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

Impact Evaluation of the REACH-T Model Farm School Program in Rwanda

Final Baseline Report

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ABSTRACT

In 2014, USDOL/ILAB selected IMPAQ International, LLC (IMPAQ) to design and implement a number of randomized controlled trial (RCT) evaluations of the effectiveness of child labor interventions in diverse countries, including Costa Rica, Ecuador, India, Malawi, and Rwanda. In Rwanda, IMPAQ is evaluating the Model Farm School (MFS) component of a larger umbrella project called REACH-T (Rwanda Education Alternatives for Children in Tea-growing Areas). The project is being implemented by Winrock International and its partners, and is designed to significantly reduce child labor in tea-growing areas and create a replicable model for combating child labor in the tea sector. The evaluation focuses on estimating the impact of the MFS on the engagement of youth in hazardous labor. This report describes the baseline data collection activities and presents an analysis of the baseline data. The results indicate that there was an overall baseline equivalence across the treatment and control groups.

TABLE OF CONTENTS

TABLE OF EXHIBITS

EXECUTIVE SUMMARY

The United States Department of Labor, Bureau of International Labor Affairs (USDOL/ILAB) Office of Child Labor, Forced Labor and Human Trafficking (OCFT) supports international technical cooperation programs to eliminate forced labor, human trafficking, and the worst forms of child labor. In 2014, USDOL/ILAB selected IMPAQ International, LLC (IMPAQ) to design and implement a number of randomized controlled trial (RCT) evaluations of the effectiveness of child labor interventions in diverse countries, including Costa Rica, Ecuador, India, Malawi, and Rwanda. These evaluations are part of the USDOL/ILAB project *Closing the Child Labor and Forced Labor Evidence Gaps: Impact Evaluations.*

This baseline report presents the activities conducted by IMPAQ as part of the evaluation of the Model Farm School (MFS) component of REACH-T (Rwanda Education Alternatives for Children in Tea-growing Areas). The main objective of the MFS intervention is to reduce legal-working-age youth's engagement in hazardous work by providing technical and life skills through safe work. As part of this intervention, vulnerable out-of-school youth aged 16–17 participate in an informal six-month training program in which expert agronomists from local tea cooperatives and tea factories teach students about safe work practices related to basic machinery and irrigation systems and agricultural-based income-generating activities such as efficient cooking stoves, biogas for households, and natural oil value chains. Importantly, the training includes an occupational safety and health component, so participants understand how to protect themselves from hazards in the workplace. Further, REACH-T is collaborating with the Rwanda Workforce Development Authority (WDA) to link qualified youth to WDA opportunities, including public and government-aided technical and vocational education training programs.

To identify the overall impact of the MFS intervention, the evaluation team will study the effects of the intervention on hazardous work practices and educational and career aspirations. The following research questions will guide the study:

1. Does MFS training reduce the incidence of hazardous work practices?[1]
2. Does training change the aspirations of trainees in terms of educational and career goals?

To evaluate the MFS program, the evaluation team carried out an RCT at 15 MFS sites across five districts in Rwanda. A total of 574 youth were randomly assigned to the treatment group, and 388 youth were assigned to the control group. As part of the evaluation activities, IMPAQ, together with its field data collection partner, Incisive Africa, conducted a baseline survey with each treatment and control group youth to collect information on demographics, work history,

[1] At baseline, the team measured hazardous *child* labor because all the youth were younger than 18. However, youth who were 16–17 years old at the outset of the MFS training will not all be minors at the time of follow-up data collection. Therefore, this research question does not measure hazardous child labor per se, but rather whether the training is successful in addressing its main objective, which is reducing hazardous work practices. The same definition of hazardous labor used for the baseline will be used for follow-up data collection.

aspirations, hazardous work, and household information. The baseline data were collected in December 2015 through January 2016.

The team's analysis of the baseline data found that the treatment and control youth are similar in most respects. There are a few variables that are statistically different between the two groups. This is not surprising, given that imbalances in some of the variables are possible, even if randomization was done correctly.[2] Variables in which statistically significant differences were detected at baseline will be included as control variables in future multivariate regression analysis to control for potential differences at baseline between the treatment and control groups.

Regarding youth demographics, the average age of youth in both the treatment and control group is 16 years old. Only a small percentage of youth in the treatment and control groups attended school the last term, which is to be expected, since not being currently enrolled in school was one of the eligibility criteria. The only significant difference between the treatment and control groups is that the control group has a higher percentage of girls, and this difference is statistically significant.

With respect to household characteristics, youth in the treatment and control groups come from households with about six household members, on average. Primary education is the highest educational level attained by adults in the household for both the treatment and the control groups. Most household characteristics are similar between the two groups, except that youth in the control group are:

- more likely to own land,
- more likely to own non-poultry livestock,
- less likely to have the male household member with no schooling level,
- live in a household with fewer members ages 11–15, and
- less likely to have a television.

The evaluation team used the same definitions used by the REACH-T project to measure hazardous child labor. These definitions align with international guidelines for measuring hazardous child labor as well as current Rwandan labor legislation.[3] The team found that a similar proportion of youth in both the treatment and control group provided responses that indicated that they were engaged in hazardous child labor (99.8 percent and 100 percent, respectively). This finding is not surprising given that the MFS intervention targeted youth vulnerable to this activity. The most prevalent type of hazardous child labor was due to the use of machinery and tools, followed closely by working in hazardous activities and/or experiencing health issues/injuries at work. Farming is the most common economic activity for both treatment and control group youth (87.1 percent and 88.4 percent, respectively), which is in line with the

[2] Glennerster R. and K. Takavarasha (2013). Running Randomized Evaluations: A Practical Guide. Princeton University Press. Retrieved from http://www.jstor.org/stable/j.ctt4cgd52

[3] Law regulating labor in Rwanda No. 13/2009 and Ministerial Order No. 06 of July 13, 2010.

REACH-T's target population. In general there are no statistically significant differences between treatment and control groups in the types of economic activities performed by youth, the only exception being that youth in the treatment group are more like to work in activities related to serving alcoholic drinks in bars/other institutions than control youth (7 percent versus 3.9 percent, respectively).

Lastly, the treatment and control groups are similar with respect to their educational and career aspirations. The overwhelming majority of youth in the treatment and control group indicated they expected to have a non-farming job and/or establish their own business. In addition, more than 50 percent of youth in both the treatment and control group would like to achieve vocational training in the next two years.

1. INTRODUCTION

This chapter provides an overview of the evaluation and the policy context (Section 1.1), presents the main evaluation objectives and research questions (Section 1.2), and describes the purpose and structure of the report (Section 1.3).

1.1 Evaluation Background

1.1.1 Evaluation Overview

An estimated 168 million children are engaged in child labor worldwide, with more than 85 million performing hazardous forms of work daily.[4] The severity of the problem is heightened by the relative dearth of information on the types of policy interventions that are most effective in mitigating these practices. The paucity of rigorous randomized controlled trial (RCT) studies further exacerbates the knowledge gap.

To help close this gap, the United States Department of Labor, Bureau of International Labor Affairs (USDOL/ILAB), Office of Child Labor, Forced Labor and Human Trafficking (OCFT) awarded a grant to IMPAQ International, LLC (IMPAQ) to conduct impact evaluations of five programs in Costa Rica, Ecuador, India, Malawi, and Rwanda. These programs are designed to eliminate forced labor, human trafficking, and the worst forms of child labor. The goal of the evaluations is to generate evidence about the relevance, efficacy, and integrity of these interventions in achieving their intended program outcomes.

This report focuses on estimating the impact of the Model Farm Schools (MFS) training arm of the Rwanda Education Alternatives for Children in Tea-growing Areas (REACH-T) on youth's engagement in hazardous labor. The REACH-T project, which was launched in 2014, is being implemented by Winrock International and its partners: Save the Children, Action pour le Développement du Peuple (ADEPE), Duterimbere, Fédération Rwandaise des Coopératives de Théiculteurs (FERWACOTHE), and Société Rwandaise de Thé (SORWATHE).

The goal of the MFS is to improve job opportunities for young people by providing both technical and life skills through safe work. As part of this intervention, vulnerable out-of-school youth aged 16–17 participate in an informal six-month training program in which expert agronomists from local tea cooperatives and tea factories teach students about basic machinery, irrigation systems, biogas for households, efficient cooking stoves, and natural oil value chains. Importantly, the training includes an occupational safety and health component, so participants understand how to protect themselves from hazards in the workplace. Further, REACH-T is collaborating with the Rwanda Workforce Development Authority (WDA) to link qualified youth to WDA opportunities, including public and government-aided technical and vocational education training programs.

[4] International Labour Organization, International Programme on the Elimination of Child Labour. (2013). Marking Progress Against Child Labour: Global Estimates and Trends 2000–2012. Retrieved from http://www.ilo.org/ipec/Informationresources/WCMS_221513/lang--en/index.htm.

1.1.2 Policy Context and Prior Research

Policy Context

The Government of Rwanda has endorsed International Labor Convention No. 138 of June 26, 1973 concerning the Minimum Age for Admission to Employment, and International Labor Convention No. 182 of June 17, 1999 concerning the Worst Forms of Child Labor. In addition, the country has put in place national legislation prohibiting child labor, including the Rwandan Constitution of 2003, several national laws, and a ministerial order.[5]

In 2013, the Government of Rwanda signed the National Policy for Elimination of Child Labor (NPECL),[6] which laid out a five-year strategic plan to combat child labor. The NPECL constitutes a national framework to address the causes and consequences of child labor. The policy has six main objectives:

1. To withdraw all children engaged in child labor through the provision of educational opportunities;
2. To rehabilitate former child workers via psycho-social counseling, recreation services, skills-building sessions, and medical care;
3. To prevent children at risk from engaging in child labor;
4. To raise community awareness;
5. To strengthen institutional capacity to fight child labor; and
6. To better monitor and evaluate activities related to child labor.

According to the NPECL, the Ministry of Public Service and Labor (MIFOTRA), the Ministry of Education (MINEDUC), and the Ministry of Gender and Family Promotion (MIGEPROF) will share responsibility for the monitoring and evaluation of this policy. In addition, local government structures (districts, sectors, and cells) are mandated to implement and coordinate government policies and development programs at their respective levels. The main role of local governments is to:

1. Raise awareness of child labor;
2. Motivate a broad alliance of partners to acknowledge and act against child labor;
3. Carry out a situational analysis to find out about child labor problems;
4. Participate in developing and implementing national policies on child labor;

[5] For example, Law No. 27/2001 of 28 April 2001 defines the rights of the child and the protection of children against violence; Law No. 13/2009 of May 27, 2009 regulates labor in Rwanda, which prohibits employment for children under the age of 16; Law No. 54 of December 14, 2011 relates to the rights and protection of children; and Organic Law No. 01/2012/OL of February 5, 2012 instituted the penal code. In addition, Ministerial Order No. 6 of July 13, 2010 determined the list of worst forms of child labor, their nature, the categories of institutions that are not allowed to employ children, and preventive mechanisms.

[6] Government of Rwanda. National Policy for Elimination of Child Labor. Retrieved from http://www.mifotra.gov.rw/fileadmin/user_upload/Laws/National_Child_Labour_Policy.pdf

5. Strengthen existing district organizations and set up institutional coordination mechanisms; and
6. Create awareness of child labor in communities and workplaces.

Prior Research

Although there is some evidence on the impact of vocational and technical training on job market outcomes, this RCT evaluation of the MFS component of the REACH-T program presents a strong opportunity to add to the evidence base on what works in interventions to mitigate hazardous work practices. Because of their potential for tackling the socioeconomic plight of youth living in poverty, vocational training programs have been studied extensively in developed countries. One hundred RCTs of vocational training programs have been conducted in Europe and the United States alone,[7] most of which have not shown significant results. The impact of vocational training programs, however, is more promising in poorer countries. Research studies have produced evidence of potential benefits from vocational training programs in developing countries, as well as positive short-term and long-term impacts. However, there is a need for more research to establish a causal link between vocational training and the reduction of hazardous practices and child labor.

1.2 Evaluation Objectives

The confirmatory research question that motivates this impact evaluation is whether the MFS intervention will affect the hazardous work practices of MFS beneficiaries. The implementers of the REACH-T program anticipate a reduction in the incidence of hazardous practices about six months after the end of the MFS training.

The research originally aimed to measure outcomes at 6 months and 18 months after the end of training (i.e., at 12 and 24 months after random assignment) and to capture the short- and long-term effects of the MFS program. However, delays in obtaining approval from the Government of Rwanda to collect follow-up data required the evaluation team to measure outcomes at a later point in time. As a result, the evaluation team will measure results at approximately 20 months after random assignment.[8] The team has updated the research questions to reflect this change, as shown below. The updated research questions will measure the medium-term effects of the intervention in the whole population of youth regardless of their age at the time of follow-up. The evaluation will also examine separately the effects of the MFS program on youth younger than 18 and those older than 18; however it is possible that the smaller sample size of these sub-group analyses will affect the statistical power needed to detect a meaningful effect.

[7] Blattman, C., & Annan, J. (2011). Reintegrating and employing high risk youth in Liberia: Lessons from a randomized evaluation of a Landmine Action agricultural training program for ex-combatants. *Evidence from Randomized Evaluations of Peacebuilding in Liberia: Policy Report*.

