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Bureau of International Labor Affairs**

**Closing the Child Labor and Forced Labor  
Evidence Gaps: Impact Evaluations**

***Draft Costa Rica Evaluation Design Plan***

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## 1. INTRODUCTION

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### 1.1 Project Overview

The United States Department of Labor International Labor Affairs Bureau (USDOL/ILAB) Office of Child Labor, Forced Labor, and Human Trafficking (OCFT) funds international technical cooperation programs to eliminate forced labor, human trafficking, and the worst forms of child labor. To rigorously assess the effectiveness of programs designed to eliminate forced labor, human trafficking, and the worst forms of child labor, OCFT has funded the *Closing the Child Labor and Forced Labor Evidence Gaps: Impact Evaluations*. The goal of this evaluation project is to provide causal estimates from experimental evaluations of the effects of diverse programs on child labor reduction.

In Fiscal Year 2014, USDOL/ILAB issued the Solicitation for Cooperative Agreement Applications (SCA) SCA-14-22 to identify research organizations with the skills and experience to design and implement impact evaluations (IEs) globally. The goal of the funded IEs is to document and generate evidence of the effectiveness of interventions to reduce the incidence of child labor and forced labor. In this context, IMPAQ International LLC (IMPAQ) is conducting randomized controlled trials (RCTs) to evaluate the effectiveness of five child labor interventions in five countries—India, Malawi, Rwanda, Ecuador, and Costa Rica.

This Evaluation Design Plan describes IMPAQ’s proposed approach to conducting an impact evaluation of the Working Children and Adolescents (Niños, Niñas y Adolescentes Trabajadores - NNAT) program. The NNAT program is an intervention led by the Ministry of Labor of Costa Rica (MTSS) to combat child and adolescent labor by identifying children and youth who are currently working and providing them a conditional cash transfer (scholarship) that requires the students to attend and remain in school. The main objective of this intervention is to reduce child and adolescent labor and support the beneficiaries financially such that they can complete their education.

IMPAQ begins this report with a brief description of NNAT, followed by a review of relevant related research, the specific policy context in Costa Rica, and a description of the expected contributions of this evaluation. The second section describes the NNAT program in Costa Rica, the expected results, and the program logic model. Subsequently, in the third section, IMPAQ explains the proposed research design for the randomized control trial (RCT) impact evaluation and the qualitative study that will complement it. Finally, in the fourth section, IMPAQ presents an evaluation timeline, the work plan, proposed schedule of deliverables, and IMPAQ’s systems to maintain data security.

### 1.2 Policy Context

According to the World Bank, Costa Rica is an upper middle income country that has experienced steady economic growth during the past decades, outpacing the average growth rate for the

region.<sup>1</sup> Costa Rica currently has a population of 4.9 million. Along with steady economic growth, income inequality has increased, with poverty and extreme poverty still present at considerable levels. The poverty rate for 2011 was 21.6 percent, while the extreme poverty rate was 6.4 percent in that same year. The presence of these considerably high poverty rates carries very serious adverse social consequences such as hunger, health complications, childhood malnutrition, crime, drug trading, sexual exploitation, and the use of child labor. Despite Costa Rican legislation forbidding children under the age of 15 from engaging in any kind of work and adolescents under the age of 18 from being employed to perform hazardous jobs, minors continue to be exposed to deleterious child labor, especially in sectors such as agriculture and commerce.

Based on a 2011 survey, more than 47,000 children and adolescents were engaged in child labor in Costa Rica, which is 4.6 percent of children ages 5 to 17 years-old.<sup>2</sup> This rate is lower than the child labor rate for Latin America and the Caribbean as a whole, which was 8.2 percent of children ages 5 to 17 in 2012.<sup>3</sup> A 2002 survey found that 10.2 percent of children ages 5 to 17 were engaged in child labor in Costa Rica. Although the 2002 and 2011 surveys were not exactly comparable, there is a trend of decreasing child labor rates over time.<sup>4</sup> Child labor is more prevalent in rural regions of Costa Rica. Exhibit 1 presents the six socio-economic regions of Costa Rica. With the sole exception of the Central Region, all other regions are considered rural.

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<sup>1</sup> World Bank. (n.d.) *Costa Rica*. Retrieved from <http://www.worldbank.org/en/country/costarica>

<sup>2</sup> All child labor figures, unless otherwise cited, are from: MTSS/IPEC. (2011). *Magnitud y características del trabajo infantil y adolescente en Costa Rica - Informe 2011*. Geneva: International Labour Organisation. Retrieved from <http://www.ilo.org/ipecinfo/product/viewProduct.do?productId=22215>.

<sup>3</sup> International Programme on the Elimination of Child Labour (IPEC). (2013) *Global child labour trends 2008 to 2012*. Geneva: International Labour Office. Retrieved from <http://www.ilo.org/ipecinfo/product/download.do?type=document&id=23015>.

<sup>4</sup>IPEC. (2003). *Informe nacional de resultados de la encuesta de trabajo infantil y adolescente Costa Rica*. San José: OIT. Retrieved from <http://www.ilo.org/ipecinfo/product/viewProduct.do?productId=628>.

MTSS/IPEC. (2011). *Magnitud y características del trabajo infantil y adolescente en Costa Rica - Informe 2011*. Geneva: International Labour Organisation. Retrieved from <http://www.ilo.org/ipecinfo/product/viewProduct.do?productId=22215>.

### Exhibit 1. Socio-Economic Regions of Costa Rica



Source: [mideplan5-n.mideplan.go.cr/cooperacioninternacional/](http://mideplan5-n.mideplan.go.cr/cooperacioninternacional/)

The Brunca region, a highly agricultural and high poverty region in the south of the country, has a particularly high rate of child labor (7.8%). Nevertheless, the Central region, which includes San José, has the highest absolute population of children between the ages of 5 and 17 who are engaged in child labor (See Exhibit 2). There are also some significant gender differentials in child labor in Costa Rica, with male child laborers dominating rural areas (70%) and female child laborers dominating in urban areas (59%). Boys are more commonly found working in agriculture and commerce, while girls are heavily concentrated in domestic service—both paid and unpaid. Exhibit 2 summarizes regional child labor rates in Costa Rica.

### Exhibit 2. Child Labor Rates in Costa Rica by Region

	Population Children 5 17	Children 5 17 Engaged in Child Labor	Rate
Central	613,352	26,871	4.4%
Chorotega	75,452	3,285	4.4%
Pacifico Central	52,468	1,695	3.2%
Brunca	76,869	6,024	7.8%
Huetar Atlántica	131,522	5,620	4.3%
Huetar Norte	72,468	3,905	5.4%
<b>Total</b>	<b>1,022,131</b>	<b>47,400</b>	<b>4.6%</b>

Source: Author's calculation based on MTSS/IPEC. (2011). "Magnitud y características del trabajo infantil y adolescente en Costa Rica - Informe 2011." Geneva: International Labour Organisation. Retrieved August 24, 2015 from <http://www.ilo.org/ipecinfo/product/viewProduct.do?productId=22215>.

In Costa Rica, the education system consists of pre-school, primary education, secondary education, vocational, and tertiary education.<sup>5</sup> Exhibit 3 summarizes Costa Rica's education system by age and associated grade level and it's equivalence with the U.S. school system.

**Exhibit 1. Costa Rica's Education System**

Age	Grade	Institutional Level in Costa Rica	Proxy U.S. Equivalent
4	P	Pre-School	Kindergarten
5	P		
6	P		
7	1	Primary School	Elementary school
8	2		
9	3		
10	4		
11	5		
12	6		
13	7	Secondary School	Middle school
14	8		Secondary school
15	9		
16	10		
17	11		
18		Vocational and Tertiary Education (University)	University/Technical
19			
20			
21			
22+			

### 1.3 NNAT Program

The objective of the NNAT program is to reduce child labor by reinserting children and adolescents into public schools, and to keep them in the system by offering scholarships as incentives. Exhibit 4 illustrates a case of child labor in Costa Rica. The target group are children and adolescents who have the following characteristics:

- Find themselves excluded from the school system,
- Have fallen behind in school completion,
- Have not concluded primary school, or
- Have dropped out of secondary school.

<sup>5</sup> Source: <http://www.mep.go.cr/primerosegundociclos>

## Exhibit 2. Child Selling Lottery Tickets in the Streets of San José



Source: OATIA, Ministry of Labor Costa Rica

The NNAT program recruits potential beneficiaries through two key channels: (1) formal complaints that are referred to the MTSS when someone witnesses child labor occurrences, and (2) teams of social workers in the field who detect child labor in regions where it is expected. After potential beneficiaries are identified, social workers collect all the required eligibility information from the child and his/her household and prepare an application for the NNAT scholarship. The NNAT's scholarship administrator, the Instituto Mixto de Ayuda Social (IMAS), currently provides the scholarship to the respective students on a monthly basis in the amount of 60,000 colones, about US\$120, in 2016.

### 1.4 Previous Research

Conditional Cash Transfer (CCT) programs are commonly adopted by Latin American Governments, and there is an abundance of evaluation studies analyzing the effects of CCT schemes on human capital formation among disadvantaged youth.<sup>6</sup> Because the NNAT scholarship is quite similar to CCT programs for education, IMPAQ reviewed the research evaluating CCT programs that have been adopted in low and middle-income countries like Costa Rica. CCT programs are a vehicle to distribute resources to poor or needy families, incentivizing the beneficiaries to change their behavior. For example, money is transferred to a beneficiary on

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<sup>6</sup> Of the 23 impact evaluations Jacobus de Hoop and Furio Rosati examined in their exhaustive review of the literature, the lion share of CCTs took place in Latin America.

the condition that he or she maintains steady school attendance or goes to a local health clinic for regular visits.<sup>7</sup>

Although child labor appears to be decreasing over time, the dropout rates in Costa Rica for secondary school students have become a major challenge facing the education system.<sup>8, 9, 10, 11.</sup> In the last decade, Costa Rica has implemented two CCTs related to education to help address this problem: (1) Superémonos, which started 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. The only studies that have examined the effects of CCTs on school attendance and/or child labor in the Costa Rican context are based on these two programs.

Superémonos was a conditional cash transfer program developed by IMAS that provided a monthly food coupon to households categorized by the institution as being in poverty and extreme poverty. The program's main objective was improving schooling. Although the beneficiary population was poor families and not children engaged in child labor, it was also expected that the program would influence child labor outcomes by having the conditionality of children attending school regularly.

Duryea and Morrison (2004) evaluated the role Superémonos played in slowing down the pace of child labor practices and increasing school attendance among program participants in Costa Rica.<sup>12</sup> Using primary survey data from 746 participating and 1,042 non-participating families in

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<sup>7</sup>For an exhaustive review of conditional cash transfer programs, see de Hoop, H. & Rosati, F.C. (2014, March). *Cash transfers and child labor*. Understanding Children's Work (UCW) Programme. Retrieved from [http://www.ucw-project.org/attachment/st\\_Cash\\_Transfers\\_and\\_Child\\_Labour\\_Mar1420140321\\_162511.pdf](http://www.ucw-project.org/attachment/st_Cash_Transfers_and_Child_Labour_Mar1420140321_162511.pdf). UCW Working Paper. See also Fiszbein, A. & Schady, N. (2009). *Conditional Cash Transfers: Reducing Present and Future Poverty*. World Bank Policy Research Report 47603. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/2597/476030PUB0Cond101Official0Use0Only1.pdf?sequence=1>.

<sup>8</sup> Meza-Cordero, J., Kugler, M., Gulemetova, M., Salas-Ocampo D., Rodriguez-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. Columbia, MD: IMPAQ International. Retrieved 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)

<sup>9</sup> Román, I. (2010). *Sustentabilidad de los programas de transferencias monetarias condicionadas: la experiencia del Instituto Mixto de Ayuda Social y "Avancemos" en Costa Rica*. United Nations. Social Policy Series No. 160. Division of Social Development, Comisión Económica para América Latina (CEPAL).

<sup>10</sup> Hernández, K. & Mata, C. (2015). "Evaluación de Impacto de Transferencias Monetarias Condicionadas Para Educación Secundaria en Costa Rica." *Ciencias Económicas* ISSN: 0252-9521. 33(1): 9-30. DOI: <http://dx.doi.org/10.15517/rce.v33i1.19964>.

<sup>11</sup> Jiménez, W. & Gaete, M. (2013). "Estudio de la exclusión educativa y abandono en la enseñanza secundaria en algunas instituciones públicas de Costa Rica." *Revista Electrónica Educare*, On-line version ISSN 1409-4258. Retrieved from [http://www.scielo.sa.cr/scielo.php?pid=s1409-42582013000100007&script=sci\\_arttext](http://www.scielo.sa.cr/scielo.php?pid=s1409-42582013000100007&script=sci_arttext).

<sup>12</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. Retrieved from <http://www.iadb.org/res/publications/pubfiles/pubWP-505.pdf>.

three urban areas of Costa Rica, they conducted a quasi-experimental evaluation and 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. Given that the program did not aim to affect labor participation outcomes, very little is known about the relationship between CCT interventions in Costa Rica and their promise for reducing child labor or eliminating the worst forms of child labor.

Avancemos is an ongoing program from the Government of Costa Rica targeted to reduce secondary school drop-out through a monthly conditional cash transfer. The transfer was designed to incentivize school retention and has the conditions of regular school attendance and not repeating a grade more than once. Based on a quasi-experimental analysis of Avancemos, Hernández and Mata (2015) estimated that 10 to 16 percent of students who stayed in school did so solely due to their participation in Avancemos.<sup>13</sup> Meza-Cordero (2014) also found that Avancemos beneficiaries completed 0.62 more years of schooling than students who were not participating in the program.<sup>14</sup> Therefore, the existing evidence on CCTs in the Costa Rican context suggests that these types of programs have a positive effect on reducing the drop-out rate and extending the number of years that Costa Rican students attend school. However, these two studies produced no evidence of any impact of Avancemos on child labor participation in Costa Rica.

While the studies of Supermonos and Avancemos did not lead to measurable reductions in child labor, it is important to note that these two programs were not geared towards child labor. In contrast, the NNAT targets the population of children and adolescents directly engaged in child labor. The program scholarships are meant to influence child workers' employment decisions such that as they take up the scholarship and maintain the conditions necessary to retain the scholarship, they will discontinue their engagement in child labor.

The experimental evaluation of the NNAT program will close many existing gaps in the literature about child labor interventions in Costa Rica. This will be the first impact evaluation of a conditional cash transfer program designed to reduce child labor participation and increase schooling. The evaluation will also be the first to utilize the most rigorous approach, RCT, to identify the unbiased effects from the intervention, while also including a complementary qualitative study to better understand the mechanisms through which the effects are generated.

In fact, no studies to date have used RCTs in the Costa Rican context to evaluate how CCT programs (and similar programs, such as NNAT) affect educational and child labor outcomes. However, an inventory of published impact evaluations assembled by the *Understanding*

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<sup>13</sup> Hernández, K., & Mata, C. (2015). "Evaluación de Impacto de Transferencias Monetarias Condicionadas Para Educación Secundaria en Costa Rica." *Ciencias Económicas*. <http://dx.doi.org/10.15517/rce.v33i1.19964>.

<sup>14</sup> Meza-Cordero, J. (2014). *Essays on Education Programs in Costa Rica*. University of Southern California Dissertations and Theses. Retrieved from <http://digitalibrary.usc.edu/cdm/ref/collection/p15799coll3/id/414880>.

*Children's Work* (UCW) project (a consortium of ILO, UNICEF, and the World Bank)<sup>15</sup> shows that there are numerous recent RCT studies of such programs in other developing countries, including Ecuador, Panama, India, Burkina Faso, and Nepal.<sup>16, 17, 18, 19.</sup>

Taken together, these RCT studies have generated heterogeneous evidence.

