an ex-post equivalence analysis using baseline values and T-tests showing that both groups

used for the estimation of program outcomes were equivalent at baseline, which implied no systematic bias. The ex-post baseline equivalence is presented in Appendix D.

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## Chapter 5. Summary and Conclusions

This section summarizes key findings and conclusions, as well as the evaluation's contribution to filling gaps in existing child-labor literature. It also documents lessons learned from the evaluation and provides recommendations and policy implications.

### 5.1 Key Findings and Conclusions

The underlying hypothesis of this research is that a conditional cash transfer would offset the opportunity cost and time available for work for child laborers, while at the same time elevating their schooling outcomes (from the conditionality). The estimates from this impact evaluation show that the NNAT program did reduce the likelihood of child-labor participation for the full sample of children aged 12 to 17, although these results are not statistically significant at the 5 percent level. A main finding is that treatment-group students reduced the number of hours worked at statistically significant levels, which is consistent with the existing literature. The benchmark model provides evidence that NNAT beneficiaries reduced their weekly hours worked by 4.5 hours. This is a major change considering that the control-group average during the same period was 16 hours worked per week. It is particularly interesting that, when a gender interaction component is added, the estimates show an even larger reduction of hours worked by girls, 8.3 fewer hours worked per week. These effects on child labor and hours worked are also expected to be larger under a more consistent subsidy-disbursement process.

The estimates show positive evidence of program effects on school enrollment, attendance, and grade completion, although these results are not statistically significant. The lack of statistical significance is not surprising given that the participating children continued to be enrolled in school while working. Most of the children interviewed reported working and studying simultaneously. Parents expressed their interest in keeping their children enrolled in school, while also needing them to contribute financially to the household. The same argument made for enrollment can also be made for school attendance. Surprisingly, the NNAT program did not lead to significantly higher grade completion. It was expected that the reduction in hours worked would lead to more time for homework and better rest and that the incentive to complete the school year, in order to keep the benefit, would lead to better grades and higher rates of grade completion.

None of the results on the exploratory outcomes was statistically significant. The estimates on self-reported health were inconclusive. Existing literature shows that CCT allows families to smoothen their consumption, particularly against economic downturns. Although this evaluation found that missed meals and satisfaction of basic needs moved in the expected directions, the effects were not statistically significant for the NNAT intervention. The reduction in treatment-group members' weekly income is also interesting, and consistent with the existing literature, as CCT participants receive lower income from working. Finally, the findings show no statistically significant effect on students' aspirations to finish secondary school or pursue higher education, at least after one year of participation.

This study provides empirical evidence that a conditional monetary subsidy can assist in reducing child labor. However, the findings do not show a large effect on other outcomes of interest. The results show that child labor in Costa Rica is primarily driven by financial needs, suggesting that a monetary subsidy alone is not sufficient to have a strong effect on other expected behaviors. Additional program components may be needed to improve academic performance, health, income, and career aspirations. A key finding of the qualitative study, for example, is that families need money at the beginning of the

school year to cover school costs, and they must receive subsidies consistently to keep children from working. Finally, considering the effects generated and the testimonies from participants, the study concludes that in order to produce larger effects on child-labor and school outcomes, NNAT would need to adopt a holistic approach—including awareness campaigns and additional income-generating opportunities for the parents.

## 5.2 Lessons Learned

Evaluation of a public policy program can be challenging. Conducting an RCT for an intervention requires considerable planning, collaboration, and agreement between the implementers and the evaluators. Lessons learned in this project are presented below.

1. When planning an RCT, evaluators must secure written commitments from the implementing partners' top officials through memoranda of understanding or letters of commitment. These documents will prove crucial in protecting the design throughout the evaluation, supporting the continuation of evaluation activities through administration changes and key staff turnover.
2. Collecting data from vulnerable populations requires thoroughly preparing enumerators. For this evaluation, social workers proved to be the best choice for enumerators because they could be trained efficiently to interview vulnerable youth and collect high-quality responses.

## 5.3 Recommendations for Future Research

Below we provide some recommendations for future research based on the effects captured by the impact evaluation. The findings suggest that most youth reduced the number of hours worked but did not completely stop working. These recommendations suggest new tests to determine how one might potentially improve the effects of the program on the outcomes of interest.

Based on our overall assessment of the quantitative and qualitative data collected during this evaluation, we suggest that future CCT experiments for this population: (1) are complemented with awareness campaigns on the harms and illegal nature of child labor and (2) require a commitment from the children beneficiaries and parents to stop child-labor practices completely if selected for the program. The next iteration of this research should contemplate a multi-armed RCT that includes a treatment arm that simply provides the CCT, a treatment arm that provides the CCT and includes awareness campaigns and another that includes the CCT, awareness campaigns and requires a beneficiary and parent commitment. In this manner, we would be able to isolate the effects of each intervention and assess whether adding these additional treatments to the CCT leads to additional reductions in child labor.

We acknowledge that this RCT did not have adequate statistical power to detect differences in subgroups or to assess potentially promising evidence in our exploratory outcomes. Future research efforts should employ greater sample sizes so that responsible male/female and age level disaggregation would be possible. Also, with adequate sample sizes, we could contemplate varying parameters of the intervention. For example, we could vary the amount of the CCT to see if a greater cash transfer has a greater effect on child labor or our other exploratory outcomes of interest. Other future experiments we suggest include: (1) front loading CCT payments at the beginning of the intervention, (2) back loading CCT payments at the end of the intervention, or varying the amounts of the CCT payments during months when youth are more likely to engage in work during the intervention period. By testing variations in the timing and intensity of payments, we could gain additional evidence on optimal CCT size and delivery.

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## Appendix A. Child Labor Definitions

This appendix presents more details on child labor measurement framework used for this evaluation. The following documents inform our definition and measurement of child labor:

- ILO's Minimum Age for Working Convention, 1973, No.138 (C138);
- ILO's Convention on the Worst Forms of Child Labor, 2001, No. 182 (C182);
- Costa Rica National Law No. 5594 ratifying ILO Convention No. 138;
- Costa Rica National Law No. 8122 ratifying ILO Convention No. 182;
- Costa Rican Childhood and Adolescence Code - Código de la Niñez y la Adolescencia (CNA), 1998, Government of Costa Rica Law No. 7739;
- Costa Rican Labor Code;
- Prohibition of Dangerous and Unhealthy Work for Adolescent Workers, 2011, Government of Costa Rica Law 8922;
- ILO's 18<sup>th</sup> International Conference of Labour Statisticians of 2008 (ICLS18);
- ICLS18-RII: Resolution II, Resolution concerning statistics of child labor, adopted in the 18<sup>th</sup> ICLS, and
- ILO's 19<sup>th</sup> International Conference of Labour Statistics Resolutions of 2012 (ICLS19)

As described in Section 1.2.2 and 3.2.1, for this evaluation, this study applies the child labor measurement framework criteria outlined by the ILO and the Costa Rican National Legislation to construct our operational definitions of child labor and hazardous labor.<sup>26</sup> A case of child labor in Costa Rica is considered valid depending on the age of the child, the occupation, the working environment, and the hours worked (both in magnitude and in time of the day). Two main distinctions are used to define CL in the NNAT evaluation:

Youth age five through 14 were identified as involved in CL regardless the type of work they are performing, the industry they are working in, and/or the workplace conditions.

Youth age 15 through 17 were identified as involved in CL if they are working in designated hazardous industries, occupations, or under hazardous working conditions, as defined by the ILO and the Costa Rican Childhood and Adolescent Code, or if they are working night work and long hours, regardless the industry or occupation.

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<sup>26</sup> [http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms\\_099577.pdf](http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_099577.pdf)

**Exhibit A1. Child Labor Definitions in ILO and Costa Rican Legislation**

Topic	ILO Definition	Costa Rica Legislation	Notes
Child	An individual under the age of 18 years. (ICLS18-RII, par. 8)	Child = Under 12 years old Adolescents = 12 to 17 years old (CNA code, art. 2)	The NNAT program targets persons between 12 to 17 years old, which are considered adolescents (12 to 17) according to Costa Rica's legislation. For this evaluation, we will consider "children" the adolescent population, in line with ILO definition.
Basic minimum working age	15 years old (or 14 for developing countries) (C138, art. 2)	15 years old for any type of work, including domestic service (CNA code, art. 92)	
Minimum age for hazardous work	18 years old (C138, art. 3)	18 years old (CNA code, art. 94)	It is expected that approximately half of the CBA students will meet the minimum age for hazardous work.
Minors in Employment	For data collection, work is defined by engaging in an economic activity (paid or unpaid) for at least one hour during the reference week (and total work hours per week > 1). [ICLS 18-RII par. 12].		The NNAT participants have all been identified by OATIA Social Workers as participating in child labor. This was verified in the survey through questions about their work
Minimum age for Light Work	13 to 15 years old (or 12 to 14 years old for developing countries). Defined as work that does not threaten their health and safety, or hinder education or vocational orientation and training. (C138, art. 7 par1).	15 years old for any type of work (CAN code, art. 92)	"Light work" is not specified in Costa Rica's national legislation, however the CAN prohibits work of any kind for adolescents under 15 years of age. For this evaluation, we will consider 15 the minimum age for legal work of any kind

Topic	ILO Definition	Costa Rica Legislation	Notes
Acceptable work for adolescents	It is not specifically defined in ILO Convention, but this refers to work performed by children who are of legal working age and complies with national and international standards (C182 and C138); that is non-hazardous and non-exploitative, and does not prevent a child from receiving the full benefit of an education.	<p>The work day for adolescents cannot exceed 6 hours a day or 36 hours a week. The work cannot interfere with their education. Parents and employers must ensure they complete their basic education and fulfill their academic duties. (CNA code, art. 95, 97).</p> <p>Night work is defined as work done between 19:00 to 07:00 the following day. It is prohibited for all minors, except in specific “mixed shift” circumstances, wherein minors can work until 22:00 (CNA code, art. 95). An example of this would be if the child attended school in the afternoon and then worked in the evening up until 22:00.</p> <p>The work must not fall within any of the HCL definitions outlined in the CNA, Labor Code, or other Costa Rican legislation.</p>	We will use Costa Rica’s definition of number of hours, days, school enrollment, and working conditions.
Hazardous Child Labor (HCL)	<p>a) Work that exposes children to physical, psychological or sexual abuse</p> <p>b) Work underground, under water, at dangerous heights or in confined spaces</p> <p>c) Work with dangerous machinery, equipment and tools, or that involves the manual handling or transport of heavy loads</p> <p>d) Work in an unhealthy environment that may, for example, expose children to hazardous substances, agents or processes, or to temperatures, noise levels, or vibrations damaging to their health</p>	<p>List of HCL codified in <b>CNA code, art. 94</b> and <b>Government of Costa Rica Law 8922:</b></p> <p>(a) Work in mines and/or quarries</p> <p>(b) Work in unhealthy or dangerous locations</p> <p>(c) In the sale or distribution of alcoholic beverages</p> <p>(d) In activities where the minor is responsible for the security of themselves or others</p> <p>(e) In activities that involve heavy machinery, contaminated substances, and/or excessive noise</p>	For our definition, <b>we will include night work and long hours as HCL.</b>