[8] The dates of follow-up data collection are dependent on approval by the Government of Rwanda.

The research questions are as follows:

Research Question 1. Does MFS training reduce the incidence of hazardous work practices?

- Key outcome 1a: Hazardous work practices approximately 20 months after random assignment.

This research question includes all children in the treatment and control groups 20 months after random assignment, regardless of their age. Youth who were 16–17 years old at the outset of the MFS training will not all be minors at the time of follow-up data collection. Therefore, this research question does not measure hazardous child labor per se, but rather whether the training is successful in addressing its main objective, which is reducing hazardous work practices.

The definition of hazardous work is based on the definition of the REACH-T project and on the Rwanda legislation. More specifically for youth younger than 18 we will measure hazardous labor using the same definitions used by the REACH-T project (described in detail in Appendix B). In other words for youth younger than 18 hazardous labor is equivalent to hazardous child labor. The main difference in the way we measure hazardous labor for youth 18 years of age or older is that we will consider hazardous work if the youth worked more than 45 hours a week, which is based on the regulation of normal working hours according to the Rwanda legislation.[9] Note that at baseline, the team measured hazardous child labor for the entire sample because all the youth were younger than 18.

Research Question 2. Does training change the aspirations of trainees in terms of educational and career goals?

- Key Outcome 2a: Level of education that trained youth would like to achieve in the future, captured approximately 20 months after random assignment.
- Key Outcome 2b: Type of work that trained youth would like to have in the future, captured approximately 20 months after random assignment.

The main confirmatory outcome is the incidence of hazardous labor among youth who participated in the MFS program. The other outcome is exploratory and capture any changes in the level of education and type of work that participants would like to achieve in the future.

1.3 Report Purpose and Structure

In this report, the evaluation team presents the results from the baseline data collection undertaken in December 2015 and January 2016 in the study area. The administration of the baseline survey and the analysis of the data collected are critical for the impact evaluation. The analysis of these data helps the team assess the integrity of the random assignment by testing for baseline equivalence among key observable characteristics across the treatment and control

[9] Official Gazette of the Republic of Rwanda, year 18, May 27, 2009. Law regulating Labour in Rwanda.

villages. In addition, the baseline data will be used when the team estimates the overall impact of the program, to control for any possible differences that might exist between treatment and control group members.

The remainder of this report is organized as follows. Chapter 2 provides an overview of the MFS program, including a description of the program's design and the key outcomes of interest. Chapter 3 explains the overall methodological approach that will be used in the evaluation. Chapter 4 reports the baseline data collection results, followed by a discussion of key findings.

2. PROGRAM OVERVIEW

This chapter provides an overview of the REACH-T project, and a more detailed description of the MFS component (Section 2.1). The evaluation outcomes of interest are presented in Section 2.2.

2.1 Description of the Program

The goal of the MFS, the training arm of the REACH-T project, is to improve job opportunities for young people by providing them with technical education and life skills through safe work and by connecting them to on- and off-farm economic opportunities. As part of this intervention, legal working-age out-of-school youth participate in an informal six-month training program in which instruction is provided by expert agronomists from local tea cooperatives and tea factories. These experts teach students about basic machinery, irrigation systems, biogas for households, efficient cooking stoves, and natural oil value chains. Importantly, the training includes an occupational safety and health component, so participants understand how to protect themselves from hazards in the workplace. Further, REACH-T is collaborating with the Rwanda Workforce Development Authority (WDA) to link qualified youth to WDA opportunities, including public and government-aided technical and vocational education training programs.

Model Farm School Activities

MFS activities are designed to remove youth of legal working age from hazardous labor, promote occupational safety and health in the tea sector, and provide youth with skills for acceptable work. These activities include the following:

- **Transition minors of legal working age from hazardous child labor to acceptable work***:* Available data from the Rwandan tea and other sectors indicate that many youth aged 16–17 work in unsafe or hazardous conditions that effectively expose them to hazardous forms of child labor.[10] The MFS intervention targets youth in tea and other rural occupations who are out of school and exposed to hazardous labor. The curriculum includes trainings to increase awareness of dangerous forms of labor, promote safe work conditions, and increase youth's agricultural skills and knowledge to prepare them for safe work in agriculture. The curriculum also includes life skills (e.g., hygiene, HIV/AIDS and malaria prevention), leadership, and entrepreneurship trainings to improve the overall wellbeing of young people and equip them with the knowledge to start and manage small businesses.
- **Promote occupational safety and health (OSH)**: Youth in the MFS program receive OSH training in which they learn about employers' codes of conduct and workers' rights and responsibilities. In addition to training youth in the workplace, Winrock and its partners developed and delivered OSH training modules to labor inspectors, cooperative

[10] Winrock International. (2013). Project Document under the USDOL and Winrock International Cooperative Agreement.

managers, and farm owners. As part of this training, participants learned about workers' rights and responsibilities, codes of conduct, and trade union democracy.

- **Agricultural training and linkages to other donor-funded programs***:* The MFS also links participating youth to other employment assistance programs when available. For youth who want to work in tea production, the MFS provides training on sustainable tea production methodologies. Through practicums, graduate students from the Kigali Institute of Science and Technology introduce additional trainings in high-value sectors (e.g., essential oils and biogas) to some MFS trainees. For youth who want to pursue off-farm employment, the MFS provides training opportunities in agro-processing, such as food processing, honey production, baking, and juice processing. REACH-T also provides advisory services through the MFS to link youth to other vocational training or work readiness programs, for example, vocational education training centers, which offer a range of programs, including carpentry, hairdressing, catering, and tailoring.

Logic Model

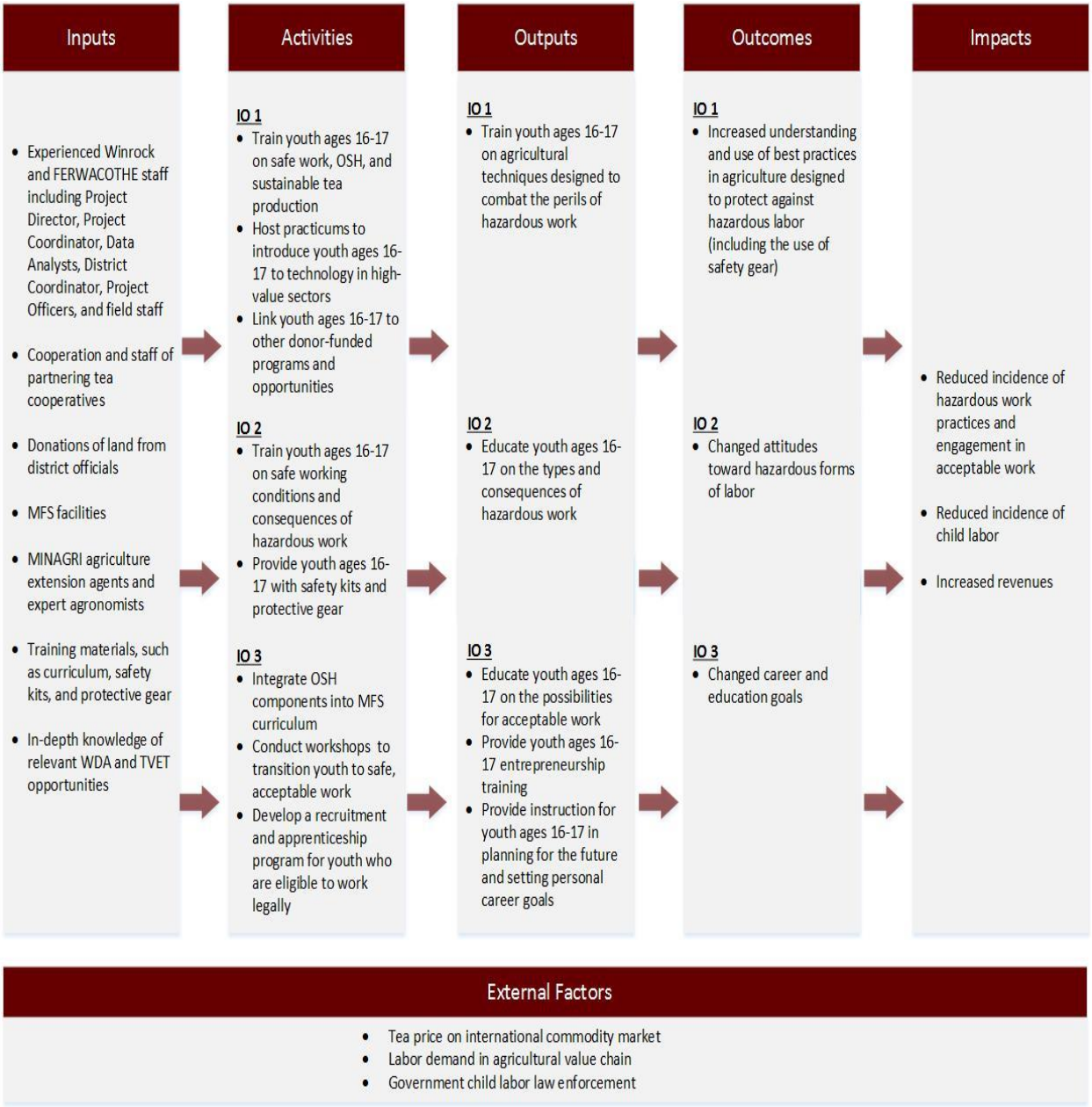
The MFS logic model presented in Exhibit 1 shows the connections among the three intermediate outcomes (IO): program inputs, activities performed, and outputs expected. The three outcomes that are expected to be detectable after the six-month MFS program are the following:

1. There should be an increased understanding and use of best farming practices, especially with respect to practices that are safe and do not cause a hazard.
2. There should be a change of attitudes toward hazardous forms of labor concurrent with the increased understanding described in #1.
3. Beneficiaries should be inspired by the MFS training they receive and raise their career and educational goals.

Within six months after the end of the MFS activities, REACH-T expects to see an impact on key indicators about the type of work activities youth are engaged in, the incidence of child labor, and the revenues youth generate with their work.

As described in the previous chapter, the research originally aimed to measure outcomes 6 months after the end of the training. This would have allowed us to capture the short-term effects of the MFS program. However, because the follow-up data collection will take place approximately 20 months after random assignment (about one year after the end of the MFS training), it is possible that we might not be able to capture these effects if they were just transitory.

Exhibit 1: MFS Logic Model



2.2 Outcomes of the MFS Program

Exhibit 2 presents the key outcomes of interest that will help answer the research questions presented in Section 1.2. The main confirmatory outcome is the incidence of hazardous labor among youth (including those over and under 18 years) who participated of the MFS program. All the other outcomes proposed in the evaluation design are exploratory. These outcomes capture any changes in the level of education and type of work that participants would like to achieve in the future.

Exhibit 2: Outcomes of the MFS Program

Research Questions	Outcome	Outcome Type	Population
Labor Outcomes			
1. Does the MFS program reduce the incidence of hazardous work practices among youth? (Measured at approximately 20 months after random assignment)	Prevalence of youth in hazardous work	Confirmatory	All youth
Education and Career Aspirations			
2. What is the impact of the MFS program on beneficiaries' education and career aspirations? (Measured at approximately 20 months after random assignment) – Aspirational level of education – Aspirational type of work	Prevalence of youth describing specific levels of education and types of jobs	Exploratory	All youth

Note: The term youth includes everyone who was part of the randomization; regardless of their age at follow-up.

3. EVALUATION DESIGN

The evaluation design consists of the following steps: (1) identification, validation, and selection of program sites; (2) identification of program candidates and verification of their eligibility; (3) baseline data collection; (4) random assignment of youth into treatment and control groups; (5) implementation of the MFS training; and (6) collection of follow-up data about 20 months after implementation ends.

3.1 Identification, Validation, and Selection of Program Sites

The MFS training was implemented in three sequential cohorts across eight districts in Rwanda. To increase the likelihood of the project to target children engaged in hazardous labor in the tea sector, the project first identified the tea-growing districts based on the total area of tea plots and the number of growers belonging to cooperatives.[11] These districts were selected by Winrock during program design to ensure that the intervention reached an adequate number of beneficiaries in the districts with the highest prevalence of child labor in tea growing.

Within each district, Winrock identified one or two sites for participation in the MFS component of the project by weighing the following criteria:

- Prevalence of child labor: Winrock held discussions with local leaders to better understand the extent of child labor in the villages.
- Direct beneficiary balance within the REACH-T project: Winrock tried to be cognizant of all ongoing interventions so that a given district would not receive more than one intervention when another district had none.

After taking these factors into consideration, Winrock selected eight districts to participate in the three cohorts of the MFS component. Five of these districts were selected to implement the third cohort of the MFS program.

The districts by cohort are as follows:

- MFS Cohort 1: Nyabihu, Nyamagabe, Nyaruguru, Karongi, Rulindo
- MFS Cohort 2: Nyaruguru, Rubavu, Rusizi
- MFS Cohort 3: Rusizi, Nyamagabe, Nyaruguru, Karongi, Ngororero

This evaluation focuses exclusively on MFS Cohort 3, which was implemented at 15 sites across the five districts.

[11] Tea processing factories are easily regulated by the government and are not targets of REACH-T.