1. The evaluation of a CCT in Ecuador showed large, significant reduction in children's work and a large positive impact on school enrollment.
2. Similarly, in Panama, the results of an intervention to improve educational access showed that the tutoring component of the program was beneficial in reducing both the probability of children working and the number of hours that they spent in economic activities. However, there was no evidence of impact on children's work of an accelerated primary education component.
3. In India, an intervention that provided cash assistance to the poor led to improved effects on household welfare, such as per capita household consumption, nutritional intake, and perceived health. However, the children who received the intervention did not differ from children in the control group in terms of the time that they spent working or performing chores.
4. A study of school feeding interventions, where students were provided meals before and/or after classes, in Burkina Faso found that the interventions did not eliminate child labor, but instead altered the allocation of child labor, especially among girls. Children tended to perform less productive activities and more domestic activities.
5. In Nepal, two groups of students were randomly assigned such that one group received a scholarship towards educational expenses while the second group received the same scholarship, as well as an additional voucher to purchase food at a local store. The results of this experiment revealed that the first treatment increased school attendance but did not reduce child labor. The second treatment had a larger effect on school attendance and achievement and also reduced child labor.

Taken together, the existing research offers important insights, but still leaves many questions unanswered — e.g. about the best approach or combined approaches to reduce and eliminate

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<sup>15</sup>Understanding Children's Work (UCW). (n.d.). *Inventory of child labour impact evaluations*. Retrieved from <http://www.ucw-project.org/impact-evaluation/inventory-impact-evaluations.aspx>.

<sup>16</sup>Schady, N. & Araujo, M. C. (2006). *Cash transfers, conditions, school enrollment, and child work: Evidence from a randomized experiment in Ecuador*. World Bank Policy Research Working Paper 3930.

<sup>17</sup>Andisha, N., Chiquito-Saban, O., Emmerich, E., Figueroa, A., Jiang, Y., Hui-Lee, J., . . . & Ortega-Sanchez, A. (2009). *Reducing child labour in Panama: An impact evaluation of a Department of Labor-funded initiative*. The George Bush School of Government and Public Service, Texas A&M University.

<sup>18</sup>Banerjee, A., Duflo, E., Chattopadhyay, R. & Shapiro, J. (2011). *Targeting the hard-core poor: An impact assessment*. Working paper.

<sup>19</sup>Kazianga, H., de Walque, D., & Alderman, H. (2009). *Educational and health impacts of two school feeding schemes: Evidence from a randomized trial in rural Burkina Faso*. Policy Research Working Paper 4976, The World Bank.

child labor — especially in the Costa Rican context. IMPAQ’s evaluation of NNAT will help to close these critical gaps in knowledge. In this evaluation, IMPAQ will focus on clarifying the short-term effects of social protection programs for Costa Rican children and their families, and identify potential opportunities to conduct further research to assess longer-term effects in the future.<sup>20</sup>

## 1.5 Definition of Child Labor in Costa Rica

Not all work performed by children is defined as child labor. Child labor is defined as work that affects the physical, intellectual, moral, affective, social, and educational development of working children and adolescents. Child labor in effect hinders human development, not only by depriving children of having a healthy childhood, but it also interferes with their education by either denying them an opportunity to attend school, forcing them to leave school prematurely, or limiting their capacity to benefit from formal academic instruction.

According to the International Labor Organization (ILO), for the purposes of statistical measurement, children engaged in child labor include all persons 5 to 17 years of age who are employed below the minimum working age, are engaged in work for a total number of hours that exceeds the national threshold allowed, and/or are engaged in the worst forms of child labor.<sup>21</sup>

Costa Rica has ratified all of the major international conventions on child labor and has well established laws prohibiting child labor, which continue to be refined.<sup>22</sup> Two crucial conventions ratified with no exceptions by the Government of Costa Rica are ILO Convention No. 138 and ILO Convention No. 182.

### Examples of Hazardous Labor in Costa Rica from ILO Convention No. 182:

- Construction work
- Application of pesticides
- Liquor distillation or manufacturing of alcohol
- Manufacturing of explosives or inflammable materials
- Loading or unloading of vessels
- Machinists or stokers
- Use of circular saws and other dangerous tools
- Serving alcoholic beverages
- On board fishing
- Custodians or security

### 1.5.1 ILO Convention No. 138 on the Minimum Age for Admission to Employment and Work<sup>23</sup>

Under ILO Convention No. 138, countries may specify a minimum age for work. Additionally, the convention sets a minimum age of 18 years for work that could potentially jeopardize the health, safety, or morals of young persons. Finally, national laws may permit the employment of persons between 13 to 15 years of age so long as it does not harm their human development.

<sup>20</sup> Since the period of performance for this contract lasts until 2019, there may be options to conduct additional follow-up research, contingent on ILAB approval, interest from the Costa Rican government, feasibility based on attrition, and the availability of project resources.

<sup>21</sup> ILO. *Resolution II: Resolution Concerning Statistics of Child Labor*. ICLS 18th Conference, 2008, pp. 58–66. [http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms\\_101467.pdf](http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_101467.pdf)

<sup>22</sup> USDOL Bureau of International Labor Affairs (ILAB). (2013). *Costa Rica*. Retrieved from: [http://www.dol.gov/ilab/reports/child-labor/costa\\_rica.htm](http://www.dol.gov/ilab/reports/child-labor/costa_rica.htm).

<sup>23</sup> Source: [http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100\\_ILO\\_CODE:C138](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C138)

### 1.5.2 ILO Convention No. 182 on the Worst Forms of Child Labour<sup>24</sup>

The worst forms of child labor, as defined by ILO Convention No. 182 Article 3, include the following:

- a. All forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labor, including forced or compulsory recruitment of children for use in armed conflict;
- b. The use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances;
- c. The use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties; and
- d. Hazardous child labor that, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety, or morals of children.

### 1.5.3 Costa Rica Legislation

The Government of Costa Rica ratified ILO Convention No. 138 through National Law No. 5594 (October, 1974) as well as Convention No. 182 (August, 2001) through National Law No. 8122. The Government of Costa Rica also approved a Childhood and Adolescence Code through National Law No. 7739 (February, 1998), going a step further than ILO Convention No. 138 and forbidding any type of child labor for persons under 15 years of age, including light work. This Code also features a protection regimen for adolescents between ages 15 and 18 in order to guarantee that their labor activity does not carry any risk for their physical and mental health, or affects their school attendance.<sup>25</sup>

In 2010, the Code was strengthened to provide more protection to domestic workers by clarifying that third party houses can be considered as labor facilities.<sup>26</sup> The 2010 reforms also describe specific domestic work activities that are prohibited for adolescents ages 15 to 17. Such forbidden domestic work activities include:

- Working days of over 6 hours and working weeks of over 36 hours;
- Work limiting regular attendance to school;
- Sleeping in the workplace;
- Caretaking of children, elders, or handicapped people; and

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<sup>24</sup> Source: [http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100\\_ILO\\_CODE:C182](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_ILO_CODE:C182)

<sup>25</sup> USDOL Bureau of International Labor Affairs (ILAB). (2013). *Costa Rica*. Retrieved from: [http://www.dol.gov/ilab/reports/child-labor/costa\\_rica.htm](http://www.dol.gov/ilab/reports/child-labor/costa_rica.htm).

<sup>26</sup> MTSS/IPEC. (2011). *Magnitud y características del trabajo infantil y adolescente en Costa Rica - Informe 2011*. Geneva: International Labour Organisation. Retrieved from <http://www.ilo.org/ilpecinfo/product/viewProduct.do?productId=22215>.

- The provision of security services.<sup>27</sup>

Finally, the 2010 reforms forbid adolescents between the ages of 15 to 17 from engaging in the following activities:

- Any work in mining;
- Any work in hazardous locations;
- Work in facilities where alcoholic beverages are distributed;
- Unsafe and unhealthy occupations;
- Activities that involve the use of heavy machinery;
- Activities that require handling contaminants; and
- Work in locations with excessive noise.

Exhibit 5 summarizes permissible and non-permissible work in Costa Rica.

**Exhibit 5. Permissible and Non-Permissible Forms of Child Labor in Costa Rica**

Age	Forms of Child Labor		
	Domestic Work	Ordinary Work	Hazardous Work
<b>Children under 15 years old</b>	Not permitted	Not permitted	Not permitted
<b>Adolescents between 15 to 17 years old</b>	Permitted under special conditions	Permitted under special conditions	Not permitted

As discussed above, adolescents between the ages of 15 and 17 currently are permitted to work in Costa Rica, but are not allowed to work more than 36 hours per week, at night<sup>28</sup>, or in hazardous conditions. Nevertheless, the worst forms of child labor continue to persist, especially on third-party small farms and small family farms in the informal sector. Moreover, there have been some instances of commercial sexual exploitation of children and trafficking of children,<sup>29</sup> despite the fact that in recent years, Costa Rica has toughened laws against child pornography and trafficking of persons.<sup>30</sup> The MTSS Office for the Eradication of Child Labor (OATIA) oversees the investigation of reports of child labor, collaborating with other government ministries as necessary. Exhibit 6 depicts government campaigns to eliminate child labor.

<sup>27</sup>MTSS/IPEC. (2011). *Magnitud y características del trabajo infantil y adolescente en Costa Rica - Informe 2011*.

Geneva: International Labour Organisation. Retrieved from

<http://www.ilo.org/ipecinfo/product/viewProduct.do?productId=22215>.

<sup>28</sup> Costa Rican legislation defines night as any time between 7AM and 7PM, with certain exceptions allowing for afternoon/evening shifts ending by 10PM if a child goes to school in the afternoon and then goes to work.

<sup>29</sup> U.S. Department of State. (2014). *Country reports on human rights practices for 2014: Costa Rica*. Washington, D.C.

<sup>30</sup> USDOL Bureau of International Labor Affairs (ILAB). (2013). *Costa Rica*. Washington, D.C. Retrieved from: [http://www.dol.gov/ilab/reports/child-labor/costa\\_rica.htm](http://www.dol.gov/ilab/reports/child-labor/costa_rica.htm).

## Exhibit 6. Celebration of the World Day Against Child Labor



Source: Government of Costa Rica Press Release June 10, 2015

### 1.5.3 Measurement of Child Labor

As pointed out in Dayiouglu (2012), estimates of child labor prevalence and child labor magnitude measures are sensitive to the specific definitions of child labor utilized.<sup>31</sup> Therefore, in this evaluation, we will employ an operational definition of child labor as follows:

The International Labor Organization (ILO) defines child labor as any type of “work that is mentally, physically, socially or morally dangerous and harmful to children, and interferes with children’s education by: (i) denying them an opportunity to attend school, (ii) obliging them to leave school prematurely, or (iii) requiring them to attempt to combine school attendance with excessively long and heavy work.”<sup>32</sup>

In addition, ILO outlines a specific criteria for the statistical measurement of child labor across countries. The 18<sup>th</sup> International Conference of Labor Statisticians (ICLS) states that

*“[c]hildren engaged in child labor include all persons aged 5 to 17 years who are engaged in any of the following:*

- 1) worst forms of child labor*
- 2) employment below the minimum age*

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<sup>31</sup> Dayioğlu M. (2012), *How sensitive are estimates of working children and child labour to definitions? A comparative analysis*, MICS Methodological Papers, No. 1, Statistics and Monitoring Section/Division of Policy and Strategy, UNICEF New York.

<sup>32</sup> ILO What is child labor, defining child labor at <http://www.ilo.org/ipec/facts/lang--en/index.htm>

- 3) *hazardous unpaid household services, applicable where the general production boundary is used as the measurement framework*<sup>33</sup>

*A child may be considered in child labor when the total number of hours worked in employment and unpaid household services exceeds the thresholds that may be set for national statistics purposes” (ICLS 18, par. 15 and 16).*

Costa Rica has ratified ILO’s major conventions on minimum working age and worst forms of child labor (138 and 182, respectively) as well as the UN’s Convention on the Rights of the Child. The relevant national legislation regulating work prohibited to minors are the Childhood and Adolescence Code (CNA, 1998) and the Prohibition of Dangerous and Unhealthy Work for Adolescents Law (No. 8922).

National legislation does not include detailed terminology to define the different categories of children in employment or in child labor, like *light work* or *hazardous household services*. However, it codifies in its labor laws the obligatory components set forth in the relevant international treaties, such as defining the basic minimum working age and minimum age for hazardous work, limits on hours and conditions for working adolescents and the abolition of the worst forms of child labor. Costa Rica’s CNA is more stringent than the ILO conventions, as it prohibits minors under the age of 15 from participating in any form of labor, including unpaid household work.

### ***Worst Forms of Child Labor***

Article 94 of Costa Rica’s CNA provides a list of the types of work prohibited to minors by incorporating ILO’s description of what constitutes the worst forms of child labor, including working in mining, in hazardous locations, in facilities where alcoholic beverages are distributed, among others. The types of work listed may be harmful to the health, security or morality of minors, which is further defined in ILO’s Recommendation 190 as hazardous child labor (HCL). See Appendix 2 for a full list of the prohibited activities.

### ***Minimum Legal Age***

The minimum working age in either paid positions or unpaid household labor for Costa Rican adolescents is 15 years old.<sup>34</sup> According to the Childhood and Adolescence Code, adolescents between 15 and 17 years old may work under protected conditions described below.

### ***Working Day and Workplace Conditions***

Childhood and Adolescent Code Art. 95 designates the number of hours permitted for working adolescents. Adolescents may not work more than 6 hours a day or 36 hours a week. Night work between 7 PM and 7 AM is prohibited, with certain exceptions allowing for afternoon/evening shifts until 10PM. Additionally, CNA Art. 78 and 94 define the types of prohibited hazardous workplace conditions, activities or occupations that may endanger their development or well-

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<sup>33</sup> ILO. *Resolution II: Resolution Concerning Statistics of Child Labor*. ICLS 18<sup>th</sup> Conference, 2008. pg. 58-66.

[http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms\\_101467.pdf](http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_101467.pdf)

<sup>34</sup> ILO & Costa Rican Childhood and Adolescence Code 1998

being (see Appendix 1 for a detailed comparison of International and Costa Rican Legislation and reference to the survey questions capturing the definition).

### **Household Work**

Household work, whether paid or unpaid, is protected by the same rules and regulations of the CNA as labor outside the household. The 19<sup>th</sup> ICLS (Report III, par 41) notes that while survey data from 65 countries shows no evidence of decreased school attendance among children involved in household chores, 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 spent on household chores.<sup>35</sup> Since there isn't an agreed upon definition for long hours in household services, we will present the findings using two thresholds: the ILO threshold (more than 20 hours per week), and the CNA threshold for hours engaged in any type of labor (more than 36 hours per week). The measure of household work will not be formally included in the CL estimate; rather, it will be presented separately.

For this evaluation, we apply the child labor measurement framework<sup>36</sup> criteria outlined by the ILO to the NNAT participant population. The NNAT working adolescents aged 12-14 will be considered to be engaged in child labor regardless of the type of work they are performing, the industry they are working in, and/or the workplace conditions. Participants aged 15-17 will be considered to be engaged in child labor if they are working night work and long hours, regardless of the industry or occupation or if they are working in designated hazardous industries, hazardous occupations, or under hazardous working conditions, as defined by the ILO and the Costa Rican Childhood and Adolescent Code (see Exhibit 20 in Appendix 1 for a graphic representation of the child labor definition).

The government of Costa Rica has ratified ILO conventions to eliminate child labor in hazardous industries/sectors like certain types of agriculture, construction, and extractive industries.<sup>37 38</sup> For hazardous occupations we will rely on the list of prohibited work denoted in Law 8922, Prohibition of Dangerous and Unhealthy Work for Adolescent Workers (this list is reported in Appendix 3).<sup>39</sup> To define long hours<sup>40</sup> or night work we will use the national legislation outlined previously to determine these limits. In addition, our survey instrument includes questions to ascertain the existence of hazardous working conditions (exposure to toxics, fumes, etc.), as delineated in the Childhood and Adolescence Code.

