

Closing the Child Labor and Forced Labor Evidence Gaps

Randomized Trial of the REACH-T Model Farm School Program in Rwanda

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PROJECT

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TASK & DELIVERABLE

Impact Evaluation Final Report

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Abstract

In 2014, the U.S. Department of Labor's Bureau of International Affairs (ILAB) selected IMPAQ International, LLC, to design and implement randomized controlled trial (RCT) evaluations of the effectiveness of child and hazardous labor interventions across five countries. In Rwanda, the evaluation team evaluated the Model Farm School (MFS) component of a larger umbrella project called REACH-T (Rwanda Education Alternatives for Children in Tea-growing Areas). Targeted to youth 16 to 17 years of age, the program aimed to transition youth away from hazardous work by providing agricultural and agribusiness/off-farm training, promoting occupational safety and health, and linking youth to other opportunities for vocational training. Between December 2015 and January 2016, the team randomized 962 youth from 15 MFS sites into an MFS intervention group and a control group. Winrock International and its partners implemented the MFS program between February 2016 and October 2016. The evaluation team conducted the endline survey roughly 17 months after the end of the program. Quantitative results indicate that for youth assigned to the treatment group the program had no impact on the confirmatory outcome of the evaluation (incidence of youth engaged in hazardous work), nor on any of the exploratory outcomes. For the sub-group of youth who reported participating in the training, there is evidence that the program increased aspirations to pursue senior secondary education and non-farm employment. Focus group discussions reveal that the MFS program offered to the cohort evaluated in this study had important components that were not delivered. As a result, this evaluation only measures the impacts of the program as it was implemented and does not evaluate the effectiveness of MFS as a broader intervention or concept.

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Executive Summary

In 2014, the U.S. Department of Labor's Bureau of International Affairs (ILAB) selected IMPAQ International, LLC (IMPAQ) to design and implement randomized controlled trial (RCT) evaluations of the effectiveness of child and hazardous labor interventions across five different countries: Rwanda, Ecuador, Costa Rica, India, and Malawi. This report presents the final evaluation findings of the Model Farm School (MFS) program in Rwanda. The MFS is a component of a larger umbrella project called REACH-T (Rwanda Education Alternatives for Children in Tea-growing Areas). The program, which was targeted to youth 16 to 17 years of age, had three main goals:

1. To transition youth away from hazardous work by providing a six month long MFS agricultural training program. The agricultural training was designed to have both agronomy-based¹ components and agri-business² training.
2. To promote occupational safety and health in the training curriculum, including modules to increase awareness about dangerous forms of labor, to promote safe work conditions, and to educate participants about workers' rights and responsibilities; youth were also to be provided with safety kits and protective gear.
3. To link youth to other donor-funded opportunities for training such as carpentry, hairdressing, catering, and tailoring, including opportunities within Rwanda's Workforce Development Authority (WDA).

The main confirmatory outcome of the evaluation was to see whether participation in the MFS program reduced the likelihood of engagement by youth in hazardous work practices. Engagement in hazardous work practices is measured as a composite outcome: youth are measured as being engaged overall if they are engaged in any one (or more) types of hazardous labor. Exploratory outcomes included the likelihood of engagement in specific types of hazardous labor: working in dangerous locations, work involving hazardous activities, work in poor conditions, use of dangerous products at work, and working with machinery and/or tools. Hazardous labor measurement in this study was based on definitions of hazardous work in Rwandan law and international guidelines. Other exploratory outcomes included the employment and educational aspirations of participants, their level of confidence, and locus of control.

Section 1.4 of the report describes the study's research questions of interest.

In December 2015 and January 2016, the evaluation team, together with local partner Incisive Africa, randomized 962 youth from 15 MFS sites into an MFS intervention group (N=574) and a control group (N=388). A baseline survey was administered to all youth just prior to randomization. The MFS program was implemented by Winrock International and its partners between February 2016 and October 2016.

¹ Includes training on agronomy practices like crop rotation, basic machinery, irrigation systems, biogas, and natural oil value chains.

² Refers to training in off-farm vocations such as food processing, honey production, baking, and juice processing.

The evaluation team conducted an endline survey roughly 17 months after the end of the program in March and April 2018. The team also conducted focus group discussions with youth and interviews with local leaders as part of the endline evaluation. **A full timeline of the evaluation is presented in Section 2.1.**

At endline, we were able to contact 763 of the original 962 youth, including 461 youth in the MFS intervention group and 302 youth in the control group. Overall, attrition analyses indicate that the results were largely not affected by attrition. **Details regarding attrition of the sample may be found in Section 2.2.**

Baseline equivalence tests on the endline sample showed that the treatment and control groups were balanced in the endline sample. Imbalance was found for only five of the 80 variables tested, which would be expected purely by chance even if the two groups were effectively identical at endline. The evaluation team used an ANCOVA framework to analyze treatment effects—that is, the endline outcomes of interest are estimated as a function of the treatment indicator, controlling for baseline covariates. We conducted three types of analyses: (1) Intent-to-Treat (ITT) analysis to estimate impacts for individuals assigned to treatment, (2) Treatment-on-Treated (TOT) analysis to estimate impacts for individuals reporting participation in MFS training, and (3) TOT analysis to estimate impacts for individuals reporting participation in MFS training for the full six months. In addition, the team applied a regression-based adjustment for attrition. **The methodological approach followed is described in Section 2.3.**

EVALUATION FINDINGS

The main findings from the evaluation are as follows:

1. Among youth who were randomly assigned to participate in the MFS program (ITT analysis), the intervention had no impact on the confirmatory outcome (incidence of youth engaged in hazardous work), nor on any of the exploratory outcomes related to the engagement of youth in specific types of hazardous labor, educational and career aspirations of youth, and their level of confidence and locus of control. These findings are discussed in **Sections 3.1-3.4.**
2. Among youth who participated in the MFS program (TOT analysis), the intervention did not impact hazardous labor outcomes, level of confidence or locus of control. However, it did have a significant impact on education and employment aspirations. In particular, there is suggestive evidence that the program increased aspirations of youth to pursue senior secondary education and non-farm jobs. This is true both for youth who report any participation of the MFS program and youth who report participating for the full six months. **These findings are discussed in Sections 3.1-3.4.**
3. Sub-group analysis by sex, among youth who participated in the MFS program, reveal that the increase in non-farm work aspirations and corresponding decrease in farm work aspirations, are driven by changes among girls. **All regression output for analysis by sex is reported in Appendix F3 and findings are discussed in Sections 3.1-3.4.**

4. Qualitative data were used to complement the quantitative data, as outlined in the program's logic model. **These findings are summarized in Section 3.5 :**
- a. Youth report learning about improved farming/agronomy practices like crop rotation, seed spacing, and soil erosion prevention.
 - b. However, there is no evidence that there was an increase in the treatment group's understanding of agricultural practices that are safe and not hazardous. While no respondent in either group was able to give examples of safe farming practices, respondents from both treatment and control groups showed a similar understanding of what constitutes hazardous labor.
 - c. In contrast to the quantitative findings, the youth did not demonstrate differences in the educational and employment aspirations in the focus group discussions. A majority of the intervention youth stated that their employment aspirations were not influenced in any way by their participation in MFS. It is possible that this is because most focus group youth aspire for non-farming careers, regardless of whether they were part of the treatment or the control group.
 - d. In terms of delivery of program activities, focus group youth who were part of the treatment group report that they did not receive training on agri-business/off-farm employment opportunities nor did they receive linkages to other vocational training opportunities. While some youth do report receiving protective gear, they claimed that it was of poor quality. Many youth report not receiving protective gear. Additionally, in 2 out of 5 sites, youth and local leaders report that the program was conducted for a shorter duration than the initially promised six months.

Chapter 1: Study Background

1.1 INTRODUCTION

The International Labour Organization (ILO) estimates that 152 million children were engaged in child labor worldwide in 2016, with 73 million performing hazardous forms of work on a daily basis.³ Damaging impacts are evidenced by high rates of fatal and non-fatal injuries, the risk of occupational disease, diminished safe employment, and fewer educational opportunities among children and youth involved in hazardous labor.⁴ However, insufficient evidence is available on the types of policy interventions that are most effective in mitigating harmful practices and in eliminating child labor. The paucity of rigorous randomized controlled trial studies exacerbates the knowledge gap.

To help close this gap, the U.S. Department of Labor's Bureau of International Labor Affairs (ILAB) awarded a grant to IMPAQ International, LLC (IMPAQ) in 2014, to conduct impact evaluations of programs in Costa Rica, Ecuador, India, Malawi, and Rwanda. The goal of the impact 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) program on youth' engagement in hazardous labor in Rwanda.

The goal of MFS was to improve job opportunities and opportunities for safe work by providing youth with technical and life skills through a non-formal training program. The program was conceptualized to provide agricultural training, with both agronomy-based and agri-business components, as well as modules on occupational safety and health, so participants could understand how to protect themselves from hazards in the workplace. Another goal of REACH-T was to link qualified youth to public and government-aided technical vocational training programs through collaboration with the Rwanda Workforce Development Authority (WDA).

An important feature of this evaluation is that at the outset of the MFS intervention, participating youth were between 16 and 17 years of age, but at the time of the endline data collection most were no longer minors.⁵ Therefore, the team measured the prevalence of hazardous child labor (HCL) at baseline, and the prevalence of hazardous labor (HL), which is based on the definition of HCL modified to be applicable for those 18 and older, at endline.

This report is organized as follows. The remainder of this chapter describes the policy context and prior research, provides an overview of the program, and introduces the research questions. Chapter 2

³ International Labour Organization. (2017). Global Estimates of Child Labour. Results and Trends 2012-2016. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_575499.pdf

⁴ International Labor Organization. (2018). Towards the Urgent Elimination of Hazardous Child Labor. Retrieved from: https://www.ilo.org/ipec/Informationresources/WCMS_IPEC_PUB_30315/lang-en/index.htm

⁵ About 97% of youth were 18–20 years of age at endline.

describes the evaluation study design and methodology. Chapter 3 presents the evaluation findings. Chapter 4 concludes by summarizing main findings and discussing study limitations.

1.2 POLICY CONTEXT AND PRIOR RESEARCH

1.2.1 Policy Context

In the context of Rwandan policy, general (age-neutral) aspects of labor laws regulating hazardous work, and laws specific to children and minors, are both relevant to this study. Laws regulating labor in Rwanda guarantee “indispensable” safeguards to basic rights and freedoms, prohibit abuse or moral (psychological) harassment at work, implement maximum permitted hours of work, require weekly rest, and require health and safety at the workplace for all individuals regardless of age.⁶ In addition, specific legal provisions have been put in place for children and minors. The country has enacted national legislation prohibiting child labor, including the Rwandan Constitution of 2003, several national laws, and a ministerial order.⁷ In particular, employing children under the age of 16 is prohibited, and children between 16 and 18 years of age may be employed only under special provisions. These provisions include mandating rest and prohibit hazardous work practices and the subjection of minors to the “worst forms of child labor.”⁸

In 2018, Rwanda ratified ILO conventions C155 and C187 to promote occupational safety and health for all workers in the country. In the past couple of years, policy activity has been focused on child labor. ILAB’s latest report on the worst forms of child labor highlights that Rwanda has made significant advances in eliminating the worst forms of child labor.⁹ In 2017, the Ministry of Public Service and Labor (MIFOTRA) released “Ministerial Instructions Related to the Prevention and Fight against Child Labor,” which apply to both the formal and informal sectors. The Instructions identify additional types of work that are prohibited for children and outline penalties for businesses that employ child laborers and for parents who do not send their children to school. Other initiatives include the integration of child labor elimination goals into local government policies, the opening of 16 additional One-Stop medical centers for victims of the worst forms of child labor, and the prosecution of cases involving the commercial sexual exploitation of children. Also, for the first time, MIFOTRA published information about the number of child labor violations found and the penalties collected. However, the report also recognized that, despite policy

⁶ In particular, see Official Gazette of the Republic of Rwanda, Year 48, May 27, 2009. Law regulating Labour in Rwanda. Kigali, Rwanda: Government of the Republic of Rwanda.

⁷ For example, Law No. 27/2001 of April 28, 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 the employment of children under the age of 16; Law No. 54 of December 14, 2011 deals with 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.

⁸ The worst forms of child labor include trafficking, debt bondage, prostitution, and work that is likely to harm the health, safety, or morals of a child.

⁹ U.S. Department of Labor, Bureau of International Labor Affairs. (2017). Findings on the Worst Forms of Child Labor. Retrieved from: <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/rwanda>

changes in the country, enforcement and implementation of child labor laws and regulations remain problematic, children continue to be engaged in hazardous labor, and social programs do not sufficiently address child labor in agriculture, where children continue to perform dangerous tasks.

In 2013, the Government of Rwanda signed the National Policy for Elimination of Child Labor (NPECL),¹⁰ which laid out a five-year strategic plan to combat child labor. The NPECL established 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 through psychosocial counseling, recreation services, skills-building sessions, and medical care;
3. To prevent at-risk children 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.

Responsibility for monitoring and evaluating the NPECL is shared by MIFOTRA, the Ministry of Education (MINEDUC), and the Ministry of Gender and Family Promotion (MIGEPROF). 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 responsibilities of local governments are the following:

1. To raise awareness of child labor;
2. To motivate a broad alliance of partners to acknowledge and act against child labor;
3. To carry out a situational analysis to find out about child labor problems;
4. To participate in developing and implementing national policies on child labor;
5. To strengthen existing district organizations and set up institutional coordination mechanisms; and
6. To create awareness of child labor in communities and workplaces.

The Government of Rwanda previously endorsed International Labor Convention No. 138 of June 26, 1973 concerning the Minimum Age for Admission to Employment (in force since 1981), and International Labor Convention No. 182 of June 17, 1999 concerning the Worst Forms of Child Labor (in force since 2000).

1.2.2 Prior Research

The MFS intervention aimed to transition youth out of hazardous labor by equipping them with the skills and knowledge needed to access jobs of better quality and/or formal sector jobs. In areas where

¹⁰ 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

agriculture is a large employer of youth, the thinking is that agricultural training can help combat hazardous labor. Agricultural training can help increase agricultural productivity and hence reduce workload, and training can also dissuade youth from leaving their home communities to move to urban centers where they may become more vulnerable to exploitation within unregulated environments (Grisewood et. al).¹¹ Along these lines, the Food and Agriculture Organization (FAO) has also made a concerted effort to integrate child and hazardous labor concerns into their Junior Farmer Field and Life Schools in several countries (Mwamadi et. al).¹² They reason that the inclusion of good farming practices can make farming safer; for instance Integrated Production and Pest Management (IPPM) can minimize the use of pesticides in agriculture.

The Junior Farmer Field Schools (JFFs) are similar in spirit to the MFS intervention evaluated in this study. First pioneered by the FAO, JFFs aim to teach vulnerable children and young people about farming, entrepreneurial skills, and how to take care of themselves. While these programs have been rolled out in several countries, including Mozambique, Zimbabwe, Kenya, Swaziland, and Namibia, the literature on their impacts is scarce. One recent study by Bonan and Pagani¹³ evaluates the impact of JFF in Uganda, implemented by international NGO AVSI, using a quasi-experimental approach. Using a matched comparison group and a difference-in-differences approach, they find that **JFF increased agricultural knowledge but not the adoption of improved agricultural techniques and agricultural production**. This RCT evaluation of the MFS program thus contributes to a limited knowledge base on the effectiveness of farmer field schools geared towards youth. Note that there is more evidence on the effectiveness of farmer field schools more generally, geared to teach adult farmers about best farming practices. Waddington et al. provide an extensive review of that literature.¹⁴

In addition to an agricultural training component, the MFS intervention was conceptualized to have substantial vocational components. Within the six months of MFS training, youth were to be trained in off-farm vocations relevant to the agrarian sector (i.e., agri-business training) such as food processing, honey production, baking and juice processing, and an additional six months of vocational training was envisioned in trades such as sewing, knitting, welding and carpentry. The literature on the impact of vocational training programs on labor market outcomes such as employment, earnings, and skill acquisition is more extensive. To date, the impacts of various vocational training programs in developing

¹¹ Grisewood, C., Brand, S., & Ruiz, H. (2008). Best practices in preventing and eliminating child labor through education. Winrock International.

¹² Norah Mwamadi, F. A. O., & Seiffert, M. B. Reducing Child Labour in Agriculture through good agricultural practices: FAO experiences.

¹³ Bonan, J., & Pagani, L. (2018). Junior Farmer Field Schools, Agricultural Knowledge and Spillover Effects: Quasi-experimental Evidence from Northern Uganda. *The Journal of Development Studies*, 54(11), 2007-2022.

¹⁴ Waddington, H., Snilstveit, B., Hombrados, J., Vojtkova, M., Phillips, D., Davies, P., & White, H. (2014). Farmer Field Schools for Improving Farming Practices and Farmer Outcomes: A Systematic Review. *Campbell Systematic Reviews* 2014: 6. Campbell Collaboration.

countries have been found to be highly variable and context-specific, driven largely by variation in implementation details and the quality of training provided.¹⁵

Below are some of the main takeaways from the broad literature on the impact of vocational training programs on such topics as cognitive and non-cognitive skill acquisition and the labor market prospects of youth. We included this evidence as part of our literature review because all three cohorts of the MFS program were supposed to have this component.

Most successful vocational training programs combine training with active support in the labor market such as placement in internships and/or certification. The RCT evaluation of the Akazi Kanoze in Rwanda, conducted by EDC, found a positive impact of vocational training on employment and work readiness skills.¹⁶ Akazi Kanoze provided Rwandan youth and young adults ages 14 to 35 with market-relevant skills and work readiness training and support, hands-on training opportunities, and links to employment and self-employment job markets in Huye and Nyamasheke districts. Participants received technical training in vocations such as hair dressing, hospitality, masonry, carpentry, and welding. After finishing in-class and technical training, the majority of Akazi Kanoze graduates then went on to a three-month internship in their trade of choice. At the end of the program, participants received a certificate signed by the Rwanda WDA, which helped participants enter the workforce, particularly those who did not have primary or secondary school certificates.

The Economic Empowerment of Adolescent Girls and Young Women (EPAG) program in Liberia was also evaluated using a randomized research design.¹⁷ Adoho et al. found that EPAG increased employment by 47 percent and earnings by 80 percent. The intervention consisted of a six-month phase of classroom-based training, followed by a four-month placement and support phase in which the trainees were supported in their transition to self-employment or wage employment. Performance bonuses were awarded to training providers that successfully placed their graduates in jobs or microenterprises. Finally, the program was designed specifically to take into account girls' needs and constraints.

Other examples of successful outcomes in programs combining training with active labor market support include Alzúa et al.¹⁸, who provide experimental evidence on the entra21 program in Argentina, Kluve et al.,¹⁹ who looked at the long-term effects of the Juventud u Empleo program in the Dominican Republic;

¹⁵ J-PAL. (2017). J-PAL Skills for Youth Program Review Paper. Cambridge, MA: Abdul Latif Jameel Poverty Action Lab. <https://www.povertyactionlab.org/sites/default/files/documents/skills-for-youth-review-paper.pdf>

¹⁶ Alcid, A. (2014). A Randomized Controlled Trial of Akazi Kanoze Youth in Rural Rwanda: Final Evaluation Report. Washington, DC: United States Agency for International Development.

¹⁷ Adoho, F., Chakravarty, S., Korkoyah, D. T., Lundberg, M. K., & Tasneem, A. (2014). The impact of an adolescent girls' employment program: The EPAG project in Liberia. World Bank Policy Research Working Paper No. 6832.

¹⁸ Alzúa, M. L., Cruces, G., & López, C. (2015). Youth Training Programs Beyond Employment. Documentos de Trabajo del CEDLAS.

¹⁹ Ibararán, P., Kluve, J., Ripani, L., & Rosas, D. (2015). Experimental Evidence on the Long Term Impacts of a Youth Training Program. IDB Working Paper 657. Washington, DC: Inter-American Development Bank.

Attanasio et al.,²⁰ who examined the long-term effects of the Jovenes en Accion program in Colombia; and McKenzie et al.,²¹ who studied the Enterprise Revitalization and Employment Pilot in Yemen. For Jovenes en Accion, Kugler et al. found that participants in a job training program for disadvantaged youth in Colombia were more likely to enter and remain in formal employment between three and eight years after randomization.²²

There is some evidence to suggest that vocational training courses in the absence of direct job market support have muted impacts. For instance, Hirshleifer et al. experimentally evaluated the impact of offering three-month, in-class vocational training courses to unemployed individuals. The intervention did not offer an on-the-job training component. The authors found no impact on the employment of those attending the courses. When participants were asked about the perceived benefits of attending the training, less than half (45 percent) thought that attending the courses made them more aware about job opportunities. However, the authors could not directly tie this heterogeneity in perceptions about job opportunity awareness to the main treatment effects.

Take-up of training programs, and retention of participants, may be higher if youth are able to choose preferred training programs. The authors of the JPAL review article note that the placement of youth in training programs is often guided by convenience rather than fit.²³ Their insights were informed by roundtables conducted with policymakers in selected Latin American countries. For instance, roundtable participants in El Salvador commented that many women are encouraged to learn jewelry making, even though this may not be a good fit for all women. In a study in Kenya, Hicks et al.²⁴ randomly assigned training vouchers to youth. Of the voucher winners, a randomly chosen half were awarded a voucher that could only be used in public (government) institutions, while the other half received a voucher that could be used in either private or public institutions. The authors found that take-up of the training was high overall, but take-up and retention were higher for the sub-group with unrestricted vouchers.

Training programs have the potential to improve non-cognitive skills, and the non-cognitive aspects of programs can help youth achieve earning and employment outcomes. Building young peoples' non-cognitive skills, such as self-esteem, may also be a factor in reducing youth participation in hazardous

²⁰ Attanasio, O., Guarín, A., Medina, C., & Meghir, C. (2015). Long term impacts of vouchers for vocational training: Experimental evidence for Colombia. NBER Working Paper No. 21390. Washington, DC: National Bureau of Economic Research.

²¹ McKenzie, D., Assaf, N., & Cusolito, A. P. (2016). The demand for, and impact of, youth internships: evidence from a randomized experiment in Yemen. IZA Journal of Labor & Development, 5(1), 1-15.

²² Kugler, A., Kugler, M., Saavedra, J., & Prada, L. O. H. (2015). Long-term direct and spillover effects of job training: Experimental evidence from Colombia. NBER Working Paper No. 21607. National Bureau of Economic Research.

²³ J-PAL. (2017). *J-PAL Skills for Youth Program Review Paper*. Cambridge, MA: Abdul Latif Jameel Poverty Action Lab. <https://www.povertyactionlab.org/sites/default/files/documents/skills-for-youth-review-paper.pdf>

²⁴ Hicks, J. H., Kremer, M., Mbiti, I., & Miguel, E. (August 2016). Vocational Education in Kenya—A randomized Evaluation. 3ie grantee final report. New Delhi: International Initiative for Impact Evaluation (3ie). Retrieved from <http://www.3ieimpact.org/en/evidence/impact-evaluations/details/183/>

labor practices and may complement traditional vocational training efforts.^{25,26} For example, an RCT conducted in Malawi found that entrepreneurship training had a positive impact on well-being and confidence among male youth aged 15 to 24.²⁷ The EPAG program in Liberia, which combined livelihood and life skills training, documented positive effects on a variety of empowerment measures.²⁸ Non-cognitive skills can influence earnings and employment outcomes. An RCT evaluation of the *Galpão Aplauso* program in Brazil, conducted by Calero et al., combined expressive arts and theater with more orthodox vocational and academic components. The program showed positive effects on the probability of being employed and having positive earnings.²⁹ Blattman and Annan experimentally evaluated a program of agricultural training, capital inputs, and counseling for Liberian ex-fighters who were illegally mining or occupying rubber plantations.³⁰ Men who participated in the program increased their farm employment and profits and shifted work hours away from illicit activities. The counseling component of the program was an important mechanism.