3.2 Identification of Program Candidates and Verification of Eligibility

At each of the 15 sites designated to implement MFS Cohort 3, local leaders performed outreach to publicize the dates and locations when MFS registration was set to occur. Part of this outreach effort included gathering information from local leaders about potential candidates and compiling a list of names. All 16- or 17-year-old youth interested in the vocational training, whether or not they were preselected by local leaders, were invited to attend.

At each site, on the day of the MFS Cohort 3 registration, IMPAQ and REACH-T staff met with the potential participants, described the MFS program, validated the list of potential participants, and added other eligible youth who were present. After this meeting, REACH-T staff worked with parents, village leaders, and district officials to verify the eligibility of the youth present on the day of enrollment. During the meeting, the REACH-T team ensured that young candidates met the age criteria for the MFS by verifying identification cards and looking up official records available at the enrollment site.[12] The registration information was shared with IMPAQ for documentation purposes.

3.3 Baseline Data Collection

When the validation process was complete, each candidate proceeded to an enumerator for baseline data collection. IMPAQ, in collaboration with a local collection partner, Incisive Africa Ltd. collected baseline data from all the youth present.

Exhibit 3 describes all the activities conducted in the preparation and fielding of the baseline data. **Appendix E** describes these activities in more detail. The baseline data collected from the participants is presented in Chapter 4.

[12] Although Winrock mentions other "vulnerability" criteria, the main observable and verifiable criteria are the age range and community confirmation that the child is not enrolled in regular school. The other "vulnerability" criterion is whether the household belongs to socioeconomic Ubudehe categories 1 or 2. The Ubudehe categories are official, community-led classifications that define the socioeconomic status of each household in Rwanda. Ranging from 1 (lowest) to 4 (highest), these categories improve social planning and targeting because they help the government determine which households qualify for welfare services and social protection programs. Source: http://www.gov.rw/news_detail/?tx_ttnews%5Btt_news%5D=1054&cHash=a315a8b0054e76f9c699f05ce24d3eb8. Retrieved May 4, 2017.

Exhibit 3: Survey Administration Activities

Activity	Timeline	Location of Activity	Activity Conducted By
Instrument Development	June 2014 – November 2015	Washington, DC, U.S.A.	IMPAQ research staff with input from ILAB and Winrock
Pre-testing	September 2014	Rulindo District, Rwanda	IMPAQ survey methodologist, Winrock, and consultants
Cognitive Testing	November 9–13, 2015	Rulindo District, Rwanda	IMPAQ survey methodologist and Incisive Africa associates and field supervisors
Revisions Based on Findings of Cognitive Testing	November 2015	Kigali, Rwanda	IMPAQ and Incisive Africa teams
Programming of Instrument and Testing	November – December 2015	Kigali, Rwanda and Washington, DC, USA	Incisive Africa analysts and IMPAQ
Enumerator Training	November 29 – December 4, 2015	Kigali, Rwanda	IMPAQ survey methodologist, Incisive Africa associates and field supervisors
Pilot Testing	December 5, 2015	Kigali, Rwanda	IMPAQ survey methodologist, Incisive Africa associates and field supervisors
Randomization and Baseline Data Collection	December 2015 – January 2016	MFS sites, Rwanda	Incisive Africa and IMPAQ
Data Quality Checks	December 2015 – January 2016 onwards	Washington, DC, USA	IMPAQ team

3.4 Randomization of Youth into Treatment and Control Groups

On the same day that baseline data were collected from all youth, the MFS team together with local leaders explained that not all qualifying youth could participate in the training due to the limited capacity and that there would be a public lottery process. The goal of this process was to create community buy-in through transparency. The lottery consisted of a public drawing that assigned candidates into treatment and control groups. In this process, each candidate drew a number. If the candidate drew a number below the number of available slots in a given site, the candidate was included in the treatment group; otherwise (if the number was above 30), the candidate was included in the control group.

Figure 1: Public randomization lottery: Youth draw random numbers to determine inclusion in the treatment group. Rusizi, Rwanda.

Exhibit 4 shows the sectors in the five districts and the number of youth who were assigned to the treatment and control group in each site. Based on discussions with Winrock, the initial estimated sample size was 586 for the treatment group and 391 for the control group. The exhibit shows the actual sample sizes from the baseline survey. The evaluation team interviewed 574 treatment-group youth and 388 control-group youth. Detailed information on the characteristics of the treatment and control groups is presented in Chapter 4.

Exhibit 4 : Treatment and Control Samples

District	Selected Sectors	Number of Treatment Youth	Number of Control Youth
Rusizi	Nkungu	39	25
	Giheke	70	48
	Kamembe	20	0
Nyamagabe	Buruhukiro	30	28
	Uwinkingi	40	36
	Gatare	26	19
	Nkomane	29	22
Nyaruguru	Ruheru	48	24
	Nyabimata	43	22
	Muganza	19	14
Karongi	Rugabano	77	50
	Gashali	31	24
	Mutuntu	31	21
Ngororero	Kavumu	40	26
	Muhanda	31	29
Total		**574**	**388**

3.5 Implementation of Model Farm School, Cohort 3

After the random assignment, MFS staff enrolled qualified youth assigned to the treatment group in the MFS training. Youth assigned to the control group, even when they qualified for the treatment group, did not receive the MFS services. Implementation of MFS Cohort 3 began in February 2016 and was expected to be completed in August 2016. However, due to delays in securing training sites and obtaining community buy-in, implementation did not occur at the same time in all 15 sites. The first phase was implemented from February to August (10 sites), and the second phase from March to September (two sites). Three sites did not complete all six months of the training. One site started in March and ended in July, a second site started in April and ended in August, and a third site started in August and ended in October.[13] Exhibit 5 shows the start and end dates at each MFS site.

[13] The IMPAQ team will include site-fixed effects to control for the fact that these sites had a shorter training period. We will also test the sensitivity of the results to the exclusion of these sites. If the size of the effect is the same, even if the significance changes, it will suggest that the results are not being driven by these partially treated sites.

Exhibit 5: MFS Sites

District	MFS Site	Start Date	End Date
Nyamagabe	Buruhukiro	Feb. 3, 2016	Aug. 3, 2016
	Gatare	Feb. 2, 2016	Aug. 31, 2016
	Nkomane	Feb. 9, 2016	Aug. 15, 2016
	Uwinkingi	Feb. 25, 2016	Aug. 25, 2016
Nyaruguru	Ruheru	Feb. 16, 2016	Aug. 16, 2016
	Nyabimata	March 8, 2016	Sept. 8, 2016
	Muganza	April 16, 2016	Aug. 25, 2016
Rusizi	Nkungu	March 23, 2016	Sept. 23, 2016
	Giheke	March 21, 2016	July 21, 2016
	Kamembe	Aug. 6, 2016	Oct. 24, 2016
Karongi	Rugabano	Feb. 4, 2016	Aug. 4, 2016
	Mutuntu	Feb. 2, 2016	Aug. 2, 2016
	Gashali	Feb. 5, 2016	Aug. 5, 2016
Ngororero	Kavumu	Feb. 9, 2016	Aug. 9, 2016
	Muhanda	Feb. 10, 2016	Aug. 10, 2016

It is important to note that in addition to the six-month agricultural training, youth in MFS Cohorts 1 and 2 received an additional six months of vocational training focused on building skills in various trades, such as tailoring, hairdressing, and mechanics. After completing agricultural training, participants in these cohorts also received start-up kits containing seeds, fertilizer, and other resources to aid them in beginning their careers in agriculture. Due to lack of funding, the participants in MFS Cohort 3 did not receive vocational training nor did they receive start-up kits at the completion of their agricultural training.

Finally, it should be noted that because the treatment is "received the MFS training," the likelihood of contamination of the control group is very low. It is nonetheless important to know if any youth in the control group benefited from the training. An example of contamination would be the case of a youth in the control group who was added to the training after randomization. The evaluation team will probe this issue and gather information about potential instances of contamination in its review of the program's documents and follow-up quantitative data, as well as in focus groups with treatment and control group youth conducted during follow-up data collection in 2017.

4. BASELINE SURVEY RESULTS

This chapter presents detailed baseline data collected from youth on key indicators, including background characteristics, educational attainment, household composition and assets, involvement in or exposure to hazardous child labor, and their education and career aspirations. The main purpose of this chapter is to assess whether randomization was conducted adequately by determining whether there is baseline equivalence between the treatment and control groups. After a careful review of the data, the evaluation team concluded that baseline equivalence has been attained for all main outcomes and the majority of the background characteristics. Imbalances were detected among a few variables; this is not surprising, since some imbalance is possible even if randomization was done correctly.[14] Variables in which statistically significant differences were detected at baseline will be included as control variables in future multivariate regression analysis to control for baseline differences between the treatment and control groups.

4.1 Youth Characteristics

This section describes the demographic and household characteristics of the youth in the study sample. The analytical sample was composed of 962 youth who were randomized between the treatment (574) and control (388) groups.

As shown in **Exhibit 6**, the average age of youth in the sample was just over 16 years. About 51 percent of the treatment group and 58 percent of the control group were female. The 6.9 percentage point difference is statistically significant at the 5 percent level.[15] Not surprisingly for this age group, the overwhelming majority (over 99 percent) identified themselves as single. In terms of educational attainment, only about 2 percent had attended school during the last school term. For the vast majority of these youth (79.8 percent in the treatment group and 79.1 percent in the control group), primary school was the final level of schooling.

Among the most common reasons for not attending school were economic considerations, including, for example, the need to work for money, and the cost of school fees (71.3 and 71.7 percent in the treatment and control groups, respectively), followed by reasons related to school performance (17.3 and 18.0 percent, respectively). None of the individual characteristics, except the proportion of females, were statistically different between treatment and control youth.

[14] Glennerster R. and K. Takavarasha (2013). Running Randomized Evaluations: A Practical Guide. Princeton University Press. Retrieved from http://www.jstor.org/stable/j.ctt4cgd52

[15] To investigate this issue further we will ask village leaders if there is a reason why women are less likely to participate in MFS. Also, we will examine if the program has differential impacts by males and females with the understanding that this analysis will be for a 50 percent subgroup and we may not have adequate precision to measure differential effects.

Exhibit 6 : Demographic Characteristics, Treatment and Control Groups

Demographic Characteristics	Treatment		Control		Difference (t test)	
	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
General Information						
Age	16.332 (0.036)	573	16.359 (0.038)	387	-0.028	(-0.107, 0.052)
Girls	0.514 (0.973)	574	0.582 (0.848)	388	-0.069*	(-0.133, -0.005)
Single	0.997 (0.059)	574	0.995 (0.072)	338	0.002	(-0.007, 0.01)
Attended school last term						
Youth who attended school last term	0.024 (6.330)	574	0.026 (6.156)	388	-0.001	(-0.022, 0.019)
Last school level attended						
Never attended school	-	-	-	-	-	-
Primary Level (grades 1– 6)	0.798 (0.504)	574	0.791 (0.514)	388	0.007	(-0.046, 0.059)
Junior Secondary/Ordinary Level (grades 7–9)	0.193 (2.044)	574	0.206 (1.965)	388	-0.013	(-0.065, 0.039)
Senior Secondary/Advanced Level (grades 10–12)	-	-	-	-	-	-
Vocational training	-	-	-	-	-	-
Grade repetition						
Repeated the last attended grade more than once	0.851 (0.418)	531	0.894 (0.345)	349	-0.043	(-0.087, 0.002)
Reasons for not attending school						
Economic reasons (e.g., need to work for money, school fees)	0.713 (0.636)	560	0.717 (0.629)	378	-0.004	(-0.063, 0.055)
School performance (not good in school, not interested)	0.173 (2.187)	560	0.180 (2.138)	378	-0.007	(-0.057, 0.043)
Family reasons (family does not allow/value school)	0.054 (4.207)	560	0.042 (4.763)	378	0.011	(-0.016, 0.039)
Other reasons	0.063 (3.876)	560	0.061 (3.934)	378	0.002	(-0.03, 0.033)

* p<0.05, ** p<0.01, *** p<0.001.

Note: (-) all rows of data with response sample sizes with 5 or fewer responses for the treatment or control group have been suppressed, following best practices in determining subgroup sample size while protecting personally identifiable information.[16] None of the dropped cells showed statistically significant differences between the treatment and control groups.

Variables with missing data indicate that (1) the respondent did not want to answer, (2) the respondent did not know the answer, or (3) the question was not applicable to the respondent

[16] Seastrom, Marilyn (2017). Best Practices for Determining Subgroup Size in Accountability Systems While Protecting Personally Identifiable Student Information. (IES 2017-147). U.S. Department of Education, Institute of Education Sciences. Washington, DC. https://nces.ed.gov/pubs2017/2017147.pdf

Exhibit 7 describes the characteristics of the households in which the youth live. Youth in the sample came from households with about six members, on average. In general, the households of treatment and control group members had similar composition, the only exception being small, statistically significant differences in the number of members ages 11 to 15. In terms of the education level of household members, the highest level of the most educated female and male household member was primary education, with similar prevalence between the treatment and control groups. The distribution of the most educated female/male household member was similar between the treatment and control groups, except for the percentage of male respondents who never attended schools, which was highest among youth in the treatment group (a 2.8 percentage point difference that is statistically significant at the 5 percent level).