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<sup>35</sup> From: [http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms\\_234124.pdf](http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_234124.pdf)

<sup>36</sup> From: [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)  
[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)

<sup>37</sup> From: <https://www.dol.gov/ilab/reports/child-labor/findings/2014TDA/costarica.pdf>

<sup>38</sup> Childhood and Adolescence code, Art. 94.

<sup>39</sup> Law 8922, Prohibition of Dangerous and Unhealthy Work for Adolescent Workers, Art. 4. Available from: <http://sise.co.cr/normativa/17-931.htm>

<sup>40</sup> The 18<sup>th</sup> ICLS (par 28) states that "The threshold [for long hours] may be determined in terms of the maximum number of hours of work that the national law or regulation sets for children who have reached the minimum working age."

## 1.6 Evaluation Contribution

IMPAQ's impact evaluation of the NNAT program will close the evidence gap on what works to reduce child labor in several ways. First, it will be the first randomized control trial (RCT) study conducted on a program designed to reduce child labor and improve education outcomes in Costa Rica. To date, very little research has been conducted on child labor in Costa Rica, so this study will contribute to understanding vulnerable populations in a middle-income country. IMPAQ's evaluation design will provide causal evidence of the program's effects on education and labor outcomes, such as school attendance, education completion, likelihood of labor participation, hours worked, and family income.

Second, because the study will assess a specific government program, it will have direct implications for effective and timely policy design. The NNAT evaluation will also provide the Government of Costa Rica with an updated report of a policy relevant issue that will allow them to better understand the current situation of child labor as well as the impacts generated by NNAT. This information will be crucial for the government agencies involved in their plans to make timely corrections and consider scale-up plans for this ongoing program. IMPAQ will use the information that it collects on the intervention's impact to assess the effectiveness of the program, which combined with qualitative analysis could be used by the Government of Costa Rica to make adjustments to the program's administration, regional targets, eligibility requirements, components and conditionality.

Finally, as part of this evaluation, IMPAQ will develop a novel participant tracking system (PTS) that directly engages youth in the collection of data through continuous tracking by text messaging to corroborate if a child is still attending school or went back to work. After IMPAQ pilots this new study technology, the PTS can be adapted for use in similar studies elsewhere to collect better information and decrease attrition.

The NNAT evaluation will provide important information about how the program affects child and adolescent labor in the short-run and opens up opportunities for future research to evaluate its mid- and long-run effects.

## **2. THE WORKING CHILDREN AND ADOLESCENTS PROGRAM**

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Since 1999, the Office for the Attention and Eradication of Child Labor and Protection of the Adolescent worker (OATIA) of the Costa Rican Ministry of Labor and the scholarship administrator IMAS from the Ministry of Education have joined efforts to identify working children and reinsert them into the public school system. The Working Children and Adolescents (Niños, Niñas y Adolescentes Trabajadores - NNAT) program resulted from these collaborations.

### **2.1 Background**

Costa Rica identifies child and adolescent labor as a social problem that adversely affects the physical, intellectual, moral, affective, social, and educational development of working children and adolescents. According to Costa Rica's Law 7739, Article 92: "All working activity performed by individuals under age 15 is forbidden."<sup>41</sup> This law makes it illegal for children under age 15 to work, regardless of the working condition: remunerated, not remunerated, independent work, family work, and work in the production of goods or services. Specifically, the labor code outlaws work that will limit a child's or adolescent's appropriate development, restrict his or her participation and right to education, or cause harm in his the child's or adolescent's physical health and/or intellectual, psychological, moral, and social development.

Similarly, Costa Rican legislation also forbids adolescents between ages 15 and 18 from employment in hazardous labor. Law 8922, Article 2 states that: "Adolescent work is allowed only within the framework of a special protection regimen," while Article 3 restricts adolescents to be employed in hazardous labor, which is defined as any labor or economic activity that is performed by individuals under age 18 that, due to its nature or the conditions of work, may cause harm to a child's physical and mental health, as well as to the life prospects of the working individual.<sup>42</sup>

### **2.2 Program Description**

The objective of the NNAT program is to reduce child labor by reinserting children and adolescents into public schools, and keeping them in the educational system by providing the incentive of a scholarship. Beneficiaries are reinserted into the last school grade that hasn't been completed yet. The target group are children and adolescents at risk who meet the following criteria:

- Have been excluded from the school system,
- Are falling behind in school completion,
- Have not concluded primary school, or
- Have dropped out of secondary school.

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<sup>41</sup> Código de la Niñez y la Adolescencia, Ley N. 7739, Gobierno de Costa Rica. Retrieved from <http://www.tse.go.cr/pdf/normativa/codigodelaninez.pdf>

<sup>42</sup> Prohibición del trabajo peligroso e insalubre para Personas Adolescentes trabajadoras, Ley 8922, Gobierno de Costa Rica. Retrieved from: <http://www.ilo.org/dyn/natlex/docs/ELECTRONIC/86385/97460/F112157985/CRI86385.pdf>

The NNAT program recruits potential beneficiaries through two key channels: the receipt of formal complaints when someone observes child labor, and cases identified by social workers from the Ministry of Labor when they are out in the field. When formal complaints are made to government agencies, the cases are referred to the Ministry of Labor to take action through OATIA. Besides receiving and investigating complaints, OATIA also has a team of social workers who visit the communities across Costa Rica that have the highest rates of poverty and child and adolescent labor. After social workers identify potential beneficiaries, they collect their eligibility information and prepare applications for the NNAT scholarship.

The social workers check eligibility criteria during the site visits, and initially confirm them when they complete the application form. Not all the cases detected by OATIA end up being approved by the scholarship administrator IMAS, however, most of them do. The program has a budget that allows 275 new beneficiaries each year. An applicant must satisfy the following requirements to become a beneficiary of the program:

- Under age 15 working in any occupation (for pay and not for pay), or,
- Under 18 working in hazardous occupations; and,
- The household has to be below the poverty or extreme poverty level, according to the Costa Rica Census Bureau standards; and,
- Reside in Costa Rica.

To receive the scholarship, the child/adolescent beneficiary must be registered in a public school. The social workers from OATIA personally register the beneficiaries in their designated public schools.<sup>43</sup> Beneficiaries who reach age 18 during the program and are still in secondary school are allowed to stay in the program until age 21 to avoid disrupting their education or preventing them from finishing secondary school. Social workers also provide the required documentation to the scholarship administrator IMAS to verify and activate the scholarship. The scholarship administrators verify that beneficiaries satisfy the program's requirements, insert the students into their database and monthly payment system, as well as monitor the program.

For 2017 and 2018, the NNAT program has a budget to fund 275 new scholarships each year, which are carried over if the beneficiary remains in school.. The scholarship administrator IMAS provides the scholarship on a monthly basis to the mother of the student in the amount of 60,000 colones, or about US\$120, in 2016. The students are allowed to use the scholarship to cover any expenses, rather than being limited to education expenses.

According to OATIA, the beneficiaries in the past two years have been predominantly from the agricultural sector—most commonly, they have worked on small private or family farms. The second sector from which beneficiaries are selected is commercial trade, both formal and informal. Brunca, Central, and Pacífico Central are the three regions that have the highest

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<sup>43</sup> Public schools in Costa Rica are tuition free.

number of NNAT beneficiaries due to child labor prevalence in agriculture, commerce and agriculture respectively. Exhibit 7 shows children working in agriculture.

### **Exhibit 7. Working Children in Banana Plantations of Costa Rica**



Source: OATIA, Ministry of Labor Costa Rica

More than half of the beneficiaries are male, about 60%. This is due to the fact that males represent 70% of the country's rural child labor population, most commonly in agriculture. Roughly 80 percent are between the ages of 15 and 17. It is more common for adolescents in the first years of secondary school to drop out of the program, consequently students in the last grades of secondary school are more likely to stay in the program until they complete secondary school, because they can see the accomplishment of that goal in the near horizon. Finally, OATIA has anecdotally documented many cases of students that finish secondary school with the assistance of NNAT moving forward to vocational training and college.

It is important to point out that the NNAT program tends to serve more Costa Ricans than migrants from other countries. NNAT does not handle more complex cases of child labor, such as the commercial sexual exploitation of children or child trafficking because another agency, Patronato Nacional de la Infancia (PANI), provides more comprehensive services for those children.

## **2.3 Expected Results of the Program: Channels and Timing**

The NNAT program has two main components. First, it locates individuals who are under-age, outside of the school system, and conducting labor activities, and it works to reinsert them into the school system by providing them with the incentive of a scholarship. The second component is that the program pays the scholarship monthly if the participant's school attendance is verified. The program is designed to compensate the family for the income that is lost when the child attends school instead of working—the *opportunity cost*. By covering the opportunity cost, the

program also enables the family to cover the other costs of schooling (e.g., transportation, supplies, etc.).

IMPAQ anticipates that both components of the NNAT program generate positive effects in the short-run. By altering the beneficiary's day-to-day activities from working to being in school, the program is expected to reduce beneficiary's participation in the labor force, as well as reduce the total hours that the beneficiary spends working per week. At the same time, by providing incentives for the beneficiary to attend school, the program is expected to have immediate positive effects on the beneficiary's school attendance and performance, as well as positive impacts on his or her course and grade completion, motivation/appreciation for education, and overall safety and health. Exhibit 8 depicts children attending a public school in Costa Rica.

#### **Exhibit 8. Children in School in Costa Rica**



Source: IMPAQ International

The effects from the scholarship directly affect the income of the beneficiary and the family. However, the family's income can decrease or increase, depending on the wage that the beneficiary used to have. At the same time, the requirement that the beneficiary must attend school to receive the monthly payment is intended to reduce the likelihood that the beneficiary will drop out of school. IMPAQ also anticipates that this scholarship will have positive effects on the beneficiary's well-being, particularly, that the beneficiary is receiving a monetary benefit comparable to working, but he or she is now in a safer environment.

Although this evaluation can only identify short-term effects, in the long-run, IMPAQ anticipates that the NNAT program will have positive long-lasting impacts on the beneficiaries. Specifically, IMPAQ anticipates that beneficiaries will complete more education and as a result will experience better and more productive labor market outcomes.

## 2.4 Theory of Change: A Program Logic Model Representation

The main objective of this impact evaluation is to estimate the effects of the NNAT program on students' educational and labor market outcomes. To understand the causal pathways through which these effects are generated, IMPAQ developed a program logic model. The logic model will serve as a conceptual framework for the evaluation of NNAT program (see Exhibit 9). The boxes on the left of Exhibit 9 show the inputs and activities. The boxes on the right show the outputs and outcomes of the activities.

As a first step in building the program logic, IMPAQ describes the **implementing institutions and their inputs and activities conducted**:

1. OATIA from the Ministry of Labor is in charge of detecting the cases of child and adolescent labor as well as identifying which of these cases involve a potential beneficiary, i.e., a working child who satisfies the requirements to be eligible for a scholarship from NNAT. This office also sends case workers to fill out an intake form to verify the potential beneficiary's labor status and the family's socioeconomic characteristics. Finally, OATIA helps the potential beneficiary register at a local elementary school or secondary school and provides the scholarship administrator IMAS with all of the required documentation to verify his or her eligibility and provide the scholarship.
2. The scholarship administrator IMAS is the institution that verifies that the applicant satisfies the requirements to become a beneficiary, as well as inserts the student in the system, provides monitoring, and delivers the monthly transfer.

Second, we describe the **outputs and the conditionality imposed**:

*Outputs:* The OATIA is in charge of identifying a group of 550 NNAT beneficiaries to be registered to receive the scholarship in 2017 and 2018. From this 550, 275 are new beneficiaries for 2017 and the remaining 275 will join in 2018. The scholarship administrator IMAS delivers the scholarship on a monthly basis.

*Conditionality:* The NNAT program works under the verification of one condition. In order for the beneficiary to start receiving it and maintaining it, he/she needs to enroll in secondary school and maintain regular attendance throughout the school year. If the beneficiary completes the grade he/she is able to continue receiving the scholarship during the next year and until graduation from secondary school. However, the beneficiary can lose the scholarship if they fail a grade twice. Grades are approved by passing all the mandatory courses in the school curriculum individually. This way, and by construction of the program, a beneficiary is driven to stop working and start attending school. If the beneficiary remains working under illegal conditions after receiving the scholarship, the OATIA would still proceed to take institutional actions such as opening cases or even elevating the situation to law enforcement.

Third, we present the **expected short-term effects from the program and their underlying mechanisms**:

A beneficiary from NNAT is mandated to enroll and attend secondary school in order to receive the incentive of the monthly scholarship. This conditionality directly leads to the expected outcome of higher school enrollment and attendance. We expect an increased likelihood in grade completion because of two factors: 1) beneficiaries are now tied to the school system whereas they were not before, and 2) they will continue to receive the scholarship as long as they complete their curriculum and do not fail any one class twice.

There are also two mechanisms through which a beneficiary is expected to reduce his/her labor participation. The first one comes from the fact that the beneficiary agrees to stop working. The second is linked to the time needed for schooling, as a student doesn't have the time availability to continue working. A student attending high school regularly has to dedicate 6 hours of his/her time to be present during class plus has to dedicate time to commuting and homework responsibilities. This effectively displaces the time that the student would spend during prime hours engaged in child labor in most activities (agriculture, construction, commerce etc.). These mechanisms lead to two short-term outcomes: a decrease in labor participation and a reduction in the number of hours worked. Under perfect compliance with the scholarship, it is expected that labor force participation is zero for the group of beneficiaries and that number of hours worked is also zero.

There are two more short-term outcomes that may occur resulting from participation in NNAT. The first one is an improvement in physical well-being and the second is more stable family income. The improvement in well-being is expected to happen due to the fact that the beneficiary children and adolescents are no longer engaged in child labor and hazardous labor respectively. By not working, the beneficiaries are expected to experience an improvement in their physical health. The income stability stems from the scholarship being delivered on a monthly basis. Now that the beneficiary families have a consistent monthly amount (consumption smoothing) they reduce the risk of fluctuations from the income generated from the children and adolescents. It is also expected that this income stability will allow the beneficiary families to improve meeting basic needs such as regular meals.

Fourth, we discuss the **mid-term effects expected from the NNAT program**:

A NNAT beneficiary has the incentive to stay in school in order to continue receiving the scholarship. This continuation of schooling is expected to lead to an increase in secondary school completion and college enrollement. At the same time, higher education completion is linked to an improvement of employment options as well as work in higher paying opportunities. As previously discussed, it is also expected that children and adolescents taken out of child and hazardous labor respectively will improve their physical well-being and the provision of the monthly scholarship provides the beneficiary families with a stable source of income.

Finally, it is important to mention **contextual factors that may affect the functioning of this program** (the fidelity of the intervention), including the institutional collaborations needed to

identify potential beneficiaries, verify requirements, and deliver the scholarship on time. It is also important to consider the role of the family in supporting the child/adolescent as he or she reinserts into the school system, such as normative perceptions about the importance of schooling or financial constraints that the families are trying to overcome. The local economic and social conditions can affect the program's outcomes as well. For example, a child may be more likely to leave school and work more if the family is trying to overcome a health crisis or if the prices of the agricultural crops that they produce collapse. Finally, school access, quality, and infrastructure are important factors to be considered as they affect the process whereby a student is reinserted and motivated to remain in school.