Topic	ILO Definition	Costa Rica Legislation	Notes
	<p>e) Work under particularly difficult conditions, such as work for long hours* or during the night, or work where the child is unreasonably confined to the premises of the employer (R190, art. 3) (C182, art. 3d above)</p> <p>For the purpose of statistical measurement, ICLS18-RII (par 21-24) HCL should include:</p> <ul style="list-style-type: none"> <li>• Activities that are hazardous in nature <ul style="list-style-type: none"> <li>○ Designated hazardous industries</li> <li>○ Designated hazardous occupations</li> </ul> </li> <li>• Hazardous conditions (long hours and other not captured by designated hazardous industries, occupations.</li> </ul>	<p>(f) Work that involves personal risk or danger to an adolescent's development or physical, mental, or emotional health</p> <p>The complete list of <b>prohibited work codified in Law 8922</b> can be found in Appendix A 2.</p>	

Topic	ILO Definition	Costa Rica Legislation	Notes
Unpaid Household Chores	<p>Those performed in the child's own household under conditions corresponding to those defined in paragraph 20 above, that is, unpaid household services performed (a) for long hours, (b) in an unhealthy environment, involving unsafe equipment or heavy loads, (c) in dangerous locations, and so on. The definition of long hours in unpaid household services of children, relative to their age, may differ from the one applied in respect to children in employment. The effect on a child's education should also be considered when determining what constitutes long hours. (ICLS18-RII, par 37)</p> <p>The 19th ICLS (Report III, par 41) notes that children who combine household chores with employment are less likely to be in school. It also indicated that a 20 hours a week threshold could be a useful guide to determine long hours in household chore.</p>	Household chores are subject to the same child labor laws as other forms of work (CNA code, art. 84).	While not complete, this evaluation will use long hours as an indicator of hazardous household chores. Since there isn't an agreed upon definition for what constitutes long hours in household services, we will present the findings using the 20 and 36 hours threshold, as per the ILO recommendation and Costa Rica laws respectively.

**Exhibit A2. Hazardous Child Labor List per Law 8922, Art. 4**

<b>Law 8922, Prohibition of Dangerous and Unhealthy Work for Adolescent Workers: Art. 4, List of Hazardous Occupations</b>	
<b>a</b>	Work or activities in mines, quarries, excavation, or other underground work
<b>b</b>	Work or activities completed in confined or closed spaces, or restricted to a small area; with dangerous structural conditions; or with dangerous processes that include the handling of chemical substances, fuel, harmful biological agents; or exposure to dangerous environmental conditions due to lack of or excess oxygen
<b>c</b>	Work or activities in the sea, including fishing and extraction of mollusks
<b>d</b>	Work or activities that include scuba diving or submersion under water
<b>e</b>	Work or activities that include formulating, packaging, packing, handling, transport, sale, purchase, application, or disposal of agrochemicals
<b>f</b>	Work or tasks that imply constant exposure to dust, fumes, or vapors; such as contact with toxic objects and substances, fuels, flammables, radioactive substances, corrosives, irritants, or other similar substances
<b>g</b>	Work or manufacturing activities that include the handling of explosive substances, including pyrotechnic devices
<b>h</b>	Work or activities that imply the use of heavy machinery, generators, crushers, cutting machinery, or any other type of machinery or vehicle that is unauthorized for persons under 18 years of age
<b>i</b>	Construction work on public or private roads; maintenance of roads, dams, bridges, or docks; work involving earth moving or handling asphalt in any context
<b>j</b>	Work or activities that require the use of complex manual or mechanical machines and machines used for cutting, crushing, or grinding
<b>k</b>	Work or activities that imply the manual transport of heavy loads, including lifting and placing, when completely supported by the adolescent
<b>l</b>	Work or activities in environments with exposure to noises and vibrations higher than the established international standards
<b>m</b>	Work or activities completed at heights that require the use of scaffolding, harnesses, ladders, and/or lifelines
<b>n</b>	Work or activities that include exposure to extreme high or low temperatures
<b>o</b>	Work or activities requiring electrical installation or the adjustment or repair of existing electrical installations in either public or private works
<b>p</b>	Work or activities in the production, dissemination, or sale of alcoholic beverages and in establishments where alcohol is consumed directly
<b>q</b>	Work or activities in environments that promote the adoption of unhealthy behaviors that threaten the emotional integrity of the adolescent, such as work in nightclubs; brothels; gambling halls; adult entertainment establishments; or locations where erotic or pornographic material is recorded, printed, or photographed; or establishments engaged in similar activities
<b>r</b>	Work or activities in which one's own safety and/or that of others are the responsibility of the adolescent worker, such as public or private security, the care of minors or elders, caring for the ill, money transfers, or the transfers of other assets
<b>s</b>	Work that falls within the Section II of Chapter II of the Regulation for the Labor Recruitment and Occupational Health Conditions of Adolescents

Source: Government of Costa Rica Law 8922, Prohibition of Dangerous and Unhealthy Work for Adolescent Workers, Art. 4 <http://sise.co.cr/normativa/17-931.htm>

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## Appendix B. Endline Survey Instrument

### COSTA RICA ENDLINE SURVEY

Region \_\_\_\_\_

District \_\_\_\_\_

Date \_\_\_\_\_

Interviewer \_\_\_\_\_

#### Consent Script for Survey Respondents:

Hello, my name is [insert name] and I'd like to thank you for taking the time to talk to me. I am from [Subcontractor], which is a company that interviews people to collect information about them and their opinions.

[Subcontractor] is working with IMPAQ International to collect information on children, such as yourself. The purpose of this data collection activity is to assess if programs designed to improve your economic conditions are working or not working. If you agree to participate, we will ask you to complete this interview. By responding our questions we will be able to provide policy makers with valuable information that will allow them to adjust and improve social programs aimed to benefit you, your family, and your community.

If you agree to participate, at this time, I will ask you a few questions about yourself and the things that you do on a regular basis. It should take no more than 35 to 40 minutes of your time.

Please note that everything you say to me is confidential. Only the research team will be able to see information linked to your name. We will never identify you or anyone in your household in any reports or information we release. There is no risk, payment or cost to you for taking part in the data collection activity.

You can choose to refuse to do this interview and take part in the data collection activity. You can also choose to refuse to answer any questions you are uncomfortable with or don't want to answer. There are no penalties or loss of benefits to you for not participating or not answering a question. Your participation in this data collection activity may help other children in the future.

**Do you agree to take part in the data collection activity, and do I have your permission to continue with the interview?**

**Potential Participant:**

\_\_\_\_\_ agrees to be interviewed and participate in the study  
(print name) \_\_\_\_\_ disagrees to be interviewed and participate in the study

**[Terminate interview if respondent confirms that they do NOT want to participate.]**

Study Staff signature:

\_\_\_\_\_ Date today (mm/dd/yy) \_\_\_\_\_

**CASE INFORMATION: (To be assigned a unique ID in Database)**

**1. Full Name (First, Second, 1<sup>st</sup> Last name, 2<sup>nd</sup> Last name):**

\_\_\_\_\_

**2. Participant ID Number:** \_\_\_\_\_

**SECTION 1: Personal Information**

**3. What are your height and weight? Measure height with measuring tape**

Height: \_\_\_\_\_

Weight: \_\_\_\_\_

**4. How many brothers and sisters do you have?** \_\_\_\_\_

**5. Do you have any children of your own?**

☐ Yes

☐ No

**6. How many people, including yourself, live in your household?**

\_\_\_\_\_

By this we mean:

Members living in the same dwelling unit and eating out of the same kitchen;

Member who live somewhere else because of work or school but would otherwise live here,  
that is, consider this to be their permanent address;

Any visitors or house workers who have been living at this address for at least 4 weeks.

**7. The household head is the person that lives in your house that is in charge of making decisions and is responsible for the family accounts. Who is the household head?**

☐ My father

☐ My mother

☐ Me

☐ My husband or wife

☐ My grandparents

- ☐ My sibling (sister or brother)
- ☐ My uncle or aunt
- ☐ My son or daughter
- ☐ My cousin
- ☐ Other relation
- ☐ Non-relative

**8. What is the highest level of schooling completed of the head of the household? Read options**

- ☐ No schooling
- ☐ Primary school
- ☐ Secondary school
- ☐ Vocational school
- ☐ University
- ☐ I don't know

**9. Considering meals as breakfast, lunch and dinner, how many meals did you miss in the last week?**

\_\_\_\_\_

**10. During the last 6 months, did you have shelter, food, water, and clothing (the basic needs)?**

- ☐ Yes
- ☐ No

**11. In general, how is your health? Would you say it is...**

- ☐ Excellent
- ☐ Very Good
- ☐ Good
- ☐ Regular
- ☐ Poor

**12. In the last month, how often did you not feel like eating? Would you say...**

- ☐ All the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ None of the time

**13. In the last month, how often did you have bodily aches or pains? Would you say...**

- ☐ All the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ None of the time

**14. Overall in the last month, how much difficulty did you have remembering things? Would you say...**

- ☐ All the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ None of the time