Hazardous work outcomes are relatively understudied in the literature. While there are some exceptions,^{31,32} only a few studies have measured hazardous labor as an outcome. This evaluation, therefore, presented an opportunity for a rigorous randomized controlled trial to determine the impact of agricultural training, with a substantial focus on agri-business trades, specifically designed to address hazardous labor.

1.3 THE MFS PROGRAM AND LOGIC MODEL

The main objective of this evaluation was to estimate the effects of the MFS program on multiple youth outcomes (see the research questions listed in section 1.4). To better understand how the causal pathways through these effects would be generated, the evaluation team developed a program logic model to guide the evaluation (Exhibit 1).

²⁵ Kautz, T., Heckman, J. J., Diris, R., Ter Weel, B., & Borghans, L. (2014). Fostering and measuring skills: Improving cognitive and non-cognitive skills to promote lifetime success. NBER Working Paper No. 20749. Washington, DC: National Bureau of Economic Research.

²⁶ Guerra, N. & Olenik, C. (2012). USAID Youth Research, Evaluation, and Learning Project briefing paper: Holistic cross sector youth development. Washington, DC: United States Agency for International Development.

²⁷ Cho, Y., Kalomba, D., Mobarak, A. M., & Orozco, V. (2013). Gender differences in the effects of vocational training: Constraints on women and drop-out behavior. Policy Research Working Paper No. 6545. Washington, DC: The World Bank.

²⁸ Adoho, F., Chakravarty, S., Korkoyah, D. T., Lundberg, M. K., & Tasneem, A. (2014). The impact of an adolescent girls' employment program: The EPAG project in Liberia. Policy Research Working Paper No. 6832. Washington, DC: The World Bank.

²⁹ Calero, C., Diez, V. G., Soares, Y. S., Kluve, J., & Corseuil, C. H. (2017). Can arts-based interventions enhance labor market outcomes among youth? Evidence from a randomized trial in Rio de Janeiro. *Labour Economics*, 45, 131-142.

³⁰ Blattman, C., & Annan, J. (2016). Can employment reduce lawlessness and rebellion? A field experiment with high-risk men in a fragile state. *American Political Science Review*, 110(1), 1-17.

³¹ Edmonds, E. V., & Shrestha, M. (2014). You get what you pay for: Schooling incentives and child labor. *Journal of Development Economics*, 111(C), 196-211.

³² Larmar, S., O'Leary, P., Chui, C., Benfer, K., Zug, S., & Jordan, L. P. (2017). Hazardous child labor in Nepal: the case of brick kilns. *Child Abuse & Neglect*, 72, 312-325.

The MFS program was implemented by Winrock International and Rwanda-based cooperative FERWACOTHE. The program aimed to provide training for small groups of youth and to connect them to on- and off-farm safe work opportunities, by equipping them with both technical and life skills. The program aimed to train vulnerable out-of-school youth in a non-formal training program. In the MFS component of the program, agronomists from local tea cooperatives and tea factories were to teach students about basic machinery, irrigation systems, biogas for households, efficient cookstoves, and natural oil value chains. Youth were also supposed to receive training in off-farm vocations such as food processing, honey production, baking, and juice processing. The training also was designed to include an occupational safety and health component, so participants could understand how to protect themselves from hazards in the workplace. Another goal of the program was to collaborate with the Rwanda WDA to link qualified youth to WDA opportunities, including public and government-aided technical vocational education programs. Several of the **inputs** needed to operationalize the program are highlighted in the first column of the logic model.

At the outset of the program it was decided, based on in-country feedback received, that the intervention should cater to the government's priority of generating off-farm jobs, and keep in mind feedback from youth that they were not interested in agricultural training. Therefore, Winrock decided to supplement the MFS training (planned for six months), with six additional months of vocational training in trades such as sewing, knitting, welding and carpentry. However, due to budgetary shortfalls, the cohort being evaluated in this study did not receive the six additional months of vocational training.³³ In view of this, the current evaluation primarily evaluates the impacts of the six month long MFS agricultural training component.

Next, we describe the logic model of MFS. The intended **activities** of the MFS program included the following:

- **Transition legal-age working minors from hazardous child labor to acceptable work through agricultural and agri-business training:** The intervention aimed to provide training to youth 16 to 17 years of age or to link them with employment programs so they could transition into safer work. For youth who wished to work in tea production, MFS would provide training on sustainable tea production methodologies as well introduce them to technology in high-value sectors, for example, essential oils and biogas. For those who wished to pursue off-farm employment, MFS would provide training opportunities in food processing, clean and sustainable energy, and culinary skills like honey production, baking, and juice processing. Other aspects of the MFS curriculum were to include life skills (for example, hygiene, HIV/AIDS and malaria prevention), leadership, and entrepreneurship trainings to improve their overall wellbeing and equip them with the knowledge to start and manage small businesses.
- **Promote occupational safety and health (OSH) in tea production:** The intervention aimed to develop and deliver OSH training modules to increase awareness of dangerous forms of labor, to

³³ For more details see: Management Systems International. REACH-T Final Evaluation Report; December 2013-March 2017.

promote safe work conditions, and to educate participants about workers' rights and responsibilities, codes of conduct, and trade union democracy. Additional training was to be focused on production and productivity methodologies, teamwork, and effective communication. Youth were also to be provided with safety kits and protective gear.

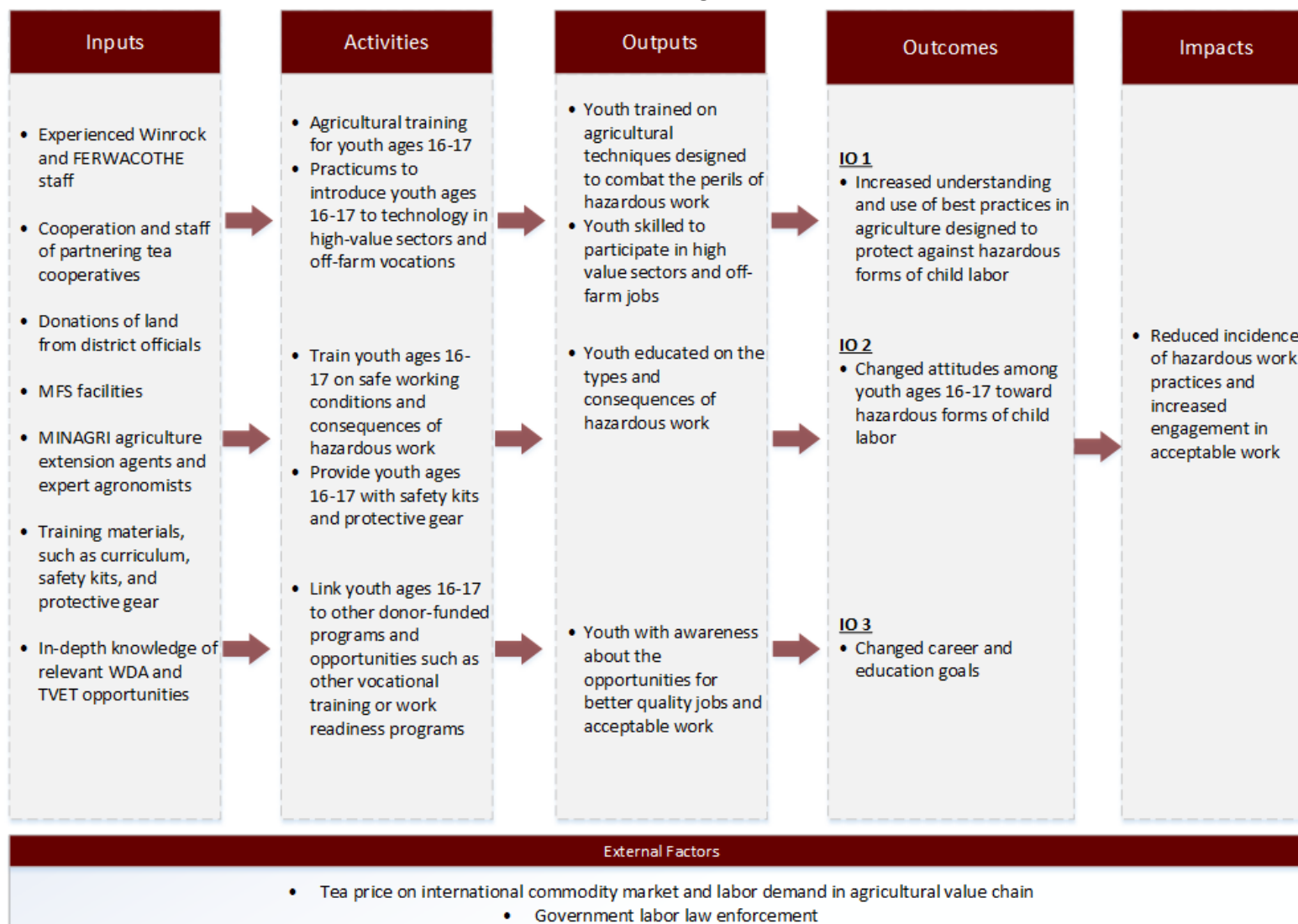
- **Link youth to other donor-funded programs:** Another objective was for MFS to link youth to other vocational training or work readiness programs, such as technical vocational training centers, which offer a range of programs such as carpentry, hairdressing, catering, and tailoring.

The following three **intermediate outcomes (IO)** were conceptualized by the model:

- Youth would have increased their understanding of best farming practices, especially with respect to practices that are safe and not hazardous.
- Youth would have changed their attitudes toward hazardous forms of labor.
- Youth would be inspired by the MFS training they received and would raise their career and educational goals.

The key impact to be achieved within six months of the conclusion of MFS activities was a change in the incidence of overall engagement in hazardous work practices, and in different types of hazardous labor, for MFS youth.

Exhibit 1. MFS Logic Model



1.4 RESEARCH QUESTIONS

Exhibit 2 summarizes the main research questions of the impact evaluation. It lists the research questions, describes the outcomes used to answer the research questions, and indicates whether the outcome under question is confirmatory or exploratory. The main goal of this study was to determine whether the MFS intervention was successful in reducing the overall incidence of hazardous work practices among youth (research question 1). This is the confirmatory outcome of the evaluation. Research questions 2–9 measure whether MFS was successful in reducing specific types of hazardous labor. Youth were classified as being engaged in hazardous work practices (the confirmatory outcome) if they were engaged in at least one type of hazardous labor described under rows 2–9. Appendix B discusses in further detail the hazardous labor definitions used in defining the outcome variables and maps the survey questions to the outcome variables.³⁴ The study also measured whether the program had an impact on the educational and employment-related aspirations of youth, as well as on their self-efficacy and locus of control (rows 10–15).

Exhibit 2. Impact Research Questions and Outcomes

Research Question	Outcome	Outcome Type
Hazardous Labor Outcomes		
1. Does MFS training reduce the overall incidence of hazardous work practices among youth?	Incidence (=yes/no) of youth in hazardous work practices; incidence (=yes) if youth are exposed to any type of hazardous labor	Confirmatory
2. Does the MFS training reduce the incidence of work in unsafe, unhygienic, or dangerous locations among youth?	Incidence (=yes/no) of youth working in hazardous locations; derived from frequency of exposure to locations that are unsafe (e.g., work at heights), or unhygienic (e.g., dust/fumes) or dangerous (e.g., work with chemicals, explosives)	Exploratory
3. Does the MFS training reduce the incidence of work in hazardous activities among youth?	Incidence (=yes/no) of youth working in hazardous activities; derived from (a) work in a job classified as hazardous, or (b) doing hazardous farming activities (e.g., spraying fertilizer), or (c) carrying heavy loads	Exploratory
4. Does the MFS training reduce the incidence of work in poor conditions among youth?	Incidence (=yes/no) of youth working in hazardous conditions; derived from (a) working long hours or (b) not having a rest day or (c) working at night or (d) being harassed at work	Exploratory
5. Does the MFS training reduce the incidence of the use of products that can affect youth' health?	Incidence (=yes/no) of youth working using hazardous products; derived from working with fertilizers/chemicals in farming	Exploratory

³⁴ The endline survey questionnaire can be found in Appendix A.

Research Question	Outcome	Outcome Type
6. Does the MFS training reduce the incidence of the use of machinery/tools among youth?	Incidence (=yes/no) of youth working using hazardous machinery/tools; derived from frequency of exposure to hazardous equipment at work	Exploratory
7. Does the MFS training reduce the incidence of work in institutions that are considered dangerous to the health of youth?	Incidence (=yes/no) of youth working in hazardous institutions; derived from work in certain types of jobs such as construction, brick and tile making	Exploratory
8. Does the MFS training reduce the incidence of work in which youth experience health issues/injuries?	Incidence (=yes/no) of youth working in jobs that cause health issues; derived from frequency of experiencing certain health conditions	Exploratory
9. Does the MFS training reduce the incidence of work using dangerous products without protective gear among youth?	MFS specific variable. Incidence (=yes/no) of youth working in hazardous agricultural work without the use of protective gear	Exploratory
Education and Career Aspirations		
10. What is the impact of the MFS training on the level of education that youth would like to achieve in the future?	Primary (1-6) vs. junior secondary (7-9) vs. senior secondary (10-12) vs. college/university vs. vocational training	Exploratory
11. What is the impact of the MFS training on the type of work that youth would like to have in the next two years?	Traditional farm vs. modern farm vs. non-farm vs. no work in the next two years	Exploratory
12. What is the impact of the MFS training on youth' aspirations for entrepreneurship in the next two years?	Work for self/employ others vs. work as employee/work for others but as supervisor	Exploratory
13. What is the impact of the MFS training on the location/destination of work that youth would like to have in the next two years?	Inside vs. outside the village	Exploratory
Level of Confidence/Locus of Control		
14. Does the MFS training increase the level of confidence that youth express in obtaining the job they would like to have in the next two years?	Have confidence (=yes/no); derived expressing confidence (>5), on a scale of 1–10, in obtaining aspired job	Exploratory
15. Does the MFS training increase youth's locus of control ?	Youth believe (=yes/no) that they have a lot of control over their future	Exploratory

The evaluation team included a qualitative component to provide a more in-depth understanding of evaluation findings, drawing on the program's logic model. The qualitative research questions were organized into two thematic areas: (1) delivery of program activities to understand youth experiences

with the program and the potential for treatment contamination, and (2) the mechanisms of change, to understand how the program’s logic model pathways explain the final results (see Exhibit 3). All qualitative data were obtained through focus group discussions with youth, interviews with local leaders, and interviews with program staff.

Exhibit 3. Qualitative Research Questions

Delivery of Program Activities	
1.	Was the MFS program implemented as planned? What changes were made to implementation and why?
2.	What were youth’ experience with MFS?
3.	What successes and challenges did implementers and MFS youth face during training?
4.	Was there variation across MFS sites in terms of design and implementation?
Mechanisms of Change	
5.	Do MFS-trained youth have more knowledge about hazardous labor and how to engage in safe work?
6.	Did MFS-trained youth acquire, through training, the capacity to engage with authority in a way that may
7.	How have MFS-trained youth applied the skills they learned in the MFS or plan to do so in the future?
8.	How did the program affect youth use of protective equipment, work habits, and ability to avoid hazardous
9.	How did the program impact the aspirations and plans of MFS-trained youth?

Chapter 2: Study Design, Analytical Sample, and Methodology

2.1 STUDY DESIGN

The study design consisted 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 endline data about 17 months after the end of implementation.

Exhibit 4 presents a timeline of the overall MFS evaluation activities. The timeline for the baseline survey activities extended from June 2014 to January 2016, and the MFS program was implemented across selected sites between February and October 2016. An evaluation team researcher conducted a site visit and implementer interviews with Winrock International (Winrock) and FERWACOTHE staff in early 2017 to understand whether program implementation activities were on track. Between January and September 2018, the endline data collection activities were completed, including the collection of quantitative data and qualitative data from focus groups and key informants.

Exhibit 5 is a CONSORT flow chart³⁵ of the evaluation. It details the progression of the trial and highlights the number of youth who were part of the study at each stage, including the extent of, and the reasons for, attrition between the baseline and the endline sample. For activities that extended over several months, the flow chart only shows the end month.

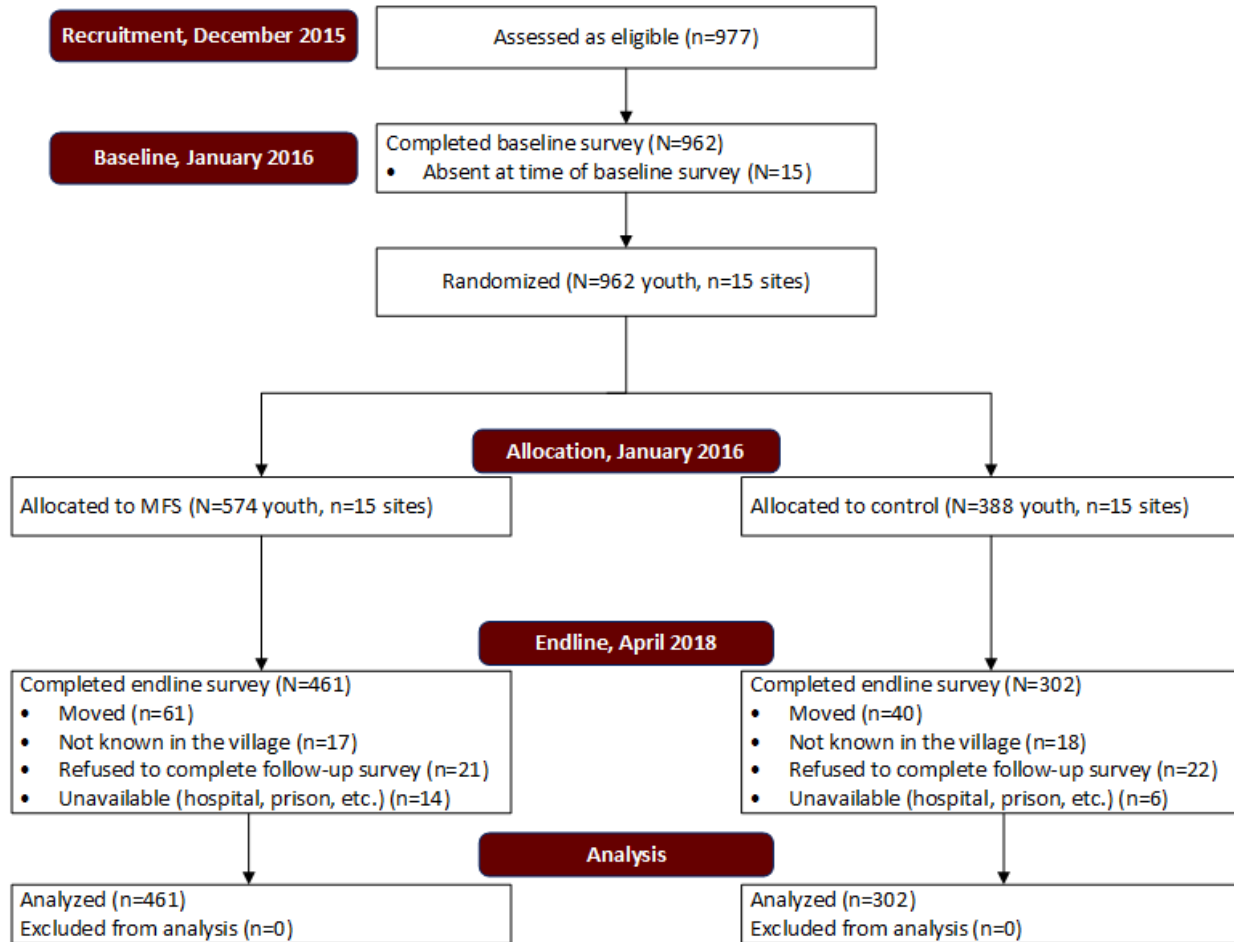
At baseline, 962 youth from 15 sites were randomized to either the MFS intervention (n=574) or to the control group (n=388). All 962 youth completed the baseline survey (December 2015 and January 2016). The endline survey was conducted in March and April 2018, two years after the start of the MFS program. We had also planned to conduct an intermediate follow-up survey, roughly six months after the end of the training, to capture the short-term effects of the MFS program. However, due to unexpected delays with the survey application to Rwanda's National Institute of Statistics (NISR), which lasted a year between January 2017 and January 2018, this round of data collection could not be conducted. At endline, the study was able to recruit 763 out of 962 youth, with 461 youth from the MFS group and 302 youth from the control group completing the survey. Conducting a single follow-up, 17 months after the end of implementation of the program, may have contributed to greater attrition in the endline sample than what we would have had if we would have been able to contact youth one year earlier.

³⁵ Schulz, K. F., Altman, D. G., & Moher, D. (2010). CONSORT 2010 statement: Updated guidelines for reporting parallel group randomized trials. *BMC Medicine*, 8(1), 18.

Exhibit 4. MFS Evaluation Timeline

	Date	
Baseline Survey Activities	October 2015	Identification, validation, and selection of program sites
	December 2015	Identification of program candidates and verification of eligibility
	June 2014 – November 2015	Survey instrument development, pre-testing and cognitive testing
	November – December 2015	Programming of instrument and testing
	November – December 2015	Enumerator training
	December 2015	Pilot testing
	December 2015 – January 2016	Randomization and baseline data collection
Intervention Activities	February 2016 – October 2016	Implementation of the MFS program across all sites
Site Visits & Implementer Interviews	January 2017	Implementer interviews with WINROCK/FERWACOTHE staff
Endline Survey Activities	January 2017 – January 2018	NISR visa application process
	January – February 2018	Finalization of survey instrument
	February 2018	Programming of instrument and testing
	February 2018	Enumerator training
	February – March 2018	Pilot testing
	March – April 2018	Endline data collection
	July – August 2018	Finalization of qualitative approach and instrument
	August – September 2018	Youth focus groups and local leader interviews

Exhibit 5. CONSORT Flow Diagram of the Randomized Trial



Further details on each step of the evaluation process are provided in the next sections.

2.1.1 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 targeting children engaged in hazardous labor in the tea sector, the project first identified tea-growing districts based on the total area of tea plots and the number of growers belonging to cooperatives.³⁶ 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:

³⁶ Tea-processing factories are easily regulated by the government and are not targets of REACH-T.

- 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.

