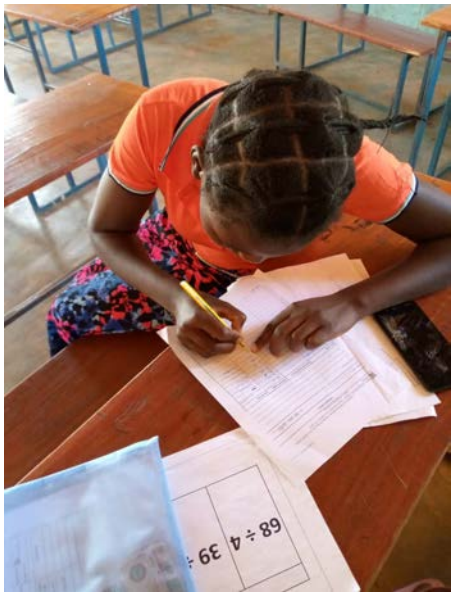


Final Evaluation of Increasing Economic and Social Empowerment for Adolescent Girls and Vulnerable Women (EMPOWER) in Zambia

January 3, 2022

Ale Aponte, Evan Fantozzi, Amanda Beatty, Gelson Tembo, Chisangu Matome, Nathan Tembo, and Evan Borkum

Submitted to:

United States Department of Labor
200 Constitution Ave NW
Washington, DC 20210
Project officer: Jennifer Daley
Contact: daley.jennifer.m@dol.gov

Submitted by:

Mathematica
1100 1st Street, NE, 12th Floor
Washington, DC 20002-4221
Project director: Amanda Beatty
Contact: abeatty@mathematica-mpr.com
Reference number: 50421

ACKNOWLEDGEMENTS

We greatly appreciate the contributions of the many people who helped make this report possible. We especially thank Jennifer Daley, Kristen Pancio, and Kevin Hong, our project officers past and present at the US Department of Labor (DOL), for their continued support throughout this project. We also thank Megan Lizik, Sarah Sunderlin, and Wei-Cheng Chen at DOL for their important contributions and insights, especially during the evaluation design phase.

At Winrock International (Winrock), we sincerely thank Alyssa Cochran, Ana Maria Dionela, Diana Shalala, Dixon Moyo, and Julia Miller for their coordination with us during the EMPOWER project. Winrock monitoring and evaluation (M&E) staff, including Kerry Richter, Tricia Ryan, Mutale Mwango, as well as Winrock M&E interns graciously worked with us to maximize the quality and utility of their data.

We appreciate the contributions of several other colleagues: Thomas Coen, Arif Mamun, Katie Naeve, Shamama Siddiqui, and Cannon Warren all supported in the design, implementation, and management of this evaluation since its inception. Hailey Hannigan enhanced our report format and design, and Sara Bryk helped structure our presentation of results. We are grateful to the technical working group members, Ana Dammert, James Habyarimana, and Paul Wang, who offered careful and thoughtful input to help inform and improve the evaluation design.

We are incredibly grateful for the Palm Associates core team, and the enumerators at Palm for navigating two rounds of safe and well-executed data collection during the COVID-19 pandemic.

Lastly, and most importantly, we wish to thank the many adolescent girls and women who participated in EMPOWER and took time to speak with data collection teams, providing critical information and insights that form the foundation of this report.

Contents

Acronyms

AGEP	Adolescent Girls Empowerment Program
DHS	Demographic and Health Survey
DOL	US Department of Labor
CMEP	Comprehensive Monitoring and Evaluation Plan
EMPOWER	Increasing Economic and Social Empowerment for Adolescent Girls and Vulnerable Women project
GEI	Gender Equitable Index
GoZ	Government of Zambia
ILO	International Labor Organization
IPA	Innovations for Poverty Action
JICA	Japan International Cooperation Agency
MCDSS	Ministry of Community Development and Social Services
MoAF	Ministry of Agriculture and Fisheries
MoH	Ministry of Health Zambia
REAL	Rural Entrepreneurship and Leadership
RWEN	Rural Women's Entrepreneurship Network
UCW	Understanding Children's Work Program
ZSA	Zambia Statistics Agency

EXECUTIVE SUMMARY

An estimated 600,000 children and adolescents were engaged in child labor in Zambia in 2017, despite 2013 legislation that prohibited those under age 13 from working at all and children between ages 13 and 17 from working under hazardous conditions (Chama and Bwalya 2017; GoZ 2013). The issue of child labor is particularly acute in Zambia's agricultural sector, which employed 92 percent of Zambian children involved in child labor in 2012 and is often associated with children and adolescents working under challenging conditions (DOL 2015). Moreover, working often keeps children out of the classroom, limiting employment options and long-term income potential. Adolescent girls often face the added burden of domestic chores, further limiting their enrollment in and completion of upper grade levels relative to boys (ILO 2012; GoZ 2014; UCW Program 2012). One factor contributing to child labor in rural Zambia is that women often experience less household agency and face barriers to economic empowerment, which may inhibit them from influencing household decisions around employing children and adolescents (European Commission 2021).

EMPOWER project overview and evaluation design

To address the challenges of adolescents engaged in child labor, and women's barriers to empowerment in Zambia, the U.S. Department of Labor (DOL) funded the $5 million Increasing Economic and Social Empowerment for Adolescent Girls and Vulnerable Women Project, known as EMPOWER. From 2016 to 2020, Winrock International (Winrock) implemented EMPOWER in Eastern Province, seeking to deliver training and facilitate linkages to employment for 2,500 adolescent girls aged 15-17 and 1,500 women. Winrock offered programming to adolescent girls and women in 20 communities in 7 districts that consisted of (1) a six-month training course with weekly sessions that included separate modules on life skills and technical/vocational skills (the latter of which primarily focused on training in chicken or goat rearing); (2) the opportunity to join business groups with other participants; and (3) six months of follow-up services to support business groups and facilitate linkages to employment. Additionally, Winrock involved men and other community-members in awareness-raising activities, and pursued commitments to reducing child labor from government and other stakeholders.

DOL's Chief Evaluation Office and the Bureau of International Labor Affairs contracted Mathematica to evaluate the effect of EMPOWER on adolescent girls' and women's skill acquisition, participation in acceptable work and employment, and other related outcomes. The evaluation used quantitative pre-post and descriptive analyses to describe outcomes and measure changes over time, complemented by qualitative analysis to contextualize findings. The quantitative analyses focused on adolescent girls and women who enrolled in EMPOWER between January and March of 2019. Winrock collected pre-project data from enrollees prior to, and at the beginning of, participants' training courses as part of the project's comprehensive monitoring and evaluation plan (CMEP). Palm Associates (Palm), a Zambian data collection firm, collected post-survey data on outcomes at one or two points in time, depending on the outcome: shortly after the adolescent girls and women completed project activities (interim, April to September 2020) and/or one year after they completed project activities (endline, March-July 2021). The qualitative analysis drew on qualitative data that Palm collected alongside the quantitative interim and endline surveys, including interviews with 29 facilitators for the life skills module, 18 facilitators for the

> In this evaluation, we define **acceptable work** as work conducted by children (people below age 18) of legal working age (ages 13+ in Zambia) that is non-hazardous, non-exploitive work that does not interfere with education. Acceptable work is distinct from "conditions of acceptable work." See Figure 2.1 and related text for more information on the definition of acceptable work used in this study.

technical/vocational skills module, and 5 Winrock staff, as well as focus group discussions with adolescent girls and women from 6 project implementation sites.

Research questions and findings

In Table ES.1 we present results for each evaluation research question posed by DOL. When considering our findings, learnings, and suggestions below, it is important to keep in mind that the interim survey (April to September 2020) and endline survey (March to July 2021) took place in the context of the COVID-19 global health pandemic. Project implementation for the cohorts included in the evaluation was largely completed before the start of the pandemic, and thus project implementation was not influenced by the pandemic. However, participants were clearly affected by pandemic-related restrictions at both interim and (to a lesser but still substantial extent) at endline. These effects included limited ability to sell crops and livestock or buy agriculture inputs as planned, and a decline in income relative to before the pandemic. Due to a lack of a comparison group, we are unable to understand whether the project helped buffer the challenges induced by the pandemic. But these conditions could be one factor contributing to challenges faced by the business groups and project sustainability we discuss below.

Table ES.1 Summary of research questions and findings

Research question	Findings
1: To what extent did adolescent girls and women selected for EMPOWER participate in the program?	A large share of adolescent girls and women who participated in the life skills and technical/vocational skills modules did not complete them: • 86 percent of adolescent girls and 90 percent women who enrolled in the project **participated** in the life skills module. Participation in the technical vocational skills module dropped to 61 percent of adolescent girls and 66 percent of women who enrolled in the project. • 60 percent of adolescent girls and 71 percent of women **completed** the life skills module, and 44 percent of adolescent girls and 56 percent of women completed the technical/vocational skills module. Eighty-two percent participants who attended the technical vocational module also joined a business group; only about half of these groups were still active at endline.
2: What was the change in adolescent girls' and women's skills targeted by EMPOWER, such as life skills, functional literacy, entrepreneurship skills, and agriculture-focused technical/vocational skills, before and after enrolling?	**Life skills**: We found few changes in adolescent girls' self-esteem; baseline levels were already high. **Literacy and numeracy**: The share of adolescent girls who could read a full sentence increased about 12 percentage points. Adolescent girls' and women's number recognition skills improved over time. However, there was little change in participants' ability to carry out addition, subtraction, multiplication, or division. **Entrepreneurship skills**: Component scores for the entrepreneurial self-efficacy score at endline showed that adolescent girls and women felt confident or very confident in their ability to conduct entrepreneurial tasks, except for their ability to separate business and household finances. **Agriculture-focused technical/vocational skills**: Overall results of knowledge assessments related to chickens and goats showed no change in agriculture-focused technical/vocational skills over time, but results were more positive if we examined only questions related to more practical knowledge for chicken rearing.
3: What was the change in women's knowledge and awareness of child labor, child rights, and gender equality before and after enrolling in EMPOWER?	• There were nearly no changes to women's and adolescent girls' perceptions of gender equity between baseline and endline. • There were no changes in quantitative measures of women's awareness of child labor and child rights.

Research question	Findings
4: What was the change in adolescent girls' and women's participation in business-oriented networks before and after enrolling in EMPOWER?	A small share of participants, mostly women, reported having participated in business and financial networks at endline. At endline, 9 percent of adolescent girls and 17 percent of women reported they had participated in a business network in the last three months; and 16 percent of adolescent girls and 37 percent of women reported they had participated in a financial network. (Based on implementer reports, we assumed that adolescent girls and women had no participation at baseline, so these numbers indicate change from zero.)
5: What was the change in adolescent girls' participation in acceptable work before and after enrolling in EMPOWER?	Changes in acceptable work among adolescent girls may not have been an appropriate outcome to measure for the evaluation because most adolescent girls aged into adulthood within a year of completing the program. By endline only 32 of 370 adolescent girls with data needed to estimate changes in acceptable work were still under 18 years old. This sample was too small to provide meaningful estimates for this outcome.
6: What was the change in adolescent girls' and women's participation in paid employment and self-employment before and after enrolling in EMPOWER?	• The share of adolescent girls who were paid for any type of work rose from 25 percent at baseline to 57 percent at endline. Without a valid comparison group, it is not possible to determine whether these changes were due to EMPOWER or other factors like adolescent girls' transition to adulthood. • We do not have baseline data on self-employment for adolescent girls and women or paid employment for women. At endline, while all participants were working, 68 percent of girl participants and 79 percent of women participants indicated that they worked in self-employment in the past year. For all types of work, almost all adolescent girls and women who were not self-employed worked as unpaid family workers rather than paid employees.

Learnings and suggestions

We summarize our learnings and suggestions below. These largely reflect the findings of the research questions outlined above and focus on suggestions for future projects.

Participation was a substantial challenge for EMPOWER, in part because of the time commitment required of adolescent girls and women. As we discuss in Chapter 4, the project experienced drops in participation as participants moved from enrollment to the life skills module to the vocational training module. Barriers included distance/travel time and household responsibilities. Although Winrock felt the distance and time commitment was manageable at project outset, women and adolescent girls especially had less time than expected to devote to the trainings. Adolescent girls had higher-than-expected rates of pregnancy and marriage and accompanying increases in household responsibilities.

Suggestion: Pilot what course schedule works for participants and better understand what constraints the target beneficiaries face to participation; work to adapt project activities to address these constraints.

Training alone may be insufficient to cause changes in adolescent girls' and women's work and employment outcomes. Though participants reported that EMPOWER helped them build critical skills for work — including literacy and numeracy skills and professional approaches to chicken and goat rearing — they also indicated about a year after the project that they were unable to apply key skills learned in the project. Specifically, participants indicated that they lacked the resources needed to start a business or to incorporate important practices like animal vaccination into their work.

Suggestion: Offer a more comprehensive project that will allow participants to apply skills learned in the project or seek out partners to provide complementary and supporting services.

The project demonstrated some improvements in basic literacy and numeracy and these aspects of the course were very popular among participants. The share of adolescent girls able to read a full sentence increased from 28 to 40 percent, and the share of adolescent girls and women unable to recognize one-digit numbers declined by 14 percent for adolescent girls and 22 percent for women. While

these are basic skills, and perhaps expected given that EMPOWER only offered 2-3 hours of literacy and numeracy per week for the duration of the life skills module, they are still an important project achievement. Participants clearly appreciated these lessons and indicated high demand for these skills.

Suggestion: Future youth life skills projects for adolescent girls and women in Eastern Zambia may want to consider incorporating more extensive literacy and numeracy programming.

The goal of changes to acceptable work may not have been a good fit for this project because most adolescent girls aged into adulthood within a year of completing the program and because some project activities were counterproductive to this goal. There were several challenges in implementing a project aimed at increasing adolescent girls' involvement in acceptable work. (See box above on the definition of acceptable work.) First, the project sought to increase access to acceptable work among adolescent girls, many of whom would age out of child labor, meaning they would turn age 18, within a year of project implementation. Second, the project promoted chicken and goat rearing while animal herding is a form of hazardous work that qualifies as child labor, potentially undermining project goals.

Suggestion*:* Projects seeking to make a meaningful change to adolescent girls' involvement in child labor should consider intervening before late adolescence; alternatively, projects that work with girls in late adolescence should consider whether acceptable work is the relevant outcome for this age group.

Business groups likely needed additional support to realize their full potential. We found that adolescent girls and women struggled to maintain the groups and secure access to the benefits Winrock sought for the business groups because: (1) it was hard for adolescent girls and women participants to maintain a shared vision and coordinate; (2) one year after project activities had ended, many groups still had not registered with the Ministry of Community Development and Social Services (MCDSS), which was supposed to provide groups access to financial and other supports after the project ended; and (3) even with groups that had sent an application to MCDSS (and paid the application fee), they were unable to confirm if their registration had been successful or if they would receive associated benefits.

Suggestion: If implementers want to support a business group model, participants need ongoing support, such as support to stay together and jointly manage their animal assets or support to follow up with MCDSS, to help them be successful.

Data that are useful for monitoring purposes might not necessarily meet evaluation needs. Winrock invested in designing an extensive monitoring evaluation system and collected several types of implementation data, including an intake survey, attendance records, and skills tests. These data were useful for tracking project activities, but they were not structured or collected in a manner conducive to an outcomes evaluation.

Suggestion: Ensure that implementer M&E requirements are feasible for the implementer to execute; if not, consider outsourcing complex data collection tasks to data collection experts or limiting what outcome measures the implementer is expected to collect.

Some aspects of project design proved too ambitious to implement in the context of Eastern Province. EMPOWER sought to reduce child labor in rural areas faced with high rates of poverty, school dropout, and limited educational and employment opportunities outside of small-holder agriculture. Winrock made changes to project design as it learned more about this challenging environment but EMPOWER continued to face contextual challenges once the project started. For instance, the technical/vocational training on chickens taught participants to rear broiler chickens, which required heavy maintenance including electricity, which was unavailable to participants. Also, animals included in

the start-up materials given to business groups at the end of this course arrived late or were unavailable in some cases. These and other challenges hampered facilitators' and participants' capacity to engage with course materials as intended.

Suggestion: Explore more piloting and other opportunities to better understand implementation context. Allow time to incorporate pilot findings into implementation. Engage in continuous learning and adapting to improve project implementation based on monitoring findings.

1. EMPOWER PROJECT OVERVIEW

In 2013, Zambia prohibited children under the age of 13 from working at all and children between ages 13 and 17 from working on activities that comprise child labor for their age group (GoZ 2013).[1] Despite these restrictions, an estimated 600,000 children and adolescents as of 2017 continued to engage in child labor in Zambia (Chama and Bwalya 2017).[2] Moreover, rates of child labor were particularly high in rural areas. As of 2012, 92 percent of children or adolescents who were involved in child labor worked in Zambia's agricultural sector and this prevalence of children and adolescents in agriculture has also persisted (DOL 2015).[3]

Working in hazardous conditions can have extremely detrimental effects on adolescents.[4] Adolescents working in agriculture can become sick from exposure to fertilizer, injured from using heavy machinery, or overheated from working in the hot sun for many hours (DOL 2015; ILO 2012). In addition, working usually comes at the cost of school (DOL 2015), and less schooling can limit employment options and long-term income potential. The consequences of child labor in Zambia can differ by gender. Adolescent girls are often expected to work while also taking on domestic chores (ILO 2012). The combination of work and domestic labor may contribute to adolescent girls' low levels of enrollment in and completion of upper grade levels relative to boys (GoZ 2014; UCW Program 2012). Adolescent boys, on the other hand, report higher levels of injury associated to hazardous work conditions (Guarcello et al. 2016).