Overall the logic model shows that beneficiary students are expected to reinsert into the school system, receive quality education, and have an increased likelihood of finding occupations that afford them a higher income after they complete the program. For example, an adolescent who previously dropped out of school and worked (most likely employed in an unsafe and/or underpaid occupation) now has the chance to reintegrate into the formal education system. This adolescent will likely attain and complete more levels of school, benefit from interaction with peers, and develop skills that will improve his or her opportunities to pursue vocational training or a college education, leading to higher productivity, labor market outcomes, and wages. Exhibit 9 shows how the program's components – inputs and activities – and the contextual factors logically connect to the program's desired outputs and outcomes in the short-term, medium-term, and long-term.

**Exhibit 9. Logic Model of the NNAT Program**

<b>Inputs</b>	<b>Activities (Yearly)</b>	<b>Outputs (Yearly)</b>	<b>Short Term Outcomes (1 year of intervention)</b>	<b>Mid Term Outcomes (2+ years of intervention not measured in this study)</b>
<b>OATIA</b>  Staff social workers for fieldwork  Administrative personnel  Provide information and laws about child labor in Costa Rica	Identify cases of child labor  Recruit eligible beneficiaries  Complete labor and socioeconomic forms  Help the potential beneficiaries to register in school  Provide the scholarship administrator IMAS with the required documentation from a potential beneficiary	275 registered new beneficiaries every year  550 beneficiaries attend school	<b>Students:</b>  Increase in school enrollment and attendance  Increase in grade completion  Decrease in child labor participation  Decrease in hours worked  Improved physical well-being and basic nutrition	<b>Students:</b>  Increase secondary school completion and college enrollment  Increase in employment opportunities  Higher paying employment opportunities  Improved physical well-being and basic nutrition
<b>Scholarship Administrator</b>  Administrative and technical personnel  Provide the monetary resources for the scholarships	Verify eligible candidates and insert them into the system  Deposit the scholarship every month  Monitor the beneficiary students to ensure compliance with scholarship conditions	550 beneficiaries receive the scholarship	<b>Families:</b>  Stable family income and consumption smoothing	<b>Families:</b>  Stable family income and consumption smoothing
Contextual Factors: Institutional collaboration, school access and infrastructure, household/parental support, cost of living, social and economic conditions.				

### 3. EXPERIMENTAL IMPACT EVALUATION DESIGN

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The main objective of this impact evaluation is to identify the effects of the NNAT on beneficiaries' education and employment outcomes. The evaluation design assesses how the program affects a beneficiary student by comparing the beneficiary to a child that did not participate in the NNAT (i.e. our counterfactual). To rigorously assess the effectiveness of the NNAT program, IMPAQ proposes to use an RCT design in which eligible participants are randomly assigned into one of two groups: Treatment (i.e., participates in the NNAT) and Control (delayed participation in the NNAT) groups.

To avoid any selection bias, the counterfactual will be created experimentally through random assignment to the treatment and control groups. From a group of 550 eligible participants, 275 will be selected through a lottery to participate in the NNAT during the first year of the evaluation, while the other 275 participants will serve as the control group. Control group participants will receive treatment (NNAT) in the second year. Below, IMPAQ presents the research questions that the evaluation will address, followed by details of the methodology that IMPAQ will use to assess the effects of the NNAT program.

#### 3.1 Research Questions

The research questions for this impact evaluation will be answered utilizing a quantitative and qualitative approach. The quantitative approach will allow for the estimation of the effects generated by the NNAT program, while the qualitative approach will complement the quantitative approach by explaining the mechanisms through which outcomes are generated and will as well add important information about the program's relevance, implementation, and sustainability. Information about the program's context and relevance will be gathered at baseline, while information about fidelity of the implementation, expected future effects, and sustainability will be gathered at end line.

The primary research questions for this evaluation are intended to address the two confirmatory outcomes:

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

The effects on school outcomes will be measured using the following metrics: 1) secondary school enrollment for participants, 2) secondary school attendance for participants, and secondary school grade completion for participants.

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

The effects on labor outcomes will be measured using the following metrics: 1) child labor participation of beneficiaries, and hours worked by beneficiaries, both legal and illegal.

In order to study additional outcomes of interest that are expected from the NNAT program, we also include the following three exploratory questions:

3. What are the effects of the NNAT program on the well-being of program participants?
4. What are the effects of the NNAT program on the family income of program participants?
5. What are the expected effects of the NNAT program on future plans of participants?

Although this evaluation is intended to quantify the effects generated from the program one year after its implementation, research question five aims to capture longer-term effects attributable to the program such as future plans and aspirations.<sup>44 45</sup>

We will include in the endline instrument the validated versions in Spanish of the Academic Motivation Scale (AMS) for secondary school students.<sup>46</sup> This scale consists of 27 questions with 4 possible answers (Totally Agree, Agree, Disagree, and Totally Disagree) and is meant to understand academic motivation in secondary school and will allow to understand better expected future educational achievement such as school completion or desertion, and performance.

The data sources that will be used for answering these include a combination of primary data collected by the team and administrative data collected by schools. The full list of research questions is presented in Exhibit 10, together with the data source and the outcome variable/indicator that the team will use to answer each question. Exhibit 11 presents the research questions that will be answered using a qualitative approach. For more details on the qualitative study, please refer to Section 4.

**Exhibit 10. Research Questions Quantitative Approach**

Research Questions	Metrics	Data Sources	Outcome
<b>Confirmatory Outcomes</b>			
<b>1.What are the effects of the NNAT program on school outcomes for program participants?</b>	School enrollment of participants	Primary Data and Administrative Data	Currently enrolled in school
	School attendance of participants	Primary Data and Administrative Data	Yearly school attendance over 90%
	Grade completion for participants	Primary Data and Administrative Data	Highest grade completed

<sup>44</sup> For a detailed discussion of future plans measurements see: Jayaratne, K. (2010) Practical Application of Aspiration as an Outcome Indicator in Extension Evaluation. *Journal of Extension*, 48(2): Article No. 2TOT1.

<sup>45</sup> For a detailed discussion of aspirational changes from additional education see: Jensen, Robert. "The (perceived) returns to education and the demand for schooling." *Quarterly Journal of Economics* 125.2 (2010).

<sup>46</sup> Stover, J. B., de la Iglesia, G., Boubeta, A. R., & Liporace, M. F. (2012). Academic Motivation Scale: adaptation and psychometric analyses for high school and college students. *Psychology Research and Behavior Management*, 5, 71–83. <http://doi.org/10.2147/PRBM.S33188>

<b>2.What are the effects of the NNAT program on labor outcomes for program participants?</b>	Child labor participation of beneficiaries	Primary Data	Child under age 15 worked last week (yes/no) and Adolescent between ages 15 and 18 worked last week in hazardous or illicit domestic work (yes/no)
	Hours worked by beneficiaries, both legal and ilegal	Primary Data	Number of hours worked last week
<b>Exploratory Outcomes</b>			
<b>3.What are the effects of the NNAT program on the well-being of program participants?</b>	Self-reported health status	Primary Data	Change in basic nutrition and physicalwell-being
<b>4.What are the effects of the NNAT program on the family income of program participants?</b>	Last month's total family income and basic needs satisfaction	Primary Data and Administrative Data	What was the household income last month? Was the household able to satisfy basic needs last 6 months (yes/no)
<b>5.What are the expected effects of the NNAT program on future plans of participants?</b>	Future plans on secondary school education completion and occupational choices	Primary Data	Intention to earn secondary school diploma. Intention to pursue university. Intention to re-enter labor force. Academic Motivation Scale.

### Exhibit 11. Research Questions Qualitative Study

Research Questions	Sources of Information	Mapping to Quantitative Research Question
<b>Program Context</b>		
What is the context of child labor in Costa Rica?	Key-Informant Interviews Focus Groups	N/A
What is the profile of a beneficiary of NNAT?	Key-Informant Interviews Focus Groups	N/A
Why do children who are scholarship recipients drop out of school and discontinue the program?	Key-Informant Interviews Focus Groups	RQ 1
How do the dynamics of the industry sector in which the child was engaged shape decisions about staying in school or continuing to work?	Key-Informant Interviews Focus Groups	RQ 1 and RQ 2
How does the local socio-economic situation shape family decisions about sending youth under 18 to school or to work?	Key-Informant Interviews Focus Groups	RQ 1 and RQ 2
How do families in the area normally cope when they encounter financial hardship or food insecurity? Who do they approach for support and assistance? In what other social services programs or benefits schemes do they participate?	Key-Informant Interviews Focus Groups	RQ 4

<b>Fidelity of Implementation</b>		
How well does the NNAT process adhere to the intentions and purpose of the program in theory?	Key-Informant Interviews Focus Groups	N/A
Are beneficiaries figuring out how to game the scholarship so they can continue to work in illegal child labor and receive the scholarship?	Key-Informant Interviews Focus Groups	N/A
How are the activities of the control group affected post-assignment by the delay in the scholarship?	Key-Informant Interviews Focus Groups	N/A
What other administrative or implementation challenges do program staff experience in processing applications or disbursing the scholarship payments to families? How often are there delays in processing applications or disbursing payments?	Key-Informant Interviews Focus Groups	N/A
<b>Program Outcomes</b>		
How does participation in the scholarship program affect schooling choices? Does it impact the number of hours that the beneficiary provides labor for pay or not for pay?	Key-Informant Interviews Focus Groups	RQ 1 and RQ 2
According to program staff, parents, and beneficiaries, how effective is the scholarship program? What are the strengths and weaknesses of the program?	Key-Informant Interviews Focus Groups	RQ 1, RQ 2, RQ 3, RQ 4
<b>Continuation and Sustainability</b>		
How does participation in the scholarship program affect motivation to complete secondary school and move on to college?	Key-Informant Interviews Focus Groups	RQ5
What recommendations do program staff, parents, and beneficiaries have to improve the program?	Key-Informant Interviews Focus Groups	N/A

## 3.2 Evaluation Design

IMPAQ will conduct a RCT evaluation of the NNAT program to assess its short run effects on labor and educational outcomes in the 2017 school year.<sup>47</sup> In collaboration with OATIA, IMPAQ will identify 550 eligible participants for NNAT. Once the 550 potential beneficiaries have been verified by the scholarship administrator IMAS, IMPAQ will use a lottery to randomly assign participants deemed eligible by OATIA for the program into one of two groups:

1. **Treatment group**, which will consist of 275 beneficiaries who start attending school and receiving the scholarship during the 2017 school year, which goes from February until November.
2. **Control group**, which will consist of 275 eligible participants who will not be assisted to register in school or receive the scholarship for the 2017 school year, but will be registered and will receive the scholarship in the 2018 school year.

Based on the interest and support of Ministry of Labor and Social Security of the Government of Costa Rica, the implementing agency, we are fortunate that it is feasible to conduct a rigorous RCT evaluation of the NNAT program. Furthermore, the NNAT program has excess demand, thus providing an opportunity to conduct an RCT evaluation. Because of resource constraints, the

<sup>47</sup> The school year in Costa Rica goes from February to November.

implementers cannot meet the demand for NNAT services. That is, there are more eligible recruits than can be served. This enables the program to justify delaying treatment to half of the eligible participants through a transparent group selection mechanism, namely a lottery.

IMPAQ's approach to participant random assignment will consist of generating a pool of 550 eligible participants, out of which, through a lottery, 275 individuals will become beneficiaries to start the program in February 2017, while the remaining 275 individuals will automatically become the control group, and will be incorporated into the program no earlier than February 2018. This design is known as a delayed treatment design.<sup>48</sup>

The treatment group's members will be beneficiaries of the NNAT program starting in the 2017 school year, and as such will be given a monthly scholarship to remain in school. They will be surveyed one year after they are reinserted into school. The control group will not be exposed to the treatments during the 2017 school year and will be closely monitored and surveyed at the same time that the treatment group is surveyed. By comparing the outcomes of the beneficiaries from the outset to the outcomes of the control group, who will start being beneficiaries one year later, the RCT will determine the unbiased short-term effects of the NNAT program.

Given the design of this experimental evaluation, it is important to note that before the lottery takes place, all of the eligible participants will be informed, for ethical reasons, that they will be randomly—and transparently—selected for the program in either 2017 or 2018. This means that the control group will have a “promise” of treatment, which could affect their behaviors and decisions. On one hand, the “promise” of treatment may affect their outcomes in a positive way. For example, they may decide to enroll in school anyway in anticipation of their future participation in the program. On the other hand, the “postponement” of treatment may affect their outcomes in a negative way. For example, they may not enroll in school at all if motivation is lost due to the outcome of the lottery. We will attempt to assess these dynamics through the qualitative research study.

It is also important to mention that this impact evaluation will measure the Intention to Treat (ITT) of the program.<sup>49</sup> This means that the estimated outcomes will not only reflect the outcomes of students who were selected for the program and received benefits for the whole year, but also it will include the outcomes for individuals who were selected and offered the program, but decided to stop receiving the treatment at some point during the school year or declined to participate altogether. Similarly, individuals in the control group will always have the option to stop working and return to school for their own personal reasons, just as they may have done without the existence of the program. This is one way in which a complementary qualitative study will inform the analysis and interpretation of results, because the impact evaluation will

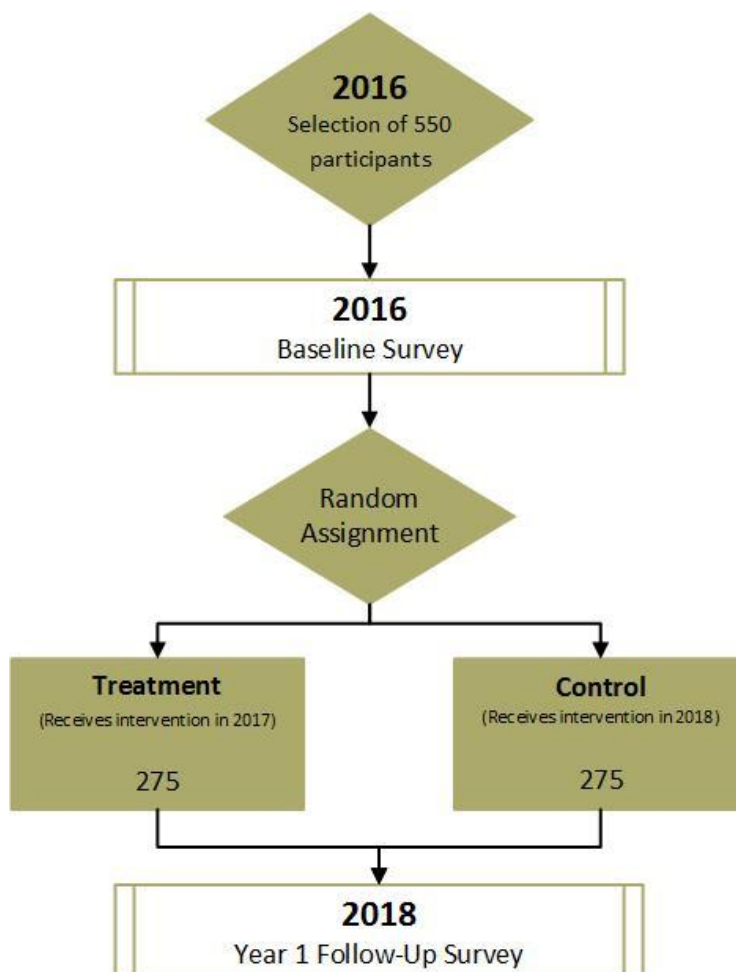
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<sup>48</sup> Using delayed treatment is a strategy for minimizing the ethical risks associated with engaging a control group to participate in a study without enabling them to derive any benefits from participation. In particular, rather than denying services to control group individuals, there is a delay in participation.

<sup>49</sup> The ITT, rather than the Average Treatment Effect (ATE) or Average Treatment on the Treated (ATT), appears to be the most relevant estimated parameter from a policy perspective as the government can only offer the option of receiving services to the potential beneficiaries and can rarely force citizens to fully participate.

not be able to fully differentiate between the effect that the program has on outcomes and the effects that other factors or circumstances have on the same set of outcomes. Exhibit 12 details the impact evaluation design plan.