In terms of household assets, there were some statistically significant differences between the treatment and control groups. Youth in the control group were more likely to live in households that own non-poultry livestock and land for cropping (the differences are 5.7 and 3.1 percentage points, respectively).

Exhibit 7: Household Characteristics of Youth, Treatment and Control Groups

	Treatment		Control		Difference (t test)	
Household Characteristics	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
Family structure						
Household Size	6.685 (0.338)	574	6.492 (0.335)	388	0.192	(-0.092, 0.477)
Average number of members ages 10 or younger	1.444 (0.876)	574	1.296 (0.905)	388	0.148	(-0.008, 0.304)
Average number of members ages 11 to 15	1.261 (0.728)	574	1.131 (0.796)	388	0.13*	(0.013, 0.247)
Average number of members ages 16–17	1.139 (0.330)	574	1.139 (0.329)	388	0	(-0.048, 0.049)
Average number of adults (ages 18 or older)	2.841 (0.507)	574	2.936 (0.508)	388	-0.094	(-0.284, 0.096)
Highest education level of a female member						
Never attended school (%)	0.028 (6.871)	531	0.016 (7.821)	372	0.012	(-0.007, 0.031)
Primary level (grades 1– 6) (%)	0.563 (0.882)	531	0.546 (0.914)	372	0.017	(-0.049, 0.083)
Junior secondary/ordinary level (grades 7–9) (%)	0.267 (1.657)	531	0.309 (1.497)	372	-0.042	(-0.102, 0.019)
Senior secondary/advanced level (grades 10–12) (%)	0.130 (2.590)	531	0.121 (2.699)	372	0.009	(-0.035, 0.053)
Tertiary level (college/university) and vocational training (%)	-	-	-	-	-	-
Highest education level of a male member						
Never attended school (%)	0.050 (4.346)	536	0.023 (6.595)	355	0.028*	(0.004, 0.052)
Primary level (grades 1– 6) (%)	0.563 (0.881)	536	0.555 (0.897)	355	0.009	(-0.058, 0.075)

Household Characteristics	Treatment		Control		Difference (t test)	
	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
Junior secondary/ordinary level (grades 7–9) (%)	0.233 (1.815)	536	0.268 (1.657)	355	-0.034	(-0.093, 0.024)
Senior secondary/advanced level (grades 10–12) (%)	0.136 (2.521)	536	0.135 (2.533)	355	0.001	(-0.045, 0.047)
Tertiary level (college/university) and vocational training (%)	0.017 (7.659)	536	0.017 (7.637)	355	0	(-0.017, 0.017)
Household paid employment						
Average number of children ages 11 to 15 who work for pay	0.120 (3.818)	574	0.101 (3.470)	388	0.02	(-0.031, 0.071)
Average number of children ages 16–17 who work for pay	0.460 (1.172)	574	0.513 (1.063)	388	-0.053	(-0.123, 0.017)
Average number of adults ages 18 or older who work for pay	1.268 (1.027)	574	1.338 (1.107)	388	-0.069	(-0.251, 0.113)
Durable assets						
Automobile or truck	-	-	-	-	-	-
Motorbike	-	-	-	-	-	-
Bicycle	0.054 (4.189)	574	0.064 (3.815)	388	-0.01	(-0.041, 0.02)
Television	-	-	-	-	-	-
Sewing machine	0.023 (6.575)	574	0.023 (6.498)	388	-0.001	(-0.02, 0.019)
Mobile phone	0.643 (0.746)	574	0.670 (0.703)	388	-0.027	(-0.088, 0.034)
Radio	0.599 (0.818)	574	0.582 (0.848)	388	0.017	(-0.047, 0.08)
Livestock						
Poultry	0.303 (1.518)	574	0.317 (1.470)	388	-0.014	(-0.074, 0.046)
Non-poultry	0.812 (0.482)	574	0.869 (0.390)	388	-0.057*	(-0.103, -0.01)
Land ownership						
Own land for growing crops	0.920 (0.295)	574	0.951 (0.227)	388	-0.031*	(-0.062, 0)

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

Note: (-) all rows of data with response sample sizes with 5 or fewer responses for the treatment or control group have been suppressed, following best practices in determining subgroup sample size while protecting personally identifiable information.[17] None of the suppressed cells showed statistically significant differences between treatment and control groups except the difference for televisions which was statistically significant (p<0.01).

Variables with missing data indicate that (1) the respondent did not want to answer, (2) the respondent did not know the answer, or (3) the question was not applicable to the respondent

[17] Seastrom, Marilyn (2017). Best Practices for Determining Subgroup Size in Accountability Systems While Protecting Personally Identifiable Student Information. (IES 2017-147). U.S. Department of Education, Institute of Education Sciences. Washington, DC. https://nces.ed.gov/pubs2017/2017147.pdf

4.2 Prevalence of Hazardous Child Labor

Exhibit 8 presents summary statistics on hazardous child labor incidence based on the REACH-T version of the hazardous child labor definitions used in this evaluation. Specifically, a youth was considered to be in hazardous child labor (HCL) if he or she worked in hazardous locations, performed some hazardous activities, worked in hazardous conditions, used hazardous products, used any tools or machinery considered hazardous, or worked in institutions considered hazardous. A more detailed description of the key concepts underlying the HCL definitions is presented in Appendix B.

In this baseline report, HCL statistics are measured as a mix of data from the last week/last week worked and the past 12 months. Specifically, details about the numbers of hours worked in the various activities were asked with reference to the last week/last week worked because people's recall periods tend to be short. However, other issues such as injury or exposure to dangerous substances, were asked with reference to a longer period of time (i.e., the past 12 months). Thus, a child was considered to be in hazardous child labor if he/she has worked in dangerous activities, under dangerous conditions, using dangerous tools and machinery, etc., in the past 12 months.

In addition, the evaluation team created an additional indicator specific to the MFS project. The MFS program provides students with protective gear meant to increase the safety of their working conditions so that they can continue engaging in agricultural work, but under acceptable conditions. Thus, the team also developed statistics about the prevalence of youth who are engaged in hazardous agricultural activities without the use of protective gear.[18]

Exhibit 8 provides an overview of HCL prevalence using the definitions described in Appendix B. The exhibit shows that there were no statistically significant differences, between the treatment and control groups in the proportion of youth in HCL. Specifically, 99.8 percent of the youth in the treatment group and 100 percent of the youth in the control group were in HCL. Such high prevalence of hazardous child labor in this selected sample of youth is not surprising given that youth targeted by the program were in general not in school and at risk of being in hazardous child labor.

The most common type of HCL is related to the use of machinery and tools (96.2 percent and 96.6 percent in the treatment and control groups, respectively), followed closely by working in hazardous activities (94.1 percent in the treatment group and 94.0 percent in the control group), and experiencing health issues/injuries at work (89.0 percent in the treatment group and 91.0 percent in the control group). The data indicate that there were no statistically significant differences between the treatment and control groups in the incidence of these individual components of the HCL definition. Finally, the last row in Exhibit 8 presents the proportion of youth at baseline engaged in hazardous agricultural activities without using protective gears.[19]

[18] Protective gear includes gloves, nose/gas masks, boots and other protective clothing.

[19] This includes applying or spraying fertilizers or other chemicals, carrying large loads, and constructing roads on the farm.

Again, the data indicate that there are no statistically significant differences between treatment and control youth.

Exhibit 8: Prevalence of Hazardous Child Labor, Treatment and Control Groups

Variables	Treatment		Control		Difference (t test)	
	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
Proportion of youth in HCL	0.998 (0.042)	574	1.000 (0.000)	388	-0.002	(-0.005, 0.002)
Hazardous Child Labor Categories:						
Work in unsafe, unhygienic, or dangerous locations	0.794 (0.509)	574	0.835 (0.445)	388	-0.041	(-0.09, 0.009)
Work in hazardous activities	0.941 (0.251)	574	0.940 (0.252)	386	0.001	(-0.03, 0.031)
Work that has poor conditions (e.g. long hours, work at night)	0.620 (0.784)	571	0.589 (0.836)	387	0.031	(-0.032, 0.94)
Work using products that can affect youth's health	0.183 (2.114)	568	0.223 (1.872)	382	-0.039	(-0.092, 0.013)
Work that requires the use of machinery/tools	0.962 (0.200)	574	0.966 (0.186)	388	-0.005	(-0.029, 0.019)
Work in institutions that are considered dangerous to the health of youth	0.305 (1.511)	574	0.320 (1.461)	388	-0.015	(-0.075, 0.045)
Work in which the youth has experienced health issues/injuries	0.890 (0.352)	573	0.910 (0.315)	388	-0.02	(-0.058, 0.019)
Work using dangerous products without protective gear[1]	0.107 (2.892)	514	0.125 (2.654)	337	-0.018	(-0.062, 0.027)

* p<0.05, ** p<0.01, *** p<0.001.

[1] MFS-specific indicator.

Variables with missing data indicate that (1) the respondent did not want to answer, (2) the respondent did not know the answer, or (3) the question was not applicable to the respondent

Exhibit 9 provides a more detailed breakdown of the economic activities performed by the youth in the sample over the past 12 months. A large fraction of youth (87.1 percent and 88.4 percent in the treatment group and the control group, respectively) were engaged in some type of farming activities (tea, coffee or other agricultural products). The most prevalent among the activities that are considered hazardous, according to the definitions used in the study, is working as a domestic servant (31 percent and 31.4 percent in the treatment and control groups, respectively), construction activities (26.3 and 29.6 percent), and collecting scrap metal (24.2 and 19.8 percent).[20] The proportion of youth who serve alcoholic drinks in bars/other institutions is higher in the treatment group than in the control group, and the difference is statistically significant.

[20] Refer to Appendix B for a more detailed list of hazardous activities.

Exhibit 9: Economic Activities, Treatment and Control Groups

Economic Activities in the Past 12 Months	Treatment		Control		Difference (t test)	
	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
Farming (tea, coffee, rice, other)	0.871 (0.385)	574	0.884 (0.363)	388	-0.013	(-0.055, 0.029)
Transportation of goods to the market or for storage	0.552 (0.901)	574	0.572 (0.866)	388	-0.02	(-0.084, 0.044)
Fetching firewood or water	0.427 (1.160)	574	0.441 (1.128)	388	-0.014	(-0.078, 0.05)
Herding livestock	0.402 (1.220)	574	0.410 (1.202)	388	-0.007	(-0.071, 0.056)
Preparing food, clothes, or handicrafts for sale	0.314 (1.481)	574	0.335 (1.411)	388	-0.021	(-0.082, 0.039)
Domestic servant in someone else's house	0.310 (1.493)	574	0.314 (1.478)	388	-0.004	(-0.064, 0.056)
Washing or cleaning for someone else	0.296 (1.543)	574	0.322 (1.452)	388	-0.026	(-0.086, 0.034)
Construction including brick-making or -carrying	0.263 (1.675)	574	0.296 (1.543)	388	-0.033	(-0.091, 0.025)
Collecting scrap metal	0.242 (1.771)	574	0.198 (2.012)	388	0.044	(-0.009, 0.097)
Caretaking of infants on tea plantations	0.216 (1.907)	574	0.255 (1.711)	388	-0.039	(-0.094, 0.016)
Selling articles, newspapers, drinks, food, or agricultural products	0.166 (2.247)	574	0.165 (2.253)	388	0.001	(-0.047, 0.049)
Land clearing, tree sizing, or draining of marshland	0.103 (2.957)	574	0.072 (3.590)	388	0.031	(-0.005, 0.066)
Charcoal-making	0.084 (3.313)	574	0.077 (3.459)	388	0.006	(-0.029, 0.041)
Mining and quarrying activities	0.078 (3.432)	574	0.077 (3.459)	388	0.001	(-0.033, 0.036)
Serving alcoholic drinks in bars/other institutions	0.070 (3.657)	574	0.031 (5.605)	388	0.039**	(0.012, 0.066)
Other activities	0.190 (2.067)	574	0.180 (2.134)	388	0.009	(-0.041, 0.06)

* p<0.05, ** p<0.01, *** p<0.001.

4.3 Education and Work Aspirations

This section presents the results of other youth outcomes, particularly work and education aspirations. The survey asked what level of education the youth would like to achieve in the next two years. Exhibit 10 shows that over 50 percent of respondents indicated they would like to engage in vocational training (52.3 in the treatment group and 55 percent in the control group), followed by junior secondary education (32.7 and 31.1 percent). When asked about whether they expected to work in farming or non-farming jobs in the next two years, over 97 percent of youth responded that they would like to have non-farming jobs. A large majority of respondents expected to have their own business rather than working for other employers (84.3 in both the

treatment and control groups). In addition many youth had high levels of self-efficacy. For example 67 percent in the treatment group and 70 percent in the control group said they expect to achieve their desired job in the next two years. Overall, the team found no statistically significant differences between the treatment and control groups in the measures of education and career aspirations.