One factor contributing to child labor in rural Zambia is that women have less household agency and face barriers to economic empowerment, which may inhibit them from influencing household decisions around employing children and adolescents (European Commission 2021). Women working in agriculture in rural Zambia are primarily employed in the informal sector, working on household farms or in small businesses, where they earn the lowest incomes of all working Zambian women, and are three times more likely than men to be unpaid for their work (Poulin 2014). Zambian women have other educational and economic disadvantages compared to men. They have lower participation rates in technical and vocational education programs and unequal access to household economic resources due to customary land allocation and inheritance laws in rural areas (World Bank 2013). These additional barriers hinder women's ability to find formal, paid employment in Zambia.

With the goal of reducing child labor and improving livelihood outcomes for women in households that are vulnerable to child labor, the U.S. Department of Labor (DOL) funded the $5 million Increasing Economic and Social Empowerment for Adolescent Girls and Vulnerable Women Project, known as EMPOWER. Winrock International implemented EMPOWER in 20 communities located in 7 districts of

[1] Throughout this report we use definitions of child labor developed by Winrock for the EMPOWER project (Winrock 2017a). These definitions are aligned with Zambia's Employment of Young Persons' Act (2013) and guidance from international bodies, including the International Conference of Labor Statistics. Children between ages 13 and 14 may do light work, which is work that does not exceed 3 hours per day, is not harmful to the health or development of the child and does not interfere with schooling. Children between ages 15 and 17 may work provided that the work is not hazardous or exploitive work, does not interfere with their education, and does not exceed 8 hours per day.

[2] A report authored by Understanding Children's Work (UCW) suggests that about 10 percent of children between ages 15 and 17 in Zambia are involved in child labor (Guarcello et al. 2016).

[3] We were unable to identify more recent statistics on child labor in Zambia, particularly for adolescent girls. Because participation in child labor depends on the conditions of work rather than participation in work (for children between ages 15 and 17), it is not possible to determine participation in child labor directly from employment statistics.

[4] The Evaluation Design Report (Beatty et al. 2018) contains a comprehensive review of literature related for the project and our evaluation approach.

Eastern Province – the region with Zambia's highest number of children and adolescents involved in child labor (UCW Program 2012).[5] Over its four-year implementation period (2017-2020), EMPOWER sought to deliver training and facilitate linkages to employment opportunities for 2,500 adolescent girls between ages 15 and 17 and 1,500 women. It also sought to involve 1,000 men and other community members in awareness-raising activities and secure commitments to reducing child labor from government, private sector, and other local stakeholders.

DOL's Chief Evaluation Office, in close collaboration with the Bureau of International Labor Affairs, contracted Mathematica to evaluate the effect of EMPOWER on adolescent girls' and women's skill acquisition, participation in acceptable work and employment, and other outcomes listed below (see Box 1.1). This report presents findings of the evaluation and outlines learnings and suggestions for future programming supported by DOL and other funders.

The evaluation used pre-post outcomes analyses to measure changes in outcomes and qualitative analysis to contextualize results. The pre-post analyses relied on pre-project outcome measures contained in Winrock's implementation databases and post-project survey data collected by Palm Associates (Palm), a Zambian survey firm hired by Mathematica. We also employed descriptive quantitative analyses for outcomes measured at endline. Data collection for the evaluation cohorts took place in 2019 (baseline), 2020 (interim), and 2021 (endline). Interim data collection took place a few weeks after the evaluation cohort completed project activities. Our evaluation sample covers 586 adolescent girls and 368 women at baseline, 393 adolescent girls and 209 women at interim, and 383 adolescent girls and 275 women at endline.[6] The endline qualitative data collection included 10 focus groups with adolescent girls and women and 47 interviews with project facilitators and 5 Winrock staff. The analysis mainly focused on DOL's research questions outlined in Chapter 2, related to: participation in EMPOWER; changes in skills targeted by EMPOWER such as life skills, entrepreneurship skills, and agriculture-focused technical/vocational skills; changes in participation in acceptable work, paid employment, and self-employment; and changes in women's knowledge and awareness of child labor, child rights, and gender equality.

[5] Winrock International is a nonprofit organization that implements social development projects in 46 countries with the aim of empowering the disadvantaged, increasing economic opportunity, and sustaining natural resources. See: https://winrock.org/ for more information.

[6] Table 2.2 includes more detail on the evaluation survey samples for adolescent girls and women.

1.1 Project objectives and activities

EMPOWER aimed to reduce child labor by increasing adolescent girls' (ages 15-17) access to acceptable work and women's access to livelihood opportunities.[7] Though the project aimed to benefit children of all ages by enhancing women's livelihoods and knowledge of the harmful effects of child labor, adolescent girls aged 15-17 were the primary beneficiaries. Winrock directly targeted adolescent girls involved or at risk of becoming involved in child labor. The project sought to promote adolescent girls' transition to acceptable work, or work conducted by adolescents ages 15-17 that is not considered child labor (is non-hazardous, non-exploitive, does not interfere with education, and does not exceed eight hours a day), by providing training and entrepreneurial support directly to them *and* to women in their households. Specifically, only women living in the target girls' households (usually adolescent girls' guardians) were eligible for the project to ensure that women's participation in the project would benefit adolescent girls indirectly.

Box 1.1 EMPOWER's primary objectives

1. Increasing access to acceptable work and high-quality training opportunities for adolescent girls, between ages 15 and 17 who are engaged in or at high risk of entering child labor
2. Increasing access to livelihood opportunities for vulnerable women whose households have children engaged in or at high risk of entering child labor
3. Increasing public awareness on child labor and gender equality
4. Strengthening collaboration between government, private sector, and civil society on the promotion of acceptable work for adolescent girls and vulnerable women

Programming for adolescent girls and women consisted of three activities: (1) a six-month training course with modules on life skills and technical/vocational skills; (2) chicken or goat business groups, which offered an opportunity to apply skills learned in previous activities and engage in self-employment; and (3) six months of follow-up services designed to support business groups' development and facilitate pathways to employment. EMPOWER also implemented awareness-raising activities for men (also from adolescent girls' households) and communities and worked to establish commitments to reducing child with local stakeholders, such as community leaders and local businesspeople. Adolescent girls and women were grouped into cohorts of about 30 adolescent girls and 20 women in 7 implementation sites (Figure 1.2). Winrock delivered programming to 3 or 4 cohorts of adolescent girls and women per implementation site. Below, we provide additional details on the project activities.

1.1.1 Activities for adolescent girls and women

The first of EMPOWER's three activities for adolescent girls and women was a **six-month course designed to strengthen life skills and technical/vocational skills**.[8] The course had two modules: (1) a three-month life skills module and (2) a three-month technical/vocational module. Adolescent girls and women completed separate, but similar versions of each course module.

The **life skills module** used lessons, discussions, and scenario-based exercises to strengthen participants' self-esteem, literacy and numeracy, knowledge of sexual reproductive health, entrepreneurship, and other work-readiness skills (Winrock n.de.). The module also sought to raise awareness of child labor, gender

[7] Throughout this report we used the term "adolescent girl" (or girl in table headings) to refer to girls ages 15-17 targeted by EMPOWER and the term "woman" to refer to women from girl's households that were also targeted by the project. We also use the term "participants" to refer to girls and women.

[8] Activities offered to adolescent girls and women were are also known as the Rural Entrepreneurship and Leadership Course (REAL) (Winrock 2017c). For simplicity we will not use this term and refer to all activities as EMPOWER or "the project."

equity, and child rights. Winrock drew the life skills module content from existing training materials, including literacy coursework published by the Zambian Ministry of Education and programming for adolescent girls previously implemented in Zambia (Winrock 2017b).[9] Local facilitators, many of whom were former schoolteachers, led the module's weekly sessions. Adolescent girls attended three sessions per week and women attended two sessions per week; each session lasted about three hours. Course facilitators also provided mentorship and visited participants with low attendance rates to encourage them to return to the project. Sessions took place in community facilities, such as schools or churches, located no more than 10 kilometers (about 6.2 miles) from participants' place of residence (Interviews with Winrock Staff 2020). In total, adolescent girls were offered 31 sessions and women were offered 20 sessions.

The **technical/vocational training module** provided hands-on instruction in chicken or goat rearing and entrepreneurship training.[10] Though a high share of households targeted by the project owned chickens or goats prior to EMPOWER, the project found that there were several challenges to ensuring that chicken and goat rearing was a profitable business opportunity. The project sought to improve the profitability of chicken and goat rearing by training participants on improved approaches to production (such as improved practices for housing and nutrition) and introducing new technologies. For, instance, the type of chicken the project focused on (broilers) were part of a more modern marketing chain than the village chickens traditionally owned by participants (Mumbuna et al. 2017). Winrock considered participant preferences regarding which animals they wanted to receive training about, along with logistical constraints, when assigning cohorts of participants to a type of animal training. The project assigned all participants completing the project at the same time to a single animal, either chickens or goats. During the first two months of the technical/vocational module, extension agents from Zambia's Ministry of Fisheries and Livestock led weekly sessions covering topics such as animal feed, housing, health, and occupational hazards and safety—an issue closely related to acceptable work—in the context of animal rearing. Volunteers (local

Box 1.2. Summary of EMPOWER activities for adolescent girls and women

Life skills module

Three months

Covered literacy and numeracy, sexual reproductive health, work readiness, and related skills.

Technical/vocational skills module

Three months

Focused on one technical/vocational training track (chicken or goat rearing) and entrepreneurship.

Business groups

One month or longer

Opportunity to join a group business dedicated to sale of chicken and goats.

Follow-up activities

Six months

Supported business group development and promote linkages to employment (through business mentorship, guest lectures, and introductory meetings to business networks, others).

[9] The life skills module drew on materials developed for the Adolescent Girls Empowerment Program (AGEP) previously implemented in Zambia, life skills training materials developed by UNICEF and the Red Cross, GO GIRLS- a Ghana based life skills program, among others (Winrock 2017b). The women's life skills module covered most materials covered in the adolescent girls' module but excluded lessons on self-knowledge, self-presentation, and team formation (Winrock 2021).

[10] EMPOWER focused on chicken or goat rearing following the recommendations of a market assessment implemented by Winrock at the start of the project. The assessment explored "needs, skills gaps, and profitable value chain opportunities for adolescent girls and women" and concluded that the most promising path for extending participant's access to acceptable work and livelihood opportunities involved strengthening participant's pathways to self-employment and existing livelihoods in the agricultural sector (Mumbuna et al. 2017). Raising village chickens and goats were among the five vocational tracks considered potentially profitable by the assessment. (All other profitable tracks focused on specific crops, such as groundnuts.)

businesspeople) implemented the module's entrepreneurship training that covered practical business skills (such as understanding the market for a product or service and managing business financials) and guided participants in preparing a business plan. In total, the adolescent girls and women were offered 26 twice-weekly sessions.

The last month of the technical/vocational module offered participants an opportunity to apply skills learned in the course and engage in self-employment, primarily through the formation of **chicken or goat business groups**. The project prioritized the formation of group-based rather than individual businesses considering that the groups provided participants with the opportunity to learn from each other and plan joint business ventures (Winrock 2017b). The project also anticipated group-based businesses to offer other advantages to participants, such as easier entry to formal markets and access to government support available to producer groups (Mumbuna et al. 2017).

Adolescent girls and women formed joint business groups, and participants who completed the course together often formed multiple business groups per site.[11] The project provided groups with start-up materials, animals, and other tools purchased for the training (e.g., vaccination and tagging equipment). These materials, along with the animals, were considered group property and the project called on groups to reinvest the profits of their initial sales into their businesses (for instance, by purchasing a new batch of animals or financing the construction of a shelter for their animals) (Orsini 2019, Interviews with Winrock Staff 2020).[12]

Finally, in the last six months of the project, adolescent girls and women received **follow-up services** designed to promote their transition to employment. The project's follow-up services were less structured than other activities as they did not follow a set curricula or schedule. Rather, a business mentor (a local businessperson who volunteered to support the project and received training on mentorship strategies) held monthly meetings with participants to deliver training topics such as financial management, record keeping, and market linkages. Business mentors also supported the delivery of other services listed in Table 1.1.

Table 1.1 Details about activities included in EMPOWER follow-up services

Follow-up service	Examples of activities
Mentorship	• Monthly meetings with a business mentor that delivered training on business on topics such as financial management, record keeping, and market linkages. • Peer mentorship such as peer-led sessions reinforcing literacy and numeracy skills and discussions of social topics (such as HIV/AIDS, COVID-19 prevention). • Continued engagement with project facilitators (in person or by phone) to receive advice on group operations (for example, consult with technical vocational facilitators on sick animal).
Guest lectures	• Lectures on animal rearing, such as lectures on animal feed and marketing goats delivered by Heifer International and sensitization meetings on foot-and-mouth disease provided by the Ministry of Fishery and Livestock. • Talks on financial literacy and assistance opening a bank account led by financial institutions partnered with the project (Atlas Mara, Zambia National Commercial Bank, NatSave)

[11] Winrock estimates participants typically formed two to three groups per site, though Winrock did not collect information on the number and size of these groups.

[12] Interviews with Winrock Staff (2020) refers to interviews Mathematica conducted with Winrock staff as part of the evaluation's data collection activities (see Chapter 2).

Follow-up service	Examples of activities
Connections to business networks	• Introductory meetings with existing business networks such as the District Women Development Associations (DWDA), who provided training on village savings and loans and invited participants to join the DWDA network. • Participation in the Rural Women's Entrepreneurship Network (RWEN) or outreach events organized by Winrock. RWEN was held during agricultural exhibitions hosted by the Ministry of Agriculture. At RWEN, participants staffed a stand showcasing their group businesses, attended presentations by the project's private sector partners and learned about support services available to agribusinesses, and networked with female entrepreneurs and other local businesspeople (including potential buyers), service provides, government institutions, among others.

Source: Winrock 2021

In practice, most follow-up services supported the development and continuity of business groups. For instance, Winrock invited participants to demonstrations by non-profit organizations on preparing chicken feed and assisted groups' registration with the Zambian Ministry of Community and Social Development (which could continue to provide monetary and other support to registered groups after the project ended) (Winrock 2020). Also, the project sought to implement follow-up services that would connect participants to existing business networks, such as livestock and small business associations, producer clubs, or chambers of commerce, to encourage them to join these groups (Winrock 2021). The project's main strategy for connecting participants to businesses networks, the Rural Women's Entrepreneurship Network (RWEN, see Table 1.1), introduced groups to private sector stakeholder interested in supplying inputs or purchasing groups' products.

1.1.2 Activities for men

Men, who were members of targeted adolescent girls' households, participated in a modified version of the life skills training module, focused on building awareness of child labor and gender equity (Winrock 2018a). Male participants met once a week for 3-hour sessions for a total of 11 sessions on topics including child rights, importance of education, gender equality, problem solving and decision making in the household. Men were also encouraged to participate in project activities implemented at the community level, which we describe below.

1.1.3 Activities for communities and local stakeholders

Winrock, in association with the Panos Institute of Southern Africa, an organization that specializes in developing information campaigns, provided activities to raise awareness of child labor, child rights, and gender equity to communities participating in the project. This included partnering with local radio stations to broadcast radio programs on these topics and implementing community sensitization events, such as radio listening clubs and town meetings. The project also engaged with local stakeholders from the government and private sector to build support for project activities for adolescent girls and women. For example, local businesspeople served as business mentors and guest lecturers such as RWEN presented to the participants. Local stakeholders also worked to secure commitments from local businesspeople for policies and procedures related to reducing child labor, such as Winrock's encouragement to private sector partners to establish gender standards in hiring and promotion (Winrock 2017b).