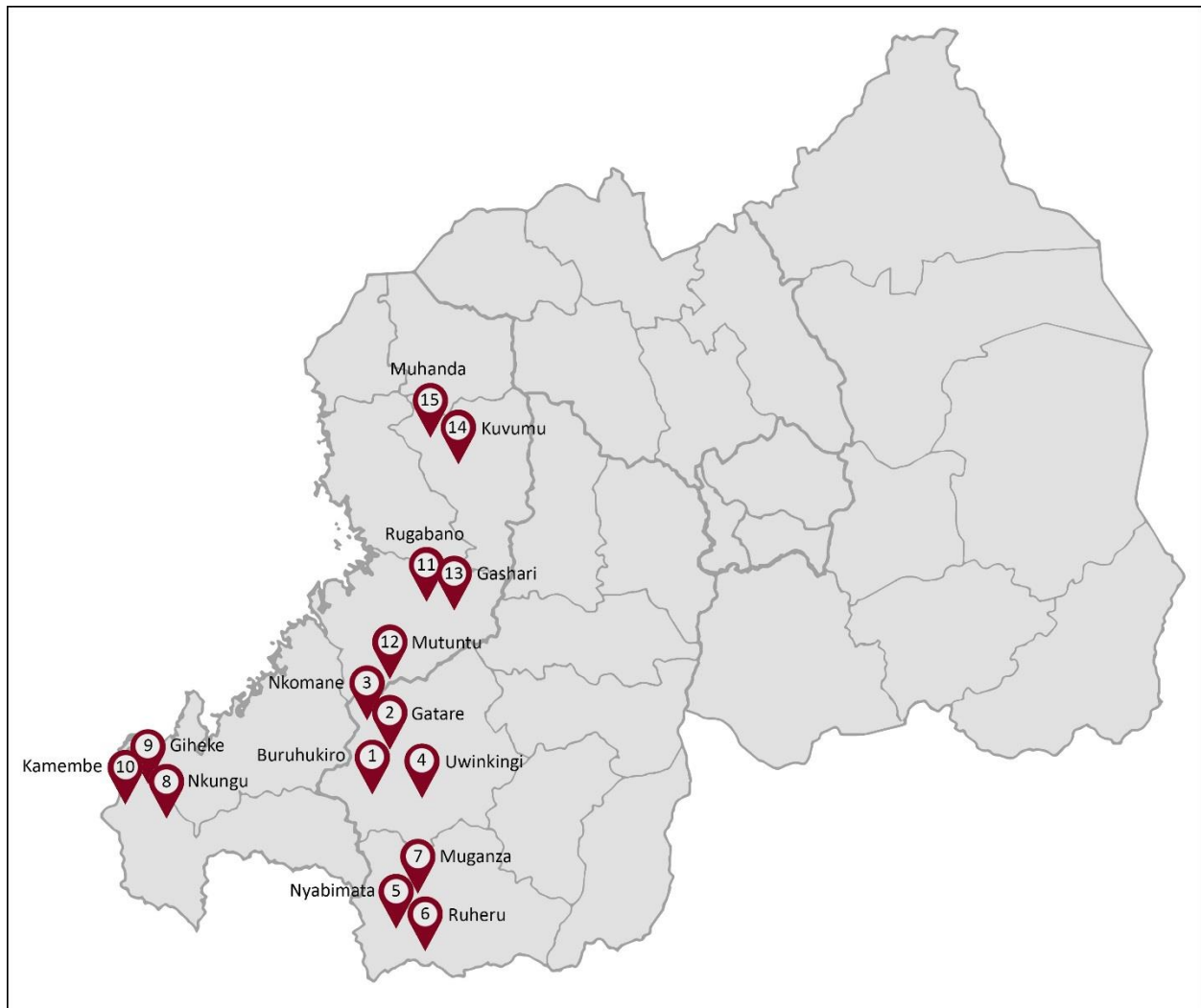
After taking these factors into consideration, Winrock selected eight districts to participate in the three cohorts of the MFS training component. Five of these districts were selected to implement the third cohort of the MFS program.

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. Exhibit 6 shows the location of the MFS sites.

Exhibit 6. Location of MFS Sites



2.1.2 Identification of program candidates and verification of their eligibility

At each of the 15 sites designated to implement MFS Cohort 3, local leaders conducted 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 youth 16 to 17 years of age were invited to attend the registration, regardless of whether they had been preselected by local leaders.

On the day of registration, the evaluation team and REACH-T staff met with the potential participants at the site, 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 the candidates met the age criterion for the MFS by verifying

identification cards and looking up official records available at the enrollment site.³⁷ The registration information was shared with the evaluation team for documentation purposes.

2.1.3 Baseline data collection

When the validation process was complete, each candidate was interviewed by an enumerator. The evaluation team, in collaboration with a local collection partner, Incisive Africa Ltd., collected baseline data from all the youth present. Exhibit 7 describes the activities conducted in the preparation and fielding of the baseline data.

Exhibit 7. Baseline Survey Administration Activities

Activity	Timeline	Location of Activity	Activity Conducted By
Instrument Development	June 2014 – November 2015	Washington, DC, USA	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

2.1.4 Random assignment 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 MFS training due to the limited

³⁷ Although Winrock mentions other "vulnerability" criteria, the main observable and verifiable criteria were the age range and community confirmation that the child was not enrolled in regular school. The other vulnerability criterion is whether the household belonged 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.

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 (i.e., would receive the MFS training); otherwise the candidate was included in the control group (i.e., would not receive MFS training).

2.1.5 Implementation of the MFS training

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. In some sites, implementation was completed later, in September or October 2016. Initially, the program was conceptualized to provide six months of MFS agricultural training with a focus on best farming practices as well as agri-business training, followed by six additional months of vocational training focused on building skills in various non-agricultural trades. However, as described in the evaluation baseline report,³⁸ due to lack of funding, the vocational training component was not provided to the youth in the evaluation cohort. Lack of funding also prevented the program from providing them with start-up kits.³⁹

2.1.6 Collection of endline data

The evaluation team collected both quantitative and qualitative data for the endline evaluation between March 2018 and September 2018. The team had also planned to conduct a midline survey in January 2017. However, due to extensive delays in obtaining in-country clearances for the survey, this round of data collection was canceled, in consultation with ILAB. Each endline data instrument is described in further detail below. Exhibit 8 describes the activities conducted for endline data collection.

Exhibit 8. Endline Survey Administration Activities

Activity	Timeline	Location of Activity	Activity Conducted By
Survey Instrument Development	December 2016 – May 2017 & January – February 2018	Washington, DC, USA	IMPAQ research staff with input from ILAB
Development of Qualitative Guides	October 2016 – January 2017 & July – August 2018	Washington, DC, USA	IMPAQ research staff with input from ILAB

³⁸ IMPAQ International, LLC. (2017). Impact Evaluation of the REACH-T Model Farm School Program in Rwanda: Final Baseline Report.

³⁹ The finding that MFS cohort 3 did not receive the vocational training component (and start-up kits) is consistent with the findings of the final implementation evaluation of the REACH-T conducted by Management Systems International (MSI).

Activity	Timeline	Location of Activity	Activity Conducted By
Site Visits and Implementer Interviews	January 2017	Select MFS Sites ⁴⁰ , Rwanda	IMPAQ research staff and Incisive Africa associates
Survey Programming & Testing	February 2018	Washington, DC, USA, and Kigali, Rwanda	IMPAQ research staff and Incisive Africa associates
Survey Enumerator Training	February 2018	Kigali, Rwanda	IMPAQ researcher and Incisive Africa director
Survey Pilot Testing	February – March 2018	Rulindo district, Rwanda	IMPAQ and Incisive Africa teams
Survey Data Collection	March – April 2018	MFS Sites, Rwanda	Incisive Africa team
Survey Data Quality Checks	April – May 2018	Washington, DC, USA	IMPAQ research staff
Youth Focus Groups & Local Leader Interviews	April – May 2018	Select MFS Sites ⁴¹ , Rwanda	Incisive Africa team

Quantitative Data

The quantitative data included survey data collected from youth who were also interviewed at baseline. Details relevant to the updated survey instrument fielded at endline, as well as a description of the field work process, are presented below.

Youth Survey Instrument

The endline student survey instrument was based on the baseline tool with several modifications. The following changes were made:

1. Several questions on household characteristics and demographics that were collected at baseline were removed. Since these variables are time-invariant, it was not necessary to collect this information again.
2. Questions to measure program participation and possible contamination of the control group were added.
3. The questionnaire was streamlined to avoid collecting duplicate information and to simplify skip patterns. This was done to increase the efficiency and quality of data collection.
4. At endline, the time horizon for eliciting educational aspirations was changed from two years to “over the youth’s lifetime.”

A mapping between child labor definitions based on Rwandan legislation and international guidelines and how they are captured in the survey instrument is provided in Appendix B. Since participants who were

⁴⁰ These sites (district) were: Kavumu and Muhanda (Ngororero), Rugabano and Gashali (Karongi), Nkungu and Giheke (Rusizi), Nyabimata and Ruheru (Nyaruguru).

⁴¹ These sites (district) were: Nkungu and Giheke (Rusizi), Rugabano (Karongi), Kavumu (Ngororero), and Nyamagabe (Uwinkingi).

16 to 17 years of age at the outset of the MFS training (February 2016) were no longer minors at the time of the endline survey, at endline the evaluation team measured hazardous labor (HL) rather than hazardous child labor (HCL). There are two main differences in the way HL was measured for youth participants 18 years of age or older: (a) if youth worked more than 45 hours a week (rather than 40 hours per week), they were considered to be engaged in hazardous work (based on the regulation of normal working hours according to Rwandan legislation;⁴² and (b) youth were considered to be in hazardous work if they did not have a weekly rest (also based on the regulation of normal working hours). These details are discussed further in Appendix B.

It should be noted that changes to the questionnaire between baseline and endline did not pose a problem in analyzing the impact of the MFS program. The research design compares average outcomes between the treatment and control groups at endline and does not measure changes before and after the MFS program.

Survey Field Work

The fielding of the endline survey was conducted in March 2018 by the evaluation team's local partner, Incisive Africa. An evaluation team member traveled to Rwanda to train enumerators, pilot the survey and oversee the launch of data collection. Both pilots of the survey instrument took place in Rulindo district, a district not part of the main sample. No major issues were identified during the pilots, and no substantial changes were made to the survey instrument.

To ensure that every respondent who participated in the endline survey also had completed the baseline survey, two screening questions were built into the survey instrument. In the first screening question, the name of the respondent on his or her official ID was matched to the name preloaded in the survey instrument from the baseline data. The respondent's face was checked against his or her picture. In the next screening question, the respondent was asked for father's name and mother's name. If either name did not match the pre-loaded information, an error message was triggered, and enumerators were asked to resolve the identity of the respondent, with the help of their supervisor, before proceeding.

Incisive Africa conducted the endline survey in two waves. The objective of the first wave was to survey as many respondents as possible; the objective of the second wave was to intensively track down respondents who could not be recruited to complete the survey during the first wave. At the end of the first wave 687 youth were surveyed, and at the end of the second wave the number increased to 763. Data collection was concluded once it was determined that the benefits of further tracking untraceable individuals would be outweighed by their costs. Major reasons for not being able to track the remaining individuals included having moved away, traveling for work, whereabouts unknown by people in the village, and refusal to participate in the survey (see Exhibit 5).

⁴² Law Regulating Labour in Rwanda. Official Gazette of the Republic of Rwanda, Year 18, May 27, 2009.

Qualitative Data

The qualitative data collection took place over two phases. The first phase consisted of site visits in January 2017, where a member of the evaluation team traveled to Rwanda to interview Winrock and FERWACOTHE staff. The second phase consisted of key informant interviews with local leaders and focus group discussions with MFS participants and control group youth in late summer 2018. Incisive Africa staff, with the help of IMPAQ's qualitative lead, trained facilitators on the tools in early August 2018, and data collection took place from mid-August to early September 2018. Each qualitative data source is discussed below in further detail.

Site Visits

In early 2017, a member of the evaluation team conducted seven interviews with local Winrock and FERWACOTHE staff, including the project director and M&E staff, to learn more about the implementation activities. The interview questions focused on program implementation, including the fidelity with which the program activities were implemented, the potential for treatment contamination, and local staff's perceptions on challenges and program effectiveness.

Key Informant Interviews and Focus Group Discussions

In summer 2018, the evaluation team conducted key informant interviews with local leaders at five MFS sites. Since these individuals worked with Winrock to recruit youth for the MFS program, they were able to provide a unique perspective on project implementation. The team also gathered their perspectives on the effectiveness of the MFS program and their recommendations/lessons learned for future programs of this nature. In the same five districts where the local leaders were interviewed, the evaluation team also conducted focus groups with youth who participated in the MFS program and youth in the control group.

Three main areas were explored with the focus groups:

1. **To understand participants' experiences with the MFS program**, the team asked questions about the types of classes that youth took as part of the MFS training, the nature of the MFS curriculum, learnings, and problems/challenges they faced during the program.
2. **To explore causal mechanisms behind the program's impact and theory of change**, the team asked both MFS participants and control group members about their knowledge, attitudes, and behaviors with regards to hazardous work, and compared the responses of the beneficiary and control groups to see if there were any differences. We also specifically focused on whether the MFS program helped youth engage in safer work.
3. **To investigate whether youth in the treatment group developed career and education-related aspirations** as hypothesized by the MFS theory of change, we triangulated the focus group findings with the quantitative survey results to allow for richer findings and contextual information.

The team visited five MFS sites and held two focus groups with youth who participated in the program, for a total of 10 groups overall. A total of four focus groups across two sites were held with control group youth. Focus groups were separated by sex to ensure that youth felt comfortable speaking openly. Exhibit 9 below shows the total number of participants by sex in the focus groups and interviews. The institutional review board (IRB) registration and exemption procedure for the collection of survey data is described in Appendix C.

Exhibit 9. Participants in Focus Group Discussions and Key Informant Interviews

Site	Focus Group Discussions Treatment		Focus Group Discussions Control		Key Informant Interviews
	Female	Male	Female	Male	Local Leader
1	6	6	N/A	N/A	1
2	8	7	N/A	N/A	1
3	7	7	N/A	N/A	1
4	8	8	8	4	1
5	8	7	8	8	1

2.2 ANALYTICAL SAMPLE

At endline, the evaluation team was able to recruit 763 of the 962 youth who were randomized at the beginning of the project: 461 MFS participants and 302 control group youth completed the endline survey. All youth who completed the endline survey were included in the endline analysis, and this formed the main analytical sample for the evaluation of treatment effects. Given the non-trivial extent of attrition in this study (over 20 percent), the team investigated whether the rate of attrition differed between the treatment and control groups (Section 2.2.1), analyzed baseline equivalence in the endline sample (Section 2.2.2), and implemented regression-based adjustments for attrition in the impact estimates (see Chapter 3).

2.2.1 Attrition

Differential attrition between treatment and control groups is potentially a threat to the validity of the randomized design. When attrition is systematically related to treatment assignment, it is possible that remaining youth assigned to the treatment or control group no longer constitute random subsamples of the original sample, and therefore average outcomes in the control group may no longer represent a valid counterfactual of treatment group outcomes in absence of the MFS program.

Exhibit 10 shows the overall rate of attrition between baseline and endline and also the attrition rates of the treatment and control groups. The overall attrition rate was 20.69 percent. The attrition rate in the control group (22.16 percent) was 2.48 percentage points higher than the rate in the treatment group (19.69 percent). However, this difference is not statistically significant.

Exhibit 10. Sample Size and Attrition Rates at Endline

	Entire Sample	Treatment	Control	Difference in Attrition Between T and C (p-value)
Baseline	962	574	388	N/A
Endline	763	461	302	N/A
Attrition	20.69%	19.69%	22.16%	2.48pp [0.352]

Notes: The p -value of the t-test result, in shown in parentheses, indicates no statistically significant difference in the rate of attrition between the treatment and control groups.

Exhibit 11 examines attrition by MFS site. Since the study sample was stratified by site, and implementation of the MFS program was carried out at the site level, differential attrition between the two groups at the site level serves as an additional check. In two sites, Nyabimata and Rugabano, attrition was significantly higher in the control group than in the treatment group. In Nyabimata, attrition in the control group was 18.08 percentage points higher than in the treatment group, and in Rugabano it was 12.42 percentage points higher. Under the most conservative assumptions of the What Works Clearinghouse (WWC) guidelines,⁴³ for an overall attrition rate between 20-21 percent, a differential attrition rate of about 5.4 percent points is tolerable and is not likely to generate biased impact estimates. However, as an extra precaution, the evaluation team tested the sensitivity of the results to corrections for attrition, as described in more detail in Chapter 3.

⁴³ See https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_procedures_v3_0_standards_handbook.pdf, Table III.1.

Exhibit 11. Sample Size and Attrition Rates in the Treatment and Control Groups, by Site

District	Selected Sectors	Treatment			Control			Difference (t-test)
		Baseline (N)	Endline (N)	Attrition	Baseline (N)	Endline (N)	Attrition	Attrition (Treatment vs. Control)
Rusizi	Nkungu	39	27	30.77%	25	19	24.00%	6.77pp
	Giheke	70	52	25.71%	48	32	33.33%	-7.62pp
	Kamembe	20	14	30.00%	--	--	--	--
Nyamagabe	Buruhukiro	30	23	23.33%	28	22	21.43%	1.90pp
	Uwinkingi	40	35	12.50%	36	33	8.33%	4.17pp
	Gatare	26	24	7.69%	19	18	5.26%	2.43pp
	Nkomane	29	25	13.79%	22	21	4.55%	9.25pp
Nyaruguru	Ruheru	48	37	22.92%	24	18	25.00%	-2.08pp
	Nyabimata	43	41	4.65%	22	17	22.73%	-18.08 pp **
	Muganza	19	15	21.05%	14	12	14.29%	6.77pp
Karongi	Rugabano	77	65	15.58%	50	36	28.00%	-12.42 pp *
	Gashali	31	22	29.03%	24	16	33.33%	-4.30pp
	Mutuntu	31	25	19.35%	21	19	9.52%	9.83pp
Ngororero	Kavumu	40	32	20.00%	26	18	30.77%	-10.77pp
	Muhanda	31	24	22.58%	29	21	27.59%	-5.01pp
Total		574	461	19.69%	388	302	22.16%	2.48pp

Notes: ** ($p < .05$) and * ($p < 0.10$) indicate statistically significant differences in the rate of attrition between the treatment and control groups.

2.2.2 Baseline Equivalence

The evaluation baseline report showed that after randomization baseline equivalence had been attained for all main outcomes and the majority of the background characteristics. Imbalances were detected among a few variables, which was not surprising. Some imbalance is possible even if randomization is done correctly.

The evaluation team conducted baseline equivalence tests using the endline sample to assess whether baseline equivalence between the treatment and control groups, produced by randomization, also holds

in the endline sample. The test results show that baseline equivalence was maintained for all main outcomes (see Appendix D, Section D2) and for the majority of the background characteristics (Section D1). Imbalances were detected among five variables,⁴⁴ which would be expected to occur purely by chance, given that a large number of variables (approximately 80) were assessed.⁴⁵

Overall, the baseline equivalence test results established that the characteristics of non-attriters were balanced between the treatment and control groups. Given that balance was also established at baseline, observable characteristics of attriters are not likely to be different across the treatment and control groups in this study. Nevertheless, because site level differences in attrition are high and statistically significant for two sites, the evaluation team applied a regression-based adjustment to account for possible bias on account of attrition by applying a parametric correction (inverse probability weighting) explicitly taking into account differential attrition by site, and the characteristics that are imbalanced between the treatment and control groups in the endline sample.

2.3 METHODOLOGY

2.3.1 Impact Analysis of Youth Outcomes

This section describes the analytic strategy used to examine the confirmatory and exploratory impacts of the MFS program on youth outcomes. If treatment and control groups remain equivalent in the endline sample, then simply comparing average outcomes between the two groups provides an unbiased estimate of the impact of the program. Nevertheless, controlling for different types of variables helps to improve the precision of regression estimates and also serves to verify that the measured impacts are unbiased and not confounded by variables correlated with treatment assignment. In addition, given that we are working not with the original baseline sample, but with a smaller sample, we also examine the extent to which correcting for attrition modifies the main results.

⁴⁴ These variables are as follows: the average number of household members aged 10 or younger, the percentage of male household members for whom the highest educational level attained is “never attended school,” the average number of 16 to 17-year-olds who work for pay in the household, the proportion of youth who serve alcoholic drinks in bars/other institutions, and the percentage of households that own a television. The direction of difference in these variables between the two groups does not indicate that the two groups are systematically different. For instance, television ownership is lower in the control group, whereas the proportion of male members who never attended school is also lower, as is the proportion of youth serving alcohol.

⁴⁵ Glennerster R. & Takavarasha, K. (2013). *Running Randomized Evaluations: A Practical Guide*. Princeton, NJ: Princeton University Press. Retrieved from <http://www.jstor.org/stable/j.ctt4cgd52>

Exhibit 12. Overview of Regression Models

Model specifications	Model 1	Model 2	Model 3	Model 4	Model 5
Treatment indicator	Yes	Yes	Yes	Yes	Yes
Site (sector) fixed effects	No	Yes	Yes	Yes	Yes
Baseline demographics	No	No	Yes	Yes	Yes
Baseline outcomes	No	No	No	Yes	No
Inverse Probability Weighting (IPW) to Correct for Attrition	No	No	No	No	Yes

As shown in Exhibit 12, the team estimated five models; the results from the preferred models are presented in Section 3, and the results from remaining models are presented in Appendix F2. In all models we cluster standard errors at the sector (site) level. In Model 1 we regress the outcome of interest only on the treatment indicator. The impact estimated in Model 1 is equivalent to calculating the difference in the average of a given outcome between the treatment and control groups. In Models 2 and 3, site fixed effects and baseline demographic characteristics are included sequentially. In Model 2, site fixed effects are included because it is the stratification variable, and inclusion of the stratification variable as a control typically increases precision. In Model 3, two types of baseline demographic variables are included as controls: (1) variables that were balanced at baseline but are likely important predictors of MFS outcomes and are hence included for precision reasons; and (2) variables that were not balanced at baseline and are included to verify that they do confound the treatment effect.

In Model 4, controls for baseline values of the outcome variable are added. For example, if the outcome of interest is “hazardous work practices,” we controlled for baseline values of youth engagement in hazardous work practices. Inclusion of baseline outcomes ensures that post-treatment differences between the two groups are the result of the treatment and are not driven by any possible pre-treatment differences.

Finally, in Model 5, we implement a parametric correction for attrition in the sample, using inverse probability weighting (IPW).⁴⁶ To implement IPW, we first predicted the probability of being observed in the sample at endline, for the entire baseline sample. We predicted the probability of being observed using the treatment indicator, site fixed effects, a host of demographic characteristics, interactions of the treatment indicator with site fixed effects, and demographic characteristics. We then weighted the endline sample by the inverse probability of being observed. By reweighting or assigning a larger weight to observations with characteristics less likely to be observed, we constructed the treatment and control groups to be more similar and removed differences between the two groups that may have occurred because of attrition.⁴⁷

⁴⁶ Gerber, A. S., & Green, D. P. (2012). *Field Experiments: Design, Analysis, and Interpretation*. New York: W.W. Norton.

⁴⁷ Observations with characteristics associated with a lower probability of continuation—for example, gender—are assigned a larger weight to “compensate” for the underrepresentation of these types of observations in the observed endline data.

We chose regression Models 3 and Model 5 as the preferred regression models for the reasons outlined below:

- Model 3 is preferred to Model 1 and 2 because it includes more controls, and the loss of sample size from missing values in the demographic characteristics variables is minimal. Model 3 is preferred to Model 4 even though Model 4 additionally includes controls for baseline outcomes, because the loss of sample size on account of missing outcomes values at baseline is substantial. Nevertheless, the overall results from Model 4 are very similar to those from Model 3.
- The results from Model 5 present treatment effects corrected for attrition. Because parametric corrections can be somewhat sensitive to included covariates, the results are presented as a complement to Model 3 so that readers can see the “raw” or “unadjusted” treatment effects side by side.