**15. In the past month, have you been sick?**

- ☐ Yes
- ☐ No

**16. In the past month, how many days of school or work did you miss due to illness?**

\_\_\_\_\_

**17. Have you ever used drugs? Read options**

- ☐ Yes
- ☐ No
- ☐ Don't want to respond

**SECTION 2: Educational Information**

**18. What is your highest grade completed?**

\_\_\_\_ grade

**19. Are you currently enrolled in school? If the answer is "no" skip to question 21.**

- ☐ Yes
- ☐ No

**20. Are you currently attending school? If answer is "no", skip to question 21.**

- ☐ Yes
- ☐ No

**20A Was your attendance higher than 90%? Skip to question 25**

- ☐ Yes
- ☐ No

**21. How old were you when you last stopped attending school?**

\_\_\_\_ years old

**22. What grade were you in when you last stopped attending school?**

\_\_\_\_ grade

**23. What was the name of the last school you attended? \_\_\_\_\_**

**24. What is the main reason you dropped out of school?**

- **INTERVIEWER, WRITE DOWN THE ANSWER AND CHECK THE BOX THAT FITS BETTER THE ANSWER GIVEN.**

a. I felt I was too old for school	<input type="checkbox"/>
b. I did not like or considered school interesting or valuable	<input type="checkbox"/>
c. I had to repeat a grade /poor grades/expelled/ suspended	<input type="checkbox"/>
d. My family did not consider school valuable	<input type="checkbox"/>
e. I could not afford it/Lack of money	<input type="checkbox"/>
f. I had to support my family financially	<input type="checkbox"/>
g. I had to help with domestic chores or without pay in a family business or farm	<input type="checkbox"/>

h. I was working and decided to extend my hours of work or was offered a job	<input type="checkbox"/>
i. I did not have access to any means of transport to get to school	<input type="checkbox"/>
j. School did not have appropriate infrastructure	<input type="checkbox"/>
k. I did not feel safe at school (either due to other students or teachers)	<input type="checkbox"/>
l. I got pregnant or my partner got pregnant	<input type="checkbox"/>
m. I got married	<input type="checkbox"/>
n. Due to illness or disability	<input type="checkbox"/>
o. I temporarily migrated	<input type="checkbox"/>
p. Other (specify)	<input type="checkbox"/>

**25. In the next year, do you plan to go to school?**

- ☐ Yes (Go to 25A) ☐ No (Go to 25B)

**25A what is the highest level of education you would like to complete? Read options**

- ☐ Primary school  
☐ Secondary school  
☐ Trade school  
☐ University  
☐ University for a post-graduate degree (master's or PhD)  
☐ Other (specify) \_\_\_\_\_

**\*\*\*GO TO QUESTION 26\*\*\***

**25B what do you plan to do instead? Read options**

- ☐ Keep working at my current job  
☐ Find a new job  
☐ Have my own business  
☐ I don't know/I am not sure  
☐ Other (specify) \_\_\_\_\_

**SECTION 3: Work Information**

**26. At what age did you start working, for pay or not, for the first time in your life? \_\_\_\_\_ years old**

**27. Has work interfered with your education plans?**

- ☐ Yes ☐ No

**28. Did you perform any of the following activities inside or outside your house last week?**

a. Run or help in any kind of business, big or small, for yourself or with one or more partners? [Examples: Selling things, making things for sale, guarding cars, hairdressing, taxi or other transport business, performing in public, tending your own shop, shoe shining, etc.]	<input type="checkbox"/> Yes <input type="checkbox"/> No
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b. Do any work for a wage, salary, commission or any payment in kind (including apprenticeship/internship but excluding domestic work)? [Examples: A regular job, contract, casual or piece work for pay, work in exchange for food or housing]	<input type="checkbox"/> Yes <input type="checkbox"/> No
c. Do any work as a domestic worker for a wage, salary or any payment in food or shelter?	<input type="checkbox"/> Yes <input type="checkbox"/> No
d. Help, without being paid, in any kind of business run by your household? [Examples: Help to sell things, make things for sale or exchange, doing the accounts, cleaning up for the business, etc.]	<input type="checkbox"/> Yes <input type="checkbox"/> No
e. Produce any other good for your household use? [Examples: clothing, furniture, clay pots, etc.]	<input type="checkbox"/> Yes <input type="checkbox"/> No
f. Fetch water or collect firewood for household use?	<input type="checkbox"/> Yes <input type="checkbox"/> No
g. Catch any fish, prawns, shells, wild animals or other food for sale?	<input type="checkbox"/> Yes <input type="checkbox"/> No
h. Do any work on your own (or your household's) plot, farm, food garden, or help in growing farm produce for sale or in looking after animals intended for sale? [Examples: Ploughing, harvesting, looking after livestock]	<input type="checkbox"/> Yes <input type="checkbox"/> No
i. Do any construction or major repair work on your own farm plot, food garden or business?	<input type="checkbox"/> Yes <input type="checkbox"/> No
j. Any other work activity not for pay?	<input type="checkbox"/> Yes <input type="checkbox"/> No
k. Any other work activity for pay?	<input type="checkbox"/> Yes <input type="checkbox"/> No

**29. From the previous list, which is your primary activity or job? In other words, in which activity/job did you spend most of the time during the week?**

\_\_\_\_\_

**30. Do you have a secondary activity or job? If yes, ask: Which activity/job already mentioned is it?**

☐ Yes ☐ No

\_\_\_\_\_

**31. What kind of work do you usually do in the jobs/activities that you performed last month?**

**Check all that apply** [For example if you work both as street vendor and a domestic worker]

**Remember do not count household chores.**

a. Work or activities in mines, quarries, excavation, or other underground work.	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. Work or activities completed in confined or closed spaces	<input type="checkbox"/> Yes <input type="checkbox"/> No
c. Work or processes that include the handling of chemical substances, fuel, or harmful biological agents.	<input type="checkbox"/> Yes <input type="checkbox"/> No
d. Work or activities in the sea, including fishing and extraction of mollusks	<input type="checkbox"/> Yes <input type="checkbox"/> No
e. Work or activities that include scuba diving or submersion under water	<input type="checkbox"/> Yes <input type="checkbox"/> No

f. Work or activities that include handling of agrochemicals	<input type="checkbox"/> Yes <input type="checkbox"/> No
g. Work or tasks that imply constant exposure to dust, fumes, or other toxics	<input type="checkbox"/> Yes <input type="checkbox"/> No
h. Work or manufacturing activities that include the handling of explosive substances	<input type="checkbox"/> Yes <input type="checkbox"/> No
i. Work or activities that imply the use of heavy machinery	<input type="checkbox"/> Yes <input type="checkbox"/> No
j. Construction work of roads, dams, bridges or docks	<input type="checkbox"/> Yes <input type="checkbox"/> No
k. Work or activities that imply the manual transport of heavy loads, including lifting and placing	<input type="checkbox"/> Yes <input type="checkbox"/> No
l. Work or activities in environments with exposure to loud noises and vibrations	<input type="checkbox"/> Yes <input type="checkbox"/> No
m. Work or activities completed at heights that require the use of harnesses, ladders, and/or lifelines	<input type="checkbox"/> Yes <input type="checkbox"/> No
n. Work or activities that include exposure to extreme high or low temperatures	<input type="checkbox"/> Yes <input type="checkbox"/> No
o. Work or activities requiring electrical installation	<input type="checkbox"/> Yes <input type="checkbox"/> No
p. Work or activities in the production, or sale of alcoholic beverages or working in that establishment	<input type="checkbox"/> Yes <input type="checkbox"/> No
q. Work or activities in nightclubs; brothels; gambling halls; or adult entertainment establishments	<input type="checkbox"/> Yes <input type="checkbox"/> No
r. Work or activities in private security services	<input type="checkbox"/> Yes <input type="checkbox"/> No

**32. Without counting household chores, how many hours did you work last week, from Monday to Sunday in each of the following schedules? INTERVIEWER, ASK FOR EACH DAY AND EACH SCHEDULE. For example, how many hours did you work on Monday, and at what time did you work that day? REPEAT THE QUESTION FOR EACH DAY.**

	<b>Morning (7:00 – 12:00)</b>	<b>Afternoon (12:00 – 19:00)</b>	<b>Night (19:00 – 22:00)</b>	<b>Late Night (22:00 – 07:00)</b>
Monday:				
Tuesday:				
Wednesday:				
Thursday:				
Friday:				
Saturday:				
Sunday:				

**33. Approximately how much money did you earn in the last week in total across all your jobs?**

\$ \_\_\_\_\_

**34. Approximately how much of your income did you give to your family during the past month? Would you say...**

- ☐ None of my income
- ☐ A quarter of my income
- ☐ Half of my income
- ☐ Three quarters of my income
- ☐ All of my income

#### **SECTION 4: Workplace Conditions**

**35. In the last month, were you ever exposed to any of the following in any of your jobs?**

a. Drugs	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. Work in an environment that made you feel uncomfortable or exploited	<input type="checkbox"/> Yes <input type="checkbox"/> No
c. Working days of over 6 hours and working weeks of over 36 hours	<input type="checkbox"/> Yes <input type="checkbox"/> No
d. Work that limits the right of regular attendance to school	<input type="checkbox"/> Yes <input type="checkbox"/> No
e. Work that requires sleeping in the workplace	<input type="checkbox"/> Yes <input type="checkbox"/> No
f. Working on caretaking of children, elders, or handicapped people	<input type="checkbox"/> Yes <input type="checkbox"/> No

**36. In the past 6 months, did you experience in any of your jobs the following?**

a. You were yelled at or told intimidating things	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. You were insulted or called offensive names	<input type="checkbox"/> Yes <input type="checkbox"/> No
c. You were hit, beaten or hurt physically	<input type="checkbox"/> Yes <input type="checkbox"/> No
d. You experienced sexual harassment (verbal harassment, unwanted touching, made you do things you did not want to do, etc.)	<input type="checkbox"/> Yes <input type="checkbox"/> No
e. You were forced to work more hours than you wanted to	<input type="checkbox"/> Yes <input type="checkbox"/> No
f. You were forced to sell or use drugs	<input type="checkbox"/> Yes <input type="checkbox"/> No
g. Other (specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No