Exhibit 10: Education and Work Aspirations, Treatment and Control Groups

Expectations and Aspirations	Treatment		Control		Difference (t test)	
	Mean (CV)	N	Mean (CV)	N	Mean	CI (LB, UB)
Expected educational level in next two years						
No education	-	-	-	-	-	-
Primary level (grades 1– 6)	0.097 (3.054)	505	0.092 (3.142)	347	0.005	(-0.035, 0.045)
Junior secondary/ ordinary level (grades 7–9)	0.327 (1.437)	505	0.311 (1.490)	347	0.015	(-0.048, 0.079)
Senior secondary/advanced level (grades 10–12)	0.051 (4.296)	505	0.040 (4.884)	347	0.011	(-0.017, 0.039)
Tertiary level (college/university)	-	-	-	-	-	-
Vocational training	0.523 (0.956)	505	0.550 (0.905)	347	-0.028	(-0.096, 0.041)
Expected job in next two years						
Non-farming jobs	0.976 (0.158)	574	0.977 (0.154)	388	-0.001	(-0.021, 0.018)
Traditional farming jobs	-	-	-	-	-	-
Modern farming jobs	0.016 (7.930)	574	0.015 (7.989)	388	0.001	(-0.016, 0.016)
Expected entrepreneurship in next two years						
Establishing their own business[a]	0.843 (0.432)	574	0.843 (0.432)	388	0	(-0.047, 0.047)
Working for other employers[b]	0.157 (2.321)	574	0.157 (2.318)	388	0	(-0.047, 0.047)
Expected working location in next two years						
Working outside of their own village	0.639 (0.752)	574	0.598 (0.821)	388	0.041	(-0.021, 0.104)
Level of self-sufficiency in next two years						
Have confidence to achieve their expected job[c]	0.674 (0.696)	574	0.701 (0.654)	388	-0.027	(-0.086, 0.033)
Believe they have a lot of control over their future	0.937 (0.259)	574	0.918 (0.300)	388	0.02	(-0.014, 0.054)
Believed they have little or no control over their future	0.063 (3.869)	574	0.082 (3.340)	388	-0.02	(-0.054, 0.014)

* p<0.05, ** p<0.01, *** p<0.001.

[a] Includes working alone for themselves or employing others to work for them.

[b] Includes working for others alone or supervising other employees.

[c] On a scale of 1 to 10, where 1 was not at all confident and 10 was very confident, the participants were asked how confident they felt about achieving their expected job in the next two years. High confidence was defined as a score above 5.

Note: (-) all rows of data with response sample sizes with 5 or fewer responses for the treatment or control group have been suppressed, following best practices in determining subgroup sample size while protecting personally identifiable information.[21] None of the dropped cells showed statistically significant differences between the treatment and control groups.
Variables with missing data indicate that (1) the respondent did not want to answer, (2) the respondent did not know the answer, or (3) the question was not applicable to the respondent

To summarize, after a careful review of the data the evaluation team concluded that baseline equivalence has been attained for all of the main outcomes and most of background characteristics. Variables in which statistically significant differences were detected at baseline will be included as control variables in future multivariate regression analysis to control for potential imbalances between the treatment and control groups. One of the variables that showed statistically significant differences between the treatment and control group is prevalence of females (with more females in the control group). We will investigate the gender issue further at the analysis stage (for example we might explore differential impacts by males and females) and when we conduct additional qualitative data collection.

[21] Seastrom, Marilyn (2017). Best Practices for Determining Subgroup Size in Accountability Systems While Protecting Personally Identifiable Student Information. (IES 2017-147). U.S. Department of Education, Institute of Education Sciences. Washington, DC. https://nces.ed.gov/pubs2017/2017147.pdf

APPENDIX A: BASELINE QUESTIONNAIRE

RWANDA MODEL FARM SCHOOL EVALUATION: BASELINE SURVEY

COVER – Identifiers and Information to Assist in Collecting Follow-Up Surveys

1. Time Started: _____ AM/PM
2. Time Ended: _____ AM/PM
3. Coordinator ID: [xx-digits]
4. Enumerator ID: [xx-digits]
5. District: [text]
6. District ID: [xx-digits]
7. Sector: [text]
8. Sector ID: [xx-digits]
9. Cell: [text]
10. Cell ID: [xx-digits]
11. Village: [text]
12. Respondent ID: [xx-digits]
13. Please tell me your first name: _____
14. What is your last name? _____
15. What is your address? How do we find your home?
    _____
16. What is the closest trading center to your home? _____
17. Do you own a phone? □1 Yes ***(go to 18)*** □2 No ***(skip to D1)***
18. What is your phone number? _____

DEMOGRAPHICS – Respondent Demographic Information

D1. Record Respondent's sex ***[DO NOT ASK UNLESS NECESSARY]***: □1 Male □2 Female

D2a. What is your date of birth? ***[ENTER dd/mm/yyy and go to D3]*** □8 Don't know ***(go to D2b)***

D2b. How old, would you say, you are today? ***[ENTER AGE - 2-digits] Get estimate if necessary.***

D3. Are you…? [READ RESPONSE OPTIONS]
□1 Single □2 Married OR □3 Something else? (specify) _____

D4. Are you attending school last term? ***(DO NOT INCLUDE THE MODEL SCHOOL)***
□1 Yes ***(go to D4a)***
□2 No ***(skip to D5a)***

D4a. What grade or class are you attending last term? ***(Check ONE)***

□2 Kindergarten/Nursery
□3 P1
□4 P2
□5 P3
□6 P4
□7 P5
□8 P6
□9 S1
□10 S2
□11 S3
□12 S4
□13 S5
□14 S6
□15 Vocational training
□88 Don't know

D4b. Did you miss any school days LAST WEEK of the term before exams?
□1 Yes → How many days did you miss school last week? _____ ***(RECORD DAYS – MAX=7)***
□2 No

D4c. Would you say your grades in school LAST TERM are good, fair or poor?
□1 Good
□2 Fair
□3 Poor
→ ***GO TO W1a***

D5a. What is the last grade or class you attended? ***(Check ONE)***

□1 No school
□2 Kindergarten/Nursery
□3 P1
□4 P2
□5 P3
□6 P4
□7 P5
□8 P6
□9 S1
□10 S2
□11 S3
□12 S4
□13 S5
□14 S6
□15 Vocational training
□88 Don't know

D5b. In which year did you last attend that grade or class? ***[ENTER YEAR – 4 digits – go to D5c]*** – □88 Don't know ***(go to D5b1)***

D5b1. How old were you when you last attended that grade or class? ***[ENTER AGE]***

D5c. For how many terms did you attend that grade or class? □1 1 □2 2 □3 3 □88 Don't know

D6a. What was your **main** reason for not attending school? ***(DO NOT READ RESPONSES)***

D6av: CAPTURE VERBATIME RESPONSE AND THEN CODE REASON AT TIME OF INTERVIEW.

□1 I am not interested in school

□2 I was not good at school

□3 My family did not allow schooling or did not consider it to be valuable

□4 I did not have money for school fees or I cannot afford schooling

□5 I need to work for own money

□6 I need to work for money because family needs money

□7 I need to help with family farm or business, even though I don't earn any money doing so

□8 I need to help my family with household chores, including taking care of younger children or older relatives

□9 The school is too far

□10 I am afraid of the teacher or other children

□11 I needed to learn a job, including farming skills

□12 I got pregnant or had a child

□77 Something else

D6b. What was your **second** reason for not attending school? ***(DO NOT READ RESPONSES)***

D6bv: CAPTURE VERBATIME RESPONSE AND THEN CODE REASON AT TIME OF INTERVIEW.

□1 I am not interested in school

□2 I was not good at school

□3 My family did not allow schooling or did not consider it to be valuable

□4 I did not have money for school fees or I cannot afford schooling

□5 I need to work for own money

□6 I need to work for money because family needs money

□7 I need help with family farm or business, even though I don't earn any money doing so

□8 I need to help my family with household chores, including taking care of younger children or older relatives

□9 The school is too far

□10 I am afraid of the teacher or other children

□11 I needed to learn a job, including farming skills

□12 I got pregnant or had a child

□77 Something else

□99 No other reason ***(skip to W1)***

D6c. Anything else? ***(DO NOT READ RESPONSES)***

D6cv: CAPTURE VERBATIME RESPONSE AND THEN CODE REASON AT TIME OF INTERVIEW.

□1 I am not interested in school

□2 I was not good at school

□3 My family did not allow schooling or did not consider it to be valuable

□4 I did not have money for school fees or I cannot afford schooling

□5 I need to work for own money

□6 I need to work for money because family needs money

□7 I need help with family farm or business, even though I don't earn any money doing so

□8 I need to help my family with household chores, including taking care of younger children or older relatives

□9 The school is too far

□10 I am afraid of the teacher or other children

□11 I needed to learn a job, including farming skills

□12 I got pregnant or had a child

□77 Something else

□99 No other reason

WORK – Respondent's Work Information

W1a. Have you **EVER** worked **for PAY**?

□1 Yes, for pay
□2 No
□8 Don't know

W1. Did you do any kind of work in the last: Did you get paid for any of that work? ***(READ RESPONSE AND CHECK ALL THAT APPLY. OK TO PROBE WITH LIST FROM W2)***

a. OVER ONE YEAR	□1 Yes, for pay	□2 Yes, but no pay	□3 No	-- OK to tick both 1 & 2
b. ONE YEAR	□1 Yes, for pay	□2 Yes, but no pay	□3 No	-- OK to tick both 1 & 2
c. 6 MONTHS	□1 Yes, for pay	□2 Yes, but no pay	□3 No	-- OK to tick both 1 & 2
d. 3 MONTHS	□1 Yes, for pay	□2 Yes, but no pay	□3 No	-- OK to tick both 1 & 2
e. 1 MONTH	□1 Yes, for pay	□2 Yes, but no pay	□3 No	-- OK to tick both 1 & 2
f. 1 WEEK	□1 Yes, for pay	□2 Yes, but no pay	□3 No	-- OK to tick both 1 & 2

→ ***NOTE: impossible to say no to all***

W2. I am now going to read you a list of activities that people often do. Please tell me if you did any of these activities in the LAST WEEK/THE LAST WEEK YOU WORKED. First, ***[READ DOWN THE LIST OF ACTIVITIES FIRST AND THEN FOR EACH "YES" ASK THE QUESTIONS ACROSS.]***

#	**Did you work …** ***(READ LIST) in the last week/last week you worked…?*** **(CODE AS:** □1 Yes □2 No**)**
a.	Farming for someone else or on your plot
b.	Taking care of livestock
c.	Fetching water
d.	Fetching firewood
e.	Taking care of children or older people
f.	Washing, apart from domestic work
g.	Construction (brick making, laying roads, etc.)
h.	Hand craft such as sewing, woodcraft, carving, jewelry making, etc.
i.	Domestic work that you haven't told me about yet, such as cooking, cleaning, laundry and shopping for the household etc.
j.	Something else (specify)

W3. **[ASK ONLY THOSE WHO WORKED AT LEAST IN LAST 3 MONTHS – SKIP THOSE WHO ONLY WORKED IN LAST 6 MONTHS OR LAST YEAR]** Now, I have some questions about the work that you did in the last week/last week you worked.

POPULATE ROSTER WITH ALL JOBS MENTIONED IN W2. ASK EACH QUESTION FOR EACH ACTIVITY. SUM SHOULD NOT BE ZERO.

a. Now think back to the last week when you were did <<W2>>. Please tell me how many hours on each day of the week you did this activity on <<weekday>> (when you last worked at this job)? i. Monday **(RECORD HOURS)** ii. Tuesday **(RECORD HOURS)** iii. Wednesday **(RECORD HOURS)** iv. Thursday **(RECORD HOURS)** v. Friday **(RECORD HOURS)** vi. Saturday **(RECORD HOURS)** vii. Sunday **(RECORD HOURS)** ***PROBE: What time did you start and when did you end? RECONCILE WITH RESPONDENT IF HOURS DO NOT MATCH UP WITH START AND END TIME. PROBE FOR ESTIMATED HOURS SPENT ON THIS ACTIVITY.***
b. I see that you worked a total number of <<hours totaled in a. for that activity>> the last week you did this activity. For how many of those hours did you get paid either in cash or in kind? ***RECORD HOURS (should be equal to or less than hours totaled from a)*** ***IF 0, then go to NEXT JOB.***
c. Were you paid for these hours either in kind, with cash or with both? □1 In-kind only ***(go to NEXT JOB/W4a/W5)*** □2 Cash only ***(go to e)*** □3 Both ***(go to d)*** □4 Not paid ***(go to NEXT JOB/W4a/W5 – RECONCILE WITH RESPONDENT)***
d. You said, you got paid for <<hours from b>> hours for doing this activity the last week/last week when you did it. For how many of these hours, did you get paid in cash? ***RECORD HOURS (should be equal to or less than hours totaled from b)***
e. How much did you earn in cash last week/during the last week when you worked at this activity? ***RECORD AMOUNT***

W4a. What types of crop do you help with? ***(Check all that apply, – read responses)***

□a Tea

□b Coffee

□c Rice

□d Fruits and vegetables, including potatoes, sweet potatoes, beans, sorghum and other fruits and vegetables

□e Flowers

□f Essential oils such as pyrethrum, patchouli, etc.