Additionally, we conduct three main types of analyses:

- (a) Intent-to-Treat (ITT) analysis to estimate impacts for individuals randomly assigned to treatment, regardless of actual participation in the training;
- (b) Treatment-on-Treated (TOT) analysis to estimate impacts for individuals reporting any length of participation in MFS training; and
- (c) TOT analysis to estimate impacts for individuals reporting participation in MFS training for the full six months.

The ITT analyses represent the main findings of the report. This is because ITT estimates measure the impact of offering training, which is the most that governments/NGOs can do, given that individuals cannot be forced to take up training. Additionally, TOT analysis in this report is based on self-reported participation, which can suffer from measurement error and recall/reporting biases.

All models (1-5) are implemented for the ITT analysis and OLS regressions are used to obtain ITT estimates. For the TOT analysis in (b) and (c) we focus on Model 5, which controls for baseline characteristics and accounts for attrition bias. The TOT estimates are derived from Instrumental Variable (IV) regressions, whereby reported participation, which is endogenous to the intervention, is instrumented for using initial random assignment to treatment. Using the IV methodology it is possible to obtain unbiased TOT estimates for individuals reporting any length of participation in MFS. It is not possible to obtain unbiased TOT point estimates for individuals in the **full compliance** group (i.e. the individuals who report participating for the full six months).⁴⁸ For this subgroup, estimating unbiased treatment effects would require randomizing individuals into groups with different lengths of training. Nevertheless, it is possible to place bounds on the “true” treatment effect of full participation. Here, bounds are derived based on how **partial compliers** (those who participate, but for less than six months), are classified. Classifying

Say that the control group, at endline, has a smaller proportion of girls than the treatment group. The reweighting process ensures that all observations are weighted in a way such that, with weights, the average proportion of girls across the control and treatment groups would be more similar.

⁴⁸ Gerber, A. S., & Green, D. P. (2012). *Field Experiments: Design, Analysis, and Interpretation*. New York: W.W. Norton.

partial compliers as “participants” gives a lower bound, whereas classifying partial compliers as “non-participants” gives an upper bound. Note that based on this classification, the TOT estimate on individuals reporting **any** participation from (b) is equal to the lower bound on the TOT estimate for **full** participation in (c).

To conduct sub-group analysis by sex, we implement separate regressions for girls and boys.

2.3.2 Qualitative Analysis Methodology

To analyze the interview and focus group data, we created a codebook based on the major themes from our focus group and interview protocols to address the key evaluation questions. Using verbatim, translated transcripts, we identified and confirmed patterns using qualitative analysis software. In Section 3.5, we synthesize the analysis of the mechanisms of change and examine the inputs of the intervention’s theory of change. When topics overlapped, we triangulated the results of the quantitative survey with those of the qualitative findings and with the contextual information learned from our review of previous evaluation reports, program implementation materials, and other relevant research literature.

Chapter 3: Study Findings

This chapter presents the findings of both quantitative and qualitative analyses. Sections 3.1–3.4 describe the impact results obtained using the endline quantitative survey data, and Section 3.5 discusses the mechanisms of change based on insights from the qualitative data.

Each subsection 3.1-3.4 is organized as follows: for each outcome variable, we first present ITT estimates, followed by TOT estimates for individuals reporting any participation in MFS, followed by TOT estimates for individuals reporting participation for the full six months. For the ITT estimates, the impact results from the preferred models (Models 3 and 5) are presented in this section for each outcome. Results for the other models are enclosed in Appendix F2 (Exhibits 33-53). In the exhibits presenting the results, the coefficient on the treatment indicator is the main parameter of interest. This measures the difference in the outcome variable between the treatment and control groups, conditional on other characteristics controlled for in the regression. Most of the outcome variables analyzed in this report are measured as binary variables (for example, working or not working), and the corresponding coefficients of interest represent a percentage-point difference in prevalence between the treatment and control groups. Each exhibit also shows, in brackets, the regression coefficient divided by the mean of the control group, to give the reader a sense of the magnitude of the estimated effect. The reported sample size in the regressions differs somewhat by outcome, depending on whether a particular outcome applied to an individual following the logic of the questionnaire, or on account of some missing values in the baseline characteristics.⁴⁹ For the ITT estimates, the top panel of each exhibit shows regressions that control for baseline demographics and MFS site fixed effects (Model 3). The bottom panel shows results that also correct for attrition bias (Model 5). Details on the analytical specifications and the rationale supporting the preferred models are discussed in Section 2.3.1, above. TOT estimates are presented only for Model 5. Here the main parameter of interest is the coefficient on the compliance variable measuring actual participation in the training program.

Sub-group analysis by sex is conducted for all ITT regressions and for those TOT regressions wherein the overall results differ from the ITT findings. Findings are discussed in this chapter, and regression output is presented in Appendix F3.

3.1 IMPACTS ON HAZARDOUS LABOR OUTCOMES

This section presents the regression results for the group of outcomes related to hazardous labor. The first column of Exhibits 13, 15, and 16 shows the results for the main confirmatory outcome: whether youth were engaged in hazardous work practices. This is a binary (0/1) variable that takes the value 1 if a

⁴⁹ In addition, the Model 5 sample sizes are slightly smaller than those for Model 3. The reason is that approximately 10 observations were dropped in the process of generating attrition weights because they added no extra information to the model.

youth is engaged in at least one or more types of hazardous labor. Columns (2)–(9) in these exhibits show the impact of the MFS on the types of hazardous labor described below:

- **Work in Hazardous Locations:** Column (2) reports the impact of the MFS program on work in hazardous locations. This is a binary variable that takes a value of 1 if youth stated that they worked in a hazardous location at a frequency greater than 1 on a 1–10 scale, with 1 implying “never” and 10 implying “every day.” Hazardous locations are those that expose individuals to unsafe (e.g., work at heights), unhygienic (e.g., dust/fumes), or dangerous (e.g., work with chemicals, explosives) work.
- **Work in Hazardous Activities:** Column (3) shows the impact of the MFS program on work in hazardous activities. This is a binary variable that takes a value of 1 if youth either (a) worked in a job classified as hazardous (e.g., serving alcoholic drinks in a bar, working in construction, mining, etc., (b) performed hazardous farming activities (such as spraying fertilizer), or (c) carried heavy loads as part of their work.
- **Work in Poor Conditions:** Column (4) looks at the impact of the MFS program on work in poor conditions. This is a binary variable that takes a value of 1 if youth either (a) worked long hours, (b) did not having a single rest day in a week, (c) worked at night, or (d) were physically/emotionally abused or sexually harassed at work.
- **Use of Dangerous Products:** Column (5) reports the impact of the MFS program on use of dangerous products at work by youth. This is a binary variable that takes a value of 1 if youth worked with fertilizers or chemicals in farming.
- **Use of Hazardous Machinery and Tools:** Column (6) displays the impact of the MFS program on use of hazardous machinery or tools at work by youth. This is a binary variable that takes a value of 1 if youth stated that they worked with hazardous machinery and tools at a frequency greater than 1 on a 1–10 scale, with 1 implying “never” and 10 implying “every day.” The category of hazardous machinery/tools includes items such as saws, knives, sickles, and welding tools.
- **Work in Dangerous Institutions:** Column (7) shows the impact of the MFS program, on work in dangerous institutions by youth. This is a binary variable that takes a value of 1 if youth worked in certain types of jobs such as brick and tile making.
- **Work in Jobs That Cause Health Issues/Injuries:** Column (8) reports the impact of the MFS program on the incidence of youth working in jobs that can cause health problems. This is a binary variable that takes a value of 1 if youth stated that they experienced certain health conditions at a frequency greater than 1 on a 1–10 scale, with 1 implying “never” and 10 implying “every day.” Some examples of health conditions include back/muscle pains, headaches, wounds, and skin problems.

- **Work without Protective Gear:** Column (9) displays the results for a variable created specifically to evaluate the MFS program, since one of the objectives of MFS was to provide youth with protective gear. This is an indicator variable that takes a value of 1 if youth reported working in hazardous agricultural work without the use of protective gear such as gloves and boots.

3.1.1 Intent to Treat (ITT) Estimates

In this subsection, we report the impact of MFS on hazardous labor outcomes for all individuals randomly assigned to the treatment group, regardless of actual participation in the training. As can be seen in column (1) of Exhibit 13, all individuals in the sample were engaged in some form of hazardous work practices at endline—the incidence of hazardous work is 100 percent in the control group and the coefficient on the MFS indicator is precisely zero which indicates that the incidence is also 100 percent in the treatment group. This result indicates that the MFS program had no impact on the overall incidence of hazardous work practices among the youth in the sample, which is the confirmatory outcome of this study. The same result was obtained across all the models estimated (see Appendix F2). The results in columns (2)–(9) show that the impact of the MFS program is not statistically significant for all other hazardous labor outcomes.⁵⁰ The coefficient estimates are relatively small (less than 2 percent of the control group mean) for the majority of these outcomes.⁵¹ In some cases the coefficients are larger and negative, for example for the outcomes “work in dangerous institutions” (column 7) and “work without protective gear” (column 9), but in other cases the coefficients are positive, for example for the outcome “work in hazardous locations” (column 2). The study was not powered to detect effect sizes of such a small size⁵² and since the effects are sometimes negative and sometimes positive, the results do not show that there is a consistent pattern across outcomes.

In Appendix F3 (Exhibit 54) we report ITT estimates of the impact of the program for girls and boys separately. On the whole, no strong evidence exists to support that the program was consistently effective in reducing hazardous labor among either sex. However, for the “work in dangerous institutions” outcome, we see that the program reduced the incidence of girls engaging in this type of hazardous labor. This impact is significant at the 10 percent level. For the “work in poor conditions” outcome, we observe a significant *increase* in the incidence of boys engaging in this type of hazardous labor.

⁵⁰ Together, the questionnaire and the mapping table provide the details necessary to understand how each outcome variable was measured. These can be found in Appendices A and B, respectively.

⁵¹ The lack of impacts on hazardous labor seems to differ from the findings presented in the independent Final Evaluation of REACH-T, which mentions that the child labor rate among beneficiary children dropped from 52 percent at intake (46 percent for the hazardous child labor rate) to 4 percent after two years of implementation. However, the results are not directly comparable for several reasons: (1) the results refer to a different population, namely, children ages 5–17; (2) a pre-post comparison was used instead of a rigorously constructed comparison group; and (3) different measures of child labor were used. More specifically, the Final Evaluation of REACH-T considers the number of beneficiary children reported in the Technical Progress Report as having dropped out of school or not completing their MFS or vocational training as a proxy for the number of children in child labor. On the other hand, the report also states that the REACH-T target of safely employing 60 percent of beneficiary children, of legal working age (i.e. 16–17 year olds), was not made. In fact, the report states that 0 percent of children in this age-group were safely employed.

⁵² Appendix E presents updated power calculations for this study based on the sample at endline.

Exhibit 13. ITT Estimates: Impacts on Hazardous Labor Outcomes for Individuals Assigned to Treatment

Variable	Hazardous Work Practices (1)	Work in Hazardous Locations (2)	Work in Hazardous Activities (3)	Work in Poor Conditions (4)	Use of Dangerous Products (5)	Use of Machinery /Tools (6)	Work in Dangerous Institutions (7)	Work That Causes Health Issues/ Injuries (8)	Work Without Protective Gear (9)
Without Attrition Weights (Model 3)									
Treatment Indicator	0.000 [0.00%]	0.021 [2.40%]	0.007 [0.73%]	0.013 [1.58%]	0.009 [1.67%]	0.005 [0.47%]	-0.027 [-5.03%]	0.001 [0.06%]	-0.021 [-6.34%]
Standard Error	(0.000)	(0.028)	(0.013)	(0.034)	(0.035)	(0.014)	(0.027)	(0.010)	(0.025)
Observations	758	758	752	750	710	758	761	758	761
With Attrition Weights (Model 5)									
Treatment Indicator	0.000 [0.00%]	0.021 [2.35%]	0.008 [0.85%]	0.016 [2.02%]	0.007 [1.47%]	0.009 [0.89%]	-0.032 [-5.80%]	0.000 [-0.01%]	-0.025 [-7.59%]
Standard Error	(0.000)	(0.031)	(0.014)	(0.038)	(0.036)	(0.014)	(0.024)	(0.010)	(0.028)
Observations	750	750	745	742	704	750	753	750	753
Control Group Mean	1.000	0.893	0.980	0.812	0.509	0.980	0.543	0.980	0.328

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Models 3 and 5 both include baseline characteristics and MFS site fixed effects. Model 5 additionally includes attrition weights to control for attrition bias.

3.1.2 Treatment on Treated (TOT) Estimates

Exhibit 14 shows the distribution of youth who report attending the MFS training. A little over 93 percent of youth in the treatment group report attending MFS training classes, and about 5.3 percent of control group youth also report attending the classes. In terms of length of participation, 48.6 percent of treatment group youth and 1.7 percent of control group youth report attending the full 6 months of training. Within the treatment group, around 68 percent of youth report attending MFS classes for at least 3 months.

Exhibit 14. Self-Reported MFS Program Participation

Variables	Treatment	Control
	Proportion (N)	Proportion (N)
Proportion of Youth with MFS Attendance		
Proportion who reported attending the Winrock-FERWACOTHE MFS classes	0.933 (430)	0.053 (16)
Do not participate	0.067 (31)	0.947 (286)
Total Youth	1.000 (461)	1.000 (302)
Proportion of Youth by Length of Participation		
Less than 1 week	0.048 (22)	-
More than 1 week, but less than 1 month	0.026 (12)	-
More than 1 month, but less than 3 months	0.178 (82)	0.017 (5)
More than 3 months, but less than 6 months	0.195 (90)	0.020 (6)
6 months	0.486 (224)	0.017 (5)
Do not participate	0.067 (31)	0.947 (286)
Total Youth	1.000 (461)	1.000 (302)

As discussed in Section 2.3.1 we estimate the TOT impact by instrumenting for MFS participation with the random treatment assignment. In particular, in this section we look at the impact of the MFS program for those youth who report participating in the program, regardless of their reported length of participation. These results are reported in Exhibit 15. Overall, the results for this subgroup are very similar to those produced by the ITT regressions. There is no discernible, statistically significant impact of the program on hazardous labor outcomes for individuals who report participation in MFS or a consistent pattern in terms of the direction of the change.

**Exhibit 15. TOT Estimates: Impacts on Hazardous Labor Outcomes for Individuals Reporting Any Participation
(With Attrition Weights; Model 5)**

Variable	Hazardous Work Practices (1)	Work in Hazardous Locations (2)	Work in Hazardous Activities (3)	Work in Poor Conditions (4)	Use of Dangerous Products (5)	Use of Machinery/Tools (6)	Work in Dangerous Institutions (7)	Work which causes health issues/injuries (8)	Work without protective gear (9)
Compliance Indicator	0.000 [0.00%]	0.024 [2.69%]	0.009 [0.97%]	0.019 [2.30%]	0.009 [1.68%]	0.010 [1.02%]	-0.036 [-6.63%]	-0.0001 [-0.01%]	-0.029 [-8.69%]
Standard Error	(0.000)	(0.034)	(0.015)	(0.041)	(0.039)	(0.015)	(0.026)	(0.011)	(0.031)
Observations	750	750	745	742	704	750	753	750	753
Control Group Mean	1	0.893	0.980	0.812	0.509	0.980	0.543	0.980	0.328

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

3.1.3 Treatment on Treated (TOT) Estimates for Full Participation

Next, in Exhibit 16, we look at the impact of MFS for the sub-group of youth who report participating for the full six months. As discussed in Section 2.3.1, it is not possible to produce an unbiased point estimate of MFS impact for this sub-group, given the design of the trial. However, it is possible to place bounds on the “true” impact of full participation. The lower bound shows that the impact of the MFS is **at least as large** as the presented estimates, and the upper bound shows that the impact of MFS is **not larger** than the presented estimates, for those who participate fully. These results support the conclusion that, even for the sub-group of youth who participated for the full six months, the program was not successful in reducing the incidence of hazardous labor. Impact estimates for the majority of hazardous labor outcomes are small in size, not statistically significant, and the direction of the change is sometimes positive and others negative. The overall analysis of all the coefficient estimates across different samples suggest that there is no evidence that the MFS program had an impact on hazardous work practices

**Exhibit 16. TOT Estimates: Impacts on Hazardous Labor Outcomes for Individuals Reporting Participation for Full Six Months
(With Attrition Weights; Model 5)**

Variable	Hazardous Work Practices (1)	Work in Hazardous Locations (2)	Work in Hazardous Activities (3)	Work in Poor Conditions (4)	Use of Dangerous Products (5)	Use of Machinery/Tools (6)	Work in Dangerous Institutions (7)	Work which causes health issues/injuries (8)	Work without protective gear (9)
Lower Bound									
Compliance Indicator	0.000 [0.00%]	0.024 [2.69%]	0.009 [0.97%]	0.019 [2.30%]	0.009 [1.68%]	0.010 [1.02%]	-0.036 [-6.63%]	-0.0001 [-0.01%]	-0.029 [-8.69%]
Standard Error	(0.000)	(0.034)	(0.015)	(0.041)	(0.039)	(0.015)	(0.026)	(0.011)	(0.031)
Upper Bound									
Compliance Indicator	0.000 [0.00%]	0.044 [4.89%]	0.017 [1.77%]	0.034 [4.15%]	0.015 [2.99%]	0.018 [1.87%]	-0.066 [-12.14%]	-0.0001 [-0.01%]	-0.052 [-15.91%]
Standard Error	(0.000)	(0.062)	(0.028)	(0.074)	(0.070)	(0.027)	(0.048)	(0.020)	(0.059)
Observations	750	750	745	742	704	750	753	750	753
Control Group Mean	1	0.893	0.980	0.812	0.509	0.980	0.543	0.980	0.328

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

Insights from qualitative data reveal that youth engage in hazardous labor due to a continued lack of access to safe jobs. During the focus groups, when asked if they were currently participating in hazardous labor, youth from all five sites reported that they were, which is consistent with the quantitative survey findings. In every focus group discussion (male and female), the respondents described aspects of their current jobs that were hazardous, including exposure to fumes in brick making and metal work; carrying heavy loads; mining; dangerous construction work; and farming without using appropriate equipment. Some youth described having bosses who hit them, and some girls alluded to the risk of sexual harassment or assault. One girl explained that working in a hotel, “as a girl you may be in charge of preparing bedrooms, and sometimes it may be men’s bedrooms, this can get you into trouble.”

When asked why they participated in hazardous labor, all participants in the focus groups agreed that the main reason was lack of opportunity and that there were no other jobs available to them. One boy said, “When you find a job that buys you food and clothes and you’re sure that at home there is no food to eat, there is no reason for you not to do it even if the job is hazardous. If the jobs will give you an income, you do it.”

What prevents youth in your area from doing non-hazardous work?

“That’s the only kind of work that’s available.”

“There isn’t any other sort of jobs.”

“They don’t find any other opportunity.”

“You choose to stick with it because you can’t get any other sort of work.”

“We don’t have sufficient safe jobs.”

Most participants said they lacked the education and the financial means to avoid doing hazardous work. However, some youth said that education did not matter: one participant gave an example of a friend who took a tailoring vocational training (not through the MFS program), but still worked in agriculture because he did not have the means to purchase a sewing machine.

Other participants said that there were some alternatives to non-hazardous work (such as washing clothes or minding a shop), but that these jobs paid so little that most did not consider them valid employment options. One girl described the situation in her community: “It is because non-hazardous labor is in high demand and the pay is not that good. For example, sweeping floors at the district pays me 600 francs, while I gain 1200 francs working in bricks manufacturing. Poverty is the cause.”

Local leaders confirmed this, saying that in their regions, there were not enough non-hazardous jobs available. They said that most families lived in extreme poverty and needed all members to contribute to the household income, which led to children participating in hazardous labor. The youth in both the treatment and control groups who were engaged in hazardous labor said they would be interested in changing jobs if they had the financial means.

3.2 IMPACTS ON EDUCATION ASPIRATIONS

In this section we present the impact of the MFS program on the educational aspirations of treated youth. At baseline, the median level of education attained by participating youth was grade 6. The logic model hypothesizes that by exposing youth to safe work and by providing training to enable them to engage in alternative jobs, the program would raise their educational aspirations. To measure this, the endline survey asked youth about the highest level of education they aspired to achieve over their lifetime. Section 3.2.1 presents ITT estimates and Sections 3.2.2 and 3.2.3 present TOT estimates.

3.2.1 ITT Estimates

The results shown in the top panel of Exhibit 17 indicate that the MFS program had a positive (statistically significant) impact on the aspirations of youth to complete schooling through the senior secondary level (grades 10–12). However, once a correction for attrition bias is applied (shown in the bottom panel of the table), the effect size of this outcome variable is reduced from 7.1 percentage points to 6.4 percentage points, and the corresponding effect is no longer statistically significant. This suggests that the encouraging effects seen in models that do not correct for attrition bias may be driven by differences at endline between the two groups in the attrited sample.

Exhibit 17. ITT Estimates: Impacts on Education Aspirations for Individuals Assigned to Treatment

Variable	Complete Primary Level (grades 1-6)	Complete Junior Secondary/ Ordinary Level (grades 7-9)	Complete Senior Secondary/ Advanced Level (grades 10-12)	Complete Tertiary Level (college/ university)	Complete Vocational Training
Without Attrition Weights (Model 3)					
Treatment Indicator	0.003 [30.21%]	-0.010 [-25.19%]	0.071* [28.17%]	-0.007 [-4.01%]	-0.016 [-6.68%]
Standard Error	(0.008)	(0.018)	(0.035)	(0.030)	(0.034)
Observations	761	761	761	761	761
With Attrition Weights (Model 5)					
Treatment Indicator	0.002 [17.22%]	-0.008 [-20.18%]	0.064 [25.40%]	-0.012 [-7.15%]	-0.017 [-7.23%]
Standard Error	(0.008)	(0.018)	(0.037)	(0.029)	(0.035)
Observations	753	753	753	753	753
Control Group Mean	0.010	0.040	0.252	0.172	0.238

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Models 3 and 5 both include baseline characteristics and MFS site fixed effects. Model 5 additionally includes attrition weights to control for attrition bias.

In Appendix F3 (Exhibit 55) we look at the impact of MFS on the education aspirations of boys and girls separately (estimated for Model 5, with attrition weights). For the ITT sample, the MFS program did not have a significant impact on the education aspirations of youth of either sex.

3.2.2 TOT Estimates

TOT estimates for individuals who report participating in MFS, for any length of time, indicate that the MFS program had a significant impact on the aspirations of youth to complete senior secondary education. Exhibits 58 and 60 in Appendix F3 show that while this TOT impact is similar in size for both girls and boys, the effect is estimated more precisely (and is significant) for boys.

Exhibit 18. TOT Estimates: Impacts on Education Aspirations for Individuals Reporting Any Participation
(With Attrition Weights; Model 5)

Variable	Complete Primary Level (grades 1-6)	Complete Junior Secondary/ Ordinary Level (grades 7-9)	Complete Senior Secondary/ Advanced Level (grades 10-12)	Complete Tertiary Level (college/university)	Complete Vocational Training
Compliance Indicator	0.002 [19.74%]	-0.009 [-23.05%]	0.073* [28.97%]	-0.014 [-8.20%]	-0.020 [-8.24%]
Standard Error	(0.008)	(0.019)	(0.039)	(0.031)	(0.038)
Observations	753	753	753	753	753
Control Group Mean	0.010	0.040	0.252	0.172	0.238

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

3.2.3 TOT Estimates for Full Participation

In Exhibit 19 we present TOT estimates for individuals who report participating for the full six months in the MFS program. These results indicate that the treatment effect for aspirations to complete senior secondary education, lies between 7.3 and 13.4 percentage points, for those who fully participate. These effects are large and statistically significant at the 10 percent level. Exhibits 59 and 61 in Appendix F3 show that while the bound estimates are similar in size for both girls and boys, the effect is estimated more precisely for boys.