**37. In the past 6 months, did you have any of the following health problems as a result of any of your jobs?**

a. Superficial lesions or open wounds	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. Fractures	<input type="checkbox"/> Yes <input type="checkbox"/> No
c. Dislocations, sprains, or strains	<input type="checkbox"/> Yes <input type="checkbox"/> No
d. Burns, corrosions, scalds, or frostbite	<input type="checkbox"/> Yes <input type="checkbox"/> No
e. Breathing problems	<input type="checkbox"/> Yes <input type="checkbox"/> No
f. Eye problems	<input type="checkbox"/> Yes <input type="checkbox"/> No
g. Skin problems	<input type="checkbox"/> Yes <input type="checkbox"/> No
h. Stomach problems/diarrhea	<input type="checkbox"/> Yes <input type="checkbox"/> No
i. Fever	<input type="checkbox"/> Yes <input type="checkbox"/> No
j. Extreme fatigue	<input type="checkbox"/> Yes <input type="checkbox"/> No
k. Other problems (specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No

**38. Is there any of your jobs you would not be allowed to quit if you wanted to?**

☐ Yes

☐ No

## SECTION 5: Household Work Information

39. Did you do household chores last week? If “no”, the study questions have ended, move to question

☐ Yes

☐ No

40. Which of the following household chores do you usually do at home?

a. Cleaning (sweeping, dusting, making beds, cleaning bathroom) or helping with clothes (mending, washing, ironing)	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. Cooking (breakfast, lunch or dinner) or buying groceries	<input type="checkbox"/> Yes <input type="checkbox"/> No
c. Caring for younger, elderly or unwell household members	<input type="checkbox"/> Yes <input type="checkbox"/> No
d. Repairing household equipment (e.g. plumbing or electricity work)	<input type="checkbox"/> Yes <input type="checkbox"/> No
e. Other ( <b>specify</b> )	<input type="checkbox"/> Yes <input type="checkbox"/> No

41. How many hours did you spend on these household chores last week? \_\_\_\_\_

42. How many of these hours correspond to weekdays? \_\_\_\_\_

43. How many of these hours correspond to weekend? \_\_\_\_\_

44. What is your current cell phone number, if you have one? If you have more than one phone, please list all numbers

Primary: \_\_\_\_\_

Other: \_\_\_\_\_

Thank you for your participation, here is a token of our appreciation. **Provide refreshment.**

## Appendix C. Endline Equivalence

This appendix provides endline descriptive statistics and equivalence *t*-tests for all variables collected at endline and used to construct child labor variables.

### Socio-Demographic Characteristics

**Exhibit C1. Demographic Characteristics of Sampled Youth**

	All	Treatment		Control		Difference	
	Mean	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
<b>Age</b>							
Age on February 1, 2016	16.660	16.654 (0.079)	172	16.665 (0.079)	220	-.011	(-.275, .252)
<b>Sex</b>							
Male	0.561	0.541 (0.924)	172	0.577 (0.858)	220	-.037	(-.136, .063)
<b>Household Composition</b>							
Household size	4.668	4.698 (0.444)	172	4.645 (0.479)	220	.052	(-.381, .486)
Number of siblings	3.123	3.047 (0.764)	172	3.183 (0.722)	219	-.136	(-.599, .327)
Has children of his/her own	0.043	0.047 (4.541)	172	0.041 (4.842)	219	.005	(-.036, .046)
<b>Basic Necessities</b>							
Had basic necessities past 6 months	0.964	0.942 (0.249)	172	0.982 (0.136)	220	-.04*	(-.077, -.003)
Number of missed meals last week	3.240	2.826 (1.515)	172	3.566 (1.544)	219	-.741	(-1.743, .262)
<b>Household Head</b>							
Lives in HH headed by mother	0.503	0.535 (0.935)	172	0.477 (1.049)	220	.058	(-.043, .158)
Lives in HH headed by father	0.393	0.366 (1.319)	172	0.414 (1.193)	220	-.047	(-.145, .051)
Lives in HH headed by other relative	0.028	0.029 (5.796)	172	0.027 (5.986)	220	.002	(-.031, .035)
<b>Household head education</b>							
HH head has no education	0.117	0.134 (2.553)	172	0.105 (2.933)	220	.029	(-.035, .094)
HH head has primary education	0.747	0.727 (0.615)	172	0.764 (0.558)	220	-.037	(-.124, .05)
HH head has secondary education	0.092	0.081 (3.369)	172	0.100 (3.007)	220	-.019	(-.077, .039)
HH head has higher education <sup>†</sup>							
<b>Household zone</b>							
Urban	0.493	0.453 (1.101)	172	0.525 (0.953)	219	-.072	(-.172, .029)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

<sup>†</sup> Results are suppressed because there were fewer than five respondents.

Exhibit C 1 provides a description of the background characteristics of the sampled youth. The average age of treatment group youth is 16.65 years, with males comprising approximately 54 percent. The average age of the control group is 16.67 years, and the group is approximately 58 percent male. Youth in the treatment group came from households with approximately 4.7 members, whereas youth in the control group came from households with approximately 4.6 members. Youth in both the treatment and control groups had three siblings on average. A small percentage of youth – about 5 percent in the treatment group and four percent in the control group – reported having children of their own.

When asked whether their basic necessities had been met over the past six months, 94 percent of youth in the treatment group and 98 percent in the control group reported that they had. This difference is significant at the 5 percent level. Youth in both the treatment and control groups reported missing approximately three meals in the past week. Fifty-four percent of sample youth in the treatment group and 48 percent in the control group live in households headed by their mother, and about 40 percent of sample youth live in households headed by the father. Seventy-two percent of the youth in the treatment group reported that the head of their household had primary education, compared to 76 percent of youth in the control group. Approximately nine percent of youth in the treatment group reported their head of household had a secondary education, compared with 10 percent of youth in the control group, however this difference was not statistically significant. Forty-five percent of the youth in the treatment group and 53 percent in the control group live in an urban zone. This difference is not statistically significant.

## Schooling

**Exhibit C2. School Enrollment Status of Sampled Youth**

	All	Treatment		Control		Difference	
	Mean	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
<b>School enrollment status</b>							
Currently enrolled in school	0.948	0.960 (0.205)	175	0.939 (0.255)	230	.021	(-.023, .065)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Exhibit C 2 shows that approximately 96 percent of the youth in the treatment group and 94 percent of youth in the control group reported being enrolled in school.

## Child and Adolescent Employment

In this section, we present and discuss summary statistics about employment activities among sample youth. In the next sections we detect and disaggregate child labor based on our operational definitions. For our analysis, we define working youth as those who reported working, for pay or not, during the last week. Working includes running or engaging in any kind of business, such as selling goods, farming, building, cleaning other houses, or performing any other economic activity.

**Exhibit C3. Sampled Youth Employment Status**

	All	Treatment		Control		Difference	
	Mean	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
<b>Work history</b>							
Working	0.831	0.785 (0.525)	172	0.868 (0.392)	219	-.083*	(-.157, -.008)
Number of hours worked last week	13.944	11.267 (1.333)	172	16.036 (1.150)	220	4.769**	(-8.177, -1.361)
Age when started working	12.138	12.114 (0.211)	167	12.156 (0.221)	211	-.043	(-.578, .493)
Work has interfered in schooling	0.367	0.371 (1.307)	170	0.364 (1.324)	214	.006	(-.092, .104)
<b>Type of work activity</b>							
Run or help in any kind of business, big or small, for themselves or with one or more coworkers or partners	0.276	0.244 (1.764)	172	0.301 (1.526)	219	-.057	(-.147, .032)
Do any work for a wage, salary, commission, or any payment in kind	0.441	0.372 (1.303)	172	0.495 (1.011)	220	-.123*	(-.222, -.025)
Do any work as a domestic worker for a wage, salary, or any payment in food or housing	0.099	0.081 (3.369)	172	0.114 (2.799)	220	-.032	(-.092, .028)
Help, without being paid, in any kind of business run by their household	0.283	0.273 (1.636)	172	0.291 (1.565)	220	-.018	(-.108, .073)
Produce any other good for household use	0.054	0.053 (4.255)	171	0.055 (4.173)	220	-.002	(-.047, .043)
Fetch water or collect firewood for household use	0.232	0.267 (1.660)	172	0.205 (1.977)	220	.063	(-.022, .147)
Catch any fish, prawns, shells, wild animals, or other food for sale	0.103	0.099 (3.028)	172	0.106 (2.918)	218	-.007	(-.068, .054)
Do any work on their own (or their household's) plot, farm, or food garden	0.240	0.227 (1.852)	172	0.250 (1.736)	220	-.023	(-.109, .062)
Do any construction or major repair work on their own farm plot, food garden, or business	0.140	0.099 (3.028)	172	0.173 (2.193)	220	-.074*	(-.143, -.005)
Any other work activity not for pay	0.135	0.140 (2.491)	172	0.132 (2.572)	220	.008	(-.061, .076)
Any other work activity for pay	0.524	0.474 (1.057)	171	0.564 (0.882)	220	-.09	(-.19, .01)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Exhibit C 3 shows that approximately 79 percent of youth in the treatment group and 87 percent in the control group are engaged in some type of work. This difference is significant at the 5 percent level. Treatment group youth spent 11 hours working in the previous week, whereas control group youth spent 16 hours working during the same period. This difference is significant at the one percent level. Youth in both the treatment and control groups report beginning work when they were 12 years old, and over 35 percent of sampled youth report that work has interfered with their plans to study. Thirty-seven percent of youth in the treatment group and 50 percent of youth in the control group reported working for a wage, salary, commission, or in-kind payment. This difference is significant at the 5 percent level. Additionally, 10 percent of youth in the treatment group and 17 percent of youth in the control group reported doing

construction or major repair work on their own or their household's farm plot, food garden, or business. This difference is significant at the 5 percent level.

After having analyzed youth that report being employed, we turn our attention to child labor. In the next subsections, we discuss our findings about working youth under age 15, adolescents engaged in hazardous occupations and environments, and youth's participation in household chores.

### Working Youth Under Age 15

**Exhibit C4. Youth Under Age 15 Labor**

	All	Treatment	N	Control	N	Difference	
	Mean	Mean (CV)		Mean (CV)		Mean	CI (LB, UB)
Under 15 years old and engaged in any type of work	0.714	0.667 (0.721)	27	0.759 (0.574)	29	-.092	(-.337, .153)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Costa Rican legislation states that any child under the age of 15 that is engaged in any type of work is involved in child labor. **Error! Reference source not found.** shows that approximately 67 percent of the 27 adolescents under age 15, in the treatment group, and 76 percent of the 29 adolescents, under age 15, in the control group were engaged in child labor. The findings confirm that there are no significant differences between the child labor levels of the treatment and control groups for this measure.