**Exhibit 32. Diagram of Impact Evaluation Design**



### 3.3 Sampling Design

Given the funding available for the scholarship program, only 275 new participants can be included in 2017. In order to have an adequate control group IMPAQ will recruit 550 eligible participants who will be randomly assigned into two equal size groups of 275. To protect against any unexpected non-compliance or refusal to participate in the program, IMPAQ's recruitment support will aim to identify at least 50 additional cases of child labor in order to guarantee that the groups of 275 participants in the treatment group and a control group of 275 non-participants are satisfied. As described in the Policy Context section, child labor in Costa Rica varies greatly between boys and girls and between rural and urban regions. IMPAQ will select eligible participants from three specific regions of the country (Brunca, Central, and Pacífico Central) and

from pre-specified age groups (under 15 and 15-18). IMPAQ also will conduct stratified random assignment by gender, region, and age, so that both groups will be (i) representative of the eligible child laborer population, and (ii) statistically similar in gender proportions, regional characteristics, and age groups.

IMPAQ's ability to control for all potentially relevant factors is limited by the total number of study participants. For example, while IMPAQ will assume that the quality of schools varies greatly and can influence the beneficiary's school enrollment decision (as well as the child's success once enrolled), IMPAQ is unable to cluster the assignment into treatment and control groups at the school level since IMPAQ will not be able to ensure that enough students are recruited within each school's boundary. To account the potential variance in the quality of the schools, IMPAQ will include school fixed effects covariates.

### 3.4 Power Calculations & MDEs

The minimum detectable effect (MDE) in effect size units for this type of design can be expressed as follows:

$$MDE = M \sqrt{\frac{4(1 - R^2)}{N}}$$

Where

- $M$  is a function of the significance level and power and is equal to 2.8 for 80 percent power at the 0.05 level of significance for a two-sided test.<sup>50</sup>
- $N$  is the total number of individuals in the study
- $R^2$  is proportion of the random variance that is reduced by the covariates.<sup>51</sup>

#### Assumptions

IMPAQ's key operating assumptions for the power analysis are as follows:

1.  $N=300$
2. Below, IMPAQ estimates MDEs based on a conservative R-squared value of 0.2. The inclusion of relevant baseline student and school-level observable characteristic control variables in the regression models increases power, and precision, by explaining some of the variance in mean outcomes.

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<sup>50</sup> Bloom, H.S. (1995). Minimum detectable effects: A simple way to report the statistical power of experimental designs. *Evaluation Review*, 19(5), 547-556.

<sup>51</sup> Schochet, P.Z. (2005). Statistical power for random assignment evaluations of education programs. Mathematica Policy Research. <http://www.mathematica-mpr.com/~media/publications/PDFs/statisticalpower.pdf>

**Minimum Detectable Effects.** Since the number of evaluation participants (N) is fixed at 550 by implementer's policy, IMPAQ will not plan to conduct sub-group analysis by gender, age group, or region in order not to compromise statistical power given the limited population size. Considering that N will be fixed at 550 and the assumptions presented above, IMPAQ can detect effects above **21.4** percent of standard deviation (moderate effects).<sup>52</sup> This translates into the following values for IMPAQ's primary outcome variables:

- **Likelihood of child labor** In the target population, the probability of cases of child labor is 100 percent. Assuming that 90 percent of the children under age 15 will remain working without an intervention, our study can detect a change in the likelihood of child labor of 6.42 percent.
- **Hours worked per week.** In Costa Rica, employed adolescents ages 10 to 17 work 20.1 hours per week on average.<sup>53</sup> IMPAQ's design is powered to estimate MDE of as little as 2.18 hours per week for the children and adolescents.
- **Likelihood of school attendance.** In the target population (children and adolescents in child labor), the probability of attending school is close to 0 percent. Assuming that 10 percent of children and adolescents will enroll in school without an intervention, IMPAQ's study can detect a change in school attendance of 6.42 percent.
- **Likelihood of completing current grade.** In the target population, the probability attending and completing the current school grade is close to 0 percent. Assuming that 5 percent of children and adolescents will be able to get their grade approved without an intervention, IMPAQ's study can detect a change in school enrollment of 4.67 percent.
- **Monthly family income.** In Costa Rica, the families that have their adolescents working and not attending school have an average monthly family income of ₡709,599.00 Costa Rica colones (approximately \$1,300).<sup>54</sup> IMPAQ's design is powered to estimate MDE of as little as ₡110,919.00 per month for participating families.
- **Basic needs satisfaction.** In the target population, the satisfaction of necessary needs is not always secured as a segment of this population lives in extreme poverty. We expect that 70% of the target population have the means to secure their basic needs. Under this assumption IMPAQ's study can detect a change in basic needs satisfaction of 9.63%.

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<sup>52</sup> According to previous research, an effect size of 0.2 SD can be considered small, effect sizes of 0.5 SD are moderate, and effect sizes of 0.8 SD are large. Many evaluation studies use 0.2, 0.25 or 0.33 as precision standards. Schochet, P.Z. (2005, June 22). *Statistical power for random assignment evaluations of education programs*. Mathematica Policy Research (<http://www.mathematica-mpr.com/~media/publications/PDFs/statisticalpower.pdf>)

<sup>53</sup> Programa Internacional para la Erradicación del Trabajo Infantil (IPEC). (2011). *Magnitud y Características del Trabajo Infantil y Adolescente en Costa Rica – Informe 2011*. OIT & MTSS Costa Rica. Following the information presented in pages 67-73, and using the original data source: ENAHO 2011, reasonable standard deviations to utilize are 10.2 hours per week for hours worked by children and adolescents, and 518,315 for monthly family income.

<sup>54</sup> Source: MTSS/IPEC. (2011). *Magnitud y características del trabajo infantil y adolescente en Costa Rica - Informe 2011. Cuadro 5.16: Ingreso Promedio Neto del Hogar. P.73* Geneva: International Labour Organisation. Retrieved from <http://www.ilo.org/ipecinfo/product/viewProduct.do?productId=22215>.

Exhibit 13 presents the summary of minimum detectable effects for the population of 550 individuals in the study as well as for after a conservative attrition rate of approximately 10 percent (with 500 observations remaining).

**Exhibit 43. 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	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%
<b>Likelihood of child labor</b>	<b>250/250</b>	<b>90%</b>	<b>30%</b>	<b>6.72%</b>
<b>Hours worked per week (age 10-17)</b>	<b>250/250</b>	<b>20.1</b>	<b>10.2</b>	<b>2.28</b>
<b>Likelihood of school attendance*</b>	<b>250/250</b>	<b>10%</b>	<b>30%</b>	<b>6.72%</b>
<b>Likelihood of completing grade*</b>	<b>250/250</b>	<b>5%</b>	<b>21.8%</b>	<b>4.88%</b>
<b>Monthly family income^</b>	<b>250/250</b>	<b>₱709,599.00</b>	<b>₱518,315.00</b>	<b>₱116,103.00</b>
<b>Basic needs satisfaction*</b>	<b>250/250</b>	<b>70%</b>	<b>45%</b>	<b>10.08%</b>

\* Assumed based on program properties and eligible population; binary outcomes are modeled as linear probability models.

^ Assumed based on cited literature.

### 3.5 Quantitative Data Collection

Data collection will be done by IMPAQ in collaboration with a team of social workers directed by OATIA and a data collection partner that IMPAQ will select through a competitive process. The team of social workers will identify and recruit the eligible participants from the field. Once the social workers read the consent forms and complete the paper form utilized by OATIA and IMAS to capture information and in the next month verify the eligibility of the potential participant, the data collection team will continue interviewing the participant with the research specific questionnaire.

IMPAQ will choose a data collection partner after screening a short list of candidates. The data collection partner will collaborate with the team of social workers by inserting the baseline information in survey instruments that are pre-programmed into tablet computers. The data collection partner also will manage the baseline data and upload it daily to IMPAQ's servers, as well as coordinate the mobile tracking of the participants in the treatment and control groups for the duration of the school year. Finally, the data collection partner will plan the end line interviewing for all participants, insert the end line information in the tablet computers, and manage and upload the data to IMPAQ's servers.

IMPAQ will collect secondary data from administrative records, as well as primary data in the field. IMPAQ will prepare and validate the survey instruments as well as the PTS. The data collection timeline is in Exhibit 14.

#### **Exhibit 54. Quantitative Data Collection Timeline**

<b>Time</b>	<b>Phase</b>	<b>Data collection</b>
March-September 2016	Survey Instrument and Tracking System Design and Preparation Data Collection Protocols Data Collection Partner Identification	
September-October 2016	Survey Instrument and Tracking System Data Collection Partner Selection Testing and Validation	Pilot survey in non-study regions.
October 2016	Social Workers and Data Collection Partner Training	
October-November 2016	Eligible Beneficiaries Recruitment Baseline Survey Application	Baseline dataset
January 2017	Random Assignment	
February-November 2017	Participatory Tracking During School Year	Tracking information updates on school attendance, labor participation and contact information..
November 2017	Endline Survey Application	End line dataset

#### **3.5.1 Scholarship administrator IMAS and School Administrative Records**

To gather data for the analysis, IMPAQ will use the scholarship administrator's records as well as school administrative records. From the scholarship administrator's records, IMPAQ will collect information about the NNAT beneficiaries, such as contact information, school of registration, date of delivery of the scholarship payments, and program compliance information. School administrative records will contain information about each student's attendance, courses approved, and grade approval. IMPAQ will store these records on a server that meets Federal Information Security Management Act (FISMA) standards to protect privacy and personal information (see section 5.3).

#### **3.5.2 Survey Instruments**

The data collection will consist of two comprehensive rounds of surveys and a monthly mobile phone text message-based participatory system. The baseline instrument will be a tablet-based oral questionnaire administered by the data collection team that eligible participants will answer after they are recruited and interviewed by the social workers. IMPAQ will add project-specific questions to the intake form that the social workers already use and that will jointly be tested. IMPAQ will add questions to obtain very detailed contact information that will enable IMPAQ to track the participants in the future, even if outside of school. The baseline instrument also will

elicit demographic, labor, education, and socioeconomic characteristics that IMPAQ will use to test the two groups after randomization to ensure that they are perfectly comparable. This baseline information also will enable IMPAQ to account for differences across groups that may exist even after random assignment, or because of survey non-response.

The mobile phone participatory tracking system will consist of short text message-based questions to monitor the 550 treatment and control group participants' school enrollment, employment status, and location of residence on an on-going basis. According to OATIA, approximately 90% of the current beneficiaries have a mobile phone. If participants do not have a mobile phone, one will be provided for them. This instrument will enable IMPAQ to track monthly fluctuations in the number of hours that a beneficiary works and changes in his or her student and employment status. The quarterly check-in also will keep the study participants actively engaged throughout the duration of the intervention. At the end of each quarter, IMPAQ will contact individuals who indicate a substantive change in location of residence, employment or school status (e.g., stop or start working, change industries, or quit school) to gather additional information. For more information on the mobile tracking system, see Appendix 5.

By social and legal norms in Costa Rica, child labor participation and hours worked is a sensitive topic to inquire about and record accurately. Estimates of child labor can present significant variation depending on the specifics of the survey used.<sup>55</sup> For the evaluation of the NNAT program we deal with an additional issue. Program beneficiaries are expected to stop working and resume their full-time schooling status to continue their enrollment in the program. This issue may generate distrust by program participants when being interviewed at endline about their work status. To deal with distrust issues, a generally used mechanism to improve response truthfulness in self-reported surveys are confidentiality assurances. Confidentiality assurance in data collection for the evaluation of the NNAT program is part of the mandatory informed consent form, which is intended to explain the purpose of the interview and also to improve the comfort of interviewees in order to yield more truthful responses and fewer refusals.

IMPAQ will survey both the treatment and control groups using the end line survey instrument in November 2017, which is the end of the school year. The enumerators will leverage the treatment group's school attendance to identify the location of the beneficiaries and complete the endline questionnaires at an appropriate location outside of school before or after school hours to minimize any potential bias from the schooling environment or closeness to peers and teachers. The rest of the participants (treatment drop outs and control) will be interviewed in their homes or places of work. IMPAQ will gather additional data from the schools in December 2017 to verify beneficiaries' school attendance, performance, and grade completion. IMPAQ's local data collection partner(s) will administer the end line survey orally to the children and adolescents who are participating in the study. The partner(s) will enter this data into the tablets and upload it daily to IMPAQ's servers. The end line instrument will contain detailed questions

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<sup>55</sup> See: Guarcello, L., Kovrova, I., Lyon, S., Manacorda, M., & Rosati, F. C. (2010). Towards consistency in child labour measurement: Assessing the comparability of estimates generated by different survey instruments. *Understanding Children's Work Programme Working Paper*.

about the expected outcomes of the program, such as the beneficiaries' hours worked, family income, motivation, and perceptions about work and education, among others.

The information gathered through the end line survey will enable IMPAQ to estimate the short-term impacts of NNAT.

### **3.5.3 Instrument Development and Pre-Testing**

IMPAQ will develop the baseline and endline survey instruments following the guidelines from Schwartz et al. (2001) on self-reporting outcome-relevant behaviors.<sup>56</sup> The instruments will be logically constructed and pilot tested and submitted to ILAB and the Institutional Review Board (IRB) for their review and approval. After ILAB and the IRB finalize and approve the forms, IMPAQ's in-house specialists, together with the local data collection research partner, will translate them into Spanish. IMPAQ team members who are native Spanish speakers, together with the data collection partner, will conduct cognitive testing on the baseline line survey instrument to confirm that the questions and concepts are valid and clear. In the pretesting stage, each question will have a box to the right in which the researchers can write notes about whether the question is clear, describe potential improvements in the wording of the question, or make suggestions about the order in which the questions should appear.

After IMPAQ finalizes the survey instrument in Spanish, IMPAQ will program tablet computers with the instrument. IMPAQ next will pre-test and field the instrument in 2016. As required by the Ministry of Labor of Costa Rica and the scholarship administrator, the social workers will fill out paper copies of their original intake form. Therefore, at baseline, a data collection enumerator will simultaneously complete the survey instrument for the study in a tablet computer, while the social workers complete the intake forms in hard copy.

For the end line survey, which the IMPAQ team will field after the 2017 school year is finished, IMPAQ will first develop the survey instruments in English, and then submit these instruments for review by ILAB and an IRB. Once again, the team of enumerators will use the tablets to easily interview the eligible participants and enter responses directly into the device.

IMPAQ will develop a short list of questions for the mobile phone tracking system that will be distributed to study participants on a monthly basis, and the IMPAQ team will submit these questions for review and approval from ILAB and an IRB in the same package with the baseline survey instrument. Subsequently, IMPAQ will translate the questions into Spanish and will work with the local data collection research partners to test them to ensure validity. The IMPAQ team will use a mobile data collection application that ensures compatibility with all mobile phones, to field the participatory mobile phone surveys using SMS. IMPAQ will first program the participant survey through the online interface, testing the mobile survey instrument in-house in preparation

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<sup>56</sup> Schwarz, Norbert, and Daphna Oyserman. "Asking questions about behavior: Cognition, communication, and questionnaire construction." *American Journal of Evaluation* 22.2 (2001): 127-160.

to field the mobile survey. Then, IMPAQ will have the local data collection research partners in Costa Rica demonstrate it and test it in the field to ensure its seamless deployment.