1.1.4 Adjustments to the project just before or during implementation

Over the course of EMPOWER's implementation, Winrock made several adjustments. Some of these adjustments represented shifts in the project's original design and others were in response to design inputs, such as the project's market assessment, carried out shortly before implementation began. First, the project originally planned on referring adolescent girls to school re-entry programs in addition to fostering linkages to employment. The project limited this activity to a handful of referrals, largely because there were so few re-entry programs available. Second, Winrock altered its approach to technical/vocational education. The project initially planned on providing participants with access to existing technical/vocational training programs, but found available programs were too far, costly, or advanced for most participants, due to low levels of educational attainment.[13] Hence, the project opted to create its own technical/vocational training programs with support from the Zambian Ministry of Fisheries and Livestock, who reviewed the course curricula and provided extension agents to support with implementation. Third, the project initially envisioned offering more than the two technical/vocational tracks on chicken and goat rearing. The project's market assessment (a study implemented by Winrock to identify market gaps and opportunities for participants) recommended offering training on another three tracks that could be profitable for participants.[14] However, because of cost and logistical constraints the project chose to largely limit training to two tracks and assigned all participants in the same cohort at each implementation site to train on the same track.[15] Fourth, the project reduced the scope of efforts to provide networking opportunities. Initially, the project planned on connecting adolescent girls and women to business networks *and* peer/social networks. The project proposed establishing an alumni network (through digital platforms or by hosting gatherings of participants from groups) that would connect project alumni and provide a space for sharing experiences and advice. Winrock staff indicated that they largely discontinued these efforts because participants had limited access to internet, sites were too far apart to transfer participants across sites, and other logistical issues. Finally, the project originally sought to deliver activities designed to strengthen women's access to financial services, including establishing village savings and loans associations. However, Winrock did not implement these activities as originally planned and the projects' financial supports did not seem to extend past activities focused on financial services, such as guest lectures by bank representatives.[16]

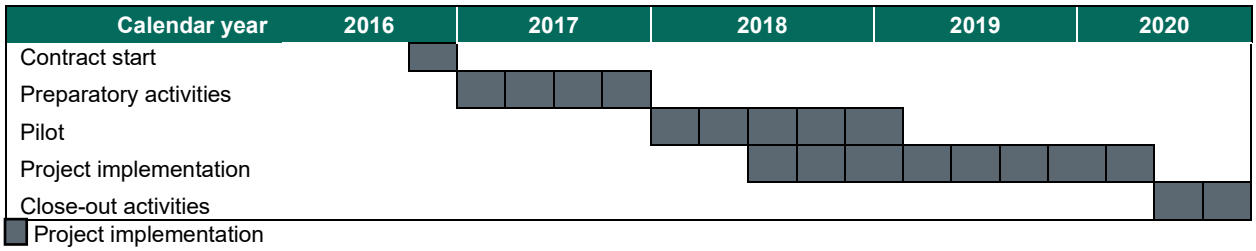
1.2 Site and participant selection

As shown in Figure 1.1, Winrock implemented EMPOWER over the course of four years (2017-2020), though most project activities were implemented the latter half of this period, June 2018 to October 2020. The first year of the project included preparatory activities, such as developing course curricula,

[13] Technical/vocational programs reviewed by Winrock only accepted applicants with completed secondary education whereas most project participants had only primary or some secondary education.
[14] The five vocational tracks that Winrock initially identified as profitable for participants were: groundnuts, soybeans, sunflower, goats, and village chickens. The project ultimately focused its chicken training on broilers (a modern type of chicken sold for meat) rather than village chickens (a more traditional, local type of chicken that could be used for meat and eggs) (Mumbuna et al. 2017).
[15] In addition to chickens and goats, Winrock also delivered training on catering and tailoring but, based on our discussions with Winrock staff, we understand the project offered these options to a very limited subset of participants.
[16] Specifically, Winrock pivoted towards mentoring participants on the value of savings and in gaining access to banks and mobile money after finding that participants' level of savings was too low to establish Village Savings and Loans Associations (Winrock 2021).

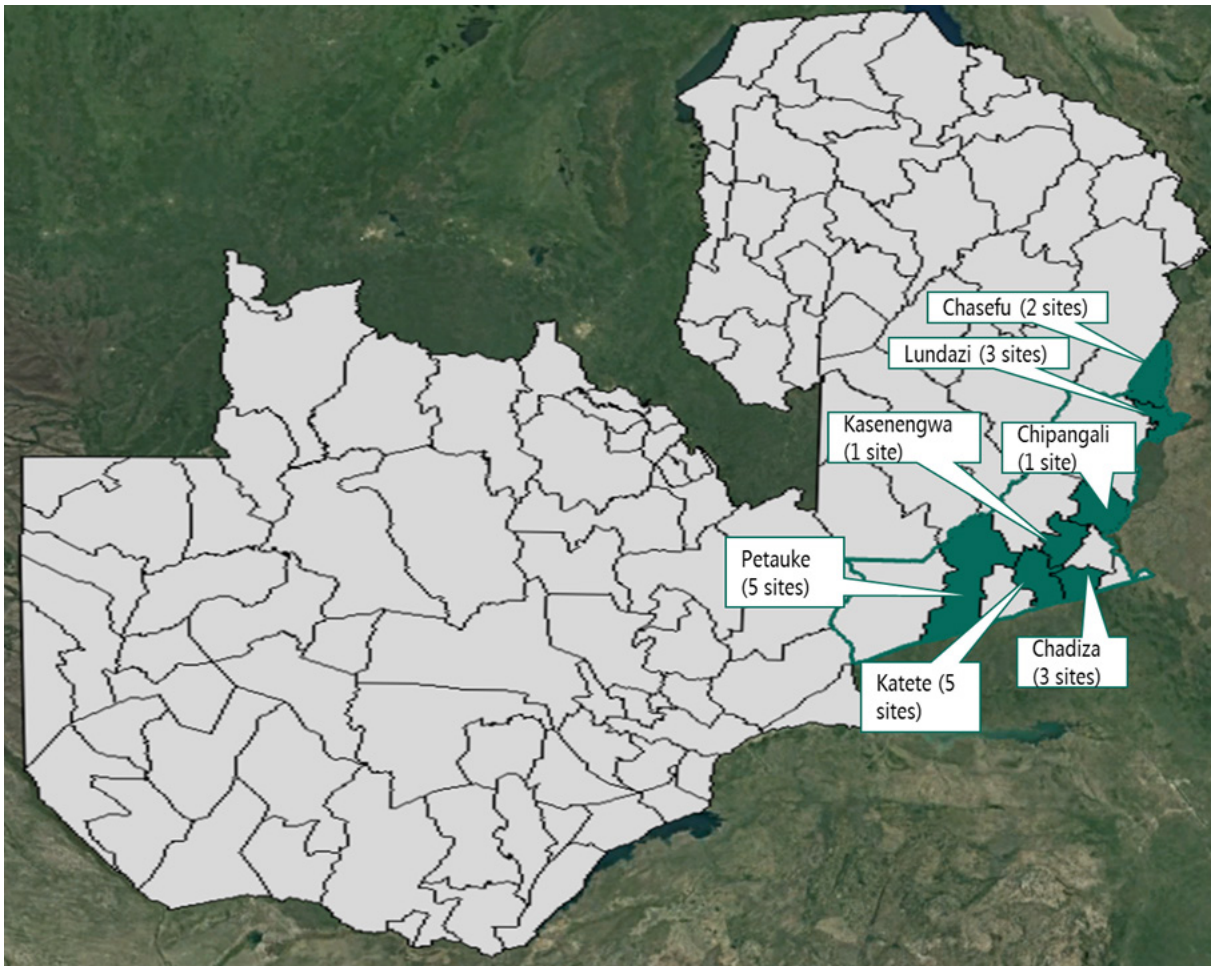
conducting the project's market assessment and finalizing the focus of the technical/vocational training and employment supports, and implementing a pilot in two sites (Kagoro and Kapoko).

Figure 1.1 EMPOWER implementation timeline



During this time, Winrock delivered project activities to 20 sites located in 7 districts of Eastern Province, Zambia. Winrock selected districts with the highest concentrations of rural poor, economic sectors that employ high proportions of children and adolescents, high child marriage rates and female school dropout rates (Winrock 2017d). Figure 1.2 shows the 7 districts and 20 site locations.

Figure 1.2 Districts of Eastern Province targeted by the EMPOWER project



Within districts, Winrock led consultations with local stakeholders (for example, district representatives and traditional leaders) and conducted community mapping to identify communities to serve as implementation sites. Winrock selected sites considering communities' demography (for example,

population of adolescent girls and prevalence of child labor) and conditions for implementation, including access to a road, availability of a radio signal, and leaders' willingness to support the project. All sites selected by the project had a public facility that would serve as the "hub" or physical location for project activities (Winrock 2017d).

Winrock delivered activities to three or four cohorts of adolescent girls and women depending on the implementation site. Cohorts were groups of participants (about 30 adolescent girls and 20 women) selected to complete project activities at the same time. Winrock originally planned to deliver project activities to 5 cohorts per site but, due to implementation delays, cut this number down to three in all sites except Kagoro and Kapoko (pilot sites), whose early start allowed for Winrock to implement a total of four cohorts.[17] Cohorts enrolled in EMPOWER at staggered start dates that initially were two to three months apart. However, another measure Winrock took to compensate for the project's late start was to reduce time between cohorts to 3 months and increased cohort size in 2019 from 55 adolescent girls and women to 65.[18]

To be eligible for EMPOWER, adolescent girls had to be between ages 15 and 17, engaged in or at risk of child labor, express interest and willingness to commit to the schedule of the life skills and technical/vocational skills modules, and live within 10 km (6.2 miles) of the project's implementation site (Interviews with Winrock Staff 2020). Winrock determined an adolescent girl's risk of being involved in child labor by calculating a "vulnerability score"; higher scores meant higher vulnerability and in turn higher priority for EMPOWER. The scores were derived from a screening questionnaire applied to all households in implementation sites by community volunteers. Screening questions included child labor status, the form of child labor, single household headship, the girl's household wealth and other factors, including having a sibling involved in child labor (Winrock 2018a).[19] Winrock also verified its selection through community consultations. Screening and prioritization occurred before the start of each cohort, so that the eligible pool of adolescent girls was updated for each new cohort, with start dates from March 2018 through October 2019.

The adolescent girls selected for the project determined women's and men's eligibility. Only adults living in the same household as adolescent girls selected for the project were eligible. In addition, Winrock based selection on women's and men's employment status (unemployed women were prioritized), ability to commit to the course schedule, relationship to adolescent participants (parents were prioritized), and willingness to commit to participating in the project.

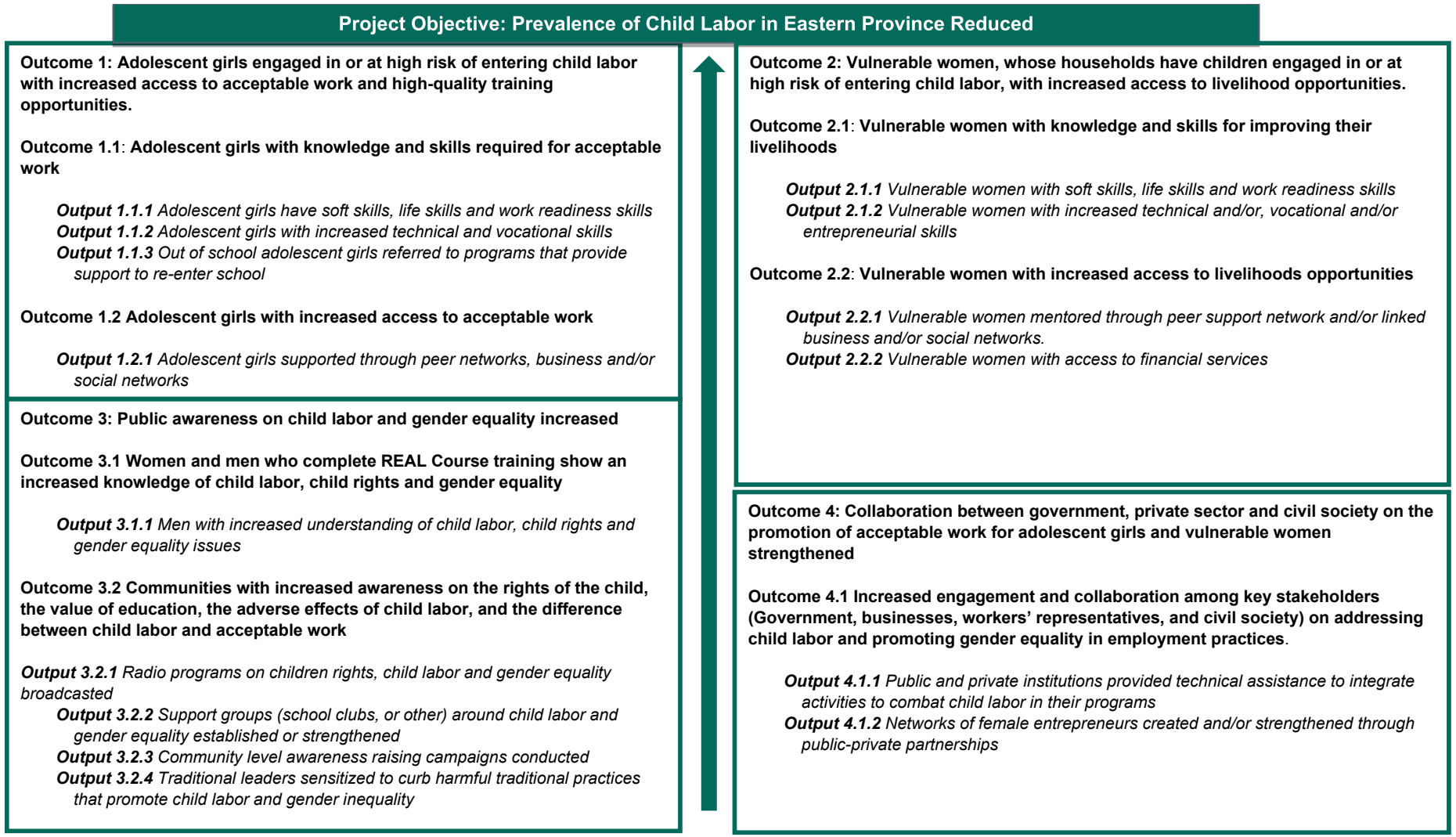
1.3 Logic model

1.3.1 Results framework for the EMPOWER project

The results framework for the EMPOWER project (Figure 1.3) summarizes the project's logic model, showing the linkages between the outcomes and outputs sought by project activities and its ultimate goal of reducing child labor in Eastern Province.

[17] Specifically, Winrock's preparatory period was longer than planned; it was extended due to project design revisions, a cholera outbreak, slow enrollment at project start, and other challenges (Winrock 2021 and Interviews with Winrock Staff 2020).
[18] The project intended to provide education or vocational/training services to 2,500 adolescent girls and 1,500 women and hoped that these measures would secure its ability to reach this goal, However, at project close, the project had only provided training to 1,740 adolescent girls and 1,216 women (Bowen and Chambeshi 2020).
[19] This included single women and men as household heads.

Figure 1.3 EMPOWER results framework[20]



[20] For the remainder of this report, we will call outcomes 1-4 outcomes and call all outcomes below this level (for instance, Outcomes 1.1 and 1.2) intermediate outcomes. Source for Figure 1.3: Winrock 2017b.

The results framework indicates that skill-building is the first step to increasing adolescent girls' and women's access to acceptable work and livelihood opportunities (Outcomes 1.1 and 2.1 in Figure 1.3). The project's modules on life skills and technical/vocational skills were designed to address gaps that constrain participants' livelihoods. The next step in the results framework involves facilitating pathways to employment opportunities that align with participants' improved skills (Outcomes 1.2 and 2.3 in Figure 1.3) The project's follow-up services intended to broaden participants' work by connecting participants to business, peer, and financial networks and providing entrepreneurship skills and an opportunity to pursue self-employment through the project's business groups. For adolescent girls, the employment transitions supported by the project were designed to reduce child labor by prioritizing access to acceptable work or entry into high-quality training programs. Women in the same households would have increased access to paid work such that increased income reduced households' reliance on child labor (a benefit that would support reductions in child labor among children of all ages living in women's households).

The project's awareness raising activities, including education on child labor and child rights provided in the life skills module and activities targeting men and communities, were also designed to support reductions in child labor. The project assumed that participants had a limited understanding of the meaning and consequences of child labor; thus, raising awareness about these issues would reduce the acceptability and use of child labor (Outcome 3 in Figure 1.3). Securing stakeholder commitments to reducing child labor was hoped to support direct reductions in child labor (for instance, by changing stakeholders' employment practices) and indirectly by supporting project implementation (Outcome 4 in Figure 1.3). Finally, awareness raising activities related to gender equity (also Outcome 3 in Figure 1.3) would alter perceptions of gender equity that contribute to adolescent girls being disproportionately involved in child labor and limit women's livelihood opportunities.

1.3.2 Evaluation focus

This evaluation covers project activities targeting adolescent girls and women. In particular, the evaluation's goal is to understand whether adolescent girls and women who participated in EMPOWER show evidence of increased skills accompanied by changes in acceptable work and employment, particularly paid employment. As mentioned in the Evaluation Design Report (Beatty et al. 2018), these activities were most amenable to evaluation and were of greatest interest to DOL. In addition, the outcomes of activities for adolescent girls and women capture some contributions of activities for men, communities, and stakeholders because, as we describe above, these activities were ultimately designed to support the project's objectives for adolescent girls and women.

The report is organized as follows: Chapter 2 discusses the technical details of the evaluation, including the research design, data collection, sampling, and analytical approach. In Chapter 3 we summarize background characteristics of participants and facilitators —the two main survey respondents for this evaluation. In Chapter 4 we answer research questions related to participants' participation in EMPOWER and how the project was implemented. Chapter 5 focuses on research questions related to the project's main objective: changes in women's knowledge and awareness of child labor; changes in women's and adolescent girls' skills target by the project, such as functional literacy, entrepreneurship skills, and agriculture-focused technical/vocational skills; changes in adolescent girls' engagement in acceptable work; and changes in adolescent girls' and women's engagement in paid work and self-employment. In Chapter 6 we describe the COVID-19 conditions in Zambia and how sample respondents faced the challenges of the global pandemic. We conclude in Chapter 7 with a summary of answers to the research questions and implications for future programming.

2. EVALUATION METHODOLOGY AND DATA SOURCES

In this chapter we present the evaluation methodology and data sources that we used to develop the findings in subsequent chapters. We begin by presenting the research questions and primary outcome measures for the evaluation. Next, we describe the evaluation design, which comprises a pre-post design examining how participants' outcomes changed after EMPOWER, a descriptive analysis of post-project outcomes, and an analysis of qualitative data from participants and facilitators. We then describe the data sources we draw on for the evaluation, provide an overview of the sample of adolescent girls and women for the quantitative analyses, and describe our analysis approach. We conclude by discussing limitations of the evaluation.

2.1 Research questions and outcome measures

The EMPOWER evaluation addresses six questions that cover changes in the outcomes of adolescent girls and women, outlined in EMPOWER's results framework (Figure 1.3). Below, we note in which chapter of this report we address each question.