**Exhibit 19. TOT Estimates: Impacts on Education Aspirations for Individuals Reporting
Participation for Full 6 Months
(With Attrition Weights; Model 5)**

Variable	Complete Primary Level (grades 1-6)	Complete Junior Secondary/ Ordinary Level (grades 7-9)	Complete Senior Secondary/ Advanced Level (grades 10- 12)	Complete Tertiary Level (college/university)	Complete Vocational Training
Lower Bound					
Compliance Indicator	0.002 [19.74%]	-0.009 [-23.05%]	0.073* [28.97%]	-0.014 [-8.20%]	-0.020 [-8.24%]
Standard Error	(0.008)	(0.019)	(0.039)	(0.031)	(0.038)
Upper Bound					
Compliance Indicator	0.004 [36.05%]	-0.017 [-42.32%]	0.134* [53.17%]	-0.026 [-14.94%]	-0.036 [-15.08%]
Standard Error	(0.015)	(0.035)	(0.077)	(0.059)	(0.069)
Observations	753	753	753	753	753
Control Group Mean	0.010	0.040	0.252	0.172	0.238

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

The team also asked youth about their educational aspirations during the focus group discussions and whether the MFS program had influenced their views. Even though the responses varied, no one in the treatment group said that his or her educational aspirations were influenced in any way by participation in MFS. Several said that as long as they had a paying job, there was no need to continue their education; others said that they wanted to complete a university degree.

3.3 IMPACTS ON EMPLOYMENT ASPIRATIONS

In this section we present the impact of the MFS program on the employment aspirations of youth. To measure employment aspirations, youth were asked about the type of employment (e.g. farm or non-farm) that they would like to have in the next two years, about their aspirations regarding establishing their own business, and for working outside the village. ITT estimates are reported in Section 3.3.1 and TOT estimates are in Sections 3.3.2-3.3.3.

3.3.1 ITT Estimates

Exhibit 20 presents the impact of the MFS program on the work/employment aspirations of youth assigned to the treatment group. Over this period, their aspirations to pursue non-farm employment increased while the aspirations for farm jobs decreased. However, this change is not statistically

significant.⁵³ The MFS program had no impact on variables measuring whether youth would like to establish their own businesses or work outside the village.

Exhibit 20. ITT Estimates: Impacts on Employment Aspirations for Individuals Assigned to Treatment

Variable	Work in Non-Farm Jobs	Work in Farm Jobs	Not Work	Establish Own Business	Work Outside Village
Without Attrition Weights (Model 3)					
Treatment Indicator	0.052 [6.30%]	-0.049 [-32.24%]	-0.006 [-24.53%]	-0.020 [-2.34%]	0.014 [2.47%]
Standard Error	(0.035)	(0.032)	(0.011)	(0.029)	(0.037)
Observations	761	761	761	745	745
With Attrition Weights (Model 5)					
Treatment Indicator	0.052 [6.32%]	-0.051 [-33.55%]	-0.005 [-20.00%]	-0.016 [-1.84%]	0.010 [1.67%]
Standard Error	(0.032)	(0.030)	(0.011)	(0.028)	(0.037)
Observations	753	753	753	737	737
Control Group Mean	0.825	0.152	0.023	0.871	0.583

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Models 3 and 5 both include baseline characteristics and MFS site fixed effects. Model 5 additionally includes attrition weights to control for attrition bias. “Work in traditional farm jobs” and “work in modern farm jobs” have been combined into one variable—“work in farm jobs”.

Exhibit 56 in Appendix F3 looks at the impact of the program on employment aspirations, separately for girls and boys. The increase in aspirations to work in non-farm jobs and decrease in aspirations to work farm jobs is larger for girls as compared to boys. For girls, the increase in aspirations to work in non-farm jobs is significant, at the 10 percent level.

From the focus group discussions, we find that the reported aspirations of youth from both the treatment and control groups were very similar, ranging from wanting to continue in their current jobs to running their own businesses. Youth in the treatment group were asked if their aspirations had changed after participating in MFS, and most youth reported that they did not; as one girl said, “Having a business is something that I have wanted for a very long time. I have always been thinking about it [even before participating in MFS].”

⁵³ Only in Model 1 (Exhibits 47 and 48 in Appendix F2) is this impact statistically significant. Once site fixed effects are added, the effect size ceases to be statistically significant. The reason is that the inclusion of site-effects increases standard errors, even though the addition of site fixed effects (the stratification variable) would be expected to reduce standard errors and increase precision. This result likely occurred because, for this specific outcome, the addition of site fixed effects contributes less useful information to the regression relative to the loss in degrees of freedom on account of adding more variables.

3.3.2 TOT Estimates

As is evident in Exhibit 21, for the sub-group of individuals who report MFS participation, the effect size for the increase in aspirations to work in non-farm jobs is slightly larger in size as compared to the ITT estimate and is statistically significant. This also holds true for the decrease in aspirations to work in farming.

**Exhibit 21. TOT Estimates: Impacts on Employment Aspirations for Individuals Reporting Participation
(With Attrition Weights; Model 5)**

Variable	Work in Non-Farm Jobs	Work in Farm Jobs	Not Work	Establish Own Business	Work Outside Village
Compliance Indicator	0.060* [7.21%]	-0.058* [-38.29%]	-0.005 [-22.84%]	-0.018 [-2.10%]	0.011 [1.90%]
Standard Error	(0.035)	(0.032)	(0.012)	(0.031)	(0.040)
Observations	753	753	753	737	737
Control Group Mean	0.825	0.152	0.023	0.871	0.583

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

Corresponding to the ITT estimates, Exhibits 62 and 64 in Appendix F3, also support the conclusion that the impacts on employment aspirations seem to be driven by change in aspirations of girls rather than boys.

3.3.3 TOT Estimates for Full Participation

In Exhibit 22 we report lower and upper bounds on the impact of MFS on employment aspirations for youth who participate for the full six months. For aspirations to work in non-farm jobs, the true treatment effect lies between 6 to 10.9 percent points, and the corresponding bounds for decreased aspirations to work in farm jobs are similar in size. Exhibits 63 and 65 in Appendix F3 show that these effects are driven by girls' aspirations. The MFS had a smaller and non-statistically significant impact on boys' employment aspirations.

**Exhibit 22. TOT Estimates: Impacts on Employment Aspirations for Individuals Reporting Participation for Full 6 Months
(With Attrition Weights; Model 5)**

Variable	Work in Non-Farm Jobs	Work in Farm Jobs	Not Work	Establish Own Business	Work Outside Village
Lower Bound					
Compliance Indicator	0.060* [7.21%]	-0.058* [-38.29%]	-0.005 [-22.84%]	-0.018 [-2.10%]	0.011 [1.90%]
Standard Error	(0.035)	(0.032)	(0.012)	(0.031)	(0.040)

Upper Bound					
Compliance Indicator	0.109* [13.21%]	-0.107* [-70.39%]	-0.010 [-41.81%]	-0.033 [-3.82%]	0.020 [3.48%]
Standard Error	(0.062)	(0.058)	(0.022)	(0.055)	(0.073)
Observations	753	753	753	737	737
Control Group Mean	0.825	0.152	0.023	0.871	0.583

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

The majority of youth did not have agricultural related aspirations, meaning that the agricultural training did not affect their employment aspirations. However, some said that because of the MFS program, they saw farming as a means to invest in their future. For example, even though some youth had eventual plans to go into construction or business, they planned to start in agriculture. As one youth said, “Now I can plant fruits, carrots, or tomatoes... a person who didn't train with MFS would not understand the importance of planting those fruits and vegetables... I will make profit from it and get the money necessary for me to learn construction.” Not all youths thought this way, however, and the majority said “no” when asked if participating in MFS changed their employment aspirations. Moreover, many in the MFS program said that they were not connected with any work opportunities or apprenticeships, even though this was one of the key planned activities of the program.

3.4 IMPACTS ON LEVEL OF CONFIDENCE/LOCUS OF CONTROL

In this section we present the impact of the MFS program on two additional variables: (1) the level of confidence that youth have that they will be able to achieve their aspirational job, and (2) the extent to which youth believe they have control over their future. The first variable is a binary variable that takes a value of 1 if the youth states that his or her level of confidence is 5 or higher on a scale of 1–10. The second variable is a binary variable that takes a value of 1 if youth stated that they believe they have a lot of control over their future, rather than saying that they have a little/not much/no control. Section 3.4.1 presents ITT estimates and Sections 3.4.2 and 3.4.3 contain TOT estimates

3.4.1 ITT Estimates

In Exhibit 23, we present the impact of the MFS program on level of confidence/locus of control, for individuals assigned to the treatment group. The coefficient on the treatment indicator shows that the MFS program did not have an impact on the level of confidence or locus of control of the youth in the sample. This conclusion also holds for Models 1, 2, and 4 (see Appendix F2). Moreover, sub-group analyses by sex did not indicate any impacts for boys or girls (Exhibit 57 in Appendix F3).

Exhibit 23. ITT Estimates: Impact on Confidence/Locus of Control for Individuals Assigned to Treatment

Variable	Level of Confidence	Believe They Have A Lot of Control over Their Future
Without Attrition Weights (Model 3)		
Treatment Indicator	-0.016 [-2.47%]	-0.014 [-1.64%]
Standard Error	(0.040)	(0.032)
Observations	745	745
With Attrition Weights (Model 5)		
Treatment Indicator	-0.003 [-0.43%]	-0.021 [-2.45%]
Standard Error	(0.043)	(0.033)
Observations	737	737
Control Group Mean	0.647	0.864

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Models 3 and 5 both include baseline characteristics and MFS site fixed effects. Model 5 additionally includes attrition weights to control for attrition bias.

3.4.2 TOT Estimates

In Exhibit 24, we report the impact of MFS on youth who report participation. Impacts for this subgroup are also small in size and not statistically significant.

Exhibit 24. TOT Estimates: Impacts on Confidence/Control for Individuals Reporting Any Participation (With Attrition Weights; Model 5)

Variable	Level of Confidence	Believe they have a lot of control over their future
Compliance Indicator	-0.003 [-0.49%]	-0.024 [-2.80%]
Standard Error	(0.047)	(0.036)
Observations	737	737
Control Group Mean	0.647	0.864

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

3.4.3 TOT Estimates for Full Participation

In Exhibit 25, we report the impact of MFS on youth who report participation for the full six months. Conclusions are similar to those reported in Exhibits 23-24--impacts for this subgroup are also small in size and not statistically significant. Additionally, the upper bound estimates are also small in magnitude.

Exhibit 25. TOT Estimates: Impacts on Confidence/Control for Individuals Reporting Participation for Full 6 Months (With Attrition Weights; Model 5)

Variable	Level of Confidence	Believe they have a lot of control over their future
Lower Bound		
Compliance Indicator	-0.003 [-0.49%]	-0.024 [-2.80%]
Standard Error	(0.047)	(0.036)
Upper Bound		
Compliance Indicator	-0.006 [-0.89%]	-0.044 [-5.10%]
Standard Error	(0.085)	(0.064)
Observations	737	737
Control Group Mean	0.647	0.864

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

3.5 MECHANISMS OF CHANGE

3.5.1 Intermediate Outcomes

Although the MFS program had no impact on reducing the participation of youth in hazardous labor, the evaluation team used the qualitative data to explore whether the program increased youth's knowledge or changed their attitudes with respect to hazardous labor. To examine the casual assumptions (or mechanisms), the team specifically examined the three intermediate outcomes as conceptualized by the logic model (Exhibit 1):

- IO 1: Increased understanding and use of best practices in agriculture designed to protect against hazardous forms of child labor
- IO 2: Changed attitudes among youth ages 16-17 toward hazardous forms of child labor
- IO 3: Changed career and education goals

These three outcomes were mapped to the questions in the focus groups and interviews (Appendix H).

For the first intermediate outcome—youth would have increased their understanding of best farming practices, especially with respect to practices that are safe and not hazardous—there was some evidence

that this outcome was at least partially achieved. In general, best farming practices refer to productivity enhancing and sustainable farming strategies recommended for farmers. The MFS program aimed to teach youth not just about productivity enhancing farming practices but also practices that promoted safety. Youth reported increasing their understanding of productive farming practices, although not necessarily safer farming practices. The treatment youth in all five sites gave examples of agricultural skills learned in the MFS program, including crop rotation, seed spacing, fertilizer application, cultivation in both the dry and rainy seasons, and soil erosion prevention. Several participants (both girls and boys) said that the MFS training had a positive influence on their current farming practices, whether it was part of their job or for their home gardens. For example, crop rotation was mentioned by several youth, who reported being able to extend their growing season.

“Despite the fact that I trained in best farming practices, without a land to cultivate I still go to work in the mines” —Beneficiary youth

Some youth reported learning about improved farming practices, but because they had no land of their own, they were unable to use what they had learned. At one site, participants said that they were given a community field on which to practice their agricultural skills by growing cabbage, but livestock came in and ruined the entire crop. The community leader at this site confirmed this, saying that it happened because the field had no fencing.

While youth reported learning about farming practices that increased the productivity of their crops, there is no evidence that there was an increase in their understanding of farming practices that are safe and not hazardous. Youth in the treatment and control groups seemed to be already knowledgeable about what constituted hazardous labor and were aware that farming can be dangerous. Youth in both groups gave examples of hazardous working conditions, including getting injured by equipment, carrying heavy loads, and getting burned by fertilizer. No one in either group was able to give examples of using safe farming practices other than to say that they sometimes took breaks when they were tired or reduced the weight for their loads. For instance, while youth in the treatment group reported learning how to apply fertilizer, they did not mention learning how to apply it safely, although this question was not specifically asked in the focus groups. In terms of behavior, both treatment and control group youth responded similarly: they tried to avoid hazardous work where possible, but it was not always possible.

“We can’t say that it didn’t change anything, because some were taught the best farming practices, they learned modern farming techniques. But they didn’t learn about the hazardous jobs. There nothing changed because it ended before they could cover all that.”

—Local leader

For the second intermediate outcome—a change in attitudes toward hazardous forms of labor—no differences were observed between youth in the treatment and control groups. In both groups, youth clearly understood that they had at some point participated in hazardous labor, and many stated that they currently participated in hazardous work. Youth in the treatment and control groups were able to articulate this, even before being prompted by the focus group facilitator. When prompted, youth did not report taking any steps to make their job safer, or to confront their boss if asked to do something unsafe.

Many youth said that they were hesitant to speak up at work because they were expected to do their jobs without complaining. They said they had no option but to endure unfavorable working conditions.

The third intermediate outcome—youth would be inspired by the MFS training they received and raise their career and educational goals—was also not evident in the qualitative data. As was described in greater detail in Sections 3.2 and 3.3, there was no difference between the educational and employment aspirations of focus group youth in the treatment and control groups, and the majority of youth stated that their employment aspirations were not influenced in any way by their participation in MFS. The main reason is that youth in this cohort received just the agricultural training component, and most youth stated that they were interested in non-farming careers. Therefore, for the majority of youths in our focus groups, the agricultural training did not affect their employment aspirations. However, as described in Section 3.3, some youth said they would use the agricultural skills to find work as an intermediary towards another career.

3.5.2 Activities

As there is no evidence that the intermediate outcomes were achieved, we examined program activities and delivery. This adds clarification on whether program delivery influenced the lack of change in intermediate outcomes and eventual impacts. When looking at the mechanisms of change, it is essential to look at the entire logic model, to see what role inputs and activities have in explaining the achievement (or non-achievement) of the desired outcomes. The MFS program activities are conceptualized by the logic model (Exhibit 1), and include:

1. Agricultural training for youth ages 16-17
2. Practicums to introduce youth ages 16-17 to technology in high-value sectors and off-farm vocations
3. Train youth ages 16-17 on safe working conditions and consequences of hazardous work
4. Provide youth ages 16-17 with safety kits and protective gear
5. Link youth ages 16-17 to other donor funded programs and opportunities such as other vocational training or work readiness programs

Although we do not have monitoring records from Winrock and FERWACOTHE to confirm the activities or length of the program, during the site visits in January 2017 Winrock and FERWACOTHE staff indicated that not all sites conducted the full six months of training, nor included all the planned activities. This is in line with the qualitative information collected during the focus groups with youth participants and interviews with local leaders. All five sites in the qualitative sample had a planned duration of six months. However, only at three sites youth participants said they received the full six months of training. Average self-reported length of program participation for each site (from quantitative survey data) is also compared to the planned duration of training, in Appendix G. Even though self-reported participation does not directly indicate actual duration of the program, it provides suggestive evidence of it. These data also support the notion that actual length of program delivery may have been shorter than the planned

duration. For the two sites in the qualitative sample that did not actually have six months of program implementation, the youth and local leaders said that it was not due to lack of attendance of youth, but that the program stopped after three months. They could not explain why this was the case, because many had expected it to be a longer program.

In terms of the MFS activities, our qualitative interviews show evidence that for the first activity of the program, agricultural training, youth in all five sites reported receiving agronomy based training on aspects such as seed spacing, crop rotation, fertilizer application, etc., although they do not report receiving training on the agri-business aspects of the MFS program, such as food processing, honey production, baking, or juice processing.

For the fourth activity – providing youths with safety kits and protective gear – youth in the MFS program reported that they were promised safety materials, including protective gear (clothes and gloves) and equipment, but most reported either never receiving it or not having enough for their group. Many said that the equipment had to be kept on site and that they were not allowed to use it for their own work. In four sites, participants reported being given protective gloves and other gear, but said that it was of very poor quality and deteriorated within a few weeks. One participant said that his protective gear tore by the time he brought it home on the first day. In another site, participants joked that the protective clothing “had a guarantee of forty minutes.”

Some youth did acknowledge benefiting from boots, specifically at one site where it appeared that the boots were of higher quality than the gloves or clothing. However, at another site where boots were distributed, the boys reported that they fell apart within four months. At this site, the students were not measured or asked for their shoe size, and all boots distributed were in one size only, which made them the wrong size for most participants. At yet another site, the female participants said they were promised boots, but never received them.

It appears from our discussions with program participants that the second, third, and fifth activities did not take place (practicums, training on safe working conditions, and linkages to vocational training).

Local leaders indicated that there was tension in several communities because youth in MFS Cohort 1 and Cohort 2 received 12 months of training. This additional six-month period was devoted to vocational training, which is what the youth enrolled in Cohort 3 of MFS were expecting. Many local leaders and youth participants did not know why the vocational training was canceled, and, in fact, many were still waiting for it to happen. Most youth were very disappointed and confused about why they did not receive the additional training that was promised to them. The local leaders were also confused, with one saying, “The project then abruptly terminated operations, and we don’t know what prompted them to close.”

Our interviews in 2017 with Winrock/FERWACOTHE staff align with what the youth participants said. The implementing partners confirmed that the youth in Cohort 3 did not receive any vocational training, even though it was promised. The REACH-T final evaluation report also highlights in detail the strong preference that youth had for vocational training and the disappointment that youth from the evaluation cohort felt when they were not offered vocational training. As one beneficiary said, “we were very deceived as we

had projected to get a lot from the vocational training.” As mentioned in Section 3.3, as most youth were interested in non-agricultural work, this lack of vocational training may explain why there were no increases in employment aspirations.

Chapter 4: Conclusion

We conclude by summarizing the main findings of this report and discussing some limitations of the study to bear in mind.

4.1 SUMMARY OF FINDINGS

The main findings from the impact evaluation are as follows:

1. Among youth who were randomized to participate of the MFS program, the intervention had no impact on their engagement in hazardous labor, their employment and education aspirations, their confidence to achieve future goals, or their locus of control. These ITT results measure the impact of offering MFS training, as opposed to actual participation.
2. Because the program had imperfect compliance, we also conduct TOT analysis, which indicate that while the program did not impact hazardous labor outcomes, youth's level of confidence or locus of control, it did have statistically significant impacts on education and employment aspirations. In particular, there is evidence that the program increased aspirations of youth to pursue senior secondary education and non-farm jobs. This is true both for youth who report any participation in the MFS program and youth who report participating for the full six months.
3. Sub-group analysis by sex reveals that increase in non-farm aspirations for youth, and a corresponding decrease in farm aspirations, are driven by changes in aspirations of girls. Effect sizes showing impact on aspirations for attaining senior secondary education are similar in size for both girls and boys, but are statistically significant only for boys.
4. Qualitative data were used to explore the program's logic model and investigate mechanisms of change. Using data from focus groups and interviews, we examined both program outcomes and activities.
 - a. **Program Intermediate Outcomes:** While youth report learning about improved farming/agronomy practices like crop rotation, seed spacing, and soil erosion prevention, there was no evidence that there was an increase in the treatment group's understanding of practices that are safe and not hazardous. No respondent in either group was able to give examples of safe farming practices, other than to say that they sometimes took breaks when they were tired or reduced the weight for their loads. Both treatment and control group youth showed a similar understanding of what constitutes hazardous work, indicating that youth had a good understanding of this prior to MFS. Similarly, both treatment and control groups acknowledged that the work they do is hazardous but did not say they would make any adjustments in their current work, including speaking up to their bosses about harassment. This indicates that the MFS program may not have

influenced attitudes and behaviors towards hazardous labor. No differences in the educational and employment aspirations of youth were evident in the focus group discussions. A majority of the intervention youth stated that their employment aspirations were not influenced in any way by their participation in MFS, in large part because most youth aspired for non-farming careers.

- b. **Program Activities:** In terms of delivery of program activities, focus group youth report that they did not receive training on agri-business and off-farm employment opportunities and nor did they receive linkages to other vocational training opportunities. While some youth do report receiving protective gear, they claimed that it was of poor quality. Many youth report not receiving protective gear. Additionally, in 2 out of 5 sites, youth and local leaders report that the program was conducted for a shorter duration than the initially promised six months. Self-reported data supports the notion that the program was implemented for a shorter duration than planned.

4.2 STUDY LIMITATIONS

This study benefited from the robustness of a randomized controlled trial design. However, some potential limitations are noted below.

First, the MFS program offered to the cohort evaluated in this study had important components that were not delivered. This has been previously documented in the Final Evaluation Report of the REACH-T program and was mentioned by youth and other stakeholders during our qualitative data collection. As a result, this evaluation only measures the impacts of the program as it was implemented and does not evaluate the effectiveness of MFS as a broader intervention or concept.

Second, the program had some imperfect compliance. Only 48.6 percent of the treatment group youth reported participating for the full six months, which was the original planned duration of the program. Another potential concern is that some contamination of the control group was observed. The data indicate that about 5.3 percent of control group youth reported attending the MFS classes. We account for this two-sided non-compliance using an IV estimation approach and present impacts on those who actually participate, and those who participate for the full six months. For the latter sub-group, it is not possible to obtain unbiased point estimates, in place of which we present lower and upper bounds on the treatment effect of full participation. One limitation of the TOT analysis is that program compliance is based on self-reported data rather than program records/attendance books.

Third, some control group youth (5.9 percent or 18 out of 302) also report participating in non-MFS trainings. We estimate our main regressions excluding these youth and find that our results remain virtually identical, indicating that participation of control group youth in other trainings does not drive the muted intervention effects observed.