### **3.5.4 Interviewer Recruitment and Training**

The target group for this project is a vulnerable, at-risk group with unique needs and characteristics. After having conversations with OATIA and local experts, the IMPAQ team decided that to guarantee a non-threatening environment and interviewee comfort, the interviewer team will be composed of only females with degrees in Social Work and experience working with vulnerable populations. IMPAQ will train the interviewers prior to the recruitment efforts and prior to fielding the end line survey. IMPAQ and OATIA specialists will supervise the trainings. The trainings will consist of the following information:

- A careful explanation of the project and objectives of the data collection;
- How to administer and complete the survey instrument;
- How to input survey data and, for the baseline survey, transfer it from paper to electronic form; and
- A description of sensitive issues, the protocol for signing confidentiality agreements, and steps needed to protect the privacy and personal information of participants.

In addition, IMPAQ will have a survey coordinator who will be responsible for answering questions from the interviewers about how to code responses and who will maintain a record of these decisions to ensure that the responses are handled consistently throughout the survey.

### **3.5.6 Confidentiality**

Confidentiality assurances will be read to the participants before they are surveyed for their oral approval. For all our instruments (baseline and end line), we will utilize a concise consent form that clarifies that the information provided will be: 1) kept anonymous, 2) recorded through a numeric identifier, 3) used only by the research team, and 4) not shared with any government agency. All consent forms will also inform the interviewees that by providing accurate information, public policy will be improved that may benefit them in the future. At endline, the instruments will include additional language before the work questions clarifying that the information will not be shared with the implementing government agency providing the monetary transfers. Data will be transferred from the data collection company to IMPAQ through a secure SFTP site. IMPAQ will store the data on a secure server that meets Federal Information Security Management Act (FISMA) standards for data security.

### **3.5.7 Data Quality**

In addition to the strategies mentioned in the section on data collection, IMPAQ has the following data quality control processes to ensure high data quality:

- **In the Field:** During the baseline and end line survey, enumerators will collect the data digitally on preprogrammed tablets and report to coordinators in the field periodically

throughout the day. Coordinators will check these data on various quality metrics, which will be provided by IMPAQ staff. After the coordinators approve the data, the data will be uploaded to IMPAQ's FISMA-certified secure server on a daily basis.

- **At IMPAQ:** An analyst will download the data on a weekly basis and run quality control checks. Findings will be flagged back to the team in the field to make adjustments as needed.

#### *3.5.7.1 Quality Control Checks*

IMPAQ staff will review the data that are collected to ensure that they are of the highest quality. IMPAQ will review data for the following items during this check:

- Data completeness,
- Skip pattern logic,
- Final disposition of records, and
- Data cleaning accuracy.

After data collection has ended, IMPAQ will compile a final data set and perform additional data checks, including: (1) identifying outliers, (2) performing logic checks, and (3) making all necessary data corrections to the data. Finally, IMPAQ will create a data dictionary to facilitate the analysis phase of the study. IMPAQ will compile the surveys' responses into a master file for analysis.

#### *3.5.7.2 Data Cleaning Activities*

Because data will be entered into tablets in the field, IMPAQ expects that the data uploaded to the servers will be relatively clean. Regardless, to ensure accuracy of both the baseline and end line surveys, IMPAQ first will clean the data and apply accepted techniques to address missing data (e.g., imputation, deletion). Next, IMPAQ will examine the frequency distributions for each question to ensure that all data are within a valid range for each survey question. Although IMPAQ will use a well-developed computer script with embedded skip patterns and logic checks to minimize the chance for error and inconsistent answers, IMPAQ will carefully review the data checking for coding errors, misapplied ranges, inconsistent answers, or other illogical results.

IMPAQ will account for missing data by using approved ascription and imputation techniques. IMPAQ will clean the data to remove incorrect coding and any identifying data in the open-ended responses. All open-ended responses will also undergo data cleaning. IMPAQ's staff will group like responses together and create consistent codes for each case. For longer responses, IMPAQ may use several codes to identify multiple themes and codes within each response.

## 3.6 Analysis Plan

IMPAQ's identification strategy relies on the random assignment of students to treatment and control groups, which ensures that any treatment-control differences in outcomes can be causally attributable to the program. Below IMPAQ lists the steps in the analysis plan.

### 3.6.1 Baseline Equivalence Analysis

After IMPAQ gathers information from the baseline survey and school records, IMPAQ will analyze the descriptive statistics for the treatment and control groups. This information will enable IMPAQ to assess the means and standard deviations of key variables such as age, gender, and family characteristics.

Although randomization, on average, balances treatment and control individuals on observed and unobserved characteristics, there still may be some differences across the two groups due to random chance. To confirm that the groups are balanced, IMPAQ will test for baseline equivalence by comparing mean observable characteristics between the treatment and control groups. To check for the balancing of the groups, IMPAQ will choose a set of relevant variables and perform a t-test to determine if the means of each variable are statistically significantly different between the treatment group and the control group.

IMPAQ will consider the samples balanced if the t-tests do not show significant differences. In the event that, due to chance, IMPAQ finds significant differences for some variables, the team will control for those variables at the estimation stage of the analysis.

### 3.6.2 Impact Analysis Using Regression Models

To measure program impacts with increased statistical efficiency, we will estimate a multivariable regression model using the end line survey. The standard regression model can be expressed by the following equation:

$$Y_i = \alpha + \beta T_i + \gamma X_i + \theta S_i + u_i$$

Where:

- $Y_i$  determines the outcome of interest for an individual  $i$
- $T_i$  determines the treatment indicator, which equals 1 if the individual  $i$  was assigned to the treatment and 0 otherwise
- $X_i$  is a set of individual characteristics of individual  $i$ , such as age and gender
- $S_i$  is a set of school-level characteristics or school fixed effect for individual  $i$  attended (or in whose catchment area the individual resides); alternatively, neighborhood characteristics may be used
- $u_i$  is an independently and identically distributed error term between individuals within groups with a pooled mean of zero and variance of  $\sigma^2$

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

### **3.7 Missing Data and Attrition**

Missing data are a problem if they are non-random. For example, if there is a question that only a certain sub-group feels comfortable answering, then IMPAQ will lack the appropriate information from part of the sample. At the same time, differential attrition patterns across treatment and control groups also pose a problem as the information that is lost may differ from that extracted from the individuals who were successfully tracked and surveyed at end line. Given the limited number of observations in this evaluation, IMPAQ will take extraordinary precautions to guarantee that missing data and attrition are minimal.

To minimize the potential of missing data, an interviewer will recover primary data at the individual level. Additionally, the interviewer will type-in the answers to the questionnaires in pre-programmed tablet devices, which will require that the respondent answer all questions. Even after these precautions, in the event that there are missing data or deliberate non-responses, IMPAQ will test whether these omissions are random and do not affect the analysis. However, if IMPAQ detects non-random patterns, IMPAQ will adjust the analysis to account for them by adding more control variables and/or casewise deletion.

To reduce attrition, IMPAQ has created a mobile PTS through which the situation of the individual can be updated periodically. This way, IMPAQ is able to know in a timely manner if the individual has dropped-out of school or migrated, enabling IMPAQ to track and update information from the treatment and the control groups. By having updated contact information for the individual participants, attrition in the end line data collection is expected to be very small. After IMPAQ collects the end line data, IMPAQ will check whether the attrition rate affected the treatment and comparison groups differently and examine whether attrition is correlated with observable characteristics. If IMPAQ detects differential attrition, IMPAQ will use sample attrition weights as follows: 1) use a logit model to estimate the likelihood of the survey response based on the beneficiary's characteristics; 2) calculate the predicted probability of the survey response; and 3) use the inverse of this probability as a weight when estimating the impact regression models. This method assigns a greater weight to beneficiaries who are observationally similar to beneficiaries who did not respond to the survey, ensuring that the estimation sample is an accurate representation of the entire evaluation sample.

### **3.8 Personally Identifiable Information and Data Security**

#### **3.8.1 Human Subjects Protection Plan**

IMPAQ will sub-contract with an experienced, AAHRPP accredited (Association for the Accreditation of Human Research Protection Programs), U.S.-based Institutional Review Board (IRB), in order to ensure that human subjects (both adults and minors) are protected and there are no ethical issues with any component of the proposed RCT evaluation. The IRB that IMPAQ

has a track record of working with is Chesapeake IRB, which has maintained full accreditation with AAHRPP since 2004.

The participation of an IRB is particularly important given that most planned survey respondents within the evaluations will be under the age of 18 and therefore minors. The IRB will review the evaluation designs and the structure and wording of all evaluation materials for ethical and/or sensitive issues, holding them to the highest US and international standards. IMPAQ will also work in coordination with the implementing government institutions to determine any additional in-country review or approval process required for the evaluation to occur and will adhere to and meet those requirements as well.

Finally, IMPAQ will ensure that the evaluation of the NNAT program accords with the following stipulations set forth in the ***Management Procedures and Guidelines of the Cooperative Agreement***:

- IMPAQ will deploy staff highly trained and experienced in the protection of vulnerable human subjects during research.
- Adult and child interviews will be non-invasive and all answers will be kept confidential.
- IMPAQ will work closely with the Ministry of Labor and Social Protection of the Government of Costa Rica to draft a plan for dealing with cases of labor or child abuse identified in the survey population. For example, enumerators will be trained in how to cope with cases of abuse.
- Survey participants will not be paid or promised to be selected for the first cohort of treatment after participation in the surveys. Participation in the study will be voluntary and confidential.
- Consent forms will be used, and the contents of consent forms will be explained verbally in Spanish before the start of the interview or focus group discussion. A printed will be made available to survey respondents, key informants, and focus group participants.
- No child under 18 years of age will be interviewed or photographed without both caregiver and child approval. Caregiver will sign the consent form, as will literate children.
- The data collection team will explain to the child in simple language the general purpose of the research, the contents of the interview, and the interviewing process. It will also be explained to the child that participation is voluntary and confidential and that he/she may interrupt or discontinue the interview at any time without any penalty.
- The child may choose not to participate in the research even if the child's caregiver agrees to the child being interviewed. It will finally be explained that the child's responses will not be shared with any other person in the community, including the caregiver.
- The research teams will record personal information such as names and geographic location of residence and work, phone number, as well as other contact information of relatives or neighbors. This will support the tracking of participants and the control group, leading to higher response rates during the follow-up survey, and more detailed data analysis. All the identifying information will be kept confidential by the research team and will be anonymized and/or destroyed after the research period is concluded.

- Data files will only be shared after all identifying indicators have been removed. Data files that become public will be cleared by OCFT based on data release policy and procedure.<sup>57</sup>

### **3.8.2 Personally identifiable information (PII)**

IMPAQ's process for handling PII is designed to reduce the exposure of personal identifiers to an absolute minimum. Respondents will be read confidentiality agreements and their oral approval will be required before being surveyed. Data collected in Costa Rica will be transferred from the data collection company to IMPAQ through a secure SFTP site. One of the very first steps taken when a dataset arrives at IMPAQ from an outside source is to identify the PII, such as names, addresses, and phone numbers. From the first transmission point, IMPAQ encrypts all data with SSL encryption to minimize exposure during the transit. After transmission, data rest on a special storage system that is encrypted with FIPS 140-2 encryption compliance system. IMPAQ will store the data on a secure server that meets Federal Information Security Management Act (FISMA) standards for data security. Only designated people within IMPAQ have access to the data to move them to a segregated PCI-compliant network. This process and many other data security procedures and the hardware and software infrastructure in place at IMPAQ limit unauthorized access to personal identifiers. All data transmissions and actions from the start to end are logged in a tamper-protected logging system to show all activities and access during the process.

### **3.8.3 Data security**

IMPAQ makes data security a high priority. IMPAQ has a state-of-the-art router, firewall, and intrusion detection system to protect IMPAQ's computing network. IMPAQ's prevention system is monitored around the clock by the security operations center of IMPAQ's Internet service provider. IMPAQ employs formal configuration and change management procedures and tools to ensure that changes to the network systems are made in a controlled and documented manner and only after the security and performance implications of proposed changes have been carefully considered. IMPAQ reviews its firewall rules on a regular basis. All IMPAQ executives annually complete the Federal Information Security Management Act (FISMA)-compliant Federal information system security awareness training provided online by the Department of Defense.<sup>58</sup> IMPAQ holds credit monitoring and privacy notification insurance with the Chubb Insurance Group.

For the transfer of project data to or from IMPAQ, IMPAQ uses an internally managed secure file transfer server running a FIPS 140-2-compliant encryption module. In addition, IMPAQ uses the FIPS 140-2-compliant secure ZIP software to encrypt data files stored on IMPAQ's secure research data subnet.

Database servers are maintained in a secure server room, with physical access restricted to authorized IMPAQ IT staff. Data are protected using a layered firewall infrastructure, local

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<sup>57</sup> Please see U.S. Department of Labor, Bureau of International Labor Affairs, Office of Child Labor, Forced Labor, and Human Trafficking. *Management Procedures & Guidelines for Cooperative Agreements*, pages 87-88. 2014.

<sup>58</sup> Accessible at: <http://iase.disa.mil/eta/Pages/index.aspx>

network DMZs, active port analysis and monitoring, regular password reassignment, server login access control, application of latest security patches to operating systems, and network monitoring for suspicious activities.

IMPAQ's systems log all PII-related access and extracts. IMPAQ's information technology security personnel routinely review these logs for inappropriate activities and take action as needed. In addition, all prospective IMPAQ employees must pass a criminal background check as a condition of employment.

### **3.9 Troubleshooting Plans for Intervention Implementation**

Since its inception, the NNAT program has been implemented by two government institutions. The lead institution is the Ministry of Labor, lawfully responsible to guarantee that child labor is addressed and that the laws and codes to eliminate it are followed. The second government institution involved in the implementation of NNAT is responsible for distributing the monetary subsidy to the beneficiaries. The National Scholarship Fund (FONABE) was in charge of the administration and distribution of these funds for over 15 years, however, effective in 2016 this responsibility was transferred to the Mixed Institute for Social Aid (IMAS).

Changes in the administration of a program pose a challenge to any evaluation team. The transition from FONABE to IMAS in the NNAT program is no exception. In order to manage the risks associated with this recent change, the IMPAQ team has planned a number of strategies that will guarantee the successful completion of IMPAQ's RCT evaluation of the NNAT program.

**Reliability and Good Relationship with the Implementers.** IMPAQ recognizes that a strength in the conduction of this evaluation is that the implementer is the Government of Costa Rica. The fact that NNAT is a government program, with over 15 years of continuous implementation, allows us to assume that the program will operate positively during the evaluation period. It is also important to mention that IMPAQ has built a very good relationship with the Ministry of Labor of Costa Rica, which has led to their interest in having IMPAQ work together with them for the evaluation of NNAT. Additionally, IMPAQ has also developed a good relationship and great reputation with IMAS having worked with them in 2015 in the evaluation of a National Conditional Cash Transfer Program, which they also implemented. It is a priority for IMPAQ to continue to great relationships and consistent communication with the implementers.

**Memorandum of Understanding.** In order to secure the needed collaboration and permissions throughout the evaluation period, IMPAQ will draft a Memorandum of Understanding (MOU) to be reviewed, approved, and signed by the head of each implementing partner. The MOU is a key instrument as it will clearly detail the objectives of the project, the responsibilities of each institution in the evaluation as well as a timeline agreed upon for the conduction of the evaluation activities. This document is also crucial as it will support IMPAQ in the case of any changes in the chief staff in the government institutions.

**Recruitment Support.** In order to guarantee that enough eligible cases of child labor are timely identified to build the treatment and control groups, IMPAQ will support the Ministry of Labor by providing short-term staff to support the institution's efforts in identifying and processing the cases of child labor, particularly for the hard to reach populations in remote areas where the Ministry of Labor operates. This assistance provided by IMPAQ is key to ensuring that at least the 550 confirmed cases of child labor needed are identified and processed in order to start the 2017 school year in order to guarantee that the groups of 275 participants in the treatment group and a control group of 275 non-participants are satisfied.<sup>59</sup> As listed in the previous section, IMPAQ will also apply a monitoring and tracking system for both the treatment and the control group in 2017 in order to minimize attrition.