1. To what extent did adolescent girls and women selected for EMPOWER participate in the program? How did participation vary by participant characteristics? (Chapter 4)
2. What was the change in adolescent girls' and women's skills targeted by EMPOWER, such as life skills, functional literacy, entrepreneurship skills, and agriculture-focused technical/vocational skills, before and after enrolling? (Chapter 5)
3. What was the change in women's knowledge and awareness of child labor, child rights, and gender equality before and after enrolling in EMPOWER? (Chapter 5)
4. What was the change in adolescent girls' and women's participation in business-oriented networks before and after enrolling in EMPOWER? (Chapter 5)
5. What was the change in adolescent girls' participation in acceptable work before and after enrolling in EMPOWER? (Chapter 5)
6. What was the change in adolescent girls' and women's participation in paid employment and self-employment before and after enrolling in EMPOWER? [21] (Chapter 5)

For each research question, we developed primary outcome measures (Table 2.1). Our approach to selecting these outcomes is described in the Evaluation Design Report (Beatty et al. 2018). This selection depended largely on the pre-project outcomes Winrock collected as part of the project's comprehensive monitoring and evaluation plan (Winrock, n.da), which we relied on as our pre-project data to assess changes in outcomes over time. We added several outcomes at endline that Winrock did not collect at

[21] EMPOWER's results framework indicates that increased access to acceptable work is the project's most important outcome for adolescent girls and that increased access to livelihood opportunities is the most important outcome for women. However, we adjusted question 6 so that it includes women *and* adolescent girls because, as we describe below, acceptable work only applies to girls between ages 15 and 17 and we anticipated that most adolescent girls would have transitioned to adulthood by the time we conducted endline data collection. By measuring changes to girls' livelihoods, we consider we will be exploring how meaningful aspect of girls' work as adults changed after they participated in EMPOWER.

baseline but were relevant to the research questions. We only have post-project data on these outcomes. Below, we describe the outcomes under each research question in more detail.

Table 2.1 Primary outcome measures by outcome domain

Evaluation question	Outcome domain	Level in results framework	Outcome measures	Availability	Location of findings
1	Participation	Intermediate outcome	• Participation (ever participated) by activity • Completion (attended at least 75% of sessions) by activity	Post-project only	Chapter 4
2	Skills	Intermediate outcome	• Gender Equitable Index (GEI)[a] • Rosenberg Self-Esteem Scale[b] (adolescent girls) • Literacy level[c] (adolescent girls) • Numeracy level[d] • Technical/vocational knowledge test score	Pre- and post-project	Chapter 5
2	Skills	Intermediate outcome	• Entrepreneurial self-efficacy score[e] • Rosenberg Self-Esteem Scale[b] (women) • Literacy level[c] (women)	Post-project only	Chapter 5
3	Awareness (women only)	Intermediate outcome	• Attitudes towards child labor score • Knowledge of child labor and child rights score	Pre- and post-project	Chapter 5
4	Network engagement	Intermediate outcome	• Participated in business and financial networks in past 3 months	Post-project only	Chapter 5
5	Acceptable work (adolescent girls ages 15-17 only)	Outcome	• Conducted acceptable work in past 30 days	Pre- and post-project	Chapter 5
6	Employment	Outcome	• Conducted paid work in past year (adolescent girls)	Pre- and post-project	Chapter 5
6	Employment	Outcome	• Engaged in self-employment in past year • Conducted paid work in past year (women)	Post-project only	Chapter 5

Notes: All outcomes are available for adolescent girls and women unless noted otherwise. Refer to Chapter 1 to view the project's results framework.

[a] The GEI is an index that intends to measure individual-level gender equitable attitudes among children and adolescents, typically based on 15 statements to which respondents are asked on a 4-point scale the extent to which they agree or disagree. Higher scores (out of 60) correspond to higher self-esteem and gender equitable attitudes. (Care 2014). This was measured at baseline and endline for adolescent girls; endline only for women. The endline survey omitted 1 question, and as such, the GEI was calculated on a scale of 56, instead of the typical 60.

[b] The Rosenburg Self-Esteem Scale is an index calculated using 10 questions that measure self-worth through positive and negative feelings about the self. Higher values correspond to higher self-esteem (Rosenberg 1965). This was measured at baseline and endline for adolescent girls.

[c] Literacy measures participants' ability to read a full sentence featured in the Demographic Health Survey's (DHS-7) literacy cards (DHS 2017). This was measured at baseline and endline for adolescent girls; endline only for women.

[d] Numeracy test items developed by the Zambian Ministry of Education assign participants to several categories of numeracy. This was measured at baseline and endline for adolescent girls; endline only for women.

[e] The entrepreneurial self-efficacy store measures participants' confidence in their ability to complete a number of business tasks (such as: estimating customer demand, select good employees, obtain a business loan). High levels of this score are indicative of higher business self-efficacy (McKenzie et al. 2017). This was measured only at endline for adolescent girls and women.

Research question 1: We defined project participation as having attended at least one session of either the life skills or the technical/vocational skills module. We used Winrock's definition of completion (attended at least 75 percent of sessions) to assess the share of adolescent girls and women completing each module. We defined participation in business groups and follow-up services using self-reports by participants at endline. We did not report completion for the business groups or follow-up services because Winrock did not establish a completion threshold for these activities.

Research question 2: This question aims to measure changes in skills targeted by the life skills and technical/vocational skills modules. Several of the outcomes used to answer this question are based on existing, validated measures. For instance, the Rosenberg Self-Esteem Scale and Gender Equitable Index (GEI) are standardized scales that have been validated for use in several contexts (University of Maryland 2021 and CARE 2014). Similarly, our measures of literacy and numeracy are based on test questions developed by the Demographic Health Survey and Zambia's Ministry of Education.[22] One key exception to these validated scales is the technical/vocational knowledge test score. This is an aggregate measure based on tests developed by Winrock that capture participants knowledge of definitions and practical skills related to chicken or goat rearing.[23] We report this measure as a percentage score (percentage of questions correct). We do not have baseline data for some of these measures or for women, so some of these outcomes are available post-project only.

Research question 3: Measures of awareness of child labor were also developed by Winrock and capture (1) women's perspectives on the acceptability of child labor, and (2) their ability to define child labor correctly. Both measures cover concepts related to the definition of acceptable work for adolescents ages 15-17 and child labor among younger children.[24] For example, one component of the attitudes towards child labor score asks women to what extent they agree to taking their children out of school to work hazardous jobs.

Research question 4: This question focuses on business-oriented networks. As we describe in Section 1.1, some of EMPOWER's follow-up services sought to connect participants to existing business networks such as women's and producers' associations. The project assumed that adolescent girls and women did not participate in any business networks before EMPOWER and introduced and encouraged

[22] We had pre-project data on a more extensive literacy test (that measured literacy based on participants' capacity to read to letter sounds, words, sentence stories). However, we opted to focus on participants' ability to read a full sentence because enumerator quality, interview length, and related factors are less likely to affect the quality and comparability of this measure.

[23] For instance, a definitional question on chicken rearing asked participants to identify what type of chicken is a Tender-meated chicken with a hatch weight of 38-40 grams which grows to over 1.7 kilograms in 6 weeks. A practical question on this subject was one that asked participants to identify the contents of a well-formulated chicken feed. Results for each individual question are in Annex B, Table 5.7.

[24] We discuss the definition of acceptable work for adolescents aged 15-17 below under research question 5; those girls engaged in work that is not acceptable are considered to be engaged in child labor. Winrock's definitions characterize child labor for children ages 14 and under as: (1) any work done by children ages 12 years or younger (2) work more than 3 hours of work per day (14 hours per week) or work that is not acceptable for children ages between 12 and 13 (Winrock 2017a).

participants to join these networks through RWEN and other follow-up services. Thus, we only report on post-project results for this measure. We considered adolescent girls and women as having participated in a business network if they reported meeting with women or other members of the community at least once in the past three months to discuss business opportunities. When asking about network engagement at endline, we differentiated between business networks and EMPOWER business groups by asking separate questions about the business groups and using examples to clarify the definition of business networks.

Although EMPOWER reduced the scope of activities focused on increasing women's access to financial services, some follow-up services (such as guest lectures on financial literacy) still supported this outcome. Hence, in addition to measuring participation in business networks, we also examined participation in financial networks (such as savings groups and mutual insurance groups) and receipt of financial services (including using bank account, getting a loan or sending a money transfer). We only report on post-project results for this outcome. We considered adolescent girls and women as having participated in financial networks or received financial services if they took part in a financial network or used a financial service at least once in the last three months.

Research question 5: In Zambia, adolescent girls between ages 15 and 17 are of legal working age. Participation in child labor is not based on involvement in work alone, but on conducting work that is not acceptable because it is hazardous, exploitive, or otherwise harmful. In other words, adolescents in this age group are involved child labor if they conduct work that is not acceptable work. To measure adolescent girls' involvement in acceptable work, baseline and endline data collection teams verified whether any work they conducted in the past month involved conditions in Winrock's definition of child labor (for instance, work that involves long hours, carrying heavy loads, exposure pesticides, animal herding, verbal abuse, other conditions listed in Figure 2.1). We considered adolescent girls as having conducted acceptable work if they did not work under *any* condition associated with child labor. This means that adolescent girls were involved in child labor if, for example, they worked before sunrise or after sunset but did not work under any other hazardous conditions. We measured acceptable work using a one-month reference period because there are many conditions that qualify as child labor making it unlikely that adolescent girls could provide an accurate record of their work conditions over a longer recall period. The major challenge with analyzing outcomes for acceptable work is that most adolescent girls were above 18 years old by endline and thus the definition of acceptable work no longer applied to them. We were therefore left with a very small sample (32 adolescent girls) from which to draw conclusions about changes over time in acceptable work. We discuss the limitations surrounding this analysis in Section 5.4.2.

Research question 6: Winrock's definition of work includes all activities that generate goods and/or services for sale or own consumption (Winrock 2017a). This includes a broad range of activities, such as paid and unpaid work, but excludes regular household chores (for instance, cooking, cleaning, caring for household members, minor repairs). We considered adolescent girls and women as employed if they conducted activities that classify as work in the past year (additional tables found in Annex B also provide information on work in the past month and week). We used information on the characteristics of participants' work activities to assess involvement in paid work and self-employment.[25] We only have

[25] For instance, at endline, enumerators asked participants who were working to indicate what type of work activities they did in the past year (for example, crop farming, hair dressing, or goat rearing), whether they received payment for these activities (in cash or in goods or services), and if they completed activities as part of own account work or a business they owned or partially owned. We used this information to determine if girls and women received payment (for any activity and, individually, for key activities) and were self-employed.

post-project employment data for women and thus cannot look at these measures over time for this population; data on paid work for adolescent girls are available both pre- and post-project while data on self-employment for adolescent girls are only available post-project.

Figure 2.1 Work considered child labor for adolescent girls ages 15-17

Working long hours	**Working in the dark**
Working more than 8 hours per day	Working before sunrise
Working more than 43 hours per week	Working after sunset
Working in hazardous conditions	**Carrying heavy loads**
Spraying of pesticides or herbicides	Carrying a 10-liter container (all times)
Other toxic chemicals and gases	Carrying a 5-liter container (more than 30 mins)
Extreme heat for long hours	**Working in hazardous activities**
Dust	Herding farm animals
High levels of noise	Selling or serving in bars
High voltage	Operating power or manual driven machinery
Working underground	Using or handling sharp cutting tools
Working at a great height	Handling tobacco on all stages of production
Falling objects	Handling cotton on all stages of production
No ventilation	Making bricks or blocks
Near or in water that may carry disease or infections	Burning charcoal
Insufficient light	Crushing stones
Working in an industrial undertaking (adolescent girls age 15 only)	Doing excavation or drilling
Mining, quarrying, or any other works to extract minerals from the earth	Welding
Construction, maintenance, repair, or demolition	Using explosives
Manufacturing, production, processing of other goods/articles or transformation of materials	**Other harmful conditions**
Transportation of passengers or goods by road or rail (excluding by hand) and handling of goods at docks, warehouses	Constantly shouted at
	Repeatedly insulted
	Beaten/physically hurt
	Sexually abused

Source: Winrock 2017a.

Notes: EMPOWER's definition of acceptable work asserts that work must not interfere with schooling to be considered acceptable. In practice, we do not include this condition in our definition of acceptable work because all adolescent girls included in our sample were out-of-school at project start (as a condition of their eligibility for EMPOWER). Also, following Winrock, we do not measure work considered to be a worst form of child labor (slavery, prostitution, involvement in illicit activities).

2.2 Research design

To answer the research questions described above, we implemented a mixed methods evaluation that was comprised of quantitative and qualitative components. The former included both a pre-post outcomes analysis and descriptive analysis, and the latter involved analyzing information from focus groups with participants and interviews with implementers.

Our approach to the quantitative component depended on whether outcome data was available pre- and post-project or post-project only (Table 2.1). For outcomes available in both periods, we conducted a **pre-post outcomes analysis** that estimated the change in participants' outcomes after EMPOWER. Implementation data collected by Winrock provided pre-project (baseline) outcome measures and survey

data collected about 12 months after participants completed the project provided post-project (endline) outcome measures.[26]

We used **descriptive analyses** to examine endline survey data on participant outcomes that Winrock did not collect at baseline, including women's employment, literacy, and other outcomes, like entrepreneurial self-efficacy. We also used descriptive analysis to present quantitative data on participants' characteristics and implementation, including on data on participation and completion of project activities, drawing on Winrock's implementation data and a brief survey that we conducted immediately after project completion (the interim survey).

We conducted **qualitative analyses** using data from focus group discussions with adolescent girls and women and in-depth interviews with course facilitators and Winrock staff to gather perspectives on how participant and facilitator characteristics, project design and implementation, and other contextual factors contributed to project outcomes. These data also include perspectives on topics such as project activities that were considered most useful by respondents and helped identify results that may not be fully represented by our pre-post study. The qualitative data captured stakeholders' experiences at two points in time: at project completion (facilitators and Winrock staff) and 12 months after participants completed project activities (adolescent girls and women).

2.3 Data sources and sample

In this section, we provide more details on the evaluation's data sources and define the sample of adolescent girls and women included in our analysis. We also discuss non-response and other challenges that affected data completeness.

2.3.1 Overview of data sources

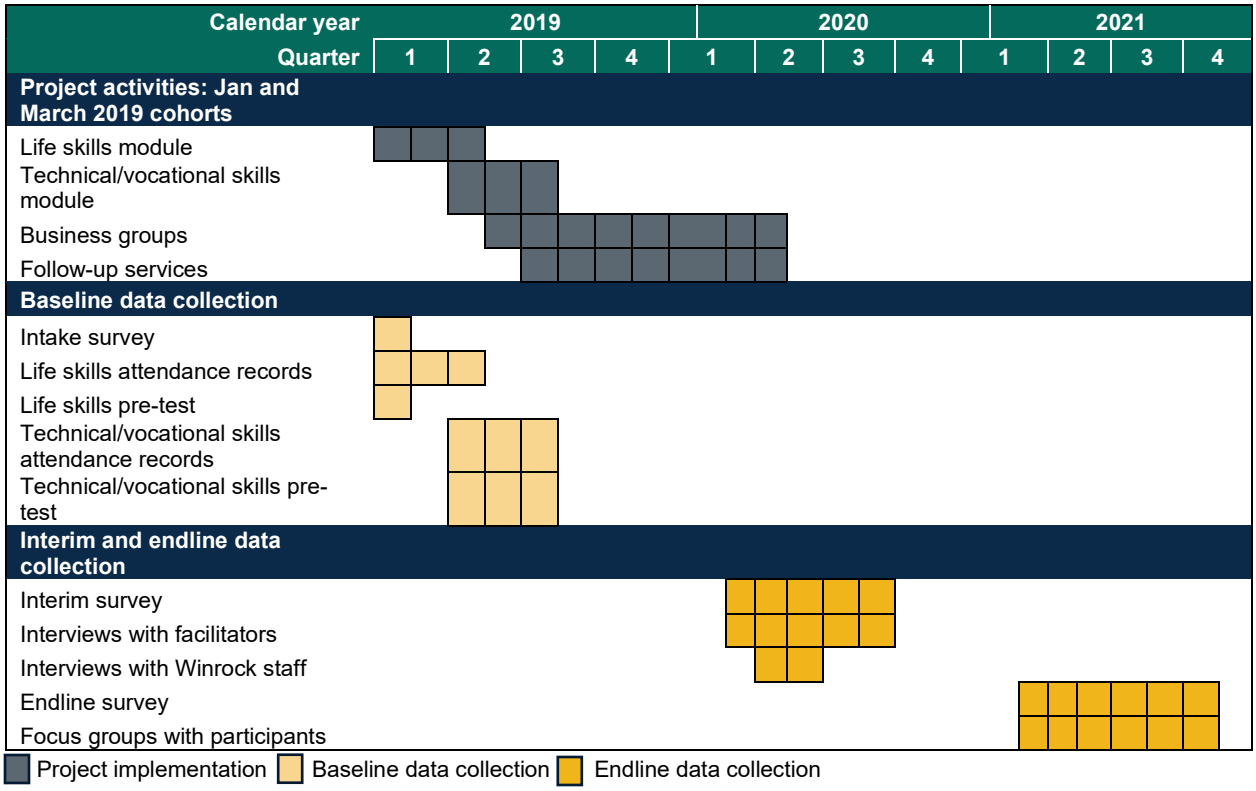
We produced the results included in this report using implementation data collected by Winrock and survey and qualitative data collected by Palm.[27] As Figure 2.2 shows, data collection for the evaluation cohorts took place in 2019 (baseline), 2020 (interim), and 2021 (endline). Winrock collected what we call the "baseline" data, including: (1) an intake survey administered at project enrollment (January and March 2019); (2) skills pre-tests collected at the start of the life skills module (January and March 2019) and technical/vocational skills module (March and May 2019); and (3) attendance records covering the duration of these modules. Palm collected all interim and endline data. Interim data collection took place a few weeks after the evaluation cohorts completed project activities (April to September 2020) and was comprised of a phone-based survey of participants and interviews with project facilitators and Winrock staff. Endline data collection took place one year after the evaluation cohorts completed the project

[26] In the early stages of this evaluation, we considered using a randomized control trial (RCT) to evaluate EMPOWER. This design involved randomly assigning eligible participants to the project to produce rigorous estimates of project impact. However, to be successful, RCTs require that project implementation is stable, rather than continually evolving. Through the implementation pilot in Kagoro and Kapoko, it became clear that course content and structure was still being developed. In this context, conducting an RCT would not be the best methodology to answer the evaluation's research questions.