□g Other

□h Never help with crops

➔ ***IF "***Never help with crops" ***– GO TO W5 ELSE GO TO W4b.***

W4b. Which of the following tasks do you **usually** do while farming? ***(READ RESPONSES - Check all that apply – read responses)***

□a Plucking

□b Pruning

□c Weeding

□d Applying or spraying fertilizers or other chemicals

□e Carrying large loads

□f Fetching firewood or dry tea leaves

□g Holing/planting

□h Tilling land

□i Constructing roads in the farm

□j Cultivating crops

□8 Other (specify) _____

W5. At which of the following times did you work in the LAST 12 MONTHS? Please include any hours that you worked during weekdays (Monday through Friday) and on weekends (Saturday and Sunday). Please include any time during the year when you may have worked during the times I am about to read out. ***(READ RESPONSE CATEGORIES - Check all that apply) PROBE: So, during the last year you never worked 6 AM or earlier or after 8 PM etc.***

□a Early morning (between 6 AM to 8 AM)

□b Morning (8 AM to 12 PM)

□c Mid-day (12 PM to 2 PM)

□d Afternoon (2 PM to 6 PM)

□e Evening (6 PM to 8 PM)

□f Night (8 PM to 6 AM)

W6. Now, I am going to read you out a list of items. On a scale of 1 to 10, where 1=Never and 10=Everyday while working and 5 means about half of the time while working, please tell me how often in the **LAST 12 MONTHS** you used any of these items when you were **working either for pay or without pay**? Would you say [READ CATEGORIES]

1-10=”Never” to “Everyday I work”

a. Gloves
b. Nose/gas mask
c. Long sleeves
d. Full-length Trousers
e. Boots
f. Protective boots, such as those reinforced with steel or other strong material on the toes to protect them from falling objects
g. Other protective clothing

W7. At what age did you **first start working**? _____ RECORD AGE **(CODE AS 99 IF NEVER WORKED FOR PAY)**

OR IF NECESSARY AND RESPONDENT IS UNABLE TO GIVE EXACT AGE: About what age do you think you were when you first started working (RECORD AGE ABOVE)? AND FINALLY: Would you say you were younger than 6, between 6 and 13, between 14 and 16 or 17 and older?

□1 Under 6
□2 6-13
□3 14-16
□4 17 and over
□8 Don’t know
□9 Never worked ***(RECONCILE WITH RESPONDENT)***

ASPIRATIONS – Respondent's Goals and Aspirations In Next Two Years

A1. Now, I have some questions about your goals for the next two years. **In the next two years**, what education level would you like to reach?

□1 No school	□7 P5	□13 S5
□2 Kindergarten/Nursery	□8 P6	□14 S6
□3 P1	□9 S1	□15 Vocational training
□4 P2	□10 S2	□16 College/University
□5 P3	□11 S3	□88 Don't know
□6 P4	□12 S4	

In the next questions A2, A3, A4, A5, I am going to ask you about the type of job would you like to have in the **next two** years

A2. What type of job would you like to have in the **next two** years? ***(DO NOT READ RESPONSES. IF RESPONDENT MENTIONS FARMING, PROBE WHAT TYPE OF JOB WHAT TYPE OF FARMING. NOTE, STUDYING IS NOT PART OF THIS QUESTION AND IF RESPONDENT SAYS THAT, THEN PROBE FOR, WHAT KIND OF JOB?).***

□1 Farming

□2 Non Farming

➔ ***IF 1 – GO TO W2a***

➔ ***IF 2 – GO TO W2b***

A2a. Farming:

□1 Traditional Farming – Tea

□2 Traditional Farming – Coffee

□3 Traditional Farming – Rice

□4 Traditional Farming – Fruits and vegetables, including potatoes, sweet potatoes, beans, sorghum and other fruits and vegetables

□5 Traditional Farming – Flowers

□6 Traditional Farming – Essential oils such as pyrethrum, patchouli, etc.

□7 Traditional Farming – Other

□8 Modern Farming – Tea

□9 Modern Farming – Coffee

□10 Modern Farming – Rice

□11 Modern Farming – Fruits and vegetables, including potatoes, sweet potatoes, beans, sorghum and other fruits and vegetables

□12 Modern Farming – Flowers

□13 Modern Farming – Essential oils such as pyrethrum, patchouli, etc.

□14 Modern Farming – Other

□15 Agro business, such as input supplies (selling seeds or fertilizers for example), merchandizing (packaging, transportations, etc.), marketing, distribution of products

A2a. Non - Farming:

□16 Government job
□17 Mechanic
□18 Tailoring
□19 Masonry
□20 Carpentry
□21 Child care
□22 Trade/business
□23 Not working (includes studying)
□77 Other (specify) _____

A3. At this job that you would like to have in two years' time, would you be… ***READ RESPONSES***

□1 Working alone for yourself
□2 Employing others to work for you
□3 Working for others as an employee, or
□4 Working for others but supervising other employees?

A4. In two years' time, would you like to be working somewhere inside the village or outside the village?

□1 Inside
□2 Outside

A5. About the job you told me about in A2, A3 and A4:

On a scale of 1 to 10, where 1="Not at all Confident" meaning I don't think I will get that job in 2 years and 10="Very Confident" meaning I am totally sure I will have that job in 2 years, how confident are you that you will have that job were describing in the next two years? Would you say ***(READ RESPONSES - Check ONE)***

□1-10 Not at all Confident to Very Confident

A6. How much control do you feel you have over your future? ***(READ RESPONSES)***

□1 A lot of control
□2 A little control
□4 Not much control
□6 No control

HARD WORK: Respondent's Hazardous or Hard Work Status

HW1. I am now going to read out a list of activities. On a scale of 1 to 10, where 1="Never" and 10="Everyday" and 5 means about "Half of the Time", please tell me how often in the **LAST 12 MONTHS** you engaged in any of these activities? Please include all times you may have engaged in these activities for pay and when you performed these activities without getting paid.
Would you say **[READ RESPONSE CATEGORIES]**

1-10="Never" to "Everyday"

a. Tea farming
b. Coffee farming
c. Rice farming
d. Cultivate or harvest other agricultural products
e. Take care of infants with parents on tea plantations
f. Washing or cleaning for someone else on casual basis
g. Work as a domestic servant in someone else's home
h. Fetching firewood/water for other households
i. Herding livestock
j. Catch or gather fish for sale
k. Prepare food, clothes or handicrafts for sale
l. Serve food/nonalcoholic drinks in eatery/restaurant
m. Serve alcoholic drinks in bars/other institutions
n. Sell articles, newspapers, drinks, food or agricultural products.
o. Repair bikes/Motor/TV/radio/watch/ tools or equipment for someone else for payment
p. Cleaning cars or motorbikes for someone else for payment
q. Transport of people (on bikes, moto)
r. Transportation of goods to market or for storage (for sales)
s. Construction, maintenance of buildings, homes for someone else, offloading stones, demolition work
t. Brick/tiles-making/carrying
u. Mining and quarrying activities (stones, sands, lime…)
v. Charcoal making
w. Collecting scrap metal

x. Trading across borders
y. Land clearing or tree sizing
z. Draining of marshland

HW2. Now, please tell me on a scale of 1 to 10, where 1=”Never” and 10=”Everyday” while working and 5 means about “Half of the Time” while working, how often you have used any of the following equipment **in the LAST 12 MONTHS while you were working**? Please include all work that you do for pay and jobs and chores that you do for which you do not get paid.
Would you say ***[READ RESPONSE CATEGORIES]***
1-10=”Never” to “Everyday” while working

a. Tools like Circular saw/Hacksaw/Saw/ Blade
b. Tools like Sickle/Axe/Pick/ Machete/Hoe
c. Tools like Knife/ cutter
d. Tools like Hammer/Mallet
e. Tools like Shears
f. Welding Tools
g. Blow (explosion)/Acetylene (gas)
h. Torch with fire/ blowtorch
i. Bullock/Plow
j. Sprayer
k. Ropes
l. Machines that are turned on or off automatically/ not protected by supervisors
m. Lifting machines
n. Driving heavy machines/ vehicles
o. Visiting, verifying, servicing machines that are turned on and don’t have protective parts to avoid contact with such parts in motion

HW3. I am now going to read out a list of things you may have come across **while working**. Please tell me, on a scale of 1 to 10, where 1="Never" and 10="Everyday" while working and 5 means about "Half of the Time" while working, how often in the **LAST 12 MONTHS** you were exposed to any of these at any of the jobs that you do for pay or while doing jobs and chores for which you do not get paid?
Would you say ***[READ RESPONSE CATEGORIES]***
1-10="Never" to "Everyday" while working

a. Dust, fumes
b. Fire, gas, flames
c. Loud noise or vibration
d. Extreme cold or heat
e. Work underground
f. Work at heights
g. Work in water, lake, pond or river
h. Work in a place that is dark or confined
i. Work in a place with insufficient ventilation
j. Chemicals and pesticides (such as glue)
k. Explosives
l. Work in unhygienic or dirty conditions (e.g. no or dirty latrines, filthy premises, etc.)
m. Carrying heavy load such as one large bucket of water or more

HW4. In the **past 12 months**, please tell me on a scale of 1 to 10, where 1=”Never” and 10=”Everyday” while working and 5 means about “Half of the Time” while working, how often did you experience any of the following health related problems **because of your work**? Please include all work that you do for pay and jobs and chores that you do for which you do not get paid.
Would you say [READ RESPONSE CATEGORIES]
1-10=”Never” to “Everyday” while working

a. Back or muscle pains (Did you experience this in the last 12 months because of any work you do?)

b. Headaches

c. Wounds or deep cuts

d. Breathing problems

e. Eye problems

f. Skin problems

g. Stomach problems

h. Fevers

i. Snake bites

j. Broken bones

k. Extreme fatigue

l. Depression

m. Anxiety

n. Did you have any other health problem as a result of work that you do ~~for pay~~? (specify) _____

HW5. In the **past 12 months**, please tell me on a scale of 1 to 10, where 1=”Never” and 10=”Everyday” while working and 5 means about “Half of the Time” while working, how often did you experience any of the following **when you were working**? Again, please include all work that you do for pay and jobs and chores that you do for which you do not get paid.
Would you say [READ CATEGORIES]
1-10=”Never” to “Everyday” while working

a. Emotional harassment such as scolding, insulting and intimidation

b. Physical harassment such as being beaten or slapped

c. Someone touching you in a private place or inappropriately when you did not want them to

d. Someone proposing or forcing sexual activity of any kind when you did not want to

Household Characteristics: Respondent's Household Information

HH1. How many children between the ages of 0 and 10 years live in your household? [ENTER #: 2 digits]

HH2. How many children 11 to 15 years old, including yourself (if respondent is 15 or younger) live in your household? [ENTER #: 2 digits]

HH3: How many of these children, including yourself (if applicable), currently work for pay? [ENTER #: 2 digits]

HH4. How many children 16 to 17 years old, including yourself (if respondent is 16 or older) live in your household? [ENTER #: 2 digits]

HH5: How many of these children, including yourself (if applicable), currently work for pay? [ENTER #: 2 digits]

HH6. How many adults, 18 years and older, including your parents, live in your household? [ENTER #: 2 digits]

HH7: How many of these adults, 18 years and older, currently work for pay? [ENTER #: 2 digits]

HH8. Now think of the woman in your household who has completed the most number of years in school. What is the highest level of education she completed?

□1 No school	□7 P5	□13 S5
□2 Kindergarten/Nursery	□8 P6	□14 S6
□3 P1	□9 S1	□15 Vocational training
□4 P2	□10 S2	□16 College/University
□5 P3	□11 S3	□88 Don't know
□6 P4	□12 S4	

HH9. Now think of the man in your household who has completed the most number of years in school. What is the highest level of education he has completed?

□1 No school	□7 P5	□13 S5
□2 Kindergarten/Nursery	□8 P6	□14 S6
□3 P1	□9 S1	□15 Vocational training
□4 P2	□10 S2	□16 College/University
□5 P3	□11 S3	□88 Don't know
□6 P4	□12 S4	

INCOME: Respondent's Household Income/Asset Status

I1. I have a few more questions about your household. Please tell me how many of each of the following does your household own? ***(Enter 0 for none. Code number – 2 digits)***

a. Automobile or truck
b. Motorbike
c. Bicycle
d. Television
e. Sewing machine
f. Mobile phone
g. Radio
h. Cow or buffalo
i. Sheep
j. Goat
k. Pig
l. Poultry such as chickens and ducks
m. Anything else (specify) _____

I2. Does your household own land for growing crops?

□1 Yes → How many plots does your household own for growing crops, i.e., plots that are registered in the name of someone in your household? Please include any plots your household might own, but areI renting out to others for growing. [ENTER #: 2 digit]

□2 No

I3. Does anyone in your household rent land for growing crops?

□1 Yes → How many plots does your household rent for growing crops? [ENTER #: 2 digit]

□2 No

I4. Do you consume any of the food you and your household grow?

□1 Yes

□2 No

CONTACT INFORMATION: Information to reach respondent at Endline

Now, I have just a few more questions that will help us reach you at the end of the program. We would like to interview you again then. So that we can reach you for the interview in a few months' time, I would like to get some additional information from you. First,

19. What is the first name of the head of household where you currently live?
20. What is the last name of the head of household where you currently live?
21. Does the head of household where you live own a phone? □1 Yes ***(go to 21a)*** □2 No ***(skip to 22)***

21.a Phone number:

22. What is the phone number of your mother? [text]
23. What is the name of another person we can contact if we need to reach you?