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<sup>59</sup> Or at a minimum 250 participants in each group as outlined in the power calculations.

## 4. QUALITATIVE STUDY

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The qualitative study will provide a rich understanding of the context in which the scholarship program operates and the verification of the program's underlying assumptions and conditionalities. It will enable IMPAQ to better interpret how and why the program leads to particular outcomes and to what extent the results may be generalized to particular subpopulations or other conditions. The qualitative study will also enable IMPAQ to prepare more effective end line instruments and to understand if the control group had access to any other subsidies or services (hidden treatments). IMPAQ will gather important information about the situation of children and adolescents engaged in child labor activities. This will provide fine-grained information about the relevance of the project, validity of the theory of change, the fidelity of the implementation, how the short-term outcomes are generated, and the sustainability of the intervention.

### 4.1 Research Methodology

The qualitative study of the NNAT program is designed and organized to gather data in four thematic areas: the program context, fidelity of implementation, program short-term effects, and intervention sustainability.

IMPAQ will draw on a combination of primary and secondary research, as well as the local expertise of the evaluation team to answer these research questions. From secondary sources, IMPAQ will conduct a review of the existing literature, and will also gather relevant documents, data, and reports about the scholarship program and child labor in Costa Rica. IMPAQ's primary research activities will include conducting key informant interviews at the national and regional level, focus groups with participants and their parents, and participatory data collection activities. Each of these methods is described in more detail in the data collection section below.

### 4.2 Data Collection

IMPAQ already has begun to conduct an initial literature and document review to investigate the broader context of child labor in Costa Rica. In addition, two of IMPAQ's members have already visited San Jose to gather an understanding of available documentation and how the program recruits and administers the NNAT scholarship program. So far, IMPAQ has carefully reviewed the 2011 survey of child labor in Costa Rica,<sup>60</sup> the recent DOL ILAB report,<sup>61</sup> conducted a preliminary literature review, and held follow-up calls with program implementers to gather background information about the recruitment process and the characteristics of children and adolescents who are the beneficiaries of the scholarship. The document review will continue throughout the life of the evaluation as new materials become available.

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<sup>60</sup> MTSS/IPEC. (2011). *Magnitud y características del trabajo infantil y adolescente en Costa Rica - Informe 2011*. Geneva: International Labour Organisation. Retrieved from <http://www.ilo.org/ipecinfo/product/viewProduct.do?productId=22215>.

<sup>61</sup> USDOL Bureau of International Labor Affairs (ILAB). (2013). *Costa Rica*. Washington, D.C. Retrieved from [http://www.dol.gov/ilab/reports/child-labor/costa\\_rica.htm](http://www.dol.gov/ilab/reports/child-labor/costa_rica.htm).

IMPAQ will conduct two key rounds of primary data collection, although some activities will be ongoing throughout the study. In the first round, which will occur between July 2016 and October 2016, the IMPAQ team will conduct key informant interviews with program staff and government officials engaged in administering the NNAT scholarship, such as the Ministry of Labor and Social Security and the scholarship administrator IMAS that distributes the scholarship money. Exhibit 15 shows the timeline of the qualitative data collection.

**Exhibit 15. Qualitative Data Collection Timeline**

Time	Phase	Data Collection
January-September 2016	Knowledge Development and Regional Visits	
October-December 2016	Key Informant Interviews	Baseline Qualitative Data
February 2016	Focus Groups with Parents and Children in Selected Regions	Baseline Qualitative Data
February 2016-February 2017	Intervention and Quarterly Tracking	Quarterly follow-up of students
October-November 2017	Follow-up Focus Groups in Selected Regions Key Informant Interviews with National and Regional Stakeholders	Endline Qualitative Data

As a result of collecting these data and analyzing them, IMPAQ will gain an understanding of the program’s administrative processes, challenges, and successes, and the characteristics and behaviors of beneficiaries—such as how common it is for beneficiaries to drop out of the program and some of the reasons why they leave. IMPAQ also will interview other national and regional stakeholders that are familiar with child labor in Costa Rica, such as non-governmental organizations (NGOs), academics who study child labor or child poverty in Costa Rica, and government ministries. A list of potential respondents is included in Exhibit 16.

**Exhibit 16. Sample Organizations to Contact for Key Informant Interviews**

Government Agencies	Role	Other Organizations	Role
Ministry of Labor and Social Security (MTSS), Office for the Eradication of Child Labor and Protection of Adolescent Workers (OATIA)	Oversees the several programs and units that work to combat child labor	UNICEF Costa Rica	Operates several programs relevant to child poverty and child labor. Offices in San José, Costa Rica.
IMAS	National and regional offices that oversee social supports and services for people in poverty	International Labour Organisation (ILO) International Programme on the Elimination of Child Labour (IPEC)	Oversees regional studies on child labor. Sub-regional offices for the Program on the Eradication of Child Labor in Latin America are in San José, Costa Rica.
Ministry of Planning	National and regional offices that oversee development policies	World Vision Fundación Telefónica	Non-governmental organizations that focus on child protection and humanitarian aid for children, with an office in San José, Costa Rica.

After IMPAQ identifies the participants for the study, IMPAQ will conduct four focus groups in each of the regions that have the highest number of NNAT beneficiaries. The focus groups will be held in an easily accessible location, such as a school or community center, will last roughly 40 minutes, and will include 8 to 12 participants. Focus groups with parents and children will be held separately to ensure that the children have a voice in the research and that the format is engaging and empowering for children.<sup>62</sup> The purpose of the initial focus groups will be to understand how child beneficiaries and parents of beneficiaries understand the concepts of child labor and how they speak about program-related issues. Listening to how parents and children speak about the issues will provide IMPAQ with insights and understanding that will influence IMPAQ's survey instrument design and enable IMPAQ to capture valid and conceptually accurate information. In addition, these focus groups will give IMPAQ the opportunity to learn about the local context from children and parents directly and enable IMPAQ to fine-tune future data collection tasks. Finally, throughout the study, IMPAQ plans to conduct end line research activities, including a mobile phone tracking process (see section 3.5.2)

IMPAQ will conduct the second and final round of primary data collection after the preliminary analysis of survey results. In each of the three regions with the highest number of beneficiaries, IMPAQ will conduct key informant interviews at the regional level to understand the local context during the study period. Respondents will include representatives from the ministries of Labor, Education, IMAS (social aid and services), local NGOs that work with families in poverty or agricultural workers, and other relevant observers or stakeholders as they are identified.

Additionally, in the second round, IMPAQ will conduct four focus groups in each of the three regions of Costa Rica that have the highest number of beneficiaries (12 total). The beneficiary group will include both students that continued in school as well as students that dropped out at some point during the year. As presented in Exhibit 17, in each region, there will be a separate focus group of 8 to 10 people for each of the following groups:

**Exhibit 17. Focus Group Types in Each Region**

Control Group Adolescents ages 11-17	Scholarship Beneficiary Group Adolescents ages 11-17
Control Group Parents	Scholarship Beneficiary Group Parents

The purpose of these focus groups is to obtain information that will help IMPAQ interpret the results of the quantitative impact evaluation and to elucidate attitudes and perceptions to compare across control and beneficiary groups. In addition, IMPAQ will probe the treatment

<sup>62</sup> Regional Working Group on Child Labor. (2002). *Handbook for action-oriented research on the worst forms of child labour including trafficking in children*. Bangkok, Thailand. Retrieved from [http://www.childtrafficking.org/pdf/user/rwg\\_handbook\\_for\\_action\\_oriented\\_research.pdf](http://www.childtrafficking.org/pdf/user/rwg_handbook_for_action_oriented_research.pdf)

group respondents to discuss how they were impacted by the scholarship program and obtain their feedback on how the scholarship program could be improved.

### **4.3 Field Work Protocols**

The IMPAQ evaluation team will develop interview and focus group guides in advance of each round of field visits so that they can be refined as the team learns more about the research and policy context. For the first round of key informant interviews and initial focus groups, IMPAQ will draft the questions and submit them alongside the baseline survey for approval by the IRB. IMPAQ will develop the protocols for the second round of interviews, focus groups, and participatory data collection activities after it analyzes the results from the first round and the survey and assesses them for themes. By doing so, the research team will be able to identify gaps in knowledge and to incorporate preliminary findings and a better understanding of the research context and concepts into the protocol development process. IMPAQ will submit these materials to ILAB for approval prior to IRB submission.

### **4.4 Qualitative Analysis**

IMPAQ will analyze the qualitative data gathered in the first and second rounds of data collection—the field notes, interview summaries, and transcriptions of the focus groups—and assemble them into an internal document that is organized by research theme (context, fidelity, effectiveness). The team will use qualitative analysis software to identify recurring patterns and sub-themes. The project’s senior qualitative technical advisor will direct the analysis of the data, supported by the IMPAQ Costa Rica research team. Qualitative analysis is an iterative process that IMPAQ will begin in the early stages of data collection and deepen as additional data are added. This approach will enable the IMPAQ team to begin the analysis not long after data collection starts.

## 5. WORK PLAN

### 5.1 Evaluation Schedule and Gantt Chart

The timeline for the evaluation is shown in the Gantt chart in Exhibit 18. The period of evaluation is September 2016 through December 2019. IMPAQ expects to randomly assign eligible students to treatment and control classrooms at each school in January 2017 and to administer the end line survey in November 2017. The evaluation will include four rounds of qualitative data collection. The first round of qualitative data collection will occur in Quarter 3, 2016; the second round in Quarter 4, 2016; the third round during Quarters 1-4, 2017, with a thorough review and analysis at the end of Quarter 2; and the fourth round during Quarter 4, 2017. IMPAQ will submit a final report integrating findings from the impact and qualitative study in Quarter 2, 2019.

Exhibit 18. Evaluation Gantt Chart

RCT Impact Evaluation in Costa Rica																			
TASK / ACTIVITY	Year 1		Year 2				Year 3				Year 4				Year 5				
	2015		2016				2017				2018				2019				
Team Leader: Jaime Meza Cordero	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Task 1: Project Start-Up and Management																			
Federal financial report (FFR) standard form (SF) 425	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
Technical progress report (TPR), with all required elements		▲		▲		▲		▲		▲		▲		▲		▲		▲	
Task 2: Evaluation Design																			
Evaluation design plan	△	▲																	
Task 3: Data Collection																			
Baseline survey instruments, mobile survey instrument, and training materials, IRB approval					△	▲													
Baseline survey administration						▲													
Random assignment							▲												
Mobile survey data collection (monthly SMS, quarterly follow-up phone calls)				△			▲	▲	▲	▲									
Baseline survey report package								△	▲										
Baseline survey dataset									▲										
End line survey instruments submitted (Year 1)									△	▲									
End line survey administration (Year 1)										▲									
End line survey report package (Year 1)												△	▲						
End line survey dataset (Year 1)														▲					
Task 4: Qualitative Study																			
Baseline instrument development					△	▲													
Baseline data collection						▲	▲												
End line instrument development									△	▲									
End line data collection										▲									
Qualitative study report															△	▲			
Task 5: Final Reporting																			
Public-use datasets, log of analyses, data crosswalks, data tables																	▲		
Final analysis report															△	▲			
Results summary report																△	▲		
Task 6: Final Grantee Activities																			
Government property inventory disposition request																	▲		
Closeout documents																		▲	
Key: Draft △ Final ▲																			

Key: Draft △ Final ▲

## **5.2 Detailed Deliverable Timeline**

IMPAQ team will provide the information and deliverables presented in Exhibit 19. IMPAQ will provide information regarding the progress of the project via a quarterly federal financial report and a semiannual technical progress report. IMPAQ will present the evaluation's findings through baseline and end line survey reports, a qualitative study report, a final analysis report, and a results summary report.

### **Financial and technical progress reports**

Each month, IMPAQ will prepare financial reports to communicate the financial status of the project. IMPAQ will submit semi-annual technical reports to summarize the project's activities in the previous months; as well as deliverables submitted with dates completed; problems encountered or anticipated, and their solutions; progress toward objectives, milestones, and schedules; and planned activities for the next few months.

### **Baseline data and end line survey data reports**

IMPAQ will submit the final baseline data report in Quarter 3, 2017 and a final one-year end line survey report in Quarter 3, 2018. These reports will describe the data collection instruments, the methodology that IMPAQ followed for data collection, and descriptive analyses of the data.

### **Qualitative study report**

IMPAQ will submit the final qualitative report in Quarter 4, 2018. This report will draw on data from the two rounds of primary data collection and cumulative secondary data analysis. IMPAQ will observe and document all processes and systems in place and describe any challenges that IMPAQ encountered during the data collection process, as well as steps taken to address those challenges.

### **Final analysis report**

At the conclusion of the study, IMPAQ will prepare a final report covering all aspects of the study. The results of the impact evaluation will be presented together with the findings of the qualitative study, which will be based on two rounds of qualitative data collection.

### **Results summary report**

The IMPAQ team will deliver a final results summary report in Quarter 3, 2019. This report will summarize the key findings of the evaluation, describe any additional lessons learned, and detail the evaluation's contribution to closing the evidence gap in child labor research. IMPAQ will produce the report both in English and Spanish and will distribute it to a wide array of local and national stakeholders.

### Exhibit 19. Deliverables Timeline

Deliverable	Proposed Completion Date
<b>Task 1. Project Start Up and Management</b>	
Federal financial report (FFR) standard form (SF) 425	Quarterly
Technical progress report (TPR), with all required elements	Semiannually
<b>Task 2. Evaluation Design</b>	
Evaluation design plan	Q3 2016
<b>Task 3. Data Collection</b>	
Baseline survey tools, mobile survey, and training materials, IRB approval	Q3 2016
Draft baseline survey report package	Q2 2017
Final baseline survey report package	Q3 2017
Baseline survey dataset	Q3 2017
End line survey instrument, IRB approval	Q4 2017
Draft end line survey report package	Q2 2018
Final end line survey report package	Q3 2018
End line survey dataset (Year 1)	Q4 2018
<b>Task 4. Qualitative Study</b>	
Baseline data collection	Q1 2017
Tracking System:	Quarterly 2017
Endline data collection	Q4 2017
Draft qualitative study report	Q1 2019
Final qualitative study report	Q2 2019
<b>Task 5. Final Reporting</b>	
Public-use datasets, log of analyses, data crosswalks, data tables	Q3 2019
Final analysis report	Q2 2019
Results summary report	Q3 2019
<b>Task 6. Final Grantee Activities Government property inventory disposition request</b>	
Government property inventory disposition request	Q3 2019
Closeout documents	Q4 2019

## APPENDIX 1: MEASURING CHILD LABOR

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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 Convention of 1973, No.138 (C138);
- ILO's Convention on the Worst Forms of Child Labour, No. 182 (C182);
- Código de la Niñez y la Adolescencia (CNA)
- Costa Rica National Law No. 5594 ratifying ILO Convention No. 138;
- Costa Rica National Law No. 8122 ratifying ILO Convention No. 182;
- Costa Rica Childhood and Adolescence Code, National Law No. 7739;
- Costa Rican Labor Code;
- Government of Costa Rica Law 8922: Prohibition of Dangerous and Unhealthy Work for Adolescent Workers
- 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 1.5.3, for this evaluation, we apply the child labor measurement framework<sup>63</sup> criteria outlined by the ILO to the NNAT participant population. *The NNAT working adolescents aged 12-14 will be considered to be engaged in child labor regardless of the type of work they are performing, the industry they are working in, and/or the workplace conditions. Participants aged 15-17 will be considered to be engaged in child labor if they are working night work and long hours, regardless of the industry or occupation or if they are working in designated hazardous industries, hazardous occupations, or under hazardous working conditions, as defined by the ILO and the Cost Rican Childhood and Adolescent Code (see Exhibit 21 for a graphic representation of the child labor definition).*

More details about the comparison between Costa Rican and International legislation are provided in Appendix 2.