[27] The University of Zambia's Biomedical Research Ethics Committee granted IRB approval for all interim and baseline data collection activities. The committee approved interim data collection activities on June 4,2020 and endline activities on March 29, 2021. The commission approved both requests as an extension of a broader IRB approval that Mathematica obtained on April 30, 2019 for the evaluation of the EMPOWER project. At endline, Palm also sought and obtained additional IRB approval from Zambia's National Health Research Authority (NHRA), in response to recent regulations enacted in Zambia. The NHRA approved Palm's request on April 23, 2021.

(March-July 2021) and included in-person surveys and focus groups with participants. The baseline and endline surveys provide measures for the pre-post outcomes analysis and endline descriptive analysis, whereas the interim and qualitative data yields information on implementation and other factors to contextualize outcome findings.

Figure 2.2 Project and data collection timeline



2.3.2 Targeted sample

As we described in Chapter 1, Winrock implemented EMPOWER in 20 sites located in seven districts in Zambia's Eastern Province. Within each site, three to four cohorts of adolescent girls and women started project activities at staggered start dates; the first cohort started in March 2018 and the last ended in July 2020. To maximize coverage of the project's geographic area, we included one cohort of adolescent girls and women per site in the evaluation. The evaluation included sites' second or third cohorts of adolescent girls and women, all of whom started project activities in January or March of 2019.[28] We selected these later cohorts because a later cohort would allow Winrock sufficient time to test and streamline implementation before being evaluated. A total of 715 adolescent girls and 404 women were enrolled in these cohorts and served as the core sample targeted for the evaluation. Table 2.2 shows the number of sample adolescent girls and women in each data collection effort and the criteria for selecting them into the sample.

We used implementation data that Winrock collected as part of the project's Comprehensive Monitoring and Evaluation Plan (CMEP) as **baseline data** for the evaluation. As we described above, the baseline data included an intake survey Winrock administered at enrollment, which included pre-project levels measures of acceptable work and employment outcomes, as well as various pre-tests on skills targeted by

[28] We will refer to these cohorts as the evaluation cohorts.

EMPOWER. Winrock did not collect baseline data from all adolescent girls (715) of the January to March 2019 cohorts due to drop out, non-response, and data collection errors. They also collected no baseline intake survey data from 404 women who were also part of this cohort.

The targeted sample for the **interim survey** included 616 adolescent girls who attended at least one session of the life skills module and who had completed the intake survey. We defined this sample of adolescent girls using attendance records for the life skills module. Ideally, we would have included adolescent girls who attended at least one session of the life skills or technical/vocational skills modules, per our definition of program participation, but data on attendance to the technical/vocational skills module was not available at the time of the survey.[29] Palm did not directly target a specific list of women at interim, as Winrock did not conduct the intake with women and therefore were unable to provide phone numbers for them. Instead, Palm sought to interview women EMPOWER participants in the households of the targeted 616 adolescent girls, which we estimated to be 500. About 64 percent of adolescent girls and 42 percent of women in the targeted sample responded to the interim survey. These are comparable to the response rates of recent telephone surveys conducted in Sub-Saharan Africa (Himelein et al. 2020). Response rates were likely higher for adolescent girls because Winrock only provided telephone contacts for adolescent girls, who were thus were easier to reach.

The targeted sample for the **endline survey** included 586 adolescent girls who: (1) completed the intake survey; and (2) participated in at least one session of the life skills module or the technical/vocational module (that is, participated in the EMPOWER using our definition). Because intake data were not collected for women, the women's endline sample included 368 women who met criterion (2) only. The pre-post outcomes analysis thus measures changes in the outcomes of adolescent girls and women who were selected for EMPOWER *and* chose to participate, at least very minimally, in the project. About 65 percent of adolescent girls and 75 percent of women in the targeted sample responded to the endline survey.[30] Women may have had higher response rates than adolescent girls at endline because they were less likely to move for marriage and other reasons, as we discuss in more detail in Chapter 3.

Qualitative data collection sought to include all 58 life skills and 19 technical/vocational facilitators, 5 key Winrock staff involved in project design and implementation, and a sample of adolescent girls and women with high participation. For the interviews, we successfully interviewed 29 life skills and 18 technical/vocational facilitators, as well as the 5 Winrock staff.

For the focus groups, we focused on adolescent girls and women with high participation rates because many of our qualitative questions were about experiences with EMPOWER and we wanted to gather data

[29] We limited the interim and endline samples to girls who participated in the project (rather than those enrolled but did not participate at all) because an initial review of Winrock's participation databases showed that about 10-15 percent adolescent girls and women who enrolled in the course attended no sessions and that a small subset of participants participated in one course module without completing the intake survey. Including these participants in the sample would not have allowed us to clearly establish to whom our results applied and allowed us to focus on adolescent girls for whom we had baseline level outcome measures for acceptable work and employment.

[30] These rates were anticipated by the Evaluation Design Report, where we hoped to achieve a response rate of 85 percent. We discuss how this limitation affects the evaluation in Section 3.3. The lower response rates were due to higher-than-expected mobility and less-comprehensive-than-expected contact information from participants. Specifically, almost two-thirds percent of endline non-response for girls was due to mobility (mostly marriage-related). Further, the inability to find respondents using available contact information accounts for most of women's non-response (45 percent) and a high share of girls' non-response (24 percent), despite Palm's recruitment of local guides to help locate participants by consulting community members. The limitations of the available contact information included imprecise geographic identifiers, incomplete or duplicate names, and limited availability of valid direct phone numbers.

from participants who had higher exposure to the project (5-10 women participated in each group). Palm conducted focus groups discussions in 6 of the project's 20 implementation sites. We selected sites where at least 50 percent of adolescent girls and women enrolled in the project participated in the life skills and technical/vocational skills modules; we also sought to cover at least four districts included in the project. The sites that participated in the focus groups are: Chimutende (Katete District), Dole (Katete District), Egichikeni (Chasefu District), Mwanjawanthu (Petauke District), Nyamphande (Petauke District), and Zingalume (Chadiza District).

Within sites, Palm generated a list of potential participants (ordered by rates of participation in the life skills and technical/vocational skills modules) and recruited adolescent girls and women with the highest participation rates. On average, adolescent girls who participated in the focus groups participated in 91 and 77 percent of sessions for the life skills and technical/vocational skills module and women participated in 83 and 86 percent of these sessions, respectively. There were 10 focus groups in total, 6 for adolescent girls and 4 for women, and each focus group had an average of 8 participants.

Table 2.2 Summary of EMPOWER survey samples for adolescent girls and women

		Girls			Women		
Survey	**Criteria for including in the sample**	**Target sample**	**Completed interviews**	**Response rate (%)**	**Target sample**	**Completed interviews**	**Response rate (%)**
Baseline	All participants (adolescent girls and women) enrolled in the January and March 2019 cohorts	715	NA	NA	404	NA	NA
Interim	All adolescent girls who attended at least one session of the life skills module, and women EMPOWER participants in their household	616	393	63.8	500	209	41.8
Endline	All adolescent girls and women who attended at least one session of the life skills or technical/vocational modules and for whom intake data are available	586	383	65.4	368	275	74.7

Source: Baseline (2019), interim (2020), and endline (2021) surveys.

Notes: NA = not applicable. Results reported in numbers unless otherwise noted. The baseline databases were not designed to collect data from a consistent group of adolescent girls and women. Therefore, though the sample size listed for this group includes all adolescent girls and women in the evaluation cohorts, the actual sample of participants that Winrock sought to include in its baseline databases may differ. For example, Winrock only sought to collect technical/vocational skill test data from adolescent girls and women who participated in the project and enrolled in the technical/vocational skills module rather than those who dropped out earlier. At interim, Palm did not directly target 500 women. Rather, they targeted 616 adolescent girls and sought to interview women in those adolescent girls' households who also participated in EMPOWER, estimated at 500.

2.3.3 Baseline data

Winrock collected a variety of data that captured adolescent girls' and women's progress at key points in the project's implementation timeline (Figure 3.1).[31] Winrock attempted to interview all relevant adolescent girls and women participating in project activities at the time each source was collected. (For instance, Winrock sought to administer life skills tests to all participants attending the life skills module and technical/vocational skills tests to all participants attending the technical/vocational skills module.) Below, we describe the three sources of implementation data that we used to measure participation and baseline outcomes levels: (1) the intake survey; (2) life skills and technical/vocational skills pretests; and (3) attendance records.[32]

The **intake survey** gathered background information on participants and pre-project measures of acceptable work and employment. As we discuss below, the intake survey was only collected for adolescent girls. The intake survey included questions on adolescent girls' individual and household characteristics (for instance, educational attainment, socio-economic status, ownership of agricultural assets), work conducted in the last year, and the characteristics of adolescent girls' work activities (for instance, the type of activity and whether activities were paid). A subset of the survey's questions on work, collected detailed information on adolescent girls' work conditions (for work conducted in the past month) aimed at determining if adolescent girls were involved in acceptable work.

Winrock conducted **pre-tests on life skills and technical/vocational skills** at the start of each course module; these tests provided pre-project measures of skills. The pre-tests covered literacy and numeracy, knowledge of chicken and goat rearing, and basic business accounting skills. The life skills pre-test also assessed skills like self-esteem, and knowledge and perspectives of gender equity and child labor. Adolescent girls and women completed slightly different versions of some tests. For instance, women did not answer questions on self-esteem included in the life skills test.

Attendance records tracked session-level participation in the life skills and technical/vocational skills modules. We used these data to understand whether adolescent girls and women participated in project activities and the extent of their participation (percentage of sessions attended). Winrock did not collect data on participation on EMPOWER business groups or follow-up services.

Table 2.3 shows the number of observations available by source for the 715 adolescent girls and 404 women enrolled in the evaluation cohorts. All baseline databases had missing observations. For instance, 667 out of 715 adolescent girls completed the intake survey. Some adolescent girls did not complete the intake survey because they enrolled in EMPOWER after Winrock collected the data. Winrock excluded all women from the intake survey because of logistical and cost concerns. The number of observations available decreases for all subsequent data sources due to drop out, non-response, and data collection errors.[33] Therefore, our analysis sample for the pre-post outcomes analysis varies depending on baseline data availability for each baseline data source and specific outcomes therein.

[31] Annex A provides an overview of technical assistance Mathematica provided to Winrock throughout data collection.

[32] In addition to these sources, Winrock collected life and technical/vocational skills post-test (that measured skill levels at the end of each module), an entreprenuership skills test (applied during the technical/vocational skills module), and an outtake survey (collected after project completion, in late 2020). We do not use these data because we did not receive some sources and others were only available for a small subset of adolescent girls and women.

[33] A major data collection shortcoming is that technical/vocational skills tests were lost in Kameta and in Mwase.

Table 2.3 Number of adolescent girls and women included in baseline data sources used for the evaluation

Source	Key contents	Number of girl respondents	Number of women respondents
Intake survey	Participants' baseline characteristics and levels of outcomes related to work	667	NA
Life skills attendance records	Number of life skills sessions attended per participant	715	404
Life skills pre-test	Baseline levels of life skills and awareness of child labor	582	298
Technical/vocational skills attendance records	Number of technical/vocational skills sessions attended per participant	445	273
Technical/vocational skills pre-tests test	Baseline levels of technical/vocational skills	327	195

Source: Baseline data (2019).

2.3.4 Interim and endline surveys

As discussed above, interim and endline data included surveys that were collected shortly after participants in the evaluation sample completed project activities (interim) and one year after evaluation cohorts completed project activities (endline), as well as qualitative data at endline, described in the following sub-section.

The **interim survey** was a telephone survey of adolescent girl and women participants that gathered perspectives on project implementation and some outcomes of interest to the evaluation, such as changes to work and perspectives on child labor. Palm implemented this survey instead of focus groups planned for the same period because the anticipated start date for the focus groups (April 2020) coincided with the onset of the COVID-19 pandemic and Zambia's most stringent pandemic-related restrictions (up to that point). The Zambian Government permitted only limited mobility around the country and our only alternative to the in-person survey was to try to reach participants by phone. Because the survey was implemented by phone, we limited the survey's duration to 20 to 30 minutes and mainly asked closed-ended questions that required minimal explanation or probing. This approach limited the extent and detail of the information covered. Nonetheless, the phone surveys provided an opportunity to collect data on participation, expand available contact information (for endline follow-up), and capture participants' experiences with COVID-19.

The **endline survey** was an in-person survey of adolescent girl and women participants that focused on measuring post-project outcome levels. In addition, the survey included information on participants' characteristics and participation in project activities, including those not covered by Winrock's attendance records. We drew the content for most sections of the endline survey from Winrock's intake survey and skills tests, using the same question format, order, and other design features when possible. Some questions on participant characteristics and outcomes are unique to the endline survey, including questions on food security, household decision-making, and entrepreneurial self-efficacy. We added these questions to expand on the information collected for key outcomes (for instance, household characteristics) or to replace missing data (for instance, Winrock's entrepreneurship skills tests). The endline also included questions on project implementation that complements data collected in the interim survey.

2.3.5 Focus groups and in-depth interviews

The endline **qualitative data** were collected through focus groups with adolescent girls and women and interviews with project facilitators and Winrock staff. Palm collected all qualitative data other than interviews with Winrock staff, which Mathematica conducted. These data provide additional information on participant and facilitator characteristics and perspectives on project design and implementation. Through the qualitative work, we were able to explore special topics of interest, like project activities that participants considered most and least useful and ways in which EMPOWER contributed to participants' lives that are not represented in the evaluation's research questions outlined earlier. Table 2.4 summaries the qualitative data sources, including the main topics covered during focus group discussions and in-depth interviews.

Table 2.4 Summary of qualitative data sources

Source	Key topics
Focus groups with adolescent girls	• Current work and the characteristics of work activities (including whether work is paid) • Changes in skills and work associated with EMPOWER • Most/least useful topics and skills covered by the skills modules, business groups, and other project activities • Business group activities and sustainability • Changes in awareness and practice of child labor
Focus groups with women	• Same as above
Interviews with life skills facilitators	• Participants' motivations for joining the course module, barriers to participation, and ability to teach and use course materials • Project outcomes and how skills learned in the module contributed to project outcomes • Follow-up and engagement with participants after module completion
Interviews with technical/vocational skill facilitators	• Same as above • Contributions to business group development • Lessons and challenges for the business groups
Interviews with Winrock staff	• Changes to project design and timeline • Successes and challenges of implementation • Project outcomes and how the project contributed to these outcomes • Project legacy and lessons for others

2.4 Analytical approach

Below we describe the pre-post and qualitative data analyses used to generate the results presented in Chapters 4 and 5. Also, we briefly describe our approach to analyzing participation. We implemented all analyses described here separately for adolescent girls and women.

2.4.1 Pre-post outcomes analysis

The pre-post outcomes analysis used changes in the individual outcomes of adolescent girls or women who participated in EMPOWER to estimate the average change in the outcomes of each group. Specially, we estimated the mean of the change in adolescent girl and women's individual outcomes between baseline and endline and used a t-test to determine whether the mean change for each outcome was statistically significant from zero (which indicates no change). Estimating the average change by using

the mean of individual changes allows us to account for individual characteristics that are fixed over time. We applied this approach separately for each pre-post outcome measure described in Chapter 2.[34]

Because these analyses relied on tracking the same individuals over time, they included only adolescent girls and woman for whom we had data on outcomes at baseline *and* endline. This pre-post analysis sample of participants varied by outcome due to variation in the number of observations available for the data sources used to measure outcomes levels at baseline. Table 2.5 shows the number of observations available at baseline and endline by participant type and outcome domain (described in Section 2.1).

Table 2.5 Baseline and endline data availability for adolescent girls and women by outcome domain

	Total	Baseline data only	Endline data only	No baseline or endline data	Baseline and endline data (pre-post analysis sample)
Adolescent girls					
Acceptable work and employment	586	214	2	0	370
Life skills	586	193	36	25	332
Technical/vocational skills	586	112	121	150	203
Women					
Acceptable work and employment	368	NA	263	105	NA
Life skills	368	67	55	48	198
Technical/vocational skills	368	49	104	74	141

Notes: NA means not available. The "total" column lists the number of adolescent girls or women who we selected into the endline sample (that is, all adolescent girls and women in the evaluation cohorts who participated in at least one session of the life skills or technical/vocational skills module). Adolescent girls/women listed in the "Endline data only" column were included in the endline sample but did not complete Winrock's intake survey or skills tests at baseline. Adolescent girls/women with "No baseline or endline data" were also selected for the endline sample but did not participate in the endline survey (because Palm could not locate them and other reasons) and had not completed the Winrock's intake survey or skills tests at baseline.