### Hazardous Child Labor

According to our operational definition of hazardous child labor, adolescents ages 15 to 17 are engaged in hazardous child labor if they work:

- In hazardous occupations (work activities) or environments.
- At night, 7 p.m. to 7 a.m. (or in mixed shifts that end after 10 p.m.), more than six hours a day, or 36 hours a week.

**Exhibit C5. Hazardous Occupations among Youth Ages 15 to 17**

	All	Treatment		Control		Difference	
	Mean	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
<b>Type of work activity</b>							
Work or activities in mines, quarries, excavation, or other underground work <sup>†</sup>							
Work or activities completed in confined or closed spaces	0.149	0.103 (2.954)	145	0.184 (2.110)	190	-.081*	(-.158, -.004)
Work or processes that include the handling of chemical substances, fuel, or other harmful substances	0.158	0.152 (2.373)	145	0.163 (2.271)	190	-.011	(-.091, .068)
Work or activities in the sea, including fishing and extraction of mollusks	0.107	0.103 (2.954)	145	0.111 (2.844)	190	-.007	(-.074, .06)
Work or activities that include scuba diving or submersion under water <sup>†</sup>							
Work or activities that include handling of agrochemicals	0.212	0.207 (1.965)	145	0.216 (1.911)	190	-.009	(-.098, .08)
Work or tasks that imply constant exposure to dust, fumes, or other toxins	0.322	0.317 (1.472)	145	0.326 (1.441)	190	-.009	(-.111, .093)
Work or manufacturing activities that include the handling of explosive substances	0.069	0.041 (4.830)	145	0.089 (3.198)	190	-.048	(-.103, .007)
Work or activities that imply the use of heavy machinery	0.075	0.076 (3.502)	145	0.074 (3.555)	190	.002	(-.055, .059)
Work constructing roads, dams, bridges, or docks	0.042	0.055 (4.153)	145	0.032 (5.552)	190	.024	(-.02, .067)
Work or activities that imply the manual transport of heavy loads	0.304	0.248 (1.746)	145	0.347 (1.374)	190	-.099	(-.199, 0)
Work or activities in environments with exposure to loud noises and vibrations	0.185	0.166 (2.253)	145	0.200 (2.005)	190	-.034	(-.119, .05)
Work or activities completed at heights that require the use of harnesses or ladders	0.110	0.110 (2.849)	145	0.111 (2.844)	190	0	(-.068, .068)
Work or activities that include exposure to extreme high or low temperatures	0.310	0.310 (1.496)	145	0.311 (1.494)	190	0	(-.101, .1)
Work or activities requiring electrical installation	0.158	0.124 (2.665)	145	0.184 (2.110)	190	-.06	(-.139, .019)
Work or activities in the production or sale of alcoholic beverages or working in this type of establishment <sup>†</sup>							
Work or activities in nightclubs, brothels, gambling halls, or adult entertainment <sup>†</sup>							
Work or activities in private security services <sup>†</sup>							

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

<sup>†</sup> Results are suppressed because there were fewer than five respondents.

Sample youth ages 15 to 17 provided responses to questions about the type of work they were engaged in, time of day working, and daily work hours. **Error! Reference source not found.** shows the work activities of the treatment and control groups. While only a small percentage of youth are engaged in each of these types of work, 32 percent of youth in the treatment group and 33 percent of youth in the control group are regularly exposed to dust, fumes, or other toxins. Additionally, 25 percent of youth in the treatment group and 35 percent in the control group report manually transporting heavy loads. The only significant difference between the treatment and control groups occurs among youth who report working in confined or closed spaces. Ten percent of youth in the control group report working in confined or

closed spaces, as compared with 18 percent of the control group. This difference is significant at the 5 percent level.

**Exhibit C6. Workplace Environment of Youth Ages 15 to 17**

	All	Treatment		Control		Difference	
	Mean	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
<b>Work environment</b>							
Drugs in the workplace	0.102	0.105 (2.931)	143	0.100 (3.008)	190	.005	(-.061, .071)
Work in an exploitative or uncomfortable environment	0.093	0.076 (3.502)	145	0.105 (2.923)	190	-.029	(-.092, .034)
Working days of over 6 hours and working weeks of over 36 hours	0.246	0.228 (1.849)	145	0.261 (1.689)	188	-.033	(-.127, .061)
Work that limits the right of regular school attendance	0.156	0.139 (2.499)	144	0.168 (2.228)	190	-.03	(-.109, .049)
Work that requires sleeping in the workplace	0.122	0.110 (2.849)	145	0.132 (2.576)	190	-.021	(-.093, .05)
Work that requires caring for children, the elderly, or handicapped people	0.204	0.186 (2.098)	145	0.217 (1.905)	189	-.031	(-.118, .057)
Yelled at or told intimidating things	0.066	0.055 (4.153)	145	0.074 (3.545)	189	-.019	(-.073, .035)
Insulted or called offensive names	0.060	0.069 (3.687)	145	0.053 (4.254)	190	.016	(-.035, .068)
Hit, beaten, or hurt physically <sup>†</sup>							
Experienced sexual harassment	0.042	0.048 (4.455)	145	0.037 (5.099)	188	.011	(-.033, .055)
Forced to work more hours than they wanted to	0.107	0.090 (3.198)	145	0.121 (2.702)	190	-.031	(-.099, .036)
Forced to sell or use drugs <sup>†</sup>							
Has a job they could not quit if they wanted to	0.066	0.049 (4.423)	143	0.080 (3.405)	188	-.031	(-.085, .024)
<b>Work-related illness and injury</b>							
Superficial lesions or open wounds	0.325	0.290 (1.571)	145	0.353 (1.359)	190	-.063	(-.165, .039)
Fractures	0.033	0.041 (4.830)	145	0.026 (6.099)	190	.015	(-.024, .054)
Dislocations, sprains, or strains	0.081	0.110 (2.849)	145	0.058 (4.045)	190	.052	(-.007, .111)
Burns, corrosions, scalds, or frostbite	0.149	0.124 (2.665)	145	0.168 (2.228)	190	-.044	(-.122, .033)
Breathing problems	0.104	0.076 (3.502)	145	0.126 (2.637)	190	-.05	(-.117, .016)
Eye problems	0.134	0.131 (2.584)	145	0.137 (2.518)	190	-.006	(-.08, .068)
Skin problems	0.125	0.110 (2.849)	145	0.137 (2.518)	190	-.026	(-.098, .045)
Stomach problems/diarrhea	0.150	0.166 (2.253)	145	0.138 (2.510)	189	.028	(-.05, .106)
Fever	0.162	0.159 (2.311)	145	0.164 (2.264)	189	-.005	(-.086, .075)
Extreme fatigue	0.510	0.531 (0.943)	145	0.495 (1.013)	190	.036	(-.072, .145)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

<sup>†</sup> Results are suppressed because there were fewer than five respondents.

When asked about their work environment, few youths reported drugs in the workplace, exploitation, interference with studying, or other hazardous environmental factors. Exhibit C 6 shows that many of the hazardous environmental factors listed were uncommon. While work-related illnesses and injuries were rare, approximately 53 percent of youth in the treatment group and 50 percent of youth in the control group reported suffering from extreme fatigue. Additionally, 29 percent of youth in the treatment group and 35 percent in the control group reported suffering from superficial lesions or open wounds. There were no statistically significant differences between the treatment and control groups on any of the workplace environment variables.

**Exhibit C7. Prevalence of Long Hours and Night Work among Youth Ages 15 to 17**

	All	Treatment		Control		Difference	
	Mean	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
Works at night - between 7PM and 7AM	0.191	0.159 (2.311)	145	0.216 (1.911)	190	-.057	(-.142, .028)
Worked more than 6 hours on any day of the past week	0.388	0.345 (1.383)	145	0.421 (1.176)	190	-.076	(-.182, .029)
Worked more than 36 hours during the past week	0.113	0.062 (3.901)	145	0.153 (2.362)	190	-.091**	(-.159, -.022)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

We analyzed the magnitude of hours worked and the time of these hours. Exhibit C 7 shows that approximately 39 percent of sample youth aged 15 to 17 reported working more than six hours per day. Despite this finding, six percent of youth in the treatment group and 15 percent of youth in the control group percent reported working weeks longer than 36 hours. This difference is significant at the one percent level. Sixteen percent of these adolescents in the treatment group and 22 percent in the control group indicated working at night, between the hours of 7 p.m. and 7 a.m.

**Exhibit C8. Prevalence of Hazardous Child Labor among Youth Ages 15 to 17**

	All	Treatment		Control		Difference	
	Mean	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
Engaged in hazardous child labor	0.884	0.855 (0.413)	145	0.905 (0.324)	190	-.05	(-.12, .019)
Work in hazardous occupation	0.681	0.662 (0.717)	145	0.695 (0.665)	190	-.033	(-.134, .069)
Work in hazardous conditions	0.516	0.490 (1.024)	145	0.537 (0.931)	190	-.047	(-.156, .061)
Works long or late hours	0.418	0.379 (1.284)	145	0.447 (1.114)	190	-.068	(-.175, .039)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Hazardous labor among adolescents is reported as the percentage of all youth aged 15 to 17 in the study sample working in hazardous occupations, hazardous conditions, and/or working long or late hours. **Error! Reference source not found.** shows more than 88 percent of adolescents in our sample – specifically, 85.5 percent of youth in the treatment group and 90.5 percent of youth in the control group – are identified as engaged in hazardous child labor. This difference is not statistically significant. Just under 70 percent of youth aged 15 to 17 are working in hazardous industries, more than 50 percent are working under hazardous conditions, and just over 40 percent are working long or late hours.