24. What is this person's relationship to you?

□1 Son/Daughter
□2 Grandchild
□3 Nephew/Niece
□4 Godchild
□5 Husband/Wife
□6 Self
□7 Other (specify): _____

25. What is the name of another person we can contact if we need to reach you?

26. What is this person's relationship to you?

□1 Son/Daughter
□2 Grandchild
□3 Nephew/Niece
□4 Godchild
□5 Husband/Wife
□6 Self
□7 Other (specify): _____

27. What is the first name of the chief of the village where you currently live?
28. What is the last name of the chief of the village where you currently live?

APPENDIX B: HAZARDOUS CHILD LABOR DEFINITIONS

The evaluation team is using the same hazardous child labor definitions used by the REACH-T project to conduct the "Baseline Prevalence Study on Child Labor in Tea-Growing Areas in Rwanda," including adjustments the REACH-T project made to the definitions to ensure the data reflects more accurately the local economic context. These definitions align with international guidelines for measuring hazardous child as well as current Rwanda labor legislation (Law regulating labor in Rwanda No. 13/2009 and Ministerial Order No. 06 of 13/07/2010).

The study uses the following categories to define HCL:

- ***Location (work in unsafe, unhygienic, or dangerous locations)***
    - Work carried out on the surface or underground aimed at mining, work carried out underneath water, or in places with high heights or congested places.
    - Work carried out in unhygienic places that may expose children to dangerous products and chemicals, conditions of very high or cold temperatures (not outside temperatures), noises and vibrations that may affect the lives of children.
    - In line with international best practice, this was defined as being exposed to at least one of the following: fire, gas, flames; loud noise or vibration; work underground; work at heights; work in water/lake/pond/river; workplace too dark or confined; insufficient ventilation; work in unhygienic or dirty conditions (*e.g.* no or dirty latrines, filthy premises, etc.); pesticides, fertilizer, glues; explosives.

- ***Activities (work in hazardous activities)***
    - Work carried out in drainage of marshlands or cutting down trees.
    - Work related to construction and demolitions, maintenance of buildings, homes for someone else, off-loading stones.
    - Charcoal making, collecting scrap metal.
    - Work that requires children to carry loads that are heavier than their physical capacity (*e.g.* the equivalent of one large bucket of water).
    - Applying fertilizers or other chemicals
    - Domestic work carried out of children's family circles for a salary or financial gain.
    - Carrying bags of tea to weighing station or other places.
    - Serving alcoholic drinks in bars/other institutions.
    - Brick/tiles- making or carrying.

- ***Conditions (work that has poor conditions)***
    - Work performed and carried out over long hours and work performed beyond acceptable work based on child's age. In Rwanda's National Child Labor Survey long hours corresponds to children working more than 40 hours per week.
    - Work performed during school hours.[22]
    - Work performed at night between 8:00 pm and 6:00 am.
    - Work performed without resting for a minimum of twelve consecutive hours between two working periods for employed children between 16 and 17 years old.
    - Unsanitary work or laborious work.
    - Bad relations with the employer (too much work, too long working time, payment not in time, physical abuse, verbal abuse, sexual abuse).
    - Child being either shouted at, insulted, beaten or physically abused, sexually harassed or been dispossessed of things at work site by someone.

- ***Use of Products (work using products that can affect youth's health)***
    - Work that requires children using fertilizers and pesticides.
    - Work that requires children using other substances or agents damaging to children's health.

- ***Use of Machinery and tools (work that requires the use of machinery/tools)***
    - Work that is carried out using machines or other dangerous materials that may affect the health of the child or that require lifting or carrying heavy loads.
    - Work carried out using ropes and other materials, heavy machinery and other dangerous instruments.
    - Following international best practice, hazardous machinery and tools was interpreted to include circular the following: saw/hacksaw/saw/blade, sickle/ axe/pick/machete/hoe, knife/cutter, hammer/mallet, shear, welding tools, blow (explosion)/acetylene (gas), torch with fire/blowtorch, bullock/plow, sprayer, ropes, machines that are turned on or off automatically/not protected by supervisors, lifting machines, driving heavy machines/vehicles, visiting or verifying servicing machines that are turned on and don't have protective parts to avoid contact with such parts in motion.

[22] Not applicable to target population.

- ***Institutions[23](work in institutions that are considered dangerous to the health of youth)***
    - Institutions that produce and sell alcoholic drinks.
    - Construction institutions.
    - Bricks and tiles manufacturing institutions.

- ***Injuries and illness (work in which the youth has experienced health issues/injuries)***
    - Child falling ill or being injured at least one time in the last 12 months because of the activities (besides school) carried out.
    - Child having any current injury or illness from the activities performed.
    - Child been injured at least one time in the last 12 months using any of the tools, machinery or equipment.
    - Injuries included back/muscle pains, headache, wounds/deep cuts, breathing problems, eye problems, skin problems, stomach problems, fever, extreme fatigue, snake bites, broken bones

[23] Rwanda legislation makes a distinction between institutions that are considered the worst forms of employment (pornography, mining, slaughtering of animals, etc.) and those considered dangerous to the health of children. (Ministerial Order No. 6, Ch. III, Art. 6). REACH-T only included the latter classification for the purposes of the prevalence study since measuring the worst forms of child labor was outside of the scope of work. We will maintain this same distinction.

APPENDIX C: MAPPING HAZARDOUS CHILD LABOR DEFINITIONS TO THE BASELINE SURVEY

HCL Categories	Baseline Survey Question	Baseline Survey Responses HCL/HL
Locations	HW3. How often in the LAST 12 MONTHS you were exposed to any of these at any of the jobs that you do for pay or while doing jobs and chores for which you do not get paid?	1. Responses A through L (if greater than 1) (see Activities for item M): 1.1. Response A (dust, fumes) is considered HCL only if exposure happens in a non-agricultural context (responses to W2 are different from A and/or B). 1.2. Response D (cold/heat) is considered HCL only in extreme (not outside) temperatures, that is, in a non-agricultural context (responses to W2 are different from A and/or B).
Activities	W2. I am now going to read you a list of activities that people often do. Please tell me if you did any of these activities in the LAST WEEK/THE LAST WEEK YOU WORKED.	Response G. *Construction (brick making, laying roads, etc.).* Response J. *Something else (specify)* needs to be categorized
	W4b. Which of the following tasks do you **usually** do while farming?	Only the following responses: D. *applying or spraying fertilizers or other chemicals; E. carrying large loads; I. constructing roads in the farm.*
	HW1. [P]lease tell me how often in the LAST 12 MONTHS you engaged in any of these activities?	Only the following responses: G. *Work as domestic servant in someone else's home;* *M. serving alcoholic drinks in bar/other institutions* *S. Construction, maintenance of buildings, homes for someone else, offloading stones, demolition work; T. Brick/tiles-making/carrying; U. Mining and quarrying activities (stones, sands, lime…); V. Charcoal making; W. Collecting scrap metal; Y. Land clearing or tree sizing; Z. Draining of marshland*
	HW3. How often in the LAST 12 MONTHS you were exposed to any of these at any of the jobs that you do for pay or while doing jobs and chores for which you do not get paid?	Response M. *Carrying heavy load such as one large bucket of water or more*
Conditions	W3a. Now think back to the last week when you were/did <<W2>>. Please tell me how many hours on each day of the week you did this activity	**HCL:** If total hours during last week exceed 40 hours for children 15 to 17 years old. **HL:** If total hours during las week exceed 45 hours for 18 years old.

HCL Categories	Baseline Survey Question	Baseline Survey Responses HCL/HL
	on <<weekday>> (when you last worked at this job)? W5. At which of the following times did you work in the LAST 12 MONTHS? HW5. [H]ow often did you experience any of the following **when you were working**?	 f response is *Night (8 PM to 6 AM)* Responses A through D (if greater than 1)
Use of products	W4b. Which of the following tasks do you **usually** do while farming?	Only the following responses: D. *applying or spraying fertilizers or other chemicals;* In addition, this question together with W6 (use of protective gears) will be used to evaluate MFS project-specific indicators. It will measure if child/youth is engaged in hazardous agricultural activities (**W4b**) and does not use protective gear (**W6.** responses 1 to 8).
Use of machinery and tools	HW2. [H]ow often you have used any of the following equipment in the LAST 12 MONTHS while you were working?	Responses A through O (if greater than 1)
Institutions	W2. I am now going to read you a list of activities that people often do. Please tell me if you did any of these activities in the LAST WEEK/THE LAST WEEK YOU WORKED. HW1. [P]lease tell me how often in the LAST 12 MONTHS you engaged in any of these activities?	Response G. *Construction (brick making, laying roads, etc.).* Response J. *Something else (specify)* needs to be categorized Only responses (if greater than 1): *M. serving alcoholic drinks); S. Construction, maintenance of buildings, homes for someone else, offloading stones, demolition work; T. Brick/tiles-making/carrying;*
Injuries and illness	HW4. [H]ow often did you experience any of the following health related problems because of your work?	Responses A through N (if greater than 1)

APPENDIX D: CHILD LABOR LEGAL FRAMEWORK

Sources:
Law regulating labor in Rwanda No. 13/2009 of 27/05/2009 (**Labor Law N13)**
Ministerial Order No. 06 of 13/07/2010, Determining the List of Worst Forms of Child Labour, Their Nature, Categories of Institutions That Are Not Allowed to Employ Them and Their Prevention Mechanisms (**MO N6)**

	ILO Definition	Rwanda Legislation
Child	An individual under the age of 18 years (ICLS18-RII, par. 8)	Any human being below the age of eighteen (18) years (Labor Law N13, section 1)
Basic minimum working age	15 years old (or 14 for developing countries) (C138, art. 2)	It is prohibited to employ a child in any company, even as apprentice, before the age of sixteen (16). A child aged between sixteen (16) and eighteen (18) may be employed under the provisions of articles 5, 6 and 7 of this law. (Labor Law N13, art. 4)
Minimum age for hazardous work	18 years old (C138, art. 3)	Not explicitly defined.
Minors in employment	For data collection, work is defined by engaging in an economic activity for at least one hour during the reference week (and total work hours per week > 1). [ICLS 18-RII, par. 12].	
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.	A child aged between sixteen (16) and eighteen (18) may be employed under the provisions of articles 5, 6 and 7 of this law. (Labor Law N13, art. 4) The rest between two working periods for a child shall be of a minimum duration of twelve (12) consecutive hours. (Labor Law N13, art. 5) The child shall be subject to the work which is proportionate to his/her capacity. The child cannot be employed in the nocturnal, laborious, unsanitary or dangerous services for his/her health as well as his/her education and morality. (Labor Law N13, art. 6)

	ILO Definition	Rwanda Legislation
Worst Forms of Child Labor (WFCL)[24]	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; d) **Hazardous child labor**—work that, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety, or morals of children (C182, art. 3)	Protection of children against worst forms of child labour It shall be an offence to subject those children aged under eighteen (18) years to "worst forms of child labour": The "worst forms of child labor" include: 1. to indulge children in slavery or similar practices; 2. children trafficking; 3. to turn them into debt bondage; 4. to have them replace grown-ups in forced labour; 5. to use them in conflicts and wars; 6. the recruitment, use, procuring or offering of a child for prostitution or for the production of pornography or for pornographic performances; 7. the use, recruitment and procuring or offering of a child for illicit activities such as manufacture and marketing of drugs; 8. the work which is likely to harm the health, safety or morals of a child. **[see hazardous child labor]** (Labor Law N13, art. 72) Nature of the worst forms of child labor and prevention mechanisms An order of the Minister in charge of labour shall determine the list of worst forms of child labour, their nature, categories of institutions that are not allowed to use them and their prevention mechanisms. (Labor Law N13, art. 73) The Ministerial Order Nº 06 of 13/07/2010 divided the worst forms of child labor into three categories: 1. worst forms of child labor; 2. works that may affect the health, security or morality of the child; 3. works that may be dangerous to the health of the child. (MO N6, art. 2) The first category coincides with the WCL definition provided in the Labor Law. The next two categories coincide with ILO's definition of HCL and are defined below.
Hazardous Child Labor (HCL)	a) Work that exposes children to physical, psychological or sexual abuse b) Work underground, under water, at dangerous heights or in confined spaces c) Work with dangerous machinery, equipment and tools, or that involves the manual handling or transport of heavy loads	(Article 4) Works that may affect the health, security or morality of the child shall include: 1. works carried out on the surface or underground aimed at mining or works carried out underneath the water, places with high heights or congested places; 2. works carried out in the drainage of marshlands, cutting down of trees, utilizing fertilizers and pesticides;

[24] Except for hazardous child labor, the worst forms of child labor are outside of the scope of this evaluation and are not measured in the surveys.

	ILO Definition	Rwanda Legislation

	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
	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)
	
	For the purpose of statistical measurement, ICLS18-RII (par 21-24) HCL should include:
	• Activities that are hazardous in nature
	  ○ Designated hazardous industries
	  ○ Designated hazardous occupations
	• Hazardous conditions (long hours* and other not captured by designated hazardous industries, occupations)
	
	*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. (ICLS18-RII, par 28)
		3. works carried out in unhygienic places that may expose children to dangerous products and chemicals, conditions of very high temperature, noise and vibrations that may affect the lives of the children;
		4. works related to demolitions.
		