2.4.2 Descriptive analyses

We use descriptive statistics — for example means, distributions, minimums, and maximums — to examine several variables, including participant characteristics, project participation, and outcomes only available at endline. We typically report on all data available for the sample of interest when presenting descriptive characteristics. For instance, we discuss changes to participants' characteristics between baseline and endline using data for all adolescent girls and women for whom we have baseline and endline data. When reporting outcomes only available at endline, we show all endline available for adolescent girls and women in the analysis sample (we focus on the analysis sample because our pre-post outcomes analyses focus on adolescent girls and women in this sample). Finally, to provide a comprehensive picture of participation, our analyses of participation and completion cover the full sample of 715 adolescent girls and 404 women who enrolled in the evaluation cohorts.[35]

[34] We applied this approach to binary and continuous variables. We did not include any categorical variables in our analysis, rather we treated each category of any outcomes measured using a categorical variable as a separate, binary variable.

[35] Winrock did not keep a record of girls and women who signed up for (enrolled) in the project. Hence, we considered all adolescent girls and women listed as a member of the evaluation cohorts in any implementation database as project enrollees. An important limitation of considering this broad group of participants enrollees is that, as we discuss above, missing data are an important feature of the baseline databases and it is not always possible to distinguish between data that are missing because of non-participation/drop-out and data that are missing due to data entry errors or omissions. Our analyses excluded observations that we knew were missing due to data

2.4.3 Qualitative coding

Analyzing qualitative data helped us better understand and contextualize the quantitative findings from the participation and outcomes analysis. For this, we used thematic analysis. We developed an initial set of themes for which we aimed to extract information from the interview and focus group transcripts. These themes were linked to the research questions (for example, initial themes such as "implementation challenges," "current employment," and "perspectives on project outcomes"). We then reviewed all interview and focus group transcripts manually and compiled information related to each theme in a single, searchable document – all text was carefully labeled to reflect its source interview.

In addition**,** we used the findings of the thematic analysis to triangulate the findings across respondents to highlight context and mechanisms, as well as similarities and differences in perspectives. For example, we assessed whether facilitators and participants offered consistent views on challenges to implementation. We also triangulated the key findings from the qualitative analysis with the results of our pre-post outcomes analyses. For instance, we compared participants' perspectives on project outcomes (such as how work and engagement in child labor had changed after EMPOWER) to the findings of our pre-post outcomes analysis.

2.5 Limitations

As we discussed in the previous section, the data available for the evaluation presented several challenges, including substantial missing data due to data collection errors and other issues. Below, we discuss the implications of these challenges, and others, for our evaluation design and approach to interpreting our evaluation results.

1. **The pre-post outcomes analysis measured changes in participant outcomes before and after EMPOWER but we cannot not attribute these changes to project participation**. Because we lack a valid counterfactual, we cannot determine whether changes we show in Chapter 5 are the result of EMPOWER or other changes that took place during the course of the evaluation. This is especially the case with examining changes for adolescent girls, who are in a period in their lives marked by great change and transition; many adolescent girls in EMPOWER had children and/or got married over the course of the project (Chapter 4). Adolescent girls' involvement in work is likely to increase with age, and major changes in adolescent girls' lives, like marriage and motherhood, could shift their perceptions of gender equity. Moreover, the study period coincided with the global COVID-19 pandemic. While rural Zambia was not deeply affected by high infection rates (see Chapter 6), COVID-19 still affected the ability of many participants to work, at least temporarily. We cannot determine the extent to which changes in outcomes were due to the project, the milestones of adolescence, the impacts of the COVID-19 pandemic, or other factors.

2. **The project faced substantial challenges with missing data that impacted our ability to fully answer research questions.** We faced significant missing data because of limitations in the baseline data available from Winrock, which we relied on for the pre-post analysis, and lower than expected response rates to the endline survey. To illustrate the problem, although there was available intake survey data for 667 adolescent girls at baseline, drop out and data collection/entry errors resulted in technical/vocational skills pre-test data only being available for 327 adolescent girls. Further, baseline

collection errors rather than non-participation, but otherwise consider missing participation data to mean non-attendance, potentially underestimating participation. For instance, our participation analyses exclude implementation sites where there was a total loss of participation records (like Kameta, which did not record technical/vocational skills attendance data) and other known cases of missingness.

data from Winrock did not cover all the outcomes of interest. At endline we also faced challenges in response rates due to mobility and response rates for adolescent girls in the endline survey were only about 60 percent.

These issues presented three major potential challenges for the analysis. First, we were unable to conduct a pre-post analysis for several outcomes because the baseline data were not available and were only able to describe those outcomes at endline (Table 2.1). Second, it potentially resulted in a non-representative sample, although we do not find evidence that the analysis samples are biased towards representing the outcomes of a specific subset of participants (see Annex C). Third, it meant that the statistical precision for our pre-post outcomes analysis was lower than expected, at least for some outcomes. The overall endline sample roughly met the expected sample size of 500 adolescent girls and 300 women needed to confirm changes in outcomes with an acceptable degree of statistical certainty (see Beatty et al. 2018). However, our analysis samples for some outcomes, particularly the life skills and technical/vocational skills[36], did not reach this threshold. Therefore, when presenting and discussing the results of the pre-post outcomes analysis, we focused on the size and direction of differences observed rather than statistical significance.

3. **The definitions and questions used to measure acceptable work are highly complex.** As we showed in Figure 2.1, measuring adolescent girls' involvement in child labor required asking adolescent girls about almost 40 detailed aspects of their work conditions and activities (for instance, exposure to dust, pesticides and involvement in activities such as animal herding and charcoal burning). Collecting correct information on several of these topics required using extensive examples and probes. This approach to measuring child labor is susceptible to measurement error as the quality of these data can be affected by survey fatigue and differences in enumerator ability and training, especially in a pre-post setting with different data collection organizations administering the baseline and endline.

4. **It is impossible to answer questions about acceptable work (research question 5) using data about the EMPOWER participants**. As mentioned above, the targeted age range for acceptable work (ages 15-17) meant that many adolescent girls would be aging out of acceptable work within a year of project implementation. At endline, we were left with a sample of 32 adolescent girls still under age 18. While we present some results using these data in Chapter 5, this sample is too small to be able to make conclusions about changes in acceptable work. To address this limitation, we collected data on adolescent girls' work and employment outcomes at endline (the project's primary outcome for women) to provide insight on adolescent girls' livelihoods after the project ended.

5. **It may be challenging to compare outcomes before and after due to differences in baseline and endline data collectors and instruments**. In any longitudinal study, it is best practice to attempt to keep instruments, data collection protocols, and even survey teams similar or identical between baseline and endline. The protocols and personnel aspects were impossible as Winrock carried out the baseline data collection. In designing the interim and endline surveys, we made every effort to utilize Winrock's baseline questions. However, we made some adjustments in the interest of data quality, for example improving question clarity and shortening recall periods, such that results might not be fully comparable for some outcomes. A key example of this is in approaches to measuring work at baseline

[36] The life skills outcomes were measured with multiple indicators, and their sample sizes ranged from 268 adolescent girls and 184 women (numeracy) to 370 adolescent girls and 263 women (literacy). For the technical/vocational skills outcomes, the sample size for chicken knowledge was 144 adolescent girls and 11 women, and the sample size for goat knowledge was 55 adolescent girls and 30 women.

and endline. As we describe in more detail in Chapter 5, when asking about paid work at baseline, Winrock asked adolescent girls whether they had received pay for any activity using a question that did not use a clear reference period such as the past month or year. At endline, Palm asked adolescent girls whether they received payment for each type of work (for instance, crop farming, chicken rearing, retail) they said they conducted in the past year. These differences do not prevent us from constructing measures of paid work with similar definitions, but they do not allow for exact comparison.

3. BACKGROUND CHARACTERISTICS OF ADOLESCENT GIRLS, WOMEN, AND FACILITATORS

In this chapter we describe background characteristics of adolescent girl participants, women participants, and project facilitators. This includes adolescent girls' high and growing rates of motherhood, households' persisting conditions of vulnerability, and facilitators' level of engagement with the project. These descriptions provide context for the analysis sample and identify aspects of participants' and facilitators' backgrounds that could explain patterns of participation or affect the project's ability to achieve its intended outcomes. Annex tables for this chapter are in Annex B, Tables 3.1-3.4.

3.1 Adolescent girls' and women's individual and household characteristics

Below we describe the demographic and socio-economic characteristics of adolescent girl participants, women participants, and their households. We examine the characteristics of adolescent girls at baseline and endline and the characteristics of women only at endline because baseline data on women's characteristics are not available.

EMPOWER coincided with a critical period in adolescent girls' lives — transition to adulthood — involving major changes to adolescent girls' marital status, motherhood status, and mobility. Almost all adolescent girls reached adulthood over the course of the project and evaluation. Adolescent girls' average age at endline was 20 years (relative to 16 years at baseline) and only about 5 percent of adolescent girls were under age 18.[37] This shift was accompanied by important changes in adolescent girls' lives. The share of adolescent girls who reported having children at baseline was high at 50 percent and grew to almost 80 percent by endline, indicating that many participants gave birth during or shortly after the project (Table 3.1). Marriage rates among adolescent girls also grew, increasing from 15 to 43 percent during the two-year period between baseline and endline.[38] Finally, adolescent girls' mobility also changed over time. We know that most adolescent girls lived with their female guardians at baseline because Winrock sought to recruit women from adolescent girls' households to the program. However, at endline almost one quarter of adolescent girls who participated in EMPOWER with a woman in their household did not share a household with that woman. Such changes in mobility have implications for EMPOWER's logic model. As an increasing number of adolescent girls no longer live with woman participants, training provided to women would no longer be shared within households and would thus hinder women's influence over adolescent girls' child labor and employment outcomes. Also, these changes adolescent girls experienced over the course of the evaluation make it difficult to gauge whether

[37] Measuring adolescent girls' age accurately was important to the project and evaluation—the project targeted adolescent girls that were 15-17 and classifying adolescent girls as engaged in child labor relies on their age. Yet, Winrock and Palm faced important challenges when measuring age. We assert there were reporting challenges because the difference in adolescent girls' mean age at baseline and endline is larger than the two-year time gap between measurements and some participants reported different ages at baseline and endline. Also, though Winrock and Mathematica used similar approaches to measure age, age has a broader distribution (is more variable) at endline. Winrock and Palm faced shared several difficulties to measuring age which could explain these discrepancies, including (1) Winrock indicated that some adolescent girls may have mis-represented their age to be eligible for the project or to hide early marriages (Interviews with Winrock Staff 2020); and (2) Palm noted that some participants did not know their exact age or birth year and did not have ready access to official identity documents that could verify their age.

38 The existence of a gap in girls' motherhood and marriage rates is also observed in national surveys. The Zambian Demographic Health Survey (2018) reports that though 40 percent of girls ages 15-19 in Eastern Province had begun child bearing, only 28 percent were married (DHS 2018; UNFPA).

the results of our pre-post outcomes analyses are associated to EMPOWER or other changes in adolescent girls' lives.

Table 3.1 Adolescent girls' background characteristics at baseline and endline

	Sample	Baseline mean	Endline mean
Age	285	16.3	19.9
Household size (# people)	363	6.0	6.9
Girl is head of household	369	1.6	3.8
Lives with mother/ female guardian participant in EMPOWER	204	NA	76.5
Has a disability	366	1.9	NA
Married	370	14.9	43.0
Has given birth	369	50.4	78.3
Number of children (if gave birth)	162	1.1	1.4
Has one child	343	44.0	57.4
Has two children	343	3.5	17.8
Has three or more children	343	0.0	1.5

Source: Analysis sample— intake survey (2019), endline survey (2020).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data.

Adolescent girl's education levels did not change between baseline and endline, and only a small share of adolescent girls reported returning to school after EMPOWER. Winrock targeted out-of-school adolescent girls for EMPOWER and, as Table 3.2 shows, no adolescent girls were attending school at baseline. At endline, adolescent girls' education was largely unchanged with only 4 percent of adolescent girls reporting they returned to school and similar percentage reporting they had received technical/vocational training since EMPOWER ended. The highest educational level most adolescent girls (71 percent) attended before leaving school was primary, which consists of grades one through seven (Figure 3.1). This was also the most common level attended by women, though women had lower levels of education overall.

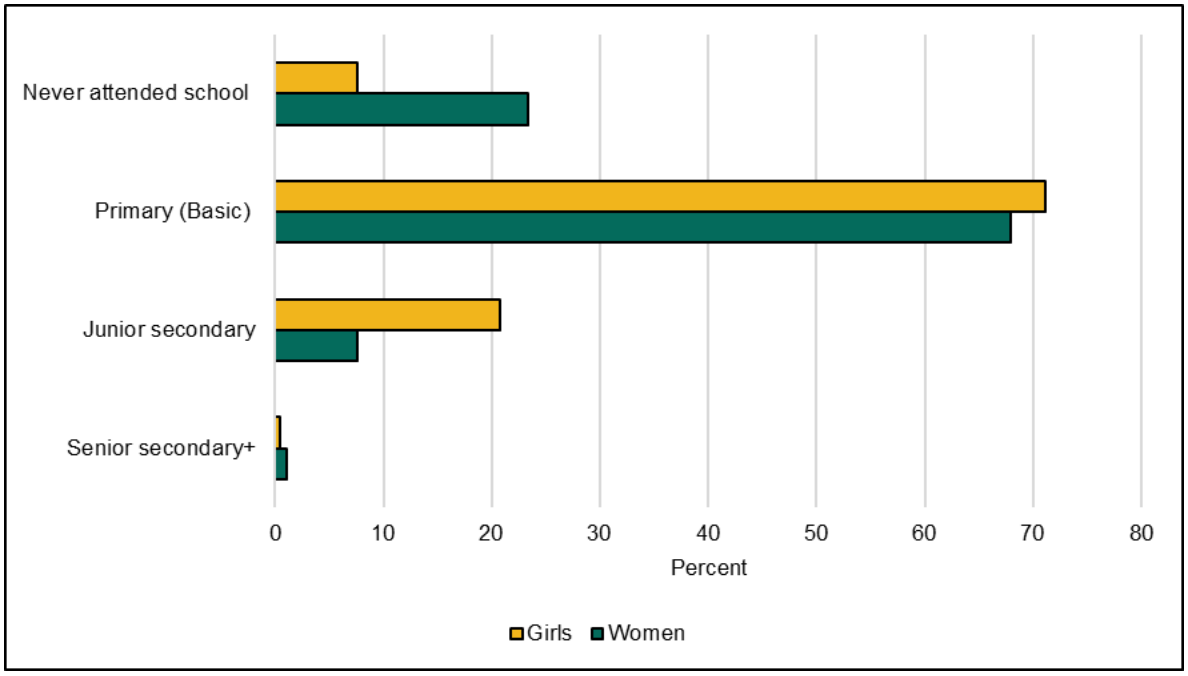
Table 3.2 Adolescent girls' schooling at baseline and endline

	Sample	Baseline mean	Endline mean
Attended school in past 12 months	315	0.0	4.4
Age left school (if out-of-school) (years old)	315	13.4	NA
Attended technical training in past 12 months, excluding EMPOWER	370	0.0	3.8

Source: Analysis sample — intake survey (2019) and endline survey (2020).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data.

Figure 3.1 Adolescent girls' and women's participation in education at endline

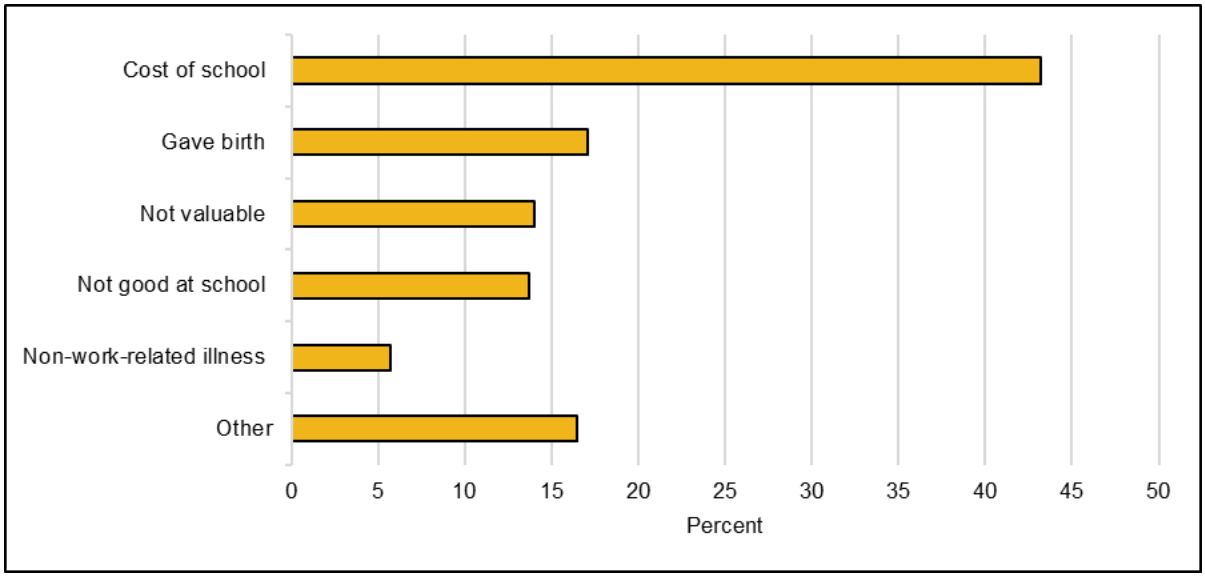


Source: Endline survey (2021).