**Exhibit C9. Child Labor Prevalence among Sampled Youth**

	All	Treatment	N	Control	N	Difference	
	Mean	Mean (CV)		Mean (CV)		Mean	CI (LB, UB)
<b>Engaged in child labor</b>	<b>0.859</b>	<b>0.826 (0.461)</b>	<b>172</b>	<b>0.886 (0.360)</b>	<b>219</b>	<b>-.06</b>	<b>(-.13, .009)</b>
Engaged in hazardous child labor	0.884	0.855 (0.413)	145	0.905 (0.324)	190	-.05	(-.12, .019)
Under 15 years old and engaged in any type of work	0.714	0.667 (0.721)	27	0.759 (0.574)	29	-.092	(-.337, .153)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

We report the prevalence of child labor as the percentage of all minor youth in the study sample who are engaged in either hazardous labor or are under the age of 15 and are engaged in any type of work. Exhibit C 9 shows the prevalence of underage labor and HCL among sample youth. While both are common, work of any type among youth under 15 years of age is less prevalent than HCL among the 15 through 17 age group. Overall, 82.6 percent of youth in the treatment group and 88.6 percent of youth in the control group are engaged in some form of child labor. This difference is not statistically significant.

### Household Chores

**Exhibit C10. Household Chores among Sampled Youth**

	All	Treatment		Control		Difference	
	Mean	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
Youth involvement in household chores							
Performed household chores last week	0.957	0.959 (0.207)	172	0.955 (0.219)	220	.005	(-.036, .046)
Cleaning the household or helping mend or wash clothing	0.992	0.988 (0.111)	165	0.995 (0.069)	210	-.007	(-.026, .011)
Cooking or buying groceries	0.840	0.830 (0.453)	165	0.848 (0.425)	210	-.017	(-.092, .058)
Caring for younger, elderly, or unwell household members	0.430	0.451 (1.106)	164	0.414 (1.192)	210	.037	(-.065, .139)
Repairing household equipment	0.283	0.267 (1.663)	165	0.295 (1.549)	210	-.029	(-.121, .064)
Hours spent on household chores							
Number of hours spent on chores last week	10.256	10.000 (0.802)	142	10.447 (0.702)	190	-.447	(-2.114, 1.219)
Hazardous household chore hours							
Under age 15 and did any household chores	0.965	0.926 (0.288)	27	1.000 (0.000)	30	-.074	(-.172, .023)
More than 20 hours of unpaid household work per week (per ILO)	0.208	0.224 (1.866)	165	0.195 (2.035)	210	.029	(-.054, .112)
More than 36 hours of unpaid household work per week (per CNA)	0.123	0.145 (2.431)	165	0.105 (2.930)	210	.041	(-.026, .108)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Household chores are subject to the same Costa Rican child labor laws as any other type of work. Exhibit C 10 shows 96 percent of youth in the treatment and control groups performed household chores during the previous week.

Approximately 99 percent of those youth performing chores reported helping with cleaning the household or helping to mend or wash clothing. Other commonly reported chores include cooking or buying groceries; caring for younger, elderly, or unwell household members; and performing household repairs. Youth in the treatment and control groups spent an average of 10 hours on household chores in the previous week. Ninety-three percent of adolescents under age 15 in the treatment group and 100 percent of adolescents under age 15 in the control group participated in household chores. Approximately 21 percent of youths reported participating in more than 20 hours of household chores per week, and approximately 12 percent reported participating in more than 36 hours of household chores per week.

## Income

**Exhibit C11. Income of Sampled Youth**

	All	Treatment		Control		Difference	
	Mean	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
Total income last week (CRC)	10021.99	9,056.40 (1.690)	172	10,776.91 (1.632)	220	-1720.51	(-5047.33, 1606.31)
Gave no income to family in the past month	0.349	0.378 (1.287)	172	0.327 (1.437)	220	.051	(-.045, .146)
Gave 1/4 of income to family in the past month	0.061	0.052 (4.268)	172	0.068 (3.705)	220	-.016	(-.064, .032)
Gave 1/2 of income to family in the past month	0.191	0.151 (2.377)	172	0.223 (1.872)	220	-.072	(-.15, .007)
Gave 3/4 of income to family in the past month	0.071	0.052 (4.268)	172	0.086 (3.260)	220	-.034	(-.086, .018)
Gave all income to family in the past month	0.097	0.105 (2.934)	172	0.091 (3.169)	220	.014	(-.046, .073)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Youth in the treatment group reported earning an approximately 9,100 Costa Rican Colones (about \$16 USD) in the previous week, while those from the control group reported earning approximately 10,800 Costa Rican Colones (about \$19 USD) during the same period. Exhibit C 11 shows 38 percent of youth in the treatment group, and 33 percent of youth in the control group kept this income for their own use during the previous month. About 20 percent of youth reported giving half of their weekly income to their family, while approximately 10 percent of all youth reported giving all their income to their family. No statistical differences between the treatment and control groups were found for income variables.

## Health and Well-Being

**Exhibit C12. Health and Well-Being of Sampled Youth**

	All	Treatment		Control		Difference	
	Mean	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
<b>General health</b>							
Good, very good, or excellent health	0.809	0.814 (0.479)	172	0.805 (0.494)	220	.009	(-.069, .088)
Regular or poor health	0.191	0.186 (2.098)	172	0.195 (2.033)	220	-.009	(-.088, .069)
<b>Specific health</b>							
Does not have an appetite most or all the time	0.071	0.076 (3.507)	172	0.068 (3.705)	220	.007	(-.044, .059)
Has aches and pains most or all the time	0.082	0.093 (3.132)	172	0.073 (3.579)	220	.02	(-.035, .075)
Has difficulty remembering things most or all the time	0.102	0.076 (3.507)	172	0.123 (2.680)	220	-.047	(-.108, .013)
Has been sick during the past month	0.439	0.424 (1.168)	172	0.450 (1.108)	220	-.026	(-.125, .074)
Days of school or work missed in the past month due to illness	1.013	1.215 (2.864)	172	0.855 (3.473)	220	.361	(-.28, 1.001)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Exhibit C 12 describes youths' self-reported health and well-being. Eighty-one percent of youth in the treatment group and 80 percent of youth in the control group reported that they were in good, very good, or excellent health. When asked about aches and pains, about nine percent of youth in the treatment group and seven percent of youth in the control group responded that they had aches and pains most or all the time. Seven percent of youth in the treatment group and 12 percent in the control group reported memory problems. Forty-two percent of youth in the treatment group and 45 percent of youth in the control group reported that they had been sick at least once during the past month, and during this time the youth missed an average of about one day of school due to illness across the treatment and control groups. No statistical differences were found for health and well-being variables.

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## Appendix D. Ex-Post Baseline Equivalence

The baseline report from this study presents a baseline equivalence analysis showing the balance of treatment and control groups on observable characteristics after randomization. However, during the implementation of the RCT, a few cases selected for treatment failed the verification and administrative processing. In order to ensure that these cases did not systematically differ from the ones that received the CCT, this study tested baseline equivalences through T-tests using the endline treatment and control groups.

The ex-post baseline equivalence validates the unbiased estimates presented the endline, as it did not find any significant differences between the treatment and control groups on any key variables. This appendix present the baseline equivalence findings among the endline sample by topic of interest. For the baseline equivalence analysis among the entire sample, please refer to the baseline report<sup>27</sup>.

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<sup>27</sup> Bureau of International Labor Affairs, Closing the Child Labor and Forced Labor Evidence Gaps: Impact Evaluations (2017). Baseline Data Report for RCT Evaluation of the NNAT Program in Costa Rica.

**Exhibit D1. Demographic Characteristics of Sampled Youth**

	Treatment		Control		Difference	
	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
<b>Age</b>						
Age on February 1, 2016	15.455 (0.083)	181	15.427 (0.086)	211	.027	(-.233, .288)
<b>Sex</b>						
Male	0.536 (0.933)	181	0.583 (0.848)	211	-.047	(-.146, .052)
<b>Household composition</b>						
Household size	4.453 (0.342)	181	4.576 (0.395)	210	-.123	(-.458, .212)
Number of siblings	2.845 (0.718)	181	3.090 (0.723)	211	-.245	(-.673, .183)
Has children of his/her own	0.033 (5.416)	181	0.019 (7.211)	211	.014	(-.017, .046)
<b>Basic necessities</b>						
Had basic necessities over past 6 months	0.912 (0.312)	181	0.924 (0.288)	210	-.012	(-.067, .043)
Number of missed meals last week	1.039 (2.328)	181	0.838 (2.361)	210	.201	(-.237, .638)
<b>Household head</b>						
Lives in household headed by mother	0.580 (0.853)	181	0.548 (0.911)	210	.032	(-.067, .132)
Lives in household headed by father	0.326 (1.442)	181	0.352 (1.359)	210	-.026	(-.121, .068)
Lives in household headed by other relative	0.077 (3.463)	181	0.086 (3.274)	210	-.008	(-.063, .046)
<b>Household head education</b>						
HH head has no education	0.149 (2.395)	181	0.219 (1.893)	210	-.07	(-.147, .008)
HH head has primary education	0.718 (0.628)	181	0.633 (0.763)	210	.085	(-.009, .178)
HH head has secondary education	0.116 (2.768)	181	0.119 (2.727)	210	-.003	(-.067, .061)
HH head has higher education <sup>†</sup>						

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

<sup>†</sup> Results are suppressed because there were fewer than five respondents.