The government of Costa Rica has signed agreements to eliminate child labor in specific industries/sectors like agriculture (banana, flowers, palm oil, timber, and fishing), construction, brick production, and has prohibited the work of minors in all extractive industries.<sup>64</sup> <sup>65</sup> For

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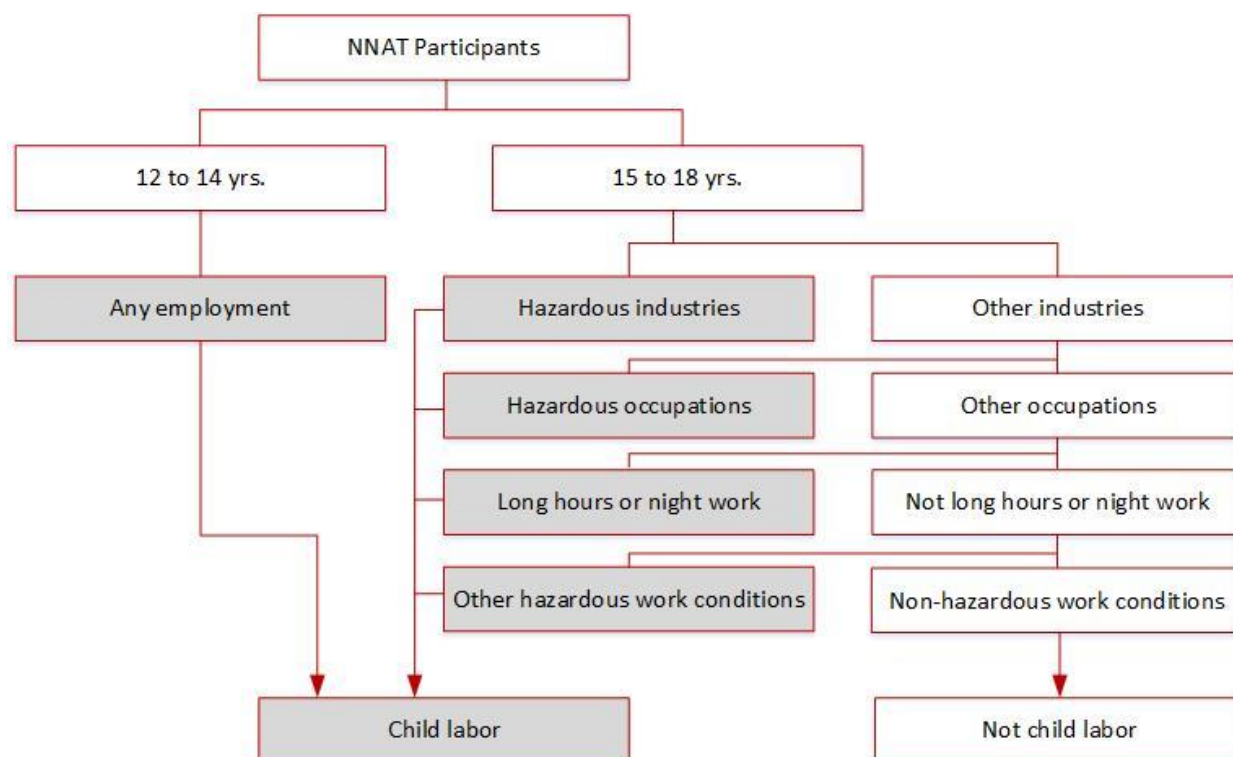
<sup>63</sup> [http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms\\_099577.pdf](http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_099577.pdf)

<sup>64</sup> <http://www.dol.gov/ilab/reports/child-labor/findings/2014TDA/ecuador.pdf>

<sup>65</sup> Children and Adolescence code, art 86.

hazardous occupations we will rely on the list of prohibited work provided by National Council for Childhood and Adolescence – Resolution 16 (this is a long list and reported in [Appendix 3](#)).<sup>66,67</sup>

**Exhibit 20. Child Labor Diagram for NNAT Participants**



To the purpose of the survey we will include a preliminary list of occupations that are relevant to our young adult population ([Appendix 4](#) provides a mapping between these occupations and economic sectors, mentioned in the survey, and the hazardous child labor lists in Costa Rica to determine whether they will be considered hazardous or not for the purpose of this evaluation).

To define long hours<sup>68</sup> or night work we will use the national legislation outlined previously to determine these limits. In addition, our survey instrument includes questions to ascertain the existence of hazardous working conditions (exposure to toxics, fumes, etc.), as delineated in the Childhood and Adolescence Code.

<sup>66</sup>Compendium for hazardous child labor list and related legislation for selected countries-Ecuador

[http://www.ilo.org/ipec/Informationresources/WCMS\\_382487/lang-en/index.htm](http://www.ilo.org/ipec/Informationresources/WCMS_382487/lang-en/index.htm)

<sup>67</sup> Many of the occupations described in this list were derived from the types of activities associated with the production and harvesting of the banana and flower sectors.

<sup>68</sup> The 18<sup>th</sup> ICLS (par 28) states that “The threshold [for long hours] may be determined in terms of the maximum number of hours of work that the national law or regulation sets for children who have reached the minimum working age.”

## **APPENDIX 2: DETAILED INTERNATIONAL AND COSTA RICAN LEGISLATION**

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In this appendix we present a detailed comparison of International and Costa Rican Legislation and reference to the survey questions capturing the definition.

### Exhibit 21. Definitions in ILO and Costa Rican Legislation

	ILO Definition	Costa Rica Legislation	Notes	Survey Question	Source
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.	Q3: Date of Birth (DOB)	Developed internally for this survey
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)		Q3 (DOB)	Developed internally for this survey
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.	Q3 (DOB)	Developed internally for this survey
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 will be verified in the survey through questions about their work	Q36: Did you perform any of the following activities inside or outside your house last week?	Developed internally for this survey
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	Q3 (DOB)	Developed internally for this survey

	ILO Definition	Costa Rica Legislation	Notes	Survey Question	Source
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.	<p>Q32: What is the main reason you dropped out of school?</p> <p>Q42. How many hours did you work last week, not counting your household chores?</p> <p>Q36: Did you perform any of the following activities inside or outside your house last week (Includes list of activities)?</p>	Adapted from SIMPOC Stand-alone Child labor questionnaire
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</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>	For our definition, <b>we will include night work and long hours as HCL.</b>	<p>Q41: What kind of work do you usually do in the jobs/activities that you performed last week?</p> <p>Q42: [hours]</p>	<p>Q41: Adapted from School to Work Transition surveys (SWTS)</p> <p>Q42: Adapted from SIMPOC Stand-alone Child labor questionnaire</p>

	ILO Definition	Costa Rica Legislation	Notes	Survey Question	Source
	<p>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>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>(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> <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 2.</p>			

	ILO Definition	Costa Rica Legislation	Notes	Survey Question	Source
Unpaid hazardous 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 hours threshold, as per the ILO recommendation.	<p>Q50: Which of the following household chores do you usually do at home?</p> <p>Q51: How many hours did you spend on these household chores last week?</p>	Adapted from SIMPOC stand-alone child labor questionnaire

### APPENDIX 3: COSTA RICA HAZARDOUS CHILD LABOR LIST

This appendix presents the list of hazardous activities according to Government of Costa Rica Law No. 8922, Art. 4.

#### Exhibit 22. HCL List per Law 8922, Art. 4

Law 8922, Prohibition of Dangerous and Unhealthy Work for Adolescent Workers: Art. 4, List of Hazardous Occupations	
<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>

## **APPENDIX 4: HAZARDOUS WORK CODING BASED ON THE SURVEY**

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This appendix maps the occupations and industries response options in the survey to the hazardous child labor lists available from Costa Rican legislation to determine whether a given response could be used to classify participants in hazardous work or not. We used as reference three lists:

- (i) The hazardous work list from the Law 8922 (reported in Appendix 2);
- (ii) C&A code art 94 (reported in Appendix 1);

CNA code art. 94 is broader, while the Government of Costa Rica Law 8922 expands on the list but is much more detailed. The activities/occupation in the survey have been phrased using more common terms accessible to our population, and have then been mapped to the more technical terms of activities available from the legislation.

### Exhibit 23. Participant Response Mapping, Question 42

Q42 What kind of work do you usually do in the job/activities you performed last week?	Hazardous list (s)	Hazardous (Y/N)
Work or activities in mines, quarries, excavation, or other underground work	Hazardous according to CNA art. 94, Law 8922 list item a	Y
Work or activities completed in confined or closed spaces	Hazardous according to CNA art. 94, Law 8922 list item b	Y
Work or processes that include the handling of chemical substances, fuel, or harmful biological agents	Hazardous according to CNA art. 94, Law 8922 list item b	Y
Work or activities in the sea, including fishing and extraction of mollusks	Hazardous according to CNA art. 94, Law 8922 list item c	Y
Work of activities that include scuba diving or submersion under water	Hazardous according to CNA art. 94, Law 8922 list item d	Y
Work or activities that include handling of agrochemicals	Hazardous according to CNA art. 94, Law 8922 list item e	Y
Work or tasks that imply constant exposure to dust, fumes, or other toxics	Hazardous according to CNA art. 94, Law 8922 list item f	Y
Work or manufacturing activities that include the handling of explosive substances	Hazardous according to CNA art. 94, Law 8922 list item g	Y
Work or activities that imply the use of heavy machinery	Hazardous according to CNA art. 94, Law 8922 list items h, j	Y
Construction work of roads, dams, bridges or docks	Hazardous according to CNA art. 94, Law 8922 list items l	Y
Work or activities that imply the manual transport of heavy loads, including lifting and placing	Hazardous according to CNA art. 94, Law 8922 list item k	Y
Work or activities in environments with exposure to loud noises and vibrations	Hazardous according to CNA art. 94, Law 8922 list item l	Y
Work or activities completed at heights that require the use of harnesses, ladders, and/or lifelines	Hazardous according to CNA art. 94, Law 8922 list item m	Y
Work or activities that include exposure to extreme high or low temperatures	Hazardous according to CNA art. 94, Law 8922 list item n	Y
Work or activities requiring electrical installation	Hazardous according to CNA art. 94, Law 8922 list item o	Y
Work or activities in the production, or sale of alcoholic beverages or working in that establishment	Hazardous according to CNA art. 94, Law 8922 list item p	Y
Work or activities in nightclubs; brothels; gambling halls; or adult entertainment establishments	Hazardous according to CNA art. 94, Law 8922 list item q	Y
Work or activities in private security	Hazardous according to CNA art. 94, Law 8922 list item r	Y

## APPENDIX 5: PARTICIPANT TRACKING SYSTEM

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The data collection and monitoring will incorporate a quarterly mobile phone text message-based participatory system that will be used for the duration of the study. The mobile phone participatory tracking system (PTS) will consist of short text message-based questions to monitor the participants' school enrollment, employment status, and location of residence on an on-going basis. The PTS will also provide a valuable source of continuous feedback that will help the IMPAQ team build a qualitative evidence base for the program. Participant information will be available from a comprehensive survey of the participant. This will include phone numbers, addresses, and other general participant information.

The IMPAQ team will use Magpi<sup>69</sup> to field the participatory mobile phone surveys using interactive SMS. Magpi is a mobile data collection application that is compatible with all types of mobile phones. The interactive SMS Magpi service<sup>70</sup> that will be used functions by sending short questions in basic SMS form with multiple choice and numeric response options to which recipients can reply via a numeric text message response. Questions are sent to the recipient sequentially one-by-one after each reply. Additionally, each subsequent question can be set to be conditional on earlier responses. This service will allow the IMPAQ team to create a custom list of questions for participants to answer on a periodic basis. These surveys can be scheduled ahead of time to ensure consistent delivery. Responses are stored in a downloadable database by Magpi and will be accessible to IMPAQ staff via the Magpi website.

Because the NNAT evaluation will only track 300 participants, it is important to keep attrition rates as low as possible to preserve statistical power. The mobile PTS will help IMPAQ address the risk of attrition. Through the PTS, the situation of the individual can be updated periodically. This way, IMPAQ is able to know in a timely manner if the individual has dropped-out of school or migrated, enabling IMPAQ to track and update information from the treatment and the control groups. Additionally, it will allow IMPAQ to keep participants in the sample, even if they move to a different part of the country.

The PTS will enable IMPAQ to track quarterly fluctuations in the number of hours that a beneficiary works and changes in his or her student and employment status. We will also be able to obtain information about the program, such as if scholarship monies were received in a timely manner. The check-in also will keep the study participants actively engaged throughout the duration of the intervention. At the end of each quarter, IMPAQ will contact individuals who indicate a substantive change in location of residence, employment or school status (e.g., stop or start working, change industries, or quit school) or have difficulties receiving the scholarship funding to gather additional information to be analyzed qualitatively. In this manner, the PTS will allow us to target follow-up efforts

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<sup>69</sup> <http://home.magpi.com/>

<sup>70</sup> <http://support.magpi.com/support/solutions/articles/5894-introduction-to-sms-data-collection-with-magpi>

## Mobile Phones

The IMPAQ team has been in contact with NNAT program implementers to determine prevalence of mobile phone ownership. Based on their input, the anticipated mobile phone ownership is approximately 90% of participants. However, partners have also informed IMPAQ that mobile phone number turnover is expected to be high. Unlike adults (who prefer to keep the same phone number due to the high social/professional costs related to changing numbers), youth tend to change their phone numbers whenever various cellular providers offer new promotions. To ensure mobile phone access and participation, a two-pronged approach will be taken:

- A basic mobile phone will be provided to participants who do not already own a phone. These telephones cost \$10, on average, and IMPAQ estimates that 30 phones will need to be purchased for a total of \$300.
- Mobile phone sim cards will be provided to all participants with a starting balance of \$5. A supplemental balance of \$5 will be added to the sim cards quarterly one day in advance of the short survey, which will be contingent on participation in the prior survey. By providing sim cards and a small balance to participants, the research team will have access to all of the participant phone numbers and will allow for tracking throughout the study period even if the phone is replaced. Furthermore, providing the \$5 recharge will ensure that participants have sufficient funds to participate, and the leftover balance (after participating in the survey) will serve as an incentive to participate in the PTS throughout the study period and help reduce attrition. The total sim card preload and recharge cost is estimated to be \$6,000.

**Exhibit 24: Tracking Timeline**

Month	Event	Action
February 2017	Classes begin	Provision of mobile phones and sim cards preloaded with \$5
May 2017	Tracking Survey #1	\$5 balance added to sim cards; survey text sent the following day
August 2017	Tracking Survey #2	\$5 balance added to sim cards; survey text sent the following day
November 2017	Tracking Survey #3	\$5 balance added to sim cards; survey text sent the following day

## Instrument Development and Pre-Testing

IMPAQ will develop a short list of questions for the mobile phone tracking system that will be distributed to study participants on a quarterly basis, and the IMPAQ team will submit these questions for review and approval from ILAB and an IRB in the same package with the baseline survey instrument. Subsequently, IMPAQ will translate the questions into Spanish and will work with the local data collection research partners to test them to ensure validity. IMPAQ will first program the participant survey through the Magpi online interface, testing the mobile survey instrument in-house in preparation to field the mobile survey. Then, IMPAQ will have the local

data collection research partners in Costa Rica demonstrate it and test it in the field to ensure its seamless deployment.

### **Participant Privacy and Data Security**

To ensure privacy and data security, all PTS information will be maintained anonymous, using only the phone number as the identifier throughout all data collection and analysis. Information linking the phone number and participant will be kept in IMPAQ's Federal Information Security Management Act (FISMA) compliant servers with access restricted to only the project's team members.