Notes: N= 370 adolescent girls and 262 women.

The fact that adolescent girls' education was largely unchanged at endline is consistent with the project's reduced effort to provide educational supports, along with a number of other factors. These may include the persistence of factors that motivated adolescent girls to leave school such as cost and increasing family responsibilities (see Figure 3.2). Given that most adolescent girls had been out of school for several years by the time the project started, it is likely that returning was also more difficult. (Table 3.2 shows that, on average, adolescent girls left school at age 13 or about 7 years prior to the endline.) Access to training opportunities outside of formal school was also rare, with only 4 percent of adolescent girls having attended training outside the project since project completion.

Figure 3.2 Reasons adolescent girls left school at baseline (if out of school)



Source: Intake survey (2019).

Note: N= 315 adolescent girls. Adolescent girls were allowed to select multiple reasons for leaving school. As such, these answers are not mutually exclusive and do not total to 100 percent.

The socioeconomic status of participant's households at baseline and endline are indicative of persistent vulnerability. At endline, households' Poverty Probability Index (PPI), an index that estimates the likelihood of being below Zambia's food-based poverty index, was high at about 50 percent. Baseline PPI indices were between 10 (adolescent girls) and 7 (women) percentage points lower, suggesting that poverty increased slightly between baseline and endline. We do not have an explanation for why the PPI results increased between baseline and endline. It is possible this was due to the global pandemic, which we explore in Chapter 6. Households' level of food insecurity at endline was also indicative of high vulnerability as about two out of three households were moderately or severely food insecure (Figure 3.3). (Food security was not measured at baseline.)

Table 3.3 Characteristics of adolescent girls' and women's households at baseline and endline

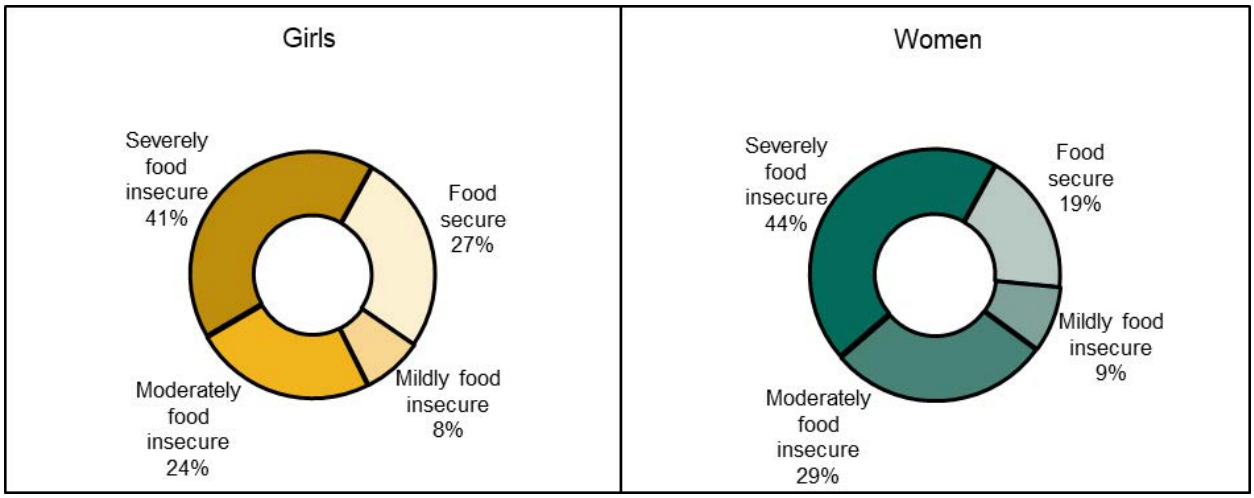
	Girls			Women		
	Sample	Baseline mean	Endline mean	Sample	Baseline mean	Endline mean
Poverty Probability Index (PPI) (percent likely living below food poverty line)	207	39.8	49.1	121	43.0	50.8
Owns and/or rents land for agricultural activities	357	94.7	99.4	234	94.4	99.6
Size of land for agricultural activities (if owns/rents, hectares)	333	3.6	2.1	218	3.5	2.6
Owns livestock	362	64.4	77.1	234	61.1	81.6

Source: Analysis sample —intake survey (2019) and endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data. Women who participated in EMPOWER were females (often mothers or guardians) who lived in the same household as adolescent girl participants. At baseline, Winrock assumed adolescent girls and their

mothers/female guardians lived in the same household and collected one set of household characteristics for each group of adolescent girls and their mothers/female guardians. At endline, we expected that some proportion of adolescent girls would not be living with their mothers/female guardians due to marriage, migration for work, and other. We designed the endline survey so Palm would collect one set of household characteristics for women and girl participants living in the same household and two sets of characteristics for adolescent girls and women living in separate households. We calculated the figures above considering all household characteristics. The Poverty Probability Index (PPI) computes the likelihood that a household is living below the poverty line based on questions related to asset ownership and household conditions. Higher scores indicate a higher likelihood of living below the poverty line (IPA 2015).

Figure 3.3 Food insecurity of adolescent girls' and women's households at endline



Source: Endline survey (2021).

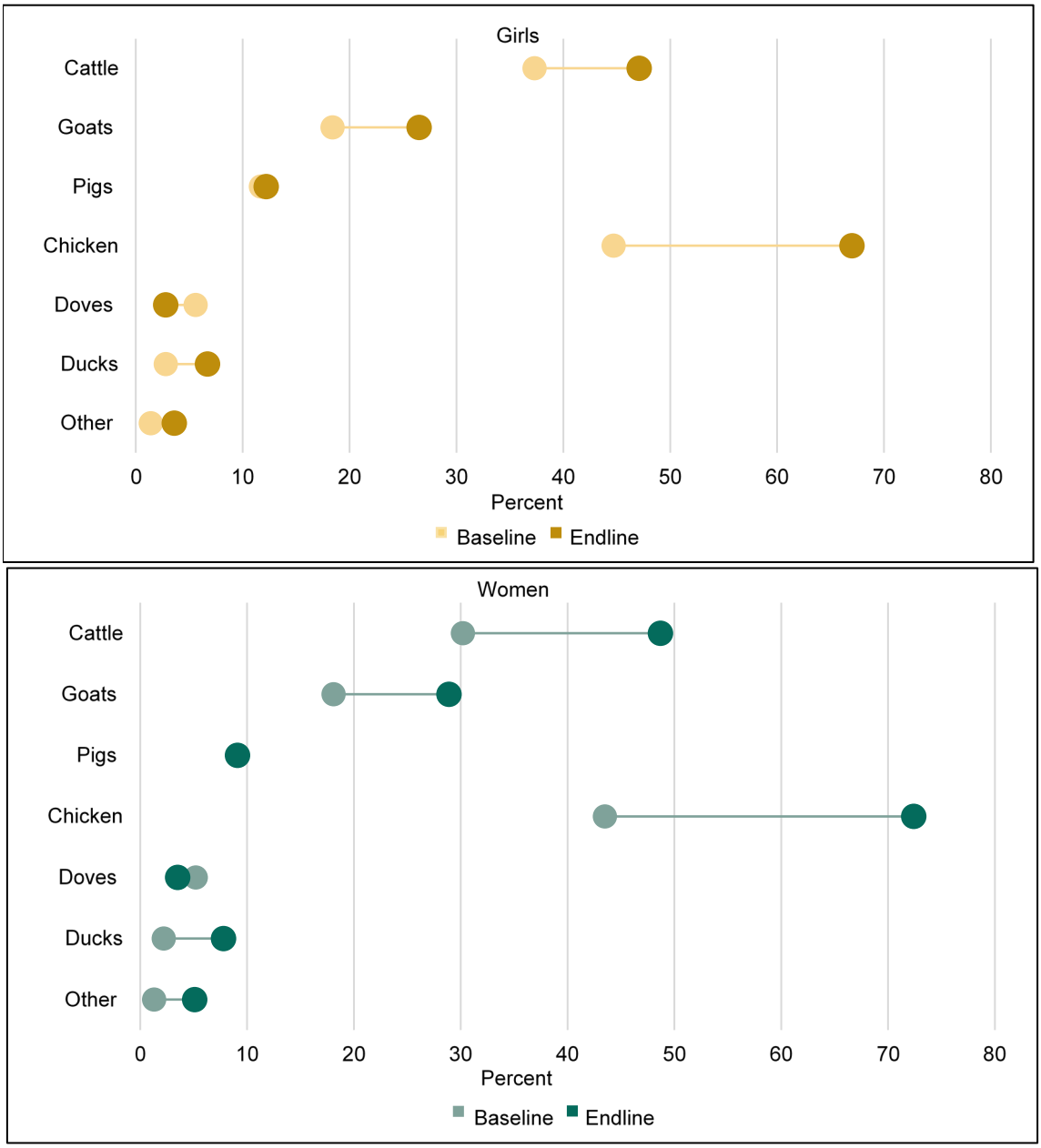
Notes: N= 362 adolescent girls and 259 women. The Household Food Insecurity Access Score measures the degree of food insecurity households experienced in the past 30 days based on questions that capture households' behavioral and psychological manifestations of insecure food access. For instance, the scale asks about worries over not having enough food in the past month (and frequency of these worries), having to eat limited types of food or smaller meals in the past month (and the frequency of this), having no food to eat or going to bed hungry in the past month (and the frequency of this), among other aspects of food insecurity. Lower scores are indicative of less food insecurity and higher scores of more food insecurity (Coates et al. 2007).

Despite a high share of households being food insecure (Figure 3.3), almost all households owned or rented land for agricultural activities at baseline and maintained their access to land over time (Table 3.3). Households reported a decrease in average plot sizes, which is consistent with an increase in poverty, but this change could reflect slight difference on how the baseline and endline surveys measured plot size.[39] Households increased their stock of animal assets; livestock ownership increased by more than 10 percentage points but increases by type of animal vary (Figure 3.4). Households report growth in ownership of animals prioritized by EMPOWER (chickens and goats), though ownership levels for these animals were already high at baseline (about 40 percent of households owned chickens and 20 percent owned goats). Ownership of other animals, such as including cattle (40 percent at baseline and 50 percent at endline for adolescent girls) was also high at baseline and endline. Overall, despite increases in the ownership of agricultural assets between baseline and endline, our findings suggest that households remained in a position of high vulnerability over the study period and that socio-economic factors that

[39] Specifically, the baseline survey required all households to estimate plot size in hectares, whereas the endline survey allowed for other units such as limas or acres to facilitate more accurate measurement.

support engagement in child labor persisted post-project (See Winrock 2017b for factors the project linked to child labor in the context of Eastern Province).

Figure 3.4 Livestock owned by adolescent girls' and women's households at baseline and endline (if owns livestock)



Source: Analysis sample —intake survey (2019), endline survey (2021).

Notes: N= 362 adolescent girls and 234 women.

3.2 Project facilitators

EMPOWER hired local instructors to lead the life skills module and relied on extension agents from the Ministry of Agriculture and Fisheries to deliver the technical/vocation skills module. Understanding facilitator's characteristics and their level of involvement in the project is important because facilitators

shaped participants' experiences with EMPOWER inside and outside the classroom. For instance, life skills facilitators followed-up with participants that stopped attending sessions. Participants sought technical/vocational skills facilitators' advice on procuring animals or treating illness after this activity had ended. In this section, we review facilitators' characteristics and level of involvement in EMPOWER.

Facilitators were on average about 40 years old, and most technical/vocational skills facilitators were male (Table 3.4)**.**[40] The life skills module had a more balanced sex ratio for facilitators as 43 percent of life skills facilitators were female. The disproportionate presence of male technical/vocational skills facilitators likely reflects that, in Zambia, teaching (particularly in rural areas) and agricultural extension have historically been male dominated professions (World Bank 2020; JICA 2016; and ILO 2016). Facilitators' sex could affect their capacity to deliver project materials. For instance, because Zambia's agricultural extension services have traditionally been structured to meet the needs of male farmers, it is possible that technical/vocation skill facilitators were not trained on challenges that are specific to women (JICA 2016).[41]

Facilitators generally had high levels of involvement with the project; most interacted with more than one cohort and taught adolescent girls, women, and men. Life skills and technical/ vocational facilitators taught three cohorts of adolescent girls and women, on average. (There were 62 cohorts of adolescent girls and women in the project overall but generally three cohorts per site.) Winrock staff said that the same facilitator usually taught all cohorts at his or her implementation site, which could be beneficial for the project's later cohorts if facilitators used learnings from early course experiences to improve their approach to teaching the module over time. Unlike life skills facilitators, technical/vocational skills facilitators were not based in communities near implementation sites. These facilitators' continued presence at implementation sites might have allowed participants who had already completed the technical/vocational module to seek out facilitators for advice or other follow-up to support the on-going development of participants' business groups.

[40] We have limited information about project facilitators because interviews with facilitators focused on questions related to project implementation. We agreed with Winrock that we would have access to facilitators' CVs or other implementation data on facilitators but did not obtain this information or confirm aspects of this information needed to be processed (for instance, we could not determine whether the sample of CVs that Winrock provided corresponded to applicants or facilitators hired for the project).

[41] For instance, in Zambia, women and men tend to grow different crops. Also, women are more likely than men to cultivate agricultural goods for home consumption and thereby need additional support transitioning towards producing goods for sale.

Table 3.4 Facilitators' characteristics and involvement in EMPOWER

	Life skills		Technical/ vocational	
	Sample	Mean	Sample	Mean
Facilitator age (years)	29	35.6	18	43.1
Facilitator is female	28	42.9	18	27.8
Type of groups taught by the facilitator				
Adolescent girls	28	89.3	N/A	N/A
Women	28	78.6	N/A	N/A
Men	28	64.3	N/A	N/A
Number of cohorts taught	29	2.9	18	2.8

Source: Facilitator interviews (2021).

Notes: Results reported in percent unless otherwise noted. NA = not available. The sample used in this table includes all facilitators who delivered life skills and technical/vocational modules to adolescent girls and women (all cohorts) and participated in the facilitator survey that coincided with the interim data collection.

4. Participation and perspectives on implementation

In this chapter, we explore the extent of adolescent girls' and women's participation in EMPOWER, as well as implementation challenges and perspectives on which activities were most useful to participants. We also investigate the sustainability of the business groups that the project formed to support participants' livelihoods. These analyses highlight aspects of participation and implementation that will contextualize our outcomes findings in Chapter 5. Annex tables for this chapter are in Annex B, Tables 4.1-4.5.[42]

4.1 Motivation for joining EMPOWER

When selecting and inviting participants to join EMPOWER, Winrock implemented outreach activities designed to raise awareness and support for the project among communities. For instance, Winrock staff conducted community consultations that introduced project activities to local leaders and community members. The final step of the selection process involved a home visit during which Winrock staff verified the information collected through EMPOWER's screening questionnaire and confirmed participants' willingness to commit to the project schedule (Winrock 2017d 2018). These efforts helped motivate participants to join EMPOWER by setting expectations of the benefits offered by the project. In this section we attempt to understand participants' motivation for joining EMPOWER by analyzing qualitative data from their facilitators.[43]

Project facilitators reported that receiving animals and other inputs to start a business was adolescent girls' and women's primary motivation for joining EMPOWER. Nonetheless, there is evidence that participants' assumptions of the type and purpose business inputs offered by EMPOWER were not always accurate. As we discuss in Chapter 1, EMPOWER supported the formation of group-based businesses; these businesses were the recipients of the project's start-up materials (including animals) and key beneficiaries of its follow-up services. The project's Interim Performance Evaluation by Monitoring Systems International (MSI) revealed that participants expressed disappointment at receiving group-based, rather than individual supports, and called on the project to better explain why it promoted group-based businesses (Orsini 2019). At interim, facilitators also spoke of this and other discrepancies between participants' expectations and project implementation plans. For example, a few participants were surprised to learn that the project's business groups did not start right away; rather, they started about five months into the project, at the end of the technical/vocational skills module. Other participants mistakenly believed that the project would hand out fertilizer or other farming inputs. Despite their frustrations, it is not clear that these misperceptions dampened participants' intention to join EMPOWER. Several facilitators said that many misperceptions diminished over time, as communities were able to observe project implementation and hear of its offerings from its initial cohorts.

[42] Annex C contains additional analyses of participation. Specifically, we report on the correlations between adolescent girls' characteristics—for instance, educational level and motherhood—and participation rates. We omit these analyses from this chapter because we consider that participant characteristics do not vary enough to show clear patterns of association with participation rates.

[43] We had planned to collect information from participants on their motivation for joining the project in the interim survey but removed these questions when we had to adjust to a shorter, phone-based survey because of the COVID-19 pandemic. We conducted focus groups with participants in 2021, but this seemed too late (two years after the start of the project) to ask participants to reflect on their motivation for joining the project.

The opportunity to complete a certificate-based education program also motivated participants to join the project. EMPOWER targeted out-of-school adolescent girls who had limited access to educational opportunities. Several facilitators said participants saw the project as an opportunity to improve basic skills, particularly literacy and numeracy. A few participants also expressed interest in the project's certificates of completion, which were provided to adolescent girls and women who completed life or technical/vocational skills modules, hoping that these certificates would help certify their employability.