### Exhibit D2. Income of Sampled Youth

	Treatment		Control		Difference	
	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
<b>Type of work activity</b>						
Total income last week (CRC)	17,345.25 (2.125)	179	14,652.11 (1.540)	210	2,693.14	(-3,306.37, 8,692.65)
Gave no income to family in the past month	0.307 (1.506)	179	0.238 (1.793)	210	.069	(-.02, .158)
Gave 1/4 of income to family in the past month	0.078 (3.443)	179	0.133 (2.556)	210	-.055	(-.117, .007)
Gave 1/2 of income to family in the past month	0.285 (1.589)	179	0.257 (1.704)	210	.028	(-.061, .117)
Gave 3/4 of income to family in the past month	0.089 (3.201)	179	0.100 (3.007)	210	-.011	(-.069, .048)
Gave all income to family in the past month	0.240 (1.783)	179	0.271 (1.642)	210	-.031	(-.119, .056)

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

### Exhibit D3. Health and Well-Being of Sampled Youth

	Treatment		Control		Difference	
	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
<b>General health</b>						
Good, very good, or excellent health	0.883 (0.364)	180	0.857 (0.409)	210	.026	(-.041, .094)
Regular or poor health	0.117 (2.759)	180	0.143 (2.455)	210	-.026	(-.094, .041)
<b>Specific health</b>						
Does not have an appetite most or all the time	0.033 (5.400)	180	0.071 (3.614)	210	-.038	(-.083, .007)
Has aches and pains most or all the time	0.144 (2.441)	180	0.086 (3.274)	210	.059	(-.004, .122)
Has difficulty remembering things most or all the time	0.061 (3.931)	180	0.081 (3.377)	210	-.02	(-.071, .032)
Has been sick during the past month	0.400 (1.228)	180	0.400 (1.228)	210	0	(-.098, .098)
Days of school or work missed in the past month due to illness	1.039 (2.950)	179	0.790 (2.726)	210	.249	(-.274, .771)

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

**Exhibit D4. School Enrollment Status of Sampled Youth**

	Treatment		Control		Difference	
	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
<b>School enrollment status</b>						
Currently enrolled in school	0.950 (0.230)	180	0.976 (0.157)	210	-.026	(-.063, .011)
<b>Dropout status</b>						
Dropped out of school	0.050 (4.371)	180	0.024 (6.418)	210	.026	(-.011, .063)
Age when dropped out of school	14.889 (0.092)	9	14.800 (0.088)	5	.089	(-1.545, 1.723)
Grade when dropped out of school	7.556 (0.096)	9	7.200 (0.062)	5	.356	(-.431, 1.142)
<b>Future plans if dropped out</b>						
Plans to return to school in the next year	1.000 (0.000)	9	1.000 (0.000)	5	0	(0, 0)
Would like to complete university	0.444 (1.186)	9	1.000 (0.000)	5	-.556*	(-1.079, -.033)

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

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## Appendix E. Power Calculations

This appendix presents the minimum detectable effects (MDEs) for a sample of 150 treatment and 150 control beneficiaries and for a sample of 275 treatment and control beneficiaries. The final sample for the study falls within these bounds, providing enough power for the analysis.

**Exhibit E1. Minimum Detectable Effects (MDEs) for Evaluation of NNAT Program**

Outcome Variable	Treatment/ Comparison Group Size	Mean Outcome	Standard Deviation	Minimum Detectable Effects
Likelihood of child labor	150/150	90%	30%	8.68%
Hours worked per week (age 10-17)	150/150	20.1	10.2	2.95
Likelihood of school attendance*	150/150	10%	30%	8.68%
Likelihood of completing grade*	150/150	5%	21.8%	6.31%
Monthly family income^	150/150	¢709,599.00	¢518,315.00	¢149,793.00
Likelihood of child labor	275/275	90%	30%	6.42%
Hours worked per week (age 10-17)	275/275	20.1	10.2	2.18
Likelihood of school attendance*	275/275	10%	30%	6.42%
Likelihood of completing grade*	275/275	5%	21.8%	4.67%
Monthly family income^	275/275	¢709,599.00	¢518,315.00	¢110,919.00
Basic needs satisfaction*	275/275	70%	45%	9.63%

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## Appendix F. Qualitative Study

The qualitative findings are divided into a performance assessment analysis that documents the quality of the implementation of NNAT, and an outcome of interest analysis that focused on unraveling the mechanisms of behavioral change through which NNAT generated effects.

### Performance Assessment Analysis

The performance assessment is divided into four themes: relevance, fidelity, effectiveness, and sustainability. The performance assessment research questions are:

1. What is the context of child labor in Costa Rica and the relevance of the NNAT program?
2. How well does the NNAT intervention adhere to the program design and implementation?
3. What are the challenges and successes in the provision of the NNAT subsidy?
4. Is the NNAT program capable of continuing in time, and are its effects sustainable?

The analyses below describe the commonalities and differences in the reports of students, parents, and key informants, as well as changes in responses over time.

### Relevance

Local experts agreed that child labor in Costa Rica has been on the decline but is still prevalent in coastal areas and on family farms. Focus groups and key informant interviews revealed that economic necessity is the main driver of child labor. Youth involved in child labor seek employment to meet their families' short-term basic needs. These households, many of them headed by single parents, experience violence, social inequality, low levels of parent educational attainment, adolescent pregnancy, and drugs, all of which further complicate the social situation under which child labor emerges. A mother said, "I am a single mother. If I die, my kids need to be able to support themselves." However, many responses indicate that even vulnerable families value education and see it as the tool to break the cycle of poverty. Parents continue to encourage school completion even when youth are working to meet household monetary needs.

Many of the youth reported that they both attended school and went to work. Students said that they worked both out of necessity and in

order to afford their own goods, such as cell phones and shoes. Student focus groups revealed that parents ask their children to stop working and continue in school, but that students and parents agree on the need for students to work during times of economic hardship. The students who reported in focus groups that they both worked and went to school averaged four days a week of work, earning approximately \$10 USD a day and between \$30 and \$60 USD per week. Interviews and focus groups revealed that children involved in child labor, predominantly boys, tend to enter the work force around the age of 12 to 14, the transitional period from elementary to high school. However, parents said in focus groups that youth start as young as age 10 in agricultural areas and that child labor peaks during coffee season, a crucial time for agricultural families to earn income.

"I want to be able to cover my own expenses and needs."

"I don't want to be a burden for my parents."

—NNAT beneficiary students

Key informants reported a high level of national awareness about the illegality of child labor. They said that the remaining cases of child labor include work in family businesses and in geographically remote regions, where they are difficult to find and eliminate. Interviews and focus groups both revealed that child labor is primarily found where children can be informally hired without contract or benefits, often in dangerous sectors such as agriculture, construction, artisanal work, fishing, and domestic work. Both parents and students spoke of the high frequency of injury in industries where child labor is prevalent, especially in construction, agriculture, and fishing.

### **Fidelity of Implementation**

The implementation of the NNAT program relies on the capacity of government institutions to work well together to identify beneficiaries and deliver services. Key informants said that the Ministry of Labor and IMAS have been able to identify recipients and to process and deliver cash subsidies within their capacity to act. However, according to key informants, the Ministry of Education has not actively participated in the program, as needed, in registering beneficiaries and verifying their enrollment and attendance; in some cases lack of action has delayed payment of program subsidies. In general, key informants and participants argue that families support the mission of the program to reduce child labor, and they comply with program requirements. In focus groups, parents expressed the belief that, if children were receiving the subsidy, they needed to be in school and performing well. Exhibit F 1 shows a focus group discussion session with beneficiary parents.

The interviews and focus groups also revealed challenges to the implementation of the NNAT program. The most prominent was the slow institutional response to the needs of beneficiaries and the complex bureaucratic processes. Beneficiaries said that the way the program is currently structured, cash subsidies stop between school years. Beneficiaries must reenroll and be verified at the beginning of each year. This process delays subsidies, forcing students whose families have little or no savings to return to work until subsidies resume. Additionally, many beneficiaries argue that they face difficulties with the approval process and poor communication about program continuation requirements and changes to processes. Parents said in focus groups that consistency is critical; many reported that they would rather receive a smaller but more consistent subsidy like the one provided by the *Avancemos* program for underprivileged secondary school students. There was consensus that program success depends on having adaptive and easy-to-navigate processes for these vulnerable benefiting families.

### **Effectiveness**

Program participants and key informants agree that the NNAT program helped reduce child labor through provision of cash subsidies. They also pointed out that these subsidies worked best when families received them every month and on time. Students who received the subsidies reported that they had stopped working or had substantially reduced the number of hours they worked. Thus, the subsidies enabled beneficiaries to return to school. Though parents reported both at baseline and at endline that they wanted their children to be enrolled in school, they said that the subsidy was necessary to offset the income from the children's work. By contrast, students who did not receive the subsidy or who received it infrequently were forced to return to work to cover school and living expenses. This contrast shows that the cash subsidy may have been effective in addressing child labor in Costa Rica.

### **Sustainability**

According to the program administrators, the continuation of the NNAT program is assured because it is a public program with an approved budget. The government has put institutional support in place to continue to serve the intended population. The program is implemented and overseen by two separate government agencies, which now have experience in working together. The continuous administration of

the NNAT program and the collaboration of the Ministry of Labor and IMAS can streamline delivery of the subsidies moving forward and reduce delays as the agencies become more familiar with the needs of the target population.

### **Outcomes of Interest Analysis**

The outcome of interest analysis explores beneficiaries' responses about NNAT's accomplishment of expected program outcomes. The analysis focuses on documenting the reported changes in behavior and other mechanisms as a result of receiving the subsidies that led to program impacts.

NNAT recipients and their parents reported that the subsidies led to anticipated outcomes. The most commonly reported benefit was students' ability to contribute financially to household expenses, including the cost of internet services, school supplies, and other personal expenses. Interestingly, basic household consumption goods were not often mentioned. Some student respondents reported giving up to 50 percent of the subsidy to their families. Both students and parents reported that students were more motivated to pursue academics and felt that the subsidies provided them with the opportunity to get an education. Parents expressed enthusiasm for their children's educational aspirations because of the subsidies. They also reported that their children were beginning to "think big" about their future livelihoods. Both parents and students said that the subsidies would enable students to leave their hometown in pursuit of a university degree.

**Exhibit F 1. Focus Group Discussion with Parents**



Additionally, students who received the subsidies reported that they had lower levels of stress, slept more, consumed better food, and could afford their basic needs such as clothes and school materials. Students who had not received the subsidies as intended reported that they suffered work-related injuries and physical problems.

### **Combined Findings from Performance Assessment and Outcome Analyses**

The qualitative findings show that monetary support is vital in enabling children in vulnerable populations to focus on school rather than having to work. The findings suggest that the NNAT program has been effective in reducing child labor when administered in a timely and consistent manner. Students rely on the monthly subsidies to engage in school and to gain the experience and training necessary for upward mobility. Consistent and reliable distribution of the subsidy, starting at the beginning of the school year, is crucial to families' financial stability and children's ability to attend school. The program has governmental support in place to ensure its continuation but has deficiencies in the provision of services needed to eliminate child labor.

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## Appendix G. Qualitative Guides

### Focus Group Discussion Guide: NNAT Participants

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#### Informed Consent

Have participants read and sign the informed consent form. Offer to dictate the form if they do not feel comfortable or able to read it. Give each participant an unsigned copy of the form to keep for his or her records.