Fourth, the team had planned to conduct a midline survey in 2017, but in consultation with ILAB this round of data collection was canceled due to extensive delays in obtaining in-country clearances for the survey.

For this reason, the team was only able to collect endline data about 17 months after the end of the MFS program. This may have affected the precision of the information collected because of the long recall period. The long recall period may be especially problematic for data collected on aspirations and behavioral aspects such as confidence/control, since these variables are more likely to be impacted in the shorter term. It also became more difficult to track the study participants after the end of the program. In particular, the team was not able to track about 20 percent of the baseline sample. The analysis found that attrition was relatively similar between the treatment and control groups overall, although there were differences by site. The robustness checks that account for possible bias because of attrition suggest that the results are generally robust to the presence of attrition. Finally, not having midline data prevented the team from identifying any short-term effects that may have existed.

Fifth, focus groups were conducted several months after the completion of the program, which may have affected the accuracy of participants' perspectives on the MFS intervention. In addition, there were some difficulties in recruiting youth, which resulted in focus groups that were somewhat smaller than anticipated. Finally, it is important to keep in mind that experiences of youth who agreed to participate in the focus group may not necessarily reflect the experiences of the overall intervention population. Youth for the focus group were selected based on convenience sampling with only 5 out of the 15 sites being represented in the focus groups.

Lastly, it is important to keep in mind that the statistics obtained from the sample of the sites/districts included in the evaluation are not necessarily nationally or regionally representative. Although the issues raised are potentially relevant to similar training programs with the objective of reducing hazardous child labor, the specificity of the population targeted by the program and by the evaluation means that the results of this study may not be readily applicable to other contexts.

Appendix A: Endline Survey

COVER – Identifiers and Information to Assist in Collecting Endline Surveys

- a. Have you collected a written consent form signed by the respondent?

Yes [] [→“please give the consent form to your supervisor at the end of the interview”]

No [] [→instrument should not proceed to next question. The error message “please collect informed consent before you proceed. Do not conduct interview without consent!” will appear]

- b. Date of Interview: _____

- c. Time Started: _____ AM/PM

- d. Time Ended: _____ AM/PM

- e. Coordinator ID: [please select one]

- f. Enumerator ID: [please select one]

- g. Respondent ID: [please enter]

- h. Screening Question I: Enumerator, does the respondent have any official piece of identification (ID) to show?

☐1 Government ID (**go to 7.1**)

☐2 Health Insurance ID (**go to 7.1**)

☐3 Other ID (please specify) (**go to 7.1 after specifying**)

☐4 No ID (**go to 8**)

7.1 Is the name on the ID same as [pre-loaded name] or name on consent form? Does the picture on the ID match the respondent's face?

Yes [**go to 8**]

No [An error message “it is possible that this is not the same person as we interviewed at baseline. Please talk to your supervisor and resolve the issue before proceeding” will appear]

- i. Screening Question II: Enumerator, please ask the respondent for their father's name. Confirm it is same as below:

[Father's name pre-loaded from baseline]

- j. Screening Question III: Enumerator, please ask the respondent for their mother's name. Confirm it is same as below:

[Mother's name pre-loaded from baseline]

Do they match?

Yes [→continue to question 10]

No [→An error message “it is possible that this is not the same person as we interviewed at baseline. Please talk to your supervisor and resolve the issue before proceeding” will appear]

k. Full name [pre-loaded name appears, matched on respondent ID]:

o Is this still your name?

Yes [] continue to question 11

No [] continue to question 10.2.

o If your name has changed, please tell me your full name now _____

l. Based on the information we collected at baseline we would like to confirm whether you still live in the same place:

11.1 [pre-loaded information appears, matched on respondent ID]

a. District [Pre-loaded from baseline]

b. Sector [Pre-loaded from baseline]

c. Cell [Pre-loaded from baseline]

d. Village [Pre-loaded from baseline]

Do you still live here?

Yes [] continue to question 12

No [] continue to question 11.2

11.2 Please tell me where you live now

a. Province [select one]

b. District [select one]

c. Sector [select one]

d. Cell [enter text]

e. Village [enter text]

m. Address: [Pre-loaded address appears, matched on respondent ID]

12.1 Is this address still where you live?

Yes [] continue to question 13

No [] continue to question 12.2

12.2 Please tell me what address you live in now _____

n. What is the closest trading center to your home?

o. Do you own a phone? ☐₁ Yes (**go to 15**) ☐₂ No (**skip to 16**)

15a. What is your phone number? _____

15b. Please tell me your phone number again: _____

10 What is the name and phone number of another person we can contact if we need to reach you?

Name _____

Phone number _____

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

☐₁ Father

☐₂ Mother

☐₃ Nephew/Niece

☐₄ Godchild

☐₅ Husband/Wife

☐₆ Self

☐₇ Sister/Brother

☐₈ other (specify): _____

DEMOGRAPHICS – Respondent Demographic Information

D1a. Do you know your date of birth?

☐₁ Yes (**go to D1a1**)

☐₂ Don't know

D1a1. What is your year of birth? **[ENTER]** ☐₈ Don't know (**go to D1b**)

D1a2. What is your month of birth? **[SELECT]** ☐₈ Don't know (**go to D1b**)

D1a3. What is your day of birth? **[ENTER]** ☐₈ don't know (**go to D1b**)

D1b. How old, would you say, you are today? **[ENTER AGE - 2-digits (build in a constraint <21)]**
Get estimate if necessary.

D2. Are you currently attending school?

☐₁ Yes (**go to D3a**)

☐₂ No (**skip to D4**)

D3a. What grade or class are you attending? (**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

☐15 College/University

☐88 Don't know

D3b. Did you miss any school days during the LAST WEEK when school was open and classes were being held?

☐1 Yes → How many days did you miss school last week? _____ (RECORD DAYS MAX=5)

☐2 No

> Go to A1

D4. What is your **main** reason for not currently attending school? (DO NOT READ RESPONSES)

D4v: CAPTURE VERBATIM RESPONSE AND THEN CODE REASON AT TIME OF INTERVIEW.

☐1 I am not interested in school

☐2 I am 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 (please specify)

ASPIRATIONS – Respondent’s Lifetime Education Aspirations and Work-Related Goals and Aspirations in Next Two Years

A1. Now, I have a question about your lifetime education aspirations. **Over your lifetime**, what is the highest level of education you would 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. NOTE, STUDYING IS NOT PART OF THIS QUESTION AND IF RESPONDENT SAYS THAT, THEN PROBE FOR, WHAT KIND OF JOB, IF ANY? IF THE RESPONDENT ANSWERS THAT HE/SHE WOULD LIKE TO BE STUDYING PLEASE MARK OPTION 3.)**

☐₁ Farming

☐₂ Non Farming

☐₃ Do not want to work in the next two years

1. **IF 1 – GO TO A2a**
2. **IF 2 – GO TO A2b**
3. **IF 3 – GO TO NEXT SECTION (W1)**

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

A2b. Non-Farming:

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

☐₁₆ Government job

☐₁₇ Mechanic

☐₁₈ Tailoring

☐₁₉ Masonry

☐₂₀ Carpentry

- ☐₂₁ Child care
- ☐₂₂ Trade/business
- ☐₂₃ Hair Braiding
- ☐₂₄ Driver
- ☐₇₇ Other (specify) _____

A3. At this job that you would like to have in two years' time, would you like to 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, 5="Somewhat confident," and 10="Very confident, meaning I am completely sure I will have that job in 2 years, how confident are you that you will have that job you 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
- ☐3 Not much control
- ☐4 No control

WORK – Respondent’s Work Information

I AM NOW GOING TO ASK YOU ABOUT YOUR WORK ACTIVITIES IN THE NEXT SET OF QUESTIONS. THE ACTIVITIES YOU DID MAY HAVE HELPED YOU EARN MONEY OR RECEIVE OTHER BENEFITS (I.E. IN EXCHANGE OF FOOD, SHELTER). IT IS POSSIBLE THAT YOU WERE NOT PAID FOR DOING THESE ACTIVITIES, BUT THEY STILL COUNT AS WORK IF THE ACTIVITIES INCLUDE, FOR EXAMPLE, HELPING THE FAMILY IN THE PRODUCTION OF FOOD, CROPS OR ANY OTHER GOODS, OR HELPING WITH THE FAMILY SHOP/ BUSINESS.

W1a. During the **past week**, did you undertake any tea or other farming activities? **(Check all that apply)**

- ☐1 Yes – tea farming
- ☐2 Yes – Coffee farming
- ☐3 Yes – Rice farming
- ☐4 Yes - Cultivate or harvest other agricultural products
- ☐5 No

ENUMERATOR: CONSISTENCY CHECK. THE RESPONDENT CANNOT RESPOND BOTH YES AND NO

If ANY YES > **Go to W1c**

If NO > **W1b**

W1b. During the **past 12 months**, did you undertake any tea or other farming activities? **(Check all that apply)**

- ☐1 Yes – tea farming
- ☐2 Yes – Coffee farming
- ☐3 Yes – Rice farming
- ☐4 Yes – Cultivate or harvest other agricultural products
- ☐5 No

ENUMERATOR: CONSISTENCY CHECK. THE RESPONDENT CANNOT RESPOND BOTH YES AND NO

If ANY YES > **Go to W1c**

If NO > **W1d**

W1c. Which of the following tasks did you **usually** do while farming? (**READ RESPONSES - Check all that apply**)

- ☐a Plucking
- ☐b Pruning
- ☐c Weeding
- ☐d Applying or spraying fertilizers or other chemicals
- ☐e Carrying large loads (probe: heavier than a bucket of water)
- ☐f Fetching firewood or dry tea leaves
- ☐g Hoeing/planting
- ☐h Tilling land
- ☐i Constructing roads in the farm
- ☐j Cultivating crops
- ☐k Harvesting
- ☐l Other (specify) _____

W1d. I am now going to read out a list of other activities people often do. **READ DOWN THE LIST OF ACTIVITIES**

#	W1d1. During the past week , did you undertake any of the following activities? CODE AS <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No	W1d2. If answered NO in W1d1 ask the following: during the past 12 months , did you undertake any of the following activities? CODE AS

		<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No For any answer, go to next activity down in W1d1 If Yes >> next activity down If No >> W1d2
16. Take care of infants with parents on tea plantations or during other types of farming activities		
17. Washing or cleaning for someone else on casual basis		
18. Work as a domestic servant in someone else's home		
19. Fetching firewood/water		
20. Herding livestock		
21. Catch or gather fish for sale		
22. Prepare food, clothes or handicrafts for sale		
23. Serve food/nonalcoholic drinks in eatery/restaurant		
24. Serve alcoholic drinks in bars/other institutions		
25. Sell articles, newspapers, drinks, food or agricultural products.		
26. Repair bikes/Motor/TV/radio/watch/ tools or equipment for someone else for payment		
27. Cleaning cars or motorbikes for someone else for payment		
28. Transport of people (on bikes, moto)		
29. Transportation of goods to market or for storage (for sales)		

30. Construction, maintenance of buildings, homes for someone else, offloading stones, demolition work		
31. Brick/tiles-making/carrying		
32. Mining and quarrying activities (stones, sands, lime...)		
33. Charcoal making		
34. Collecting scrap metal		
35. Trading across borders		
36. Land clearing or tree sizing		
37. Draining of marshland		
z. Other work activities specify which ones _____		

IF ANY YES in **W1a** OR ANY YES in **W1d1**: continue to W2

IF (NO in **W1a** AND ALL NO in **W1d1**) AND (ANY YES in **W1b** OR ANY YES in **W1d2**): GO to **HAZARDOUS WORK SECTION (HW1)**

IF NO in **W1a** AND NO in **W1b** AND ALL NO in **W1d1** AND ALL NO in **W1d2**: GO to **SECTION V (TRAINING)**

W2. Now, I have some questions about the work activities that you did in the **last week**. Make sure to consider all activities done last week you mentioned earlier.

NOTE FOR THE ENUMERATOR: MAKE SURE THE RESPONDENT CONSIDERS ALL WORK ACTIVITIES FOR WHICH THE RESPONDENT SELECTED ANY "YES" IN **W1A** OR ANY YES IN **W1D1**

<p>W2a. How many hours did you spend on each day last week across all these activities?</p> <p>a. Monday (RECORD HOURS)</p> <p>b. Tuesday (RECORD HOURS)</p> <p>c. Wednesday (RECORD HOURS)</p> <p>d. Thursday (RECORD HOURS)</p> <p>e. Friday (RECORD HOURS)</p> <p>f. Saturday (RECORD HOURS)</p>

g. Sunday (**RECORD HOURS**)

W2b. At what time did you usually start working last week? (Record start time in 24:00 format)

W2c. At what time did you usually finish working last week? (Record end time in 24:00 format)

W2d. Were you paid in kind, with cash or with both?

☐1 In-kind only

☐2 Cash only

☐3 Both

☐4 Not paid

W3. At which of the following times did you work **last week**? Please include any hours that you worked during weekdays (Monday through Friday) and on weekends (Saturday and Sunday). (**READ RESPONSE CATEGORIES - Check all that apply**)

☐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)

HAZARDOUS WORK: Respondent's Hazardous Work Status

I AM NOW GOING TO ASK YOU A SET OF QUESTIONS ABOUT CONDITIONS YOU MAY HAVE FACED WHILE WORKING OVER THE PAST 12 MONTHS. PLEASE CONSIDER ALL WORK, EVEN IF YOU WERE NOT PAID.

HW1. Now, I am going to read you out a list of items. On a scale of 1 to 10, where 1 means “Never” while working, 10 means “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 protective wear when you were **working either for pay or without pay?** Would you say [READ CATEGORIES]

1-10=“Never” to “Everyday” I wear

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

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 working either for pay or without pay?**

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 either for pay or without pay**. 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 your jobs?

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. Conditions of very high or cold temperatures (consider only extreme temperature created by a particular activity and not outside temperature)
- 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 such as fertilizers, pesticides, glue etc.
- 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 activities **while working either for pay or without pay**.

Would you say [READ RESPONSE CATEGORIES]

1-10=“Never” to “Everyday” while working

- a. Back or muscle pains
- 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? (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 either for pay or without pay?**

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

TRAINING- Modern Farm Schools or other training

V0. Group T or Group C Youth [Pre-loaded; instrument pulls out T or C recorded at baseline based on respondent ID]

V1. [GROUP T ONLY] Since **(FEBRUARY 2016)**, have you attended the **WINROCK-FERWACOTHE Model Farm School Program** classes?

☐₁ Yes

☐₂ No (**go to V3**)

V1a. [GROUP T ONLY] Did you complete the Model Farm School program?

- ☐ ₁ Completed the agricultural part only
- ☐ ₂ Completed the vocational skills training component only
- ☐ ₃ Completed both the agricultural part and vocational skills training component
- ☐ ₄ Did not complete the MFS program

V1b. How long did you participate in the Model Farm School program?

- ☐ ₁ Less than 1 week
- ☐ ₂ More than 1 week, but less than 1 month
- ☐ ₃ More than 1 month but less than 3 months
- ☐ ₄ More than 3 months but less than 6 months
- ☐ ₅ 6 months

V1c. When in 2016 did the training take place?

- ☐ ₁ Start Month in 2016: [record month]
- ☐ ₂ End Month in 2016: [record month]
- ☐ ₃ Don't remember

V1d. At which site did you participate in MFS training? [select one]

- ☐ ₁ Nyamagabe district, Buruhukiro sector
- ☐ ₂ Nyamagabe district, Gatare sector
- ☐ ₃ Nyamagabe district, Nkomane sector
- ☐ ₄ Nyamagabe district, Uwinkingi sector
- ☐ ₅ Nyaruguru district, Ruheru sector
- ☐ ₆ Nyaruguru district, Nyabimata sector
- ☐ ₇ Nyaruguru district, Muganza sector
- ☐ ₈ Rusizi district, Nkungu sector
- ☐ ₉ Rusizi district, Giheke sector

- ☐10 Rusizi district, Kamembe sector
- ☐11 Karongi district, Rugabano sector
- ☐12 Karongi district, Mutuntu sector
- ☐13 Karongi district, Gashali sector
- ☐14 Ngororero district, Kavumu sector
- ☐15 Ngororero district, Muhanda sector
- ☐16 Other (please specify)

V2. [GROUP T ONLY] Did you receive any help finding a/another job while you were attending the Model Farm School Program?

- ☐1 Yes
- ☐2 No

V3. [GROUP T ONLY] Since (FEBRUARY 2016), have you attended any other vocational training, other type of training or received some other type of technical assistance programs different from what was provided by the Model Farm School?

- ☐1 Yes (go to V3a)
- ☐2 No (go to X1)

V3a. [GROUP T ONLY] What organizations provided this other training or programs? [check all that apply]

- ☐1 Save the Children
- ☐2 Other specify _____
- ☐99 Do not Know

Enumerator Comment Function (Optional)

X1. Enumerators: Please use the space below to enter any comments about any problems you faced when entering the data, or something that the respondent mentioned, which could be useful for this analysis.

Ends survey for treatment group, see next page for control group**V4. [GROUP C ONLY]** Since **(FEBRUARY 2016)**, have you attended any vocational training, other training or received some technical assistance programs?

☐1 Yes **(go to V4a)**

☐2 No **(go to X1)**

V4a. [GROUP C ONLY] What organizations provided vocational training, technical assistance or other training? **[Check all that apply]**

☐1 WINROCK-FERWACOTHE Modern Farm School **(go to V4b)**

☐2 Other specify _____ **(go to X1)**

☐99 Do not Know **(go to X1)**

V4b. How long did you participate in the Model Farm School program?

☐1 Less than 1 week

☐2 More than 1 week, but less than 1 month

☐3 More than 1 month but less than 3 months

☐4 More than 3 months but less than 6 months

☐5 6 months

V4c. When in 2016 did the training take place?

☐1 Start Month in 2016: **[record month]**

☐2 End Month in 2016: **[record month]**

☐3 Don't remember

V4d. At which site did you participate in MFS training? **[select one]**

☐1 Nyamagabe district, Buruhukiro sector

☐2 Nyamagabe district, Gatara sector

☐3 Nyamagabe district, Nkomane sector

☐4 Nyamagabe district, Uwinkingi sector

- ☐ ₅ Nyaruguru district, Ruheru sector
- ☐ ₆ Nyaruguru district, Nyabimata sector
- ☐ ₇ Nyaruguru district, Muganza sector
- ☐ ₈ Rusizi district, Nkungu sector
- ☐ ₉ Rusizi district, Giheke sector
- ☐ ₁₀ Rusizi district, Kamembe sector
- ☐ ₁₁ Karongi district, Rugabano sector
- ☐ ₁₂ Karongi district, Mutuntu sector
- ☐ ₁₃ Karongi district, Gashali sector
- ☐ ₁₄ Ngororero district, Kavumu sector
- ☐ ₁₅ Ngororero district, Muhanda sector
- ☐ ₁₆ Other (please specify)

Enumerator Comment Function (Optional)

X1. Enumerators: Please use the space below to enter any comments about any problems you faced when entering the data, or something that the respondent mentioned, which could be useful for this analysis.

Ends survey for control group

Appendix B: Child Labor Definitions and Mapping to Baseline and Endline Surveys

The evaluation team used the same definitions of hazardous child labor definitions (HCL) used by the REACH-T project to conduct the “Baseline Prevalence Study on Child Labor in Tea-Growing Areas in Rwanda” (August 2015), including adjustments the REACH-T project made to the definitions to ensure the data more accurately reflected the local economic context. These definitions align with international guidelines for measuring hazardous child labor, as well as current Rwanda labor legislation (Law Regulating Labor in Rwanda, No. 13/2009 and Ministerial Order No. 06 of 13/07/2010).

Specifically, a youth is considered to be in HCL if he or she works in hazardous locations, performs some hazardous activities, works in hazardous conditions, uses hazardous products, uses any tools or machinery considered hazardous, or works in institutions considered hazardous (more details about each category are provided in the next section, “HCL definitions”).

At baseline, the team measured HCL because all the youth were younger than 18. However, youth who were 16 to 17 years of age at the outset of the MFS training (February 2016) were not minors at the time of the endline survey. About 97 percent of the youth were 18 to 20 years of age at endline. Therefore, at endline the team did not measure hazardous child labor per se, but rather hazardous work practices.

The definition of hazardous labor (HL) is based on the HCL definition of the REACH-T project and on Rwandan legislation. There are two main differences in the way the evaluation team measured HL for youth 18 years of age or older: (a) if youth worked more than 45 hours a week (rather than 40 hours per week) they were considered to be engaged in hazardous work. This is based on the regulation of normal working hours according to Rwandan legislation;⁵⁴ and (b) youth are considered to be in hazardous work if they do not have a weekly rest, which is also based on the regulation of normal working hours. (For more detail, see the definition of “Conditions” below).

In addition, the evaluation team created an indicator specific to the MFS project. The MFS program aimed to provide students with protective gear that was meant to increase their safety so that they could continue engaging in agricultural work, but under acceptable conditions. Thus, the team developed statistics about the prevalence of youth who were engaged in hazardous agricultural activities without the use of protective gear.⁵⁵

⁵⁴ Official Gazette of the Republic of Rwanda, Year 18, May 27, 2009. Law Regulating Labour in Rwanda. Kigali, Rwanda: Government of the Republic of Rwanda.

⁵⁵ Protective gear includes gloves, nose/gas masks, boots, and other protective clothing.

HCL Definitions

The study used the following categories to define HCL (differences at endline are also indicated):

- **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 (excluding 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 (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 outside 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/tile 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. At endline the evaluation team used the threshold of 45 hours per week based on the regulation of normal working hours.
 - Work performed during school hours.⁵⁶
 - Work performed at night between 8:00 p.m. and 6:00 a.m.

⁵⁶ Not applicable to the target population.

- Work performed without resting for a minimum of 12 consecutive hours between two working periods for employed children between 16 and 17 years old. There is no minimum rest across working periods for adults, but a weekly rest is necessary for all workers under Rwandan law. This rest must not be less than 24 consecutive hours per week and normally occurs on Sunday. At endline, the evaluation team used the definition for adults since the youth were no longer minors.⁵⁷
 - Unsanitary work or laborious work.
 - Bad relations with the employer (too much work, working period too long, 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.
- **Use of Products (Work using products that can affect youth's health)**
 - Work that requires children to use fertilizers and pesticides.
 - Work that requires children to use other substances or agents damaging to children's health.
- **Use of Hazardous 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 the following: circular 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 do not have protective parts to avoid contact with such parts in motion.
- **Institutions (Work in institutions that are considered dangerous to the health of youth)⁵⁸**
 - Institutions that produce and sell alcoholic drinks.
 - Construction institutions.
 - Brick and tile manufacturing institutions.

⁵⁷ Official Gazette of the Republic of Rwanda, Year 18, May 27, 2009. Law Regulating Labour in Rwanda, Article 52.

⁵⁸ Rwandan legislation makes a distinction between institutions that are considered the worst forms of employment (pornography, mining, slaughtering of animals, etc.) and those that are 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 the scope of work. The present study maintains this distinction.

4 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 having 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.