		(Article 5) The works that may be dangerous to the health of the child shall include among others:
		1. works that may affect the child's health, either physically or psychologically;
		2. works that are carried out using machines or other dangerous materials that may affect the health of the child or that require lifting or carrying heavy loads;
		3. works related to fishing using boats;
		4. domestic works carried out of their family circles for a salary or whatever gain;
		5. works that require children to carry loads that are heavier than their physical capacity;
		6. works carried out in long hours and at night between 8 p.m. and 6 a.m. for a salary or other direct or indirect wages;
		7. construction works carried out using ropes and other materials;
		8. construction and demolition works, heavy lifting machines and other dangerous instruments;
		9. works of lifting or removing heavy products using lifting machines if they are not operated from far and in an enclosed area;
		10. works that require driving heavy machines and vehicles that lift loads and those that used to level the ground;
		11. works involving visiting, verifying servicing machines that are turned on except where those machines have protective parts to avoid contact with such parts in motion;
		12. works carried out in places with machines that are turned on or off automatically and other annexed machines that do not have guards to prevent free access.

	ILO Definition	Rwanda Legislation
		In addition, MO N6 (art. 6) defines the industries that are not allowed to employ children since they are considered hazardous[25]: It is also prohibited to employ children in the following institutions with works that are considered dangerous to the health of the children (HCL): 1. institutions that produce and sell alcoholic drinks; 2. construction institutions; 3. bricks and tiles manufacturing institutions; 4. institutions that carry out the works mentioned in Article 4 of this Order.

[25] Article 6 also includes the institutions that are prohibited from employing children in work that is considered worst forms of employment (WCL). These are outside of the scope of this evaluation and are not measured in the surveys.
1° institutions that produce pornographic materials or pornographic shows
2° institutions that manufacture, sell, advertise draw, print different publications that contrary to the morality and which are punishable by Law in case of their sale, exposed or distributed to the public
3° mining and quarry institutions whether public or private
4° institutions that carry out slaughtering of animals, rear dangerous or poisonous animals
5° institutions that manufacture toxic gases
6° institutions that are involved in the manufacture and traffic of drugs
7° military camps or paramilitary organizations
8° institutions that carry out the works stipulated in Article 3 of this Order

APPENDIX E: SURVEY ADMINISTRATION ACTIVITIES

This Appendix describes all the activities completed in preparation for the baseline data collection.

E.1 Instrument Development

To answer the research questions described in Section 1.2, the evaluation team conducted a detailed literature review of the international legal framework on child labor as well as the definitions found in Rwandan law. For the purpose of this evaluation, we used the definitions of hazardous child labor (HCL) presented in **Appendix B** to determine the HCL status of each child surveyed. These definitions also guided the development of the survey questions.

The team used a household survey originally developed by Winrock as a basis to develop its instrument. The team worked with program implementation staff in the field, local experts in the area of child education and labor, and staff at ILAB to collaboratively develop and finalize the instrument for pre-testing. The evaluation team held several face-to-face and phone meetings with Winrock staff to gain a deeper understanding of the program and the mechanisms employed to reduce the incidence of hazardous practices through vocational training. Based on the information gathered, the team developed a survey instrument (included in **Appendix A**) that captures information from respondents on (1) demographics; (2) work for pay; (3) chores and jobs done for no pay; (4) aspirations for education and careers; (5) hazardous activities engaged in or exposed to; and (6) household information.

The team designed the survey to collect complete and reliable data to estimate program impacts. Although several languages/dialects are spoken in the selected sites, all instruments were developed in English and then translated into Kinyarwanda. Kinyarwanda is a widely spoken language in the districts in which the MFS program was deployed, and, according to Winrock and Incisive Africa, all the villagers spoke and understood Kinyarwanda. The team shared the survey instruments with Winrock and ILAB for feedback, and updated the instruments to incorporate their comments and suggestions. Exhibit E.1 lists the topic areas covered by the final version of the survey.

Exhibit E.1: Topics Covered in the Survey Instrument

Topic Area	Description
Demographics	The survey asked respondents about their age, gender, educational status, and reasons for not being in school. The survey also collected information that will facilitate follow-up contacts with respondents.
Work Information	This section of the survey asked respondents about their paid or unpaid work, including details on type of work, hours and times of the work day, amount earned (if any), and safety equipment used.
Apirations	This section was designed to measure respondents' educational and career goals in the next two years and whether they expected to reach those goals.

Topic Area	Description
Hazardous Work	This section sought to measure hazardous activities the respondents may have engaged in for work, whether for pay or not. It also asked questions about their exposure to hazardous materials and about any negative physical or psychological experiences.
Household Information	This section asked respondents to provide some information on their households, including information on household composition, assets owned by the household, and the highest level of education achieved by the men and women in the household.

E.2 Pre-testing

A pre-test of the survey instrument was conducted in September 2014 in Kinihira sector of Rulindo district. Together with a consultant and a team of enumerators, the IMPAQ survey methodologist tested the survey with 60–70 youth who were working on tea plantations. Winrock, assisted by local authorities and parents, selected these young adults based on their ages (only those ages 16–17) and their educational level (only out-of-school youth). During the pre-test the entire survey protocol was deployed just as it would be if the survey were being fielded. The interviewer used hard-copy instruments that Incisive Africa later programmed for electronic administration. The pre-test helped the team refine the survey questions and gain knowledge about where translations needed to be improved.

E.3 Cognitive Testing

The questionnaire was revised based on the pre-test experiences. Incisive Africa staff, under the supervision of the survey methodologist, then conducted a thorough cognitive test of the translated instruments with respondents between November 9 and 13, 2015 in the Base sector of Rulindo district. The cognitive interviews were conducted with nine respondents who were selected by local leaders with assistance from local administrators (the social affairs and good governance officers in the sector), who helped identify respondents with characteristics similar to respondents in the treatment and control groups. The goal was to test the survey content, ensure that the survey instructions and wording of the questions were clear and understandable and that the response options were adequate. Similar to the pre-test, the cognitive test was used to assess whether respondents interpreted the questions as intended and whether the questions measured the constructs of interest. The interviews were recorded, and the audio files were later transcribed to facilitate the revision of the questionnaire.

Each interview consisted of two components: (1) the interviewer administered the survey and recorded the respondent's answers; and (2) after each question, the interviewer engaged the respondent in a conversation that explored the meaning of the item and how the respondent came up with his or her answer. The IMPAQ survey methodologist and Incisive Africa staff conducted and monitored the interviews to detect any problems experienced by either the respondents or the interviewers, such as questions that were poorly understood, terms that were not well-defined, inadequate response categories, difficult transitions between topics, or unclear interviewer instructions.

The cognitive interviews identified several issues in the survey. The following few examples indicate how issues were resolved:

- The team changed the phrasing of education questions to more adequately reflect the local education system: Questions such as "Are you currently enrolled in school?" or "What is the highest level of education that you have completed?" were not well understood by respondents because the questions were not applicable to how students progress from one grade to another. Students usually enroll in school only once, in grade 1, and are then considered "enrolled" for the following years unless they drop out of school. In addition, when translated to the local language, the concepts of "highest" and "completed" were confusing because respondents could not distinguish between them; not all grades have formal testing and so it was unclear to them what the question was asking. To resolve these problems, the questions were modified to ask about the "last grade or class" respondents attended, and technical terms such as "enrolled" were avoided.
- The team modified the agreement (Likert) scales: Most respondents could not tell the difference between "rarely" and "sometimes." The team therefore changed the agreement scales to a 10-point scale to allow for more variation in responses.

During the cognitive testing, IMPAQ and Incisive Africa staff debriefed continuously and adjusted the language and structure of the questions, so that the altered wording could be tested during the next day's interviews. Once the interviews were concluded, the audio recordings were transcribed, and staff from both organizations worked together to interpret the findings and edit the instruments.

E.4 Instrument Programming

Incisive Africa staff programmed the questionnaires onto tablets for in-person interviewing using a customized version of Open Data Kit (ODK), a software tool for computer-assisted data capture and processing.[26] The programmers implemented range, logic, and consistency checks customized for the question types and expected responses. Range checks ensured that continuous data were entered within predefined boundaries and that interviewers selected categorical data only from a predefined list of responses. Skip logic checks were scripted to ensure that respondents received the appropriate questions based on previous responses or data derivations. Internal consistency checks were also built into the program script to allow interviewers to make corrections to the data during the interview. The programming was further designed to include required questions, which, if not answered, prevented the enumerator from proceeding to the next question. In addition, a robust set of validations and data quality checks

[26] ODK is a platform for electronic data collection. It helps capture, transport, and process data collected during personal interviews and enables offline data collection with the option to upload the data when an Internet connection is available.

were built into the script to facilitate the capture of high-quality data. The IMPAQ and Incisive Africa teams thoroughly tested this instrument to ensure that it reflected the final paper instrument.

E.5 Training

The Incisive Africa staff recruited interviewers who had experience in survey administration in the study area. These interviewers already had basic training in survey administration, including how to approach respondents, procedures for handling respondents' questions and problems, refusal avoidance and conversion procedures, procedures to protect the confidentiality and rights of human subjects, quality control, and recording and editing procedures. The Incisive Africa staff who had programmed the survey instruments into ODK made them available to the enumerators on their Android devices.

The interviewers attended an in-class training session on the survey protocols at Incisive Africa's Kigali office between November 29 and December 4, 2015. All training was conducted by Incisive Africa staff, with IMPAQ's survey methodologist present. The session was conducted in Kinyarwanda, and in either English or French for the non-Incisive Africa staff that took part in the training.

The enumerators were trained to use the application on their Android devices. The training focused not only on the various types of answers that could be entered—multiple choice, numeric, or string—but also on the intricacies of the application. During the training session, considerable time was devoted to mock interviewing. This process gives the interviewer valuable experience with responses that may be expected during an actual interview and helps the interviewer to become more comfortable with the instrument. Each interviewer conducted mock interviews with the trainers. To ensure that the enumerators were skilled in the tools and the digital entry process, the field workers filled out surveys and took turns role-playing the part of respondents.

The team conducted several practice interviews. No villages in the control or treatment areas were visited for this purpose, to avoid contamination. Interviewers received feedback and additional one-on-one training, as deemed necessary. In addition, during the first two days of fielding, field supervisors and senior IMPAQ and Incisive Africa staff monitored multiple interviews conducted by each interviewer and provided feedback and additional training as necessary to ensure that the interviewers were following all study protocols and conducting the interviews correctly.

E.6 Pilot and Field Work

A pilot of the survey instrument was administered on December 5, 2015, two days before baseline data collection began. The pilot was administered to 25–30 respondents who were recruited from a tea-growing area near Kigali and brought to Incisive Africa's office. The pilot allowed Incisive Africa staff to test the tablet's programming and to resolve any remaining

technical issues. The team evaluated whether question wording and response choices were accurate, instructions were clear, and skip patterns were functioning properly. This ensured that the instruments were performing correctly for all types of respondents.

The final surveys were administered to respondents during December 2015 and January 2016. Field supervisors and senior staff from Incisive Africa monitored the survey administration throughout the period. Staff from IMPAQ monitored the first few days of interviewing.

Throughout the fielding period, IMPAQ staff and Incisive Africa staff held daily meetings to address issues as they came up and ensure that the survey implementation was proceeding as planned. Incisive Africa staff provided weekly datasets for IMPAQ staff to review for quality purposes. Any issues found during the review were communicated to Incisive Africa staff, and solutions were jointly devised and swiftly implemented.

E.7 Data Checks and Processing

During the data collection process, Incisive Africa staff periodically checked the data submitted by the enumerators for logical consistency. Specific features of ODK allowed the Incisive Africa staff to check the data collected on an ongoing basis and ensure the quality of the data collected. For instance, ODK features such as the time stamp on each form or the details of the enumerator conducting a particular interview helped verify proper response entry.

The field supervisors also conducted back-checks with a small fraction of the sample. The field supervisors called respondents for whom a phone number was available, with a focus on the respondents whose interviews had been identified as inconsistent. The questions asked included a list of identifiers (gender, for example), the answers to which should not change. The supervisors also cross-checked the entries corresponding to the inconsistent responses in the forms.

In addition, the IMPAQ team downloaded the data on a weekly basis and ran quality control checks. Findings were flagged back to the field team to make additional decisions and adjustments as needed. The following aspects were reviewed during these checks: data completeness, skip pattern logic, final dispositioning of records, and data cleaning accuracy. Once data collection ended, the team compiled a final dataset and performed additional data checks, including identifying outliers, performing logic checks, and making all necessary corrections to the data.

An important step was cleaning the data. Frequency distributions were examined for each question to ensure that all data were within a valid range for each survey question. Although the use of a well-developed computer script with embedded skip patterns and logic checks minimizes the chances for error and inconsistent answers, the data were checked carefully for coding errors, misapplied ranges, inconsistent answers, or other illogical results. All findings were reviewed with Incisive Africa for additional clarification, when appropriate. As part of the data cleaning process,

implausible responses were set as “missing” and therefore dropped from the dataset. In addition, the team created a data dictionary to facilitate the analysis phase of the study.