#### Outline with Timing

Time in each section (in minutes)	Topic	Elapse time at the end of section (in minutes)
10	Introduction	10
15	Participant Introduction	25
25	Work Experience	40
40	Experience with the NNAT Program	80
10	Conclusion	90

#### I. Introduction (10 minutes)

Good morning/afternoon. My name is [your name]. With me I have [introduce other researcher(s)]. We are very grateful that you agreed to participate in our discussion today. The purpose of this focus group is to discuss your experience with the Niños, Niñas y Adolescentes Trabajadores (NNAT) program. Today's discussion will allow us to better understand your experience as a program beneficiary and your future expectations.

Our discussion today will last about 90 minutes.

With your permission, we will audio record the discussion so we can fill in anything we miss in our notes. **No one outside the evaluation team will have access to this recording.** Is it ok if I record the discussion?

The focus group will work best if you do most of the talking. It is important that we hear from each one of you. Feel free to speak openly and honestly about your experiences and perspectives regarding this project. There are no right or wrong answers and no one is here to judge you. We will ask you to speak one at a time so everyone can be heard. Your participation is voluntary. If, at any time, you wish to leave, you may do so.

Do you have any questions for me before we begin? Okay, let's get started.

#### II. Participant Introduction (15 minutes)

To begin, I'd like to go around and ask each person to introduce themselves. Please tell me:

1. Your first name or nickname;
2. Where you live; and

3. What your favorite thing to do is.

### **III. Work Experience (25 minutes)**

I'd like to start today's discussion by talking about your work experience.

4. Tell me about who's decision it was for you to start working
  - a. How old were you when you started working?
  - b. Did you study and work or drop out of school completely to work?
  - c. What were they key factors in your decision?
5. Did your family influence your choice to start working?
  - a. If no, did your family support your choice to start working?
6. Did many of your friends also work?
  - a. Do many of the young people in your neighborhood work?
7. Do you think that it is good for young people to work?
  - a. What if it means they need to drop out of school?
8. What type of work did you participate in?
  - a. What did you like about this work?
  - b. What did you dislike about this work?

### **IV. Experience with the NNAT Program (40 minutes)**

Next, I'd like to discuss your experience in the NNAT program.

9. Why did you decide to participate in NNAT?
  - a. Be specific. Was there a certain event that made you decide you wanted to continue in school?
  - b. Did the scholarship weigh heavily on your decision?
  - c. Is the amount of the scholarship enough to cover your school expenses?
  - d. Is the amount of the scholarship enough to offset your need to work?
10. Was your family included in the decision for you to continue in school?
  - a. If not, were they supportive of your decision?
  - b. Have they asked you to continue working?
  - c. Were your family finances affected after you joined the program? Please detail how.
11. How has the NNAT program helped you?
  - a. Has it helped your school enrollment and attendance? How?
  - b. Has it helped your academic performance? How?
  - c. Has it helped you prepare for the future? How?
  - d. Has it helped your family's economic situation? How?
  - e. Has the program helped you to stop working? How?
  - f. Has the program helped you with your health? How?
  - g. Has the monetary subsidy helped with your family needs? How?
  - h. Have your future expectations changed after the program? How?

12. Which were the main challenges you experienced during the program?
13. Which were the main strengths of the program?

**V. Conclusion (10 minutes)**

To conclude, I'd like to ask you one final question then ask you if there is anything else you'd like to share with me.

14. Is there anything that I did not ask about that you would like to share with me, or do you have any additional thoughts about what we have discussed today?

## Focus Group Discussion Guide: NNAT Parents

### Informed Consent

Have participants read and sign the informed consent form. Offer to dictate the form if they do not feel comfortable or able to read it. Give each participant an unsigned copy of the form to keep for his or her records.

### Outline with Timing

Time in each section (in minutes)	Topic	Elapse time at the end of section (in minutes)
10	Introduction	10
15	Participant Introduction	25
25	Work Experience	40
40	Experience with the NNAT Program	80
10	Conclusion	90

### I. Introduction (10 minutes)

Good morning/afternoon. My name is [your name]. With me I have [introduce other researcher(s)]. We are very grateful that you agreed to participate in our discussion today. The purpose of this focus group is to discuss your experience with the Niños, Niñas y Adolescentes Trabajadores (NNAT) program. Today's discussion will allow us to better understand your experience as a program beneficiary and your future expectations.

Our discussion today will last about 90 minutes.

With your permission, we will audio record the discussion so we can fill in anything we miss in our notes. **No one outside the evaluation team will have access to this recording.** Is it ok if I record the discussion?

The focus group will work best if you do most of the talking. It is important that we hear from each one of you. Feel free to speak openly and honestly about your experiences and perspectives regarding this project. There are no right or wrong answers and no one is here to judge you. We will ask you to speak one at a time so everyone can be heard. Your participation is voluntary. If, at any time, you wish to leave, you may do so.

Do you have any questions for me before we begin? Okay, let's get started.

### II. Participant Introduction (15 minutes)

To begin, I'd like to go around and ask each person to introduce themselves. Please tell me:

1. Your first name or nickname;
2. Where you live; and
3. How long have you lived in this community.

### III. Your Child's Work Experience (25 minutes)

I'd like to start today's discussion by talking about your child's work experience.

4. Tell me about your who's decision it was for your child to start working?
  - a. How old was your son or daughter when he/she started working?
  - b. Did your son or daughter study and work or drop out of school to work?
  - c. What were they key factors in their decision?
5. Did you or other members of your family influence their choice to start working?
  - a. If yes, was there a certain member of the family who encouraged or even pressured your child to work?
  - b. If no, were you supportive of his/her choice to start working?
  - c. Were your family finances affected after your child joined the program? Please detail how.
6. Did other children in your family work?
  - a. Could your family have survived economically without your children working?
7. Do you think that it is good for young people to have jobs?
  - a. What if it means they need to drop out of school?
  - b. Do many of the young people in your neighborhood work?
  - c. What do you think is good about young people working?
  - d. What do you think is bad about young people working?

### IV. Experience with the NNAT Program (40 minutes)

Next, I'd like to discuss your experience with the NNAT program.

8. Who decided for your child to participate in NNAT?
  - a. Be specific. Do you know if there was there a certain event that made him/herfamily members to decide their continuation in school?
  - b. Did the scholarship weigh heavily on their decision?
  - c. Is the amount of the scholarship enough to cover his/her school expenses?
9. Did your family partake in the decision for your child to continue in school?
  - a. If yes, why did you decide that he/she should continue in school?
  - b. If not, was the family supportive of his/her decision?
10. Do you think the NNAT program helped your child?
  - i. Has it helped your child's school enrollment and attendance? How?
  - j. Has it helped your child's academic performance? How?
  - k. Has it helped your child prepare for the future? How?
  - l. Has it helped your family's economic situation? How?
  - m. Has the program helped your child to stop working? How?
  - n. Has the program helped your child's your health? How?
  - o. Has the monetary subsidy helped with your family needs? How?
  - p. Have your future expectations about your child changed after the program?

11. Which were the main challenges you experienced with the program?
12. Which were the main strengths of the program?

**V. Conclusion (10 minutes)**

To conclude, I'd like to ask you one final question then ask you if there is anything else you'd like to share with me.

13. Is there anything that I did not ask about that you (question posed to the group) would like to share with me, or do you have any additional thoughts about what we have discussed today?

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## **Interview Guide: Government Official**

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## Informed Consent

Have interviewee read and sign the informed consent form. Give interviewee an unsigned copy of the form to keep for his or her records.

## Outline with Timing

Time in each section (in minutes)	Topic	Elapse time at the end of section (in minutes)
3	Introduction	3
2	Interviewee Background	5
15	The Problem of Child Labor in Costa Rica	20
10	NNAT Program Design and Planning	30
25	Successes, Challenges, and Promising Practices of the NNAT Program	55
5	Conclusion	60

### Introduction (3 minutes)

The purpose of this interview is to discuss child labor (including all persons under age 18) in Costa Rica as well as the implementation of the NNAT program. This interview is particularly oriented towards understanding how this government program tries to reduce child labor through NNAT and which challenges, successes, and best practices have been experienced.

With your permission, we will audio record the discussion to assist with note-taking. **No one outside the evaluation team will have access to this recording.**

This interview will work best if you do most of the talking. Feel free to speak openly and candidly about your experiences and perspectives regarding this project. Your participation in this interview is voluntary. If, at any time, you wish to discontinue participation, you may do so without penalty.

The data gathered through these interviews will be reported individually, highlighting informational points from your position. **Please let the interviewer know if you don't want to be identified by name.** The interview will last approximately 60 minutes.

Do you have any questions for me before we begin?

### Interviewee Background (2 minutes)

1. What is your position and how long have you been with your organization?
2. Do you have prior experience working on child labor issues?

### Child Labor in Costa Rica (15 minutes)

#### Overview

3. How is child labor defined in the Costa Rican context?

4. From your perspective, what are the main causes of child labor in Costa Rica?
5. What are the primary activities in which child labor is present, and in which areas of the country?
6. At what age do you start to see children working?
7. What are the perceptions of parents with regard to child labor?
8. Families receiving additional income from child labor are using it for what purpose?
9. What is the government doing to combat child labor? What are NGOs doing?
10. To what extent are national laws being enforced?
11. Please describe the quality of the public education system. In regions of high child labor, what is the quality of the schools? Do children in these regions study and work? To what extent do children miss school because of work?

### **NNAT Program Design and Planning (10 minutes)**

12. How was the program designed and planned?
13. How is the communication and cooperation among implementing institutions?
14. What is the target population and regions?
15. What is the goal of this intervention and how do you think it is being achieved?
16. Who have been the main partners facilitating the implementation of the project on the ground?

### **Successes, Challenges, and Promising Practices of the NNAT Program (25 minutes)**

17. Are there any policies or programs administered by MTSS or any other government agency that have been successful in addressing child labor?
18. Have there been challenges in the implementation of NNAT since its launch? Please describe
19. Have there been challenges in the implementation of NNAT in 2017? Please describe
20. Which activities from NNAT have been successful in addressing child labor?
21. Which activities from NNAT had challenges in addressing child labor, and why?
22. What lessons have been learned and how can they be taken into account for future projects?
23. What role do NGOs and multilateral organizations play in engaging employers about child labor?
24. In your efforts to combat child labor, what has been your experience working with other government agencies, NGOs, and employers?

### **Conclusion (5 minutes)**

25. Is there anything that I did not ask about that you would like to share with me, or do you have any additional thoughts about what we have discussed today?