Exhibit 26. Mapping of Child Labor Definitions to Baseline and Endline Survey Questions

HCL Categories	Baseline Survey Question ⁵⁹	Baseline Survey Responses – HCL/HL	Endline Survey Question	Endline 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. At least one response 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).	HW3. I am now going to read out a list of things you may have come across while working either for pay or without pay.... How often in the LAST 12 MONTHS you were exposed to any of these at any of your jobs?	1. At least one response A through L (if greater than 1) (see Activities for item M): 1.1. Response A (dust, fumes) is considered HL only if exposure happens in a non-agricultural context ⁶⁰ (responses to W1a = NO, W1b = NO, W1d1(e)=NO, W1d2(e)=NO). 1.2. Response D (cold/heat) is considered HL only in extreme (not outside) temperatures, that is, in a non-agricultural context (responses to W1a = NO, W1b = NO, W1d1(e)=NO, W1d2(e)=NO, W1d1(f)=NO, W1d2(f)=NO).

⁵⁹ The baseline survey is not attached to the current report but can be found in the baseline report submitted by IMPAQ.

⁶⁰ This qualification is a refinement of a decision stated in the report REACH-T Baseline Prevalence Study on Child Labor in Tea Growing Areas in Rwanda (August 2015), which was made in consultation with Winrock and MIFOTRA, that exposure to extreme cold/heat as well as dust/fumes would be excluded from HL definitions because youth in Rwanda usually think of these conditions as pertaining to the outdoor environment, which is not “hazardous” in the traditional sense of the word. The refinement was based on the decision not to simply exclude all exposure to extreme cold/heat and dust/fumes. Only agriculture and livestock were excluded, because according to the REACH-T report exposure to cold/heat and dust/fumes is “normal” in these contexts and including them would overstate the incidence of HL.

HCL Categories	Baseline Survey Question	Baseline Survey Responses – HCL/HL	Endline Survey Question	Endline Survey Responses – HCL/HL
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.	W1d1. During the past week, did you undertake any of the following activities? W1d2. [D]uring the past 12 months, did you undertake any of the following activities?	Only the following responses: C. Work as domestic servant in someone else's home; I. Serving alcoholic drinks in bar/other institutions O. Construction, maintenance of buildings, homes for someone else, offloading stones, demolition work; P. Brick/tiles-making/carrying; Q. Mining and quarrying activities (stones, sands, lime...); R. Charcoal making; S. Collecting scrap metal; U. Land clearing or tree sizing; V. Draining of marshland Z. Other (specify). If "other specified" is the same as one of the options specified above, it will be counted as HL. If not, then it will not be counted.
	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.	W1c. 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.

HCL Categories	Baseline Survey Question	Baseline Survey Responses – HCL/HL	Endline Survey Question	Endline Survey Responses – HCL/HL
	<p>HW1. [P]lease tell me how often in the LAST 12 MONTHS you engaged in any of these activities?</p>	<p>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</p>	<p>HW3. I am now going to read out a list of things you may have come across while working either for pay or without pay... How often in the LAST 12 MONTHS you were exposed to any of these at any of your jobs?</p>	<p>Response M. Carrying heavy load such as one large bucket of water or more</p>
	<p>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?</p>	<p>Response M. Carrying heavy load such as one large bucket of water or more</p>		

HCL Categories	Baseline Survey Question	Baseline Survey Responses – HCL/HL	Endline Survey Question	Endline Survey Responses – HCL/HL
Conditions	<p>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 on <<weekday>> (when you last worked at this job)?</p> <p>W5. At which of the following times did you work in the LAST 12 MONTHS?</p> <p>HW5. [H]ow often did you experience any of the following when you were working?</p>	<p>HCL: If total hours during last week exceed 40 hours for children 15 to 17 years old.</p> <p>HL: If total hours during last week exceed 45 hours for 18-year-olds.</p> <p>If response is Night (8 PM to 6 AM)</p> <p>At least one response A through D (if greater than 1)</p>	<p>W2a. How many hours did you spend on each day last week across all these activities?</p> <p>W3. At which of the following times did you work last week?</p> <p>HW5. In the past 12 months ... how often did you experience any of the following when you were working either for pay or without pay?</p>	<p>If total hours during last week exceed 45 hours;</p> <p>If less than 24 consecutive hours. rest in the week (proxy by NOT having at least 1 day with zero hours of work last week)⁶¹</p> <p>If response is Night (8 PM to 6 AM)</p> <p>At least one response A through D (if greater than 1)</p>

⁶¹ It is important to note that the proxy used does not exactly measure 24 hours of consecutive hours rest in a week. For instance, if a respondent has 2 hours of work on Tuesday and 3 hours of work on Wednesday, he/she could have had 24 hours of rest by working 9 a.m.–11 a.m. on Tuesday and then 2 p.m.–5 p.m. on Wednesday, and our proxy would not register that as having 24 hours of rest. However, to reduce respondent burden involved in recalling start and end times of work for each day in the past week, the evaluation team used this proxy as an approximation for having 24 hours of consecutive hours rest in a week.

HCL Categories	Baseline Survey Question	Baseline Survey Responses – HCL/HL	Endline Survey Question	Endline Survey Responses – HCL/HL
Use of products	W4b. Which of the following tasks do you usually do while farming?	<p>Only the following responses: D. applying or spraying fertilizers or other chemicals</p> <p>In addition, this question together with W6 (use of protective gear) 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. All options a–g responses 1 to 8).</p>	W1c. Which of the following tasks do you usually do while farming?	<p>Only the following responses: D. applying or spraying fertilizers or other chemicals</p> <p>In addition, this question together with HW1 (use of protective gear) will be used to evaluate MFS project-specific indicators. It will measure if youth is engaged in hazardous agricultural activities (W1c) and does not use protective gear (HW1. All options a–g with responses 1 to 8).</p>
Use of hazardous 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)	HW2. How often you have used any of the following equipment in the LAST 12 MONTHS while working either for pay or without pay?	Responses A through O (if greater than 1)

HCL Categories	Baseline Survey Question	Baseline Survey Responses – HCL/HL	Endline Survey Question	Endline Survey Responses – HCL/HL
Institutions	<p>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.</p> <p>HW1. [P]lease tell me how often in the LAST 12 MONTHS you engaged in any of these activities?</p>	<p>Response G. Construction (brick making, laying roads, etc.).</p> <p>Response J. Something else (specify) needs to be categorized</p> <p>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</p>	<p>W1d1. [D]uring the past week, did you undertake any of the following activities?</p> <p>W1d2. [D]uring the past 12 months, did you undertake any of the following activities?</p>	<p>Only responses (if greater than 1): I. serving alcoholic drinks); O. Construction, maintenance of buildings, homes for someone else, offloading stones, demolition work; P. Brick/tiles-making/carrying</p>
Injuries and illness	<p>HW4. [H]ow often did you experience any of the following health related problems because of your work?</p>	<p>At least one responses A through N (if greater than 1)</p>	<p>HW4. In the past 12 months ... how often did you experience any of the following health related problems because of your work? Please include all activities while working either for pay or without pay.</p>	<p>At least one response A through N (if greater than 1)</p>

Appendix C: Institutional Review Board Registration and Exemption

To ensure that this evaluation study adhered to ethical guidelines for conducting research involving human subjects, IMPAQ International submitted the following to Advarra (formerly Chesapeake) IRB:

1. On November 24, 2015, IMPAQ submitted for review the baseline quantitative study (Pro00013635). The study was determined to be exempt on December 1, 2015.
2. On January 12, 2017, IMPAQ submitted the qualitative data collection protocol (Pro00020255) for the qualitative data collection. This part of the study was also determined to be exempt (the exempt determination was received on January 16, 2017).
3. On February 16, 2017, IMPAQ submitted a modification (MOD00196445) to the latest determined exempt IRB protocol (Pro00020255) to implement the follow-up quantitative data collection. The IRB determined that the study continued to qualify under Exempt Determination.

To ensure that the study adhered to Rwanda data collection requirements, IMPAQ also submitted the relevant survey VISA applications to the National Institute of Statistics of Rwanda (NISR). A VISA application for the baseline data collection was submitted on November 3, 2015, and the VISA was granted on December 11, 2015. On January 25, 2017 we submitted an application to NISR to seek permission for follow up data collection. Permission was granted on January 11, 2018.

Appendix D: Baseline Equivalence

This appendix reproduces the baseline equivalence results for the demographic characteristics and outcome variables for the endline sample.

D1. Baseline equivalence for demographic and household characteristics & Youth engagement in economic activities

Exhibit 27. Demographic Characteristics, Treatment and Control Group Equivalence

Demographic Characteristics	Treatment		Control		Difference (t-test)	
	Mean	N	Mean	N	Mean	CI (LB, UB)
	(CV)		(CV)			
General Information						
Age	16.335 (0.036)	460	16.369 (0.038)	301	-0.034	(-0.123, 0.055)
Girls	0.529 (0.944)	461	0.596 (0.825)	302	-0.067	(-0.139, 0.005)
Single	0.998 (0.047)	461	0.993 (0.082)	302	0.004	(-0.006, 0.015)
Attended school last term						
Youth who attended school last term	0.022 (6.723)	461	0.030 (5.715)	302	-0.008	(-0.032, 0.015)
Last school level attended						
Never attended school	-	-	-	-	-	-
Primary Level (grades 1– 6)	0.798 (0.503)	461	0.778 (0.535)	302	0.020	(-0.040, 0.080)
Junior Secondary/Ordinary Level (grades 7–9)	0.197 (2.019)	461	0.222 (1.876)	302	-0.024	(-0.084, 0.035)
Senior Secondary/Advanced Level (grades 10–12)	-	-	-	-	-	-
Vocational training	-	-	-	-	-	-
Grade repetition						
Repeated the last attended grade more than once	0.854 (0.413)	426	0.893 (0.346)	272	-0.039	(-0.089, 0.011)
Reasons for not attending school						
Economic reasons (e.g., need to work for money, school fees)	0.721 (0.623)	451	0.744 (0.588)	293	-0.023	(-0.088, 0.042)
School performance (not good in school, not interested)	0.182 (2.124)	451	0.164 (2.263)	293	0.018	(-0.038, 0.074)

Demographic Characteristics	Treatment		Control		Difference (t-test)	
	Mean	N	Mean	N	Mean	CI (LB, UB)
	(CV)		(CV)			
Family reasons (family does not allow/value school)	0.040 (4.910)	451	0.034 (5.329)	293	0.006	(-0.022, 0.033)
Other reasons	0.060 (3.967)	451	0.058 (4.036)	293	0.002	(-0.033, 0.037)

Notes: * $p < 0.01$, ** $p < 0.05$, *** $p < 0.001$. (-) 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.⁶² 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.

Exhibit 28. Household Characteristics of Youth, Treatment and Control Group Equivalence

Household Characteristics	Treatment		Control		Difference (t-test)	
	Mean	N	Mean	N	Mean	CI (LB, UB)
	(CV)		(CV)			
Family structure						
Household size	6.694 (0.340)	461	6.566 (0.324)	302	0.128	(-0.190, 0.446)
Average number of members ages 10 or younger	1.449 (0.863)	461	1.272 (0.897)	302	0.178*	(0.005, 0.350)
Average number of members ages 11–15	1.234 (0.741)	461	1.152 (0.789)	302	0.082	(-0.050, 0.2140)
Average number of members ages 16–17	1.141 (0.326)	461	1.136 (0.327)	302	0.005	(-0.049, 0.059)
Average number of adults (ages 18 or older)	2.861 (0.511)	461	3.013 (0.510)	302	-0.152	(-0.371, 0.067)
Highest education level of a female member						
Never attended school (%)	0.031 (5.643)	426	0.017 (7.589)	292	0.013	(-0.009, 0.036)
Primary level (grades 1– 6) (%)	0.568 (0.873)	426	0.551 (0.904)	292	0.017	(-0.057, 0.091)
Junior secondary/ordinary level (grades 7–9) (%)	0.277 (1.618)	426	0.305 (1.513)	292	-0.028	(-0.096, 0.040)
Senior secondary/advanced level (grades 10–12) (%)	0.113 (2.810)	426	0.120 (2.714)	292	-0.007	(-0.055, 0.041)
Tertiary level (college/university) and vocational training (%)	-	-	-	-	-	-
Highest education level of a male member						
Never attended school (%)	0.051 (4.317)	431	0.022 (6.720)	276	0.029*	(0.002, 0.056)
Primary level (grades 1– 6) (%)	0.582 (0.848)	431	0.547 (0.911)	276	0.035	(-0.04, 0.110)

⁶² Seastrom, M. (2017). Best Practices for Determining Subgroup Size in Accountability Systems While Protecting Personally Identifiable Student Information. (IES 2017-147). Washington, DC: U.S. Department of Education, Institute of Education Sciences. <https://nces.ed.gov/pubs2017/2017147.pdf>

Household Characteristics	Treatment		Control		Difference (t-test)	
	Mean	N	Mean	N	Mean	CI (LB, UB)
	(CV)		(CV)			
Junior secondary/ordinary level (grades 7–9) (%)	0.237 (1.798)	431	0.268 (1.655)	276	-0.031	(-0.098, 0.035)
Senior secondary/advanced level (grades 10–12) (%)	0.118 (2.733)	431	0.145 (2.433)	276	-0.027	(-0.078, 0.025)
Tertiary level (college/university) and vocational training (%)	-	-	-	-	-	-
Household paid employment						
Average number of children ages 11–15 who work for pay	0.119 (3.838)	461	0.099 (3.434)	302	0.020	(-0.037, 0.077)
Average number of children ages 16–17 who work for pay	0.430 (1.233)	461	0.517 (1.067)	302	-0.087*	(-0.166, -0.008)
Average number of adults ages 18 or older who work for pay	1.258 (1.056)	461	1.404 (1.088)	302	-0.146	(-0.357, 0.065)
Durable assets						
Automobile or truck	-	-	-	-	-	-
Motorbike	-	-	-	-	-	-
Bicycle	0.065 (3.794)	461	0.076 (3.489)	302	-0.011	(-0.049, 0.026)
Television	-	-	-	-	-	-
Sewing machine	0.022 (6.723)	461	0.026 (6.072)	302	-0.005	(-0.027, 0.018)
Mobile phone	0.646 (0.740)	461	0.662 (0.715)	302	-0.016	(-0.085, 0.053)
Radio	0.603 (0.812)	461	0.579 (0.853)	302	0.024	(-0.048, 0.095)
Livestock						
Poultry	0.310 (1.493)	461	0.338 (1.403)	302	-0.028	(-0.096, 0.041)
Non-poultry	0.829 (0.455)	461	0.877 (0.374)	302	-0.049	(-0.100, 0.002)
Land ownership						
Own land for growing crops	0.915 (0.304)	461	0.950 (0.229)	302	-0.035	(-0.070, 0.000)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. 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. None of the suppressed cells showed statistically significant differences between the 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.

Exhibit 29. Economic Activities, Treatment and Control Group Equivalence

Economic Activities in the Past 12 Months	Treatment		Control		Difference (t-test)	
	Mean	N	Mean	N	Mean	CI (LB, UB)
	(CV)		(CV)			
Farming (tea, coffee, rice, other)	0.872 (0.384)	461	0.884 (0.363)	302	-0.012	(-0.059, 0.035)

Economic Activities in the Past 12 Months	Treatment		Control		Difference (t-test)	
	Mean	N	Mean	N	Mean	CI (LB, UB)
	(CV)		(CV)			
Transportation of goods to the market or for storage	0.560 (0.888)	461	0.563 (0.883)	302	-0.003	(-0.075, 0.069)
Fetching firewood or water	0.425 (1.164)	461	0.430 (1.152)	302	-0.005	(-0.077, 0.067)
Herding livestock	0.390 (1.251)	461	0.391 (1.251)	302	0.000	(-0.071, 0.071)
Preparing food, clothes, or handicrafts for sale	0.310 (1.493)	461	0.325 (1.445)	302	-0.014	(-0.082, 0.053)
Domestic servant in someone else's house	0.308 (1.500)	461	0.315 (1.479)	302	-0.007	(-0.074, 0.061)
Washing or cleaning for someone else	0.293 (1.556)	461	0.318 (1.467)	302	-0.025	(-0.092, 0.042)
Construction including brick-making or -carrying	0.265 (1.669)	461	0.295 (1.550)	302	-0.030	(-0.096, 0.035)
Collecting scrap metal	0.239 (1.788)	461	0.192 (2.054)	302	0.047	(-0.013, 0.106)
Caretaking of infants on tea plantations	0.217 (1.902)	461	0.255 (1.712)	302	-0.038	(-0.100, 0.024)
Selling articles, newspapers, drinks, food, or agricultural products	0.165 (2.253)	461	0.146 (2.426)	302	0.019	(-0.033, 0.072)
Land clearing, tree sizing, or draining of marshland	0.108 (2.870)	461	0.070 (3.664)	302	0.039	(-0.002, 0.079)
Charcoal-making	0.085 (3.293)	461	0.063 (3.866)	302	0.022	(-0.016, 0.059)
Mining and quarrying activities	0.080 (3.389)	461	0.070 (3.664)	302	0.011	(-0.027, 0.049)
Serving alcoholic drinks in bars/other institutions	0.067 (3.728)	461	0.033 (5.413)	302	0.034*	(0.004, 0.065)
Other activities	0.178 (2.152)	461	0.179 (2.147)	302	-0.001	(-0.057, 0.055)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

D2. Baseline equivalence for hazardous labor outcomes and education and work aspirations

Exhibit 30. Prevalence of Hazardous Labor, Treatment and Control Group Equivalence

Variables	Treatment		Control		Difference (t-test)	
	Mean	N	Mean	N	Mean	CI (LB, UB)
	(CV)		(CV)			
Proportion of youth in HCL	0.998 (0.047)	461	1.000 (0.000)	302	-0.002	(-0.006, 0.002)
Hazardous Child Labor Categories:						
Work in unsafe, unhygienic, or dangerous locations	0.794 (0.510)	461	0.811 (0.483)	302	-0.017	(-0.075, 0.040)

Variables	Treatment		Control		Difference (t-test)	
	Mean	N	Mean	N	Mean	CI (LB, UB)
	(CV)		(CV)			
Work in hazardous activities	0.946 (0.240)	461	0.943 (0.246)	300	0.002	(-0.031, 0.036)
Work that has poor conditions (e.g., long hours, work at night)	0.625 (0.775)	459	0.581 (0.850)	301	0.044	(-0.028, 0.115)
Work using products that can affect youth's health	0.182 (2.125)	457	0.225 (1.860)	298	-0.043	(-0.103, 0.016)
Work that requires the use of machinery/tools	0.963 (0.196)	461	0.970 (0.176)	302	-0.007	(-0.033, 0.019)
Work in institutions that are considered dangerous to the health of youth	0.306 (1.508)	461	0.321 (1.456)	302	-0.015	(-0.083, 0.052)
Work in which the youth has experienced health issues/injuries	0.880 (0.369)	460	0.901 (0.333)	302	-0.020	(-0.065, 0.025)
Work using dangerous products without protective gear ¹	0.109 (2.855)	411	0.117 (2.758)	266	-0.007	(-0.056, 0.042)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. 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 31. Education and Work Aspirations, Treatment and Control Group Equivalence

Expectations and Aspirations	Treatment		Control		Difference (t-test)	
	Mean	N	Mean	N	Mean	CI (LB, UB)
	(CV)		(CV)			
Expected educational level in next two years						
No education	-	-	-	-	-	-
Primary level (grades 1– 6)	0.090 (3.192)	413	0.081 (3.364)	270	0.008	(-0.035, 0.051)
Junior secondary/ ordinary level (grades 7–9)	0.341 (1.391)	413	0.293 (1.558)	270	0.049	(-0.022, 0.120)
Senior secondary/advanced level (grades 10–12)	0.046 (4.559)	413	0.044 (4.645)	270	0.002	(-0.030, 0.033)
Tertiary level (college/university)	-	-	-	-	-	-
Vocational training	0.523 (0.956)	413	0.574 (0.863)	270	-0.051	(-0.127, 0.025)
Expected job in next two years						
Non-farming jobs	0.976 (0.157)	461	0.974 (0.165)	302	0.003	(-0.020, 0.026)
Traditional farming jobs	-	-	-	-	-	-
Modern farming jobs	0.015 (8.062)	461	0.017 (7.720)	302	-0.001	(-0.020, 0.017)
Expected entrepreneurship in next two years						

Expectations and Aspirations	Treatment		Control		Difference (t-test)	
	Mean	N	Mean	N	Mean	CI (LB, UB)
	(CV)		(CV)			
Establishing their own business ^a	0.139 (2.493)	461	0.166 (2.249)	302	-0.027	(-0.079, 0.026)
Working for other employers ^b	0.861 (0.402)	461	0.834 (0.446)	302	0.027	(-0.026, 0.079)
Expected working location in next two years						
Working outside of their own village	0.627 (0.772)	461	0.576 (0.859)	302	0.051	(-0.021, 0.122)
Level of self-sufficiency in next two years						
Have confidence to achieve their expected job ^c	0.670 (0.702)	461	0.712 (0.637)	302	-0.042	(-0.109, 0.025)
Believe they have a lot of control over their future	0.941 (0.250)	461	0.917 (0.301)	302	0.024	(-0.014, 0.062)
Believed they have little or no control over their future	0.059 (4.014)	461	0.083 (3.334)	302	-0.024	(-0.062, 0.014)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

^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

Appendix E: Power Calculations

In this section, we present power calculations to show how the study's minimum detectable effect size changes on account of attrition between baseline and endline. To calculate the MDE, we follow Bloom et al. (1995)⁶³ and use the following formula:

$$MDE \sim M_p \sqrt{\frac{\pi(1 - \pi)(1 - R^2)}{T(1 - T)n}}$$

Where

π = proportion of the control group engaged in hazardous work practices

T = proportion of the sample that is assigned to the treatment group

n = total sample size (treatment and control)

R^2 = explanatory power of the multivariate regression

M_p = multiplier for a given statistical power and statistical significance level

At endline, the proportion of the control group engaged in hazardous work practices (π) is 1 for the composite measure, and ranges between 0.33 and 0.98 for intermediate measures (location, activities, etc.) of hazardous work. The proportion of the sample that is assigned to the treatment group is approximately 0.60 at both the baseline and endline.⁶⁴ The total sample size was 962 at baseline and 763 at endline. Other assumptions about R^2 (assumed to be equal to 0.1) and the multiplier (equal to 2.8 for 80 percent power at the 0.05 level of significance for a two-sided test) are the same between baseline and endline.

Exhibit 22 summarizes the MDE given the sample size at baseline vs. the sample size at endline.

Exhibit 32. Range of MDEs given sample size at baseline vs. endline

Endline Proportion of HL in Control Group	Baseline Sample Size (n=962)	Endline Sample Size (n=763)
99%	1.743 pp	1.957 pp
95%	3.817 pp	4.286 pp
90%	5.254 pp	5.899 pp
80%	7.005 pp	7.866 pp
50%	8.757 pp	9.832 pp
30%	8.025 pp	9.012 pp

⁶³ Bloom, H. S. (1995). Minimum detectable effects: A simple way to report the statistical power of experimental designs. *Evaluation review*, 19(5), 547-556.

⁶⁴ More precisely, at baseline the proportion is 0.597 and the endline proportion is 0.604.

As can be seen in the exhibit, while the overall reduction in sample size does increase the MDEs to an extent, the effect of overall attrition on the power calculation is not large.

Appendix F: Regression Models

F1. Specifications for the Regression Models (Intent to Treat Specification)

Model 1: $Y_{iF} = \alpha_0 + \alpha_1 T_{iB} + u_i$

Model 2: $Y_{isF} = \alpha_0 + \alpha_1 T_{isB} + \alpha_2 \theta_s + u_i$

Model 3: $Y_{isF} = \alpha_0 + \alpha_1 T_{isB} + \alpha_2 \theta_s + \alpha_3 X_{isB} + u_i$

Model 4: $Y_{isF} = \alpha_0 + \alpha_1 T_{isB} + \alpha_2 \theta_s + \alpha_3 X_{isB} + \alpha_4 Y_{isB} + u_i$

Model 5: $Y_{isF} = \alpha_0 + \alpha_1 T_{isB} + \alpha_2 \theta_s + \alpha_3 X_{isB} + u_i$ where $pweight = 1/prob(observed)$

Where

- Y_{iF} is the endline (F) outcome of interest for youth i and Y_{isF} is the endline (F) outcome of interest for youth i in site s
- T_{iB} is the treatment indicator, which equals 1 if the individual i at baseline (B) was assigned to the MFS intervention group, and 0 if the individual was assigned to the control group. Thus, the treatment indicator reflects baseline treatment assignment. T_{isB} denotes treatment assignment within site s
- θ_s is a series of dummy variables for each MFS site (15 site fixed effects) aimed at controlling for time-invariant site characteristics that could also affect outcomes
- X_{isB} , is a set of baseline demographic characteristics⁶⁵
- Y_{isB} is the baseline value of the corresponding outcome variable

F2. Detailed Regression Results from Different Model Specifications

Exhibits 33 through Exhibit 53 present the results of regression model specifications 1, 2, and 4, for each of the outcomes. Impacts are presented in percentage point changes for all outcomes. The numbers in brackets are effect sizes relative to the mean in the control group. Standard errors in all models are clustered at the site level.

⁶⁵ The following baseline demographic characteristics were included: youth gender, age, marital status, household size, number of children in the household who are under 10 years of age, number of 16- to 17-year-olds in the household who work for pay, television ownership, youth work involves serving alcohol, household owns land/grows crops.

F2.1 Impact on Hazardous Labour Outcomes

Exhibit 33. Hazardous Work Practices (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0 [0.00%]	0 [0.00%]	0 [0.00%]
Standard Error	0	0	0
N	760	760	758
Control Group Mean	1	1	1
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 34. Work in Hazardous Locations (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.028 [3.18%]	0.021 [2.31%]	0.022 [2.44%]
Standard Error	(0.027)	(0.028)	(0.028)
N	760	760	758
Control Group Mean	0.893	0.893	0.893
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 35. Work in Hazardous Activities (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.007 [0.71%]	0.006 [0.65%]	0.007 [0.76%]
Standard Error	(0.0127)	(0.0130)	(0.0135)
N	754	754	750
Control Group Mean	0.980	0.980	0.980
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group.
 ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 36. Work in Poor Conditions (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.007 [0.90%]	0.016 [1.93%]	0.007 [0.92%]
Standard Error	(0.033)	(0.033)	(0.032)
N	752	752	747
Control Group Mean	0.812	0.812	0.812
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes Baseline	No	No	Yes
Characteristics Attrition	No	No	Yes
Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group.
 ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 37. Use of Dangerous Products (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.030 [5.82%]	0.015 [2.97%]	0.009 [1.69%]
Standard Error	(0.039)	(0.040)	(0.035)
N	712	712	703
Control Group Mean	0.509	0.509	0.509
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group.
 ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 38. Use of Machinery/Tools (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.003 [0.27%]	0.005 [0.54%]	0.005 [0.47%]
Standard Error	(0.013)	(0.013)	(0.013)
N	760	760	758
Control Group Mean	0.980	0.980	0.980
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group.
 ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 39. Work in Dangerous Institutions (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	-0.036 [-6.54%]	-0.022 [-4.03%]	-0.023 [-4.27%]
Standard Error	(0.031)	(0.031)	(0.029)
N	763	763	761
Control Group Mean	0.543	0.543	0.543
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 40. Work that Causes Health Issues/Injuries (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	-0.008 [-0.84%]	-0.005 [-0.52%]	0.001 [0.11%]
Standard Error	(0.011)	(0.011)	(0.009)
N	760	760	757
Control Group Mean	0.980	0.980	0.980
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 41. Impact on Use of Protective Gear (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	-0.035 [-10.67%]	-0.038 [-11.62%]	-0.034 [-10.24%]
Standard Error	(0.026)	(0.025)	(0.031)
N	763	763	675
Control Group Mean	0.328	0.328	0.328
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

F2.2 Impact on Educational Aspirations

Exhibit 42. Complete Primary Level (Grades 1–6) (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.003 [31.02%]	0.002 [22.56%]	0.006 [59.42%]
Standard Error	(0.008)	(0.008)	(0.008)
N	763	763	683
Control Group Mean	0.010	0.010	0.010
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Note: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 43. Complete Junior Secondary Level (Grades 6–8) (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	-0.003 [-7.20%]	-0.004 [-10.60%]	-0.008 [-19.77%]
Standard Error	(0.017)	(0.018)	(0.018)
N	763	763	683
Control Group Mean	0.040	0.040	0.040
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 44. Complete Senior Secondary Level (Grades 10–12) (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.063* [25.00%]	0.066* [26.19%]	0.082** [32.54%]
Standard Error	(0.034)	(0.036)	(0.031)
N	763	763	683
Control Group Mean	0.252	0.252	0.252
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 45. Complete Tertiary Education (College/University) (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	-0.003 [-1.74%]	-0.003 [-1.50%]	-0.007 [-4.04%]
Standard Error	(0.030)	(0.029)	(0.032)
N	763	763	683
Control Group Mean	0.172	0.172	0.172
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 46. Complete Vocational Training (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	-0.008 [-3.56%]	-0.007 [-2.95%]	-0.019 [-7.77%]
Standard Error	(0.039)	(0.034)	(0.038)
N	763	763	683
Control Group Mean	0.238	0.238	0.238
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

F2.3 Impact on Employment Aspirations

Exhibit 47. Aspire to Non-Farm Employment (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.056* [6.81%]	0.051 [6.13%]	0.052 [6.32%]
Standard Error	(0.030)	(0.034)	(0.035)
N	763	763	761

Regression Variables	Model 1	Model 2	Model 4
Control Group Mean	0.825	0.825	0.825
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 48. Aspire to Farm Employment (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	-0.055* [-36.18%]	-0.049 [-32.11%]	-0.049 [-32.30%]
Standard Error	(0.026)	(0.031)	(0.032)
N	763	763	761
Control Group Mean	0.152	0.152	0.152
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 49. Aspire to Not Work (Additional Models)

Regression Variables	Model 1	Model 2
Treatment Indicator	-0.004 [-15.91%]	-0.004 [-18.91%]
Standard Error	(0.010)	(0.011)
N	763	763
Control Group Mean	0.023	0.023
Site (sector) Fixed Effects	No	Yes
Baseline Outcomes	No	No
Baseline Characteristics	No	No
Attrition Weights	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 50. Aspire to Work for Self (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	-0.026 [-3.00%]	-0.034 [-3.94%]	-0.020 [-2.28%]
Standard Error	(0.021)	(0.025)	(0.029)
N	747	747	745
Control Group Mean	0.871	0.871	0.871
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes Baseline	No	No	Yes
Characteristics Attrition	No	No	Yes
Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 51. Aspire to Work Outside Village (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.034 [5.87%]	0.030 [5.08%]	0.012 [2.08%]
Standard Error	(0.039)	(0.039)	(0.036)
N	747	747	745
Control Group Mean	0.583	0.583	0.583
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

F2.4 Impact on Self Efficacy/Locus of Control

Exhibit 52. Level of Confidence (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.012 [1.82%]	-0.004 [-0.58%]	-0.013 [-1.96%]
Standard Error	(0.038)	(0.040)	(0.040)
N	747	747	745
Control Group Mean	0.647	0.647	0.647
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

Exhibit 53. Locus of Control (Additional Models)

Regression Variables	Model 1	Model 2	Model 4
Treatment Indicator	0.007 [0.84%]	-0.003 [-0.34%]	-0.014 [-1.63%]
Standard Error	(0.027)	(0.029)	(0.032)
N	747	747	745
Control Group Mean	0.864	0.864	0.864
Site (sector) Fixed Effects	No	Yes	Yes
Baseline Outcomes	No	No	Yes
Baseline Characteristics	No	No	Yes
Attrition Weights	No	No	No

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes.

F3. Impact by Sex

F3.1 Intent-to-Treat (ITT) Estimates, by Sex

**Exhibit 54. Impact of MFS on Hazardous Labor Outcomes;
By Sex (ITT; With Attrition Weights; Model 5)**

Variable	Hazardous Work Practices	Work in Hazardous Locations	Work in Hazardous Activities	Work in Poor Conditions	Use of Dangerous Products	Use of Machinery/Tools	Work in Dangerous Institutions	Work which causes health issues/injuries	Work without protective gear
Girls									
Treatment Indicator	0.000 [0.00%]	0.016 [1.73%]	0.009 [0.94%]	-0.024 [-2.84%]	0.008 [1.75%]	0.021 [2.16%]	-0.065* [-13.73%]	0.009 [0.95%]	-0.031 [-7.68%]
Standard Error	(0.000)	(0.037)	(0.015)	(0.051)	(0.047)	(0.018)	(0.032)	(0.010)	(0.031)
Observations	415	415	412	408	394	415	417	415	417
Control Group Mean	1.000	0.904	0.977	0.852	0.461	0.972	0.472	0.989	0.400
Boys									
Treatment Indicator	0.000 [0.00%]	0.042 [4.79%]	0.014 [1.38%]	0.083* [10.99%]	0.033 [5.64%]	-0.014 [-1.45%]	0.008 [1.21%]	-0.006 [-0.60%]	-0.037 [-16.52%]
Standard Error	(0.000)	(0.030)	(0.016)	(0.043)	(0.051)	(0.020)	(0.050)	(0.022)	(0.040)
Observations	335	335	333	334	310	335	336	335	336
Control Group Mean	1	0.877	0.984	0.754	0.578	0.992	0.648	0.967	0.221

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

**Exhibit 55. Impact of MFS on Education Aspirations; By Sex
(ITT; With Attrition Weights; Model 5)**

Variable	Complete Primary Level (grades 1-6)	Complete Junior Secondary/ Ordinary Level (grades 7-9)	Complete Senior Secondary/ Advanced Level (grades 10-12)	Complete Tertiary Level (college/univer sity)	Complete Vocational Training
Girls					
Treatment Indicator	0.004 [79.32%]	0.006 [37.43%]	0.071 [26.48%]	0.016 [10.90%]	-0.033 [-14.56%]
Standard Error	(0.010)	(0.014)	(0.049)	(0.036)	(0.046)
Observations	417	417	417	417	417
Control Group Mean	0.006	0.017	0.267	0.144	0.228
Boys					
Treatment Indicator	0.004 [24.88%]	-0.035 [-47.29%]	0.074 [32.00%]	-0.046 [-21.74%]	-0.027 [-10.51%]
Standard Error	(0.017)	(0.033)	(0.045)	(0.052)	(0.043)
Observations	336	336	336	336	336
Control Group Mean	0.016	0.074	0.230	0.213	0.254

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

**Exhibit 56. Impact of MFS on Employment Aspirations; By Sex
(ITT; With Attrition Weights; Model 5)**

Variable	Work in Non-Farm Jobs	Work in Farm Jobs	Not Work	Establish Own Business	Work Outside Village
Girls					
Treatment Indicator	0.065* [7.87%]	-0.052 [-34.73%]	-0.013 [-59.01%]	0.012 [1.31%]	-0.009 [-1.78%]
Standard Error	(0.035)	(0.032)	(0.020)	(0.029)	(0.063)
Observations	417	417	417	410	410
Control Group Mean	0.828	0.150	0.022	0.892	0.528
Boys					
Treatment Indicator	0.029 [3.50%]	-0.036 [-22.80%]	-0.001 [-3.18%]	-0.048 [-5.73%]	0.018 [2.73%]
Standard Error	(0.053)	(0.042)	(0.019)	(0.052)	(0.063)
Observations	336	336	336	327	327
Control Group Mean	0.820	0.156	0.025	0.840	0.664

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

**Exhibit 57. Impact of MFS on Confidence/Control; By Sex
(ITT; With Attrition Weights; Model 5)**

Variable	Level of Confidence	Believe they have a lot of control over their future
Girls		
Treatment Indicator	0.010 [1.52%]	-0.018 [-2.14%]
Standard Error	(0.051)	(0.045)
Observations	410	410
Control Group Mean	0.642	0.847
Boys		
Treatment Indicator	-0.030 [-4.60%]	-0.038 [-4.26%]
Standard Error	(0.078)	(0.033)
Observations	327	327
Control Group Mean	0.655	0.891

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

F3.2 Treatment-on-Treated (TOT) Estimates, by Sex

This subsection contains TOT estimates, by sex, for the two sets of outcomes: education aspirations and employment aspirations. We focus on them because the overall TOT results for these outcomes differed from the ITT estimates.

Exhibit 58. Impacts on Education Aspirations for Individuals Reporting Participation (Girls; TOT; With Attrition Weights; Model 5)

Variable	Complete Primary Level (grades 1-6)	Complete Junior Secondary/ Ordinary Level (grades 7-9)	Complete Senior Secondary/ Advanced Level (grades 10-12)	Complete Tertiary Level (college/university)	Complete Vocational Training
Compliance Indicator	0.005 [90.38%]	0.007 [42.87%]	0.081 [30.30%]	0.018 [12.50%]	-0.038 [-16.67%]
Standard Error	(0.011)	(0.016)	(0.053)	(0.039)	(0.050)
Observations	417	417	417	417	417
Control Group Mean	0.006	0.017	0.267	0.144	0.228

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

Exhibit 59. Impacts on Education Aspirations for Individuals Reporting Participation for Full 6 Months (Girls; TOT; With Attrition Weights; Model 5)

Variable	Complete Primary Level (grades 1-6)	Complete Junior Secondary/ Ordinary Level (grades 7-9)	Complete Senior Secondary/ Advanced Level (grades 10-12)	Complete Tertiary Level (college/university)	Complete Vocational Training
Lower Bound					
Compliance Indicator	0.005 [90.83%]	0.007 [42.87%]	0.081 [30.30%]	0.018 [12.50%]	-0.038 [-16.67%]
Standard Error	(0.011)	(0.016)	(0.053)	(0.039)	(0.050)
Upper Bound					
Compliance Indicator	0.009 [159.71%]	0.013 [75.45%]	0.142 [53.18%]	0.032 [21.94%]	-0.067 [-29.34%]
Standard Error	(0.020)	(0.027)	(0.103)	(0.068)	(0.087)
Observations	417	417	417	417	417
Control Group Mean	0.006	0.017	0.267	0.144	0.228

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

Exhibit 60. Impacts on Education Aspirations for Individuals Reporting Participation (Boys; TOT; With Attrition Weights; Model 5)

Variable	Complete Primary Level (grades 1-6)	Complete Junior Secondary/ Ordinary Level (grades 7-9)	Complete Senior Secondary/ Advanced Level (grades 10-12)	Complete Tertiary Level (college/university)	Complete Vocational Training
Compliance Indicator	0.005 [28.17%]	-0.040 [-53.52%]	0.083* [36.22%]	-0.052 [-24.60%]	-0.030 [-11.93%]
Standard Error	(0.018)	(0.035)	(0.047)	(0.054)	(0.045)
Observations	336	336	336	336	336
Control Group Mean	0.016	0.074	0.230	0.213	0.254

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

Exhibit 61. Impacts on Education Aspirations for Individuals Reporting Participation for Full 6 Months (Boys; TOT; With Attrition Weights; Model 5)

Variable	Complete Primary Level (grades 1-6)	Complete Junior Secondary/Ordinary Level (grades 7-9)	Complete Senior Secondary/Advanced Level (grades 10-12)	Complete Tertiary Level (college/university)	Complete Vocational Training
Lower Bound					
Compliance Indicator	0.005 [28.17%]	-0.040 [-53.52%]	0.083* [36.22]	-0.052 [-24.60%]	-0.030 [-11.93%]
Standard Error	(0.018)	(0.035)	(0.047)	(0.054)	(0.045)
Upper Bound					
Compliance Indicator	0.009 [53.96%]	-0.076 [-102.44%]	0.160* [69.57%]	-0.100 [-46.95%]	-0.058 [-22.80%]
Standard Error	(0.035)	(0.065)	(0.094)	(0.108)	(0.084)
Observations	336	336	336	336	336
Control Group Mean	0.016	0.074	0.230	0.213	0.254

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

Exhibit 62. Impacts on Employment Aspirations for Individuals Reporting Participation (Girls; TOT; With Attrition Weights; Model 5)

Variable	Work in Non-Farm Jobs	Work in Farm Jobs	Not Work	Establish Own Business	Work Outside Village
Compliance Indicator	0.075** [9.02%]	-0.060* [-39.80%]	-0.015 [-67.57%]	0.013 [1.50%]	-0.011 [-2.05%]
Standard Error	(0.038)	(0.034)	(0.022)	(0.031)	(0.068)
Observations	417	417	417	410	410
Control Group Mean	0.828	0.150	0.022	0.892	0.528

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

Exhibit 63. Impacts on Employment Aspirations for Individuals Reporting Participation for Full 6 Months (Girls; TOT; With Attrition Weights; Model 5)

Variable	Work in Non-Farm Jobs	Work in Farm Jobs	Not Work	Establish Own Business	Work Outside Village
Lower Bound					
Compliance Indicator	0.075** [9.02%]	-0.060* [-39.80%]	-0.015 [-67.57%]	0.013 [1.50%]	-0.011 [-2.05%]
Standard Error	(0.038)	(0.034)	(0.022)	(0.031)	(0.068)
Upper Bound					
Compliance Indicator	0.131** [15.82%]	-0.105* [-70.00%]	-0.027 [-119.37%]	0.024 [2.65%]	-0.019 [-3.60%]
Standard Error	(0.063)	(0.056)	(0.039)	(0.056)	(0.120)
Observations	417	417	417	410	410
Control Group Mean	0.828	0.150	0.022	0.892	0.528

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

Exhibit 64. Impacts on Employment Aspirations for Individuals Reporting Participation (Boys; TOT; With Attrition Weights; Model 5)

Variable	Work in Non-Farm Jobs	Work in Farm Jobs	Not Work	Establish Own Business	Work Outside Village
Compliance Indicator	0.033 [3.96%]	-0.040 [-25.90%]	-0.001 [-3.60%]	-0.054 [-6.46%]	0.021 [3.09%]
Standard Error	(0.056)	(0.044)	(0.020)	(0.055)	(0.067)
Observations	336	336	336	327	327
Control Group Mean	0.820	0.156	0.025	0.840	0.664

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

Exhibit 65. Impacts on Employment Aspirations for Individuals Reporting Participation for Full 6 Months (Boys; TOT; With Attrition Weights; Model 5)

Variable	Work in Non-Farm Jobs	Work in Farm Jobs	Not Work	Establish Own Business	Work Outside Village
Lower Bound					
Compliance Indicator	0.033 [3.96%]	-0.040 [-25.90%]	-0.001 [-3.60%]	-0.054 [-6.46%]	0.021 [3.09%]
Standard Error	(0.056)	(0.044)	(0.020)	(0.055)	(0.067)
Upper Bound					
Compliance Indicator	0.062 [7.57%]	-0.077 [-49.55%]	-0.002 [-6.87%]	-0.103 [-12.26%]	0.039 [5.84%]
Standard Error	(0.105)	(0.083)	(0.039)	(0.098)	(0.127)
Observations	336	336	336	327	327
Control Group Mean	0.820	0.156	0.025	0.840	0.664

Notes: Numbers in brackets are effect sizes relative to the mean in the control group. ***, **, * indicate statistically significant results at the 1%, 5%, and 10% significance level, respectively. Impacts are expressed as percentage point changes. Results are for Model 5, which includes baseline characteristics, MFS site fixed effects, and attrition weights to control for attrition bias.

Appendix G: Planned Versus Reported Attendance

Exhibit 66. Average Length of Participation Reported by Youth, by Site

District	MFS Site	Planned Start Date	Planned End Date	Planned Duration (in months)	Avg. Length of Actual Participation (in months)
Nyamagabe	Buruhukiro	Feb. 3, 2016	Aug. 3, 2016	6	3–6
	Gatare	Feb. 2, 2016	Aug. 31, 2016	7	6
	Nkomane	Feb. 9, 2016	Aug. 15, 2016	6	3–6
	Uwinkingi	Feb. 25, 2016	Aug. 25, 2016	6	3–6
Nyaruguru	Ruheru	Feb. 16, 2016	Aug. 16, 2016	6	6
	Nyabimata	March 8, 2016	Sept. 8, 2016	6	3–6
	Muganza	April 16, 2016	Aug. 25, 2016	4.5	3–6
Rusizi	Nkungu	March 23, 2016	Sept. 23, 2016	6	6
	Giheke	March 21, 2016	July 21, 2016	4	3–6
	Kamembe	Aug. 6, 2016	Oct. 24, 2016	3	1–3
Karongi	Rugabano	Feb. 4, 2016	Aug. 4, 2016	6	3–6
	Mutuntu	Feb. 2, 2016	Aug. 2, 2016	6	3–6
	Gashali	Feb. 5, 2016	Aug. 5, 2016	6	3–6
Ngororero	Kavumu	Feb. 9, 2016	Aug. 9, 2016	6	6
	Muhanda	Feb. 10, 2016	Aug. 10, 2016	6	3–6

Appendix H: Mapping of Qualitative Research Questions

Exhibit 67. Mapping of Causal Assumptions to Focus Group and Interview Questions

Assumption	Question
The MFS training will increase youth' understanding and use of best farming practices, especially with respect to practices that are safe and do not cause hazard (including the use of safety gear)	<p><u>Local Leaders</u></p> <p>What were the strengths of the Model Farm School's design? What were its weaknesses? [Probe for effectiveness of design elements related to the promotion of best farming practices, awareness of hazardous labor, and use of safety gear]</p> <p>Do you think the program impacted youth' understanding and use of best farming practices?</p> <p>Do you think the program impacted youth' knowledge, attitudes, and behavior of hazardous work?</p> <p><u>MFS Beneficiaries</u></p> <p>Thinking about your time in the Model Farm School, what kinds of things did you learn? [Probe for best farming practices, use of safety gear, understanding of hazardous forms of labor]</p> <p>Did the Model Farm School provide to you any materials to help you engage in safe work, such as tools, equipment, or gear? If so, what? [Probe for protective gear]. Have these tools or equipment been useful? Give an example of how you use them today.</p>
The MFS training will change youth' attitudes about hazardous forms of labor	<p><u>MFS Beneficiaries</u></p> <p>What steps can you take to protect yourself against hazardous labor? If you cannot change your job, is there anything you can do in your current job to make it safer?</p> <p>If your boss at work asked you to do something that you felt was unsafe or harmful, what would you do? Would your response have been similar or different if I would have asked you this before the Model Farm School? Please explain.</p>
The MFS training will inspire youth to raise their career and educational goals	<p><u>MFS Beneficiaries</u></p> <p>Let's pretend you had not participated in the Model Farm School. Do you think you would be doing the same thing (e.g., school, type of work, etc.) you are doing today if you had not participated in the Model Farm School? Please explain.</p> <p>What type of job would you like to have in the next two years? What kind of work do you think you'll actually be doing two years from now? If different, why?</p> <p>Thinking about the future, say 10 years from now, what do you want to do? Do you think these plans would have been similar or different if you had not participated in the Model Farm School?</p>