Box 4.1 Motivation to join EMPOWER

"The women wanted to improve their education, particularly reading and writing, because most of them just read in Chinyanja and others could not even write their own names… They were very happy because once they that once they received their certificates [course certificates] they would at least have a higher chance of being employed"

—Life skills facilitator, Nyamphande

4.2 Participation in and implementation experiences with the life skills and technical/vocational skills module

In this section, we describe participation rates and participants' perspectives on implementation related to the life skills and technical/vocational skills modules. Our analysis of participation relies on attendance records collected at baseline. We used information on the number of sessions participants attended to measure participation (attended at least one session) and completion (attended at least 75 percent of sessions, following Winrock's definition). To provide a comprehensive picture of participation, we focus on the full sample of 715 adolescent girls and 404 women who enrolled in the evaluation cohorts (January and March 2019 cohorts). Our discussion on implementation mostly uses qualitative data collected from participants, facilitators, and Winrock staff. Because facilitators discussed their views of the project as a whole, these findings are not specific to adolescent girls and women included in the evaluation cohorts. Also, our focus groups with adolescent girls and women collected the perspectives of adolescent girls with high participation in the project; the views of adolescent girls and women with high participation are likely different from those with other levels of participation.

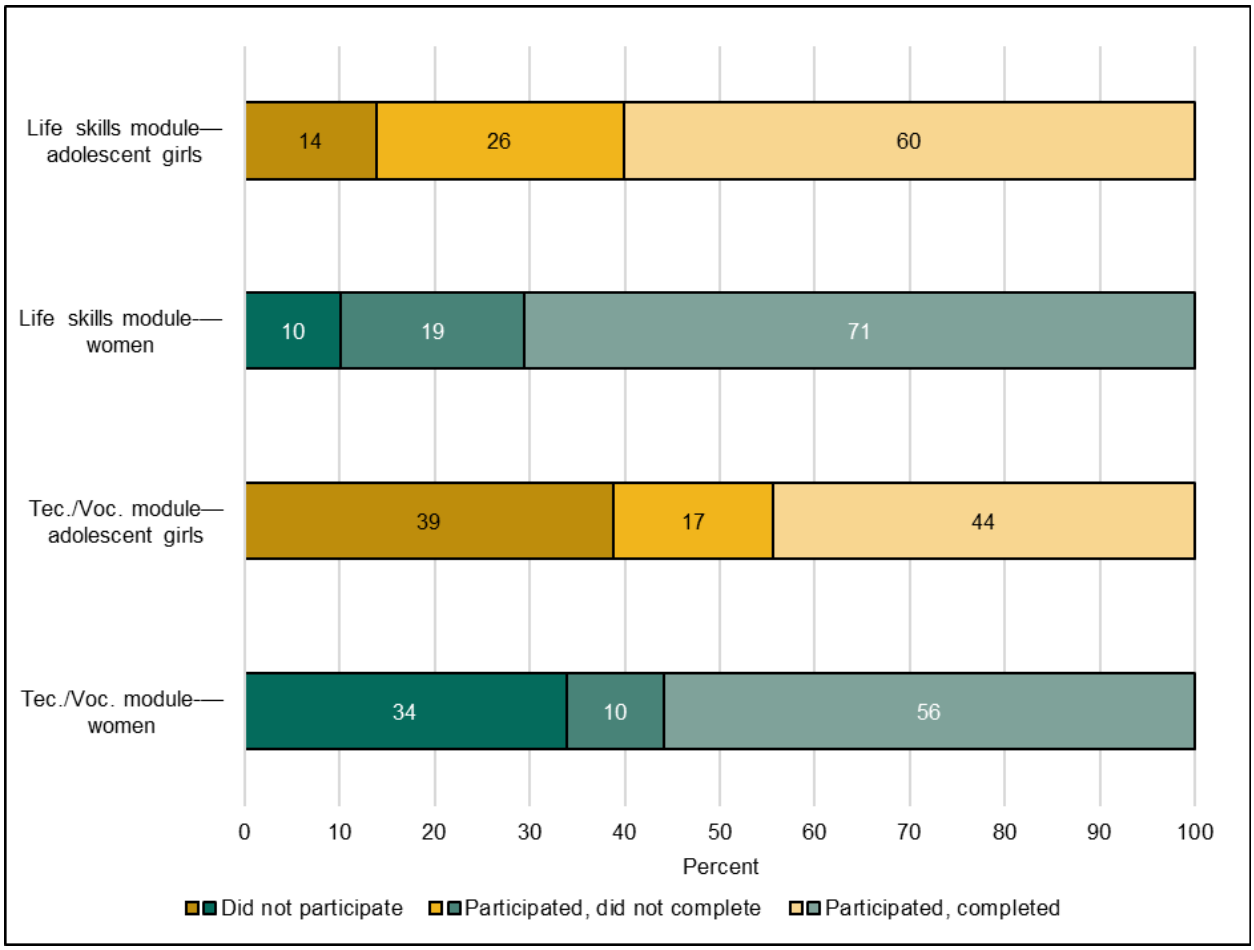
4.2.1 Participation in the life skills and technical/vocational skills modules

As mentioned in Chapter 1, the life skills module was a three-month course that delivered three, three-hour sessions per week to adolescent girls and two, three-hour sessions to women. This amounted to a total of 31 sessions for adolescent girls and 20 sessions for women. The technical/vocational skills module was also a three-month course and followed the life skills module. This module offered a total of 26 sessions to adolescent girls and women. Below, we look at participation in each module while also focusing on the intensity of adolescent girls' and women's participation.

Sixty percent of adolescent girls and 71 percent of women completed the life skills module, and about 44 percent of adolescent girls and 56 percent of women completed the technical/vocational skills module. For both modules, we classified the adolescent girls and women who enrolled in the evaluation cohorts into three categories of participation: (1) those who enrolled in EMPOWER but did not participate in the module; (2) those who participated in but did not complete the module; and (3) those who participated in and completed the module. Although the vast majority of adolescent girls and women who enrolled in the evaluation cohorts participated in the life skills module, about one-third of girl participants and one-quarter of women participants did not complete it, lowering the overall completion rates (Figure 4.1). These overall completion rates were even lower for the technical/vocational skills module, largely because there was substantial dropout for both adolescent girls and women during or

shortly after the life skills module (about 25 percent of enrollees), which resulted in lower participation rates in the technical/vocational skills module.

Figure 4.1 Intensity of life skills module attendance for adolescent girls and women who participated in EMPOWER



Source: Full sample – attendance records (2021).

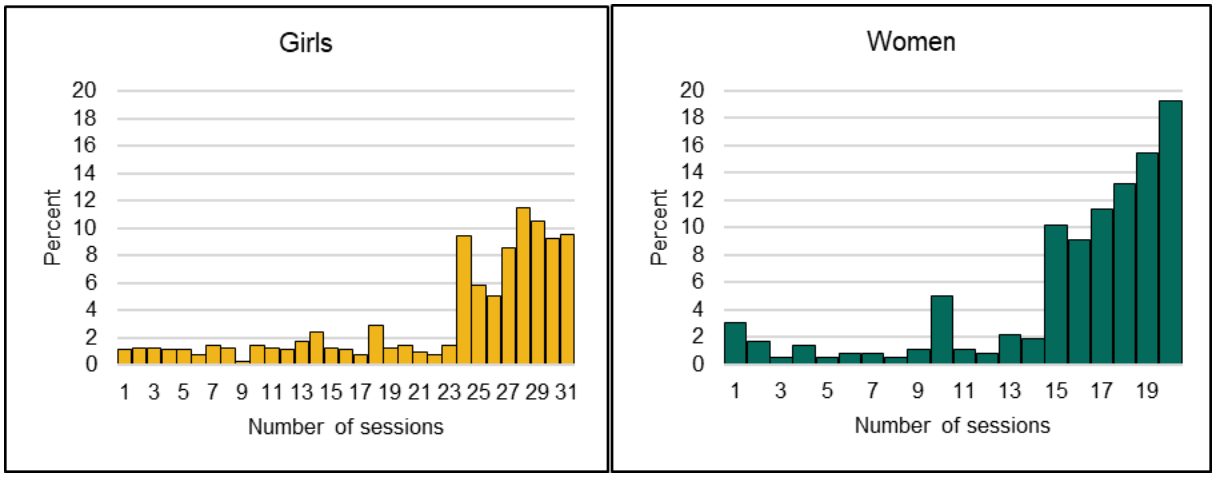
Notes: N= 715 adolescent girls and 404 women. Tec./voc = technical/vocational.

Completion rates for the technical/vocational skills module are slightly higher than for the life skills module, among adolescent girls and women who participated in these modules. Figures 4.2 and 4.3 show the distribution of the number of sessions attended by adolescent girls and women for the life skills or technical/vocational skills modules. For both modules and participant groups, the number of sessions attended clusters at or higher than the cutoff for completion. Completion rates for adolescent girls and women who participated in life skills module were 70 and 79 percent, respectively, whereas completion rates for adolescent girls and women who participated in the technical/vocational skills module were 72 percent and 84 percent respectively. Several factors potentially explain why a larger share of participants completed the technical/vocational skills module relative to the life skills module. First, because about 40 percent of adolescent girls and women dropped out of the project before the start of technical/vocational skills module, those who remained might have been those most motivated to complete the program.[44]

[44] Completing the life skills module was not a pre-requisite for to taking the technical/vocational skills module.

Second, higher completion could reflect participants' high interest in this module. Having the opportunity to start a business was participants' primary motivation for joining EMPOWER and was the focus of this module. Finally, the technical/vocational skills module had fewer sessions than the life skills module for adolescent girls (26 compared to 31). As a result, this module may have been easier to complete because it demanded less travel and class time, important barriers to participation.

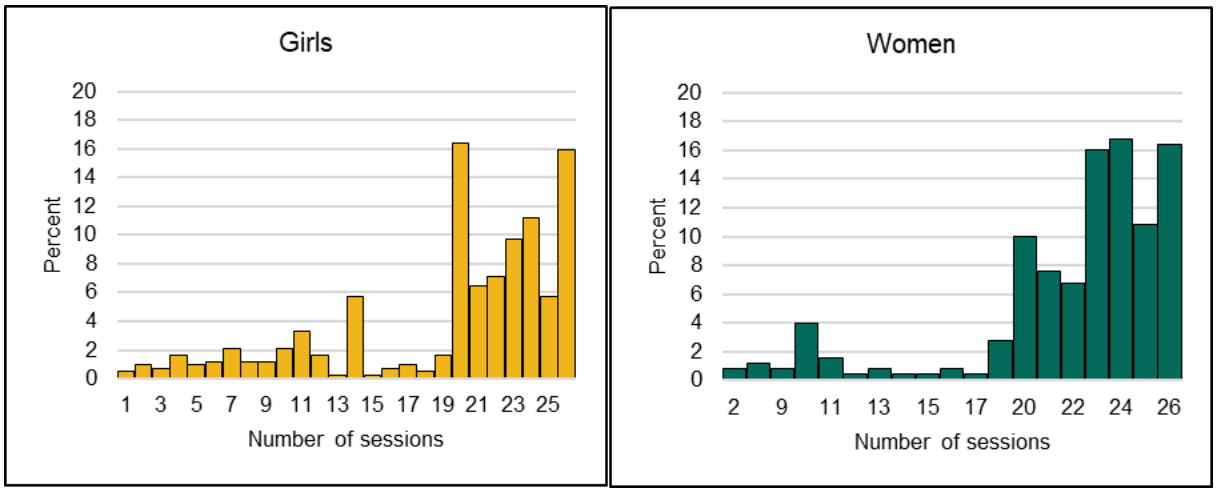
Figure 4.2 Intensity of attendance for adolescent girls and women in the EMPOWER life skills module (conditional on participating)



Source: Full sample – attendance records (2021).

Notes: N= 616 adolescent girls and 363 women. To complete the life skills module adolescent girls needed to attend 23 sessions and women needed to attend 15 sessions.

Figure 4.3 Intensity of attendance for adolescent girls and women in the EMPOWER technical/vocational skills module (conditional on participating)



Source: Full sample – attendance records (2021).

Notes: N= 421 adolescent girls and 250 women. To complete the life skills module adolescent girls and women needed to attend 20 sessions.

Travel to sessions and household responsibilities were the most common barriers to participation. To facilitate access to the course, Winrock recruited adolescent girls and women who lived no further than 10 km (6.2 miles) of project hubs (the public facilities where facilitators implemented course sessions) (Interviews with Winrock Staff 2020). Nonetheless, many facilitators reported that walking to

the course several times per week was challenging for participants, especially for groups that held sessions in the afternoon which required participants to return home in the evening hours. Also, some participants relocated during implementation, moving to locations that were further away from hubs than before. Facilitators also said that adolescent girls struggled more than women to balance participation with household responsibilities. This could be because adolescent girls were more likely than women to get married or pregnant (and experience a significant increase in their domestic responsibilities) while attending EMPOWER. In addition, some of the project's activities were more intense for adolescent girls compared to women. For instance, the life skills module included three sessions per week for adolescent girls and two sessions per week for women. In interviews, at least one Winrock staff said they designed the project expecting that adolescent girls would have more time available because they were not in school. In hindsight, some Winrock staff also acknowledged that the project likely underestimated adolescent girls' rates of marriage and pregnancy (and associated responsibilities) when designing project activities. As we showed above, women's participation and completion rates are higher than adolescent girls' for both skill modules. These differences also support the assertion that adolescent girls faced stronger barriers to participation relative to women.

Box 4.2 Barriers to participation

Some [girls] were involved in marriages though they denied it; but the fact is that some especially the adolescent girls were married. They didn't disclose that they were married, so their husbands who didn't support the program didn't know about it.

—Technical/vocational facilitator, Mwanza

4.2.2 Implementation of the life skills and technical/vocational skills modules

In this section, we share findings on the implementation of the life skills and technical/vocational skills modules, as perceived by facilitators and participants. We focus on perceived challenges and useful aspects of the modules because this information will help us contextualize our findings on outcomes.

Box 4.3 Challenges to implementing the technical/vocational skills curricula

"The course content was too shallow, and many things don't apply here… we had to alter the course content so that it would be more like a standard course. We used our own handbooks [MoAF handbooks] for this."

—Technical/vocational skills facilitator, Nyembe

"The MoAF's modules are for adult learners with high literacy levels. The modules were not easy for girls and women to understand because of their literacy levels."

—Technical/vocational skills facilitator, Munyukwa

A majority of facilitators for the life skills course said they faced few challenges to teaching course materials. However, several facilitators for the technical vocational skills course said some technical/vocational materials were not a good fit for participants' educational levels and were not comprehensive. Most life skills facilitators reported course materials were a good fit for participants' education levels, easy to teach, and praised the project's decision to translate the course curricula to local languages. As discussed in Chapter 1, the technical/vocational skills facilitators were extension agents for the Ministry of Agriculture and Fisheries (MoAF) and EMPOWER adapted the curricula for the technical/vocational skills module from the MoAF's existing training materials on animal rearing. Facilitators explained that the MoAF designed materials for literate, adult learners, and that participants struggled to understand course content because they had low literacy levels (for example, only 29 percent of adolescent girls could read a full sentence at baseline). Facilitators also found that the course materials were not as complete as the standard curricula offered by the MoAF.

Technical/vocational skills facilitators reported that Winrock did not provide consistent access to supplies needed to teach the module and care for the module's chickens and goats. The technical/vocational skills module provided hands-on instruction on chicken and goat rearing that included demonstrations using animals purchased for the module. Several facilitators said that, for some cohorts, the project did not provide the materials needed to teach the course on time (and in a few cases did not provide these materials at all). For instance, the technical/vocational skills training on chickens focused on broilers, a type of chicken raised for meat that requires several inputs to reach full size, including lighting (particularly at night, so they can keep eating), heat at certain times of day, plentiful feed, and vaccinations to prevent illness. Facilitators said that, at times, they lacked lighting, vaccines, and ancillary equipment (such as refrigerators for the vaccines) needed to show participants how to care for the broilers.

Box 4.4 Availability of materials for the technical/vocational skills module

"Because the chickens are broilers, we taught [participants] you cannot keep them in the dark at night. If the chickens are kept in the dark they will stop eating. It was a challenge to do this properly because we did not receive lighting."

—Technical/vocational facilitator, Nyembe

The start-up materials of animals and supplies that participants received at the end of the technical/vocational skills module, when participants formed business groups, were often inadequate or delayed. To help adolescent girls and women establish their business groups, EMPOWER gave groups a set of start-up materials that included animals and other tools purchased for the training (for instance, vaccination and tagging equipment). Several participants said these materials arrived late or, in a few cases, did not arrive at all. They also noted that they did not receive all materials needed to raise animals using the practices they learned in the module. For example, participants said their groups struggled to find housing for their animals. As a result, group members had to pool resources to rent a chicken coop or other accommodations. Winrock staff recognized that the project was unable to provide a complete set of start-up materials to all groups. For example, because supplies were limited, the project was only able to give safety equipment (such as gum boots to wear inside the chicken coop) to some business groups.

Box 4.5 Value of literacy and numeracy

"I learned to read, write, and count in my old age. Before, I could not count money properly and made mistake when giving people change [for a purchase]. Now, when I sell things like fritters, I give the correct change."

—Woman participant, Egichikeni

"Before the training, I struggled to read and didn't know how to get a job. When I learned to read, I could read instructions on what food to cook while working as a maid, this helped me a lot."

—Girl participant, Chimutende

"I learned how to budget my money. When I sold my soya beans, I made a profit of 750 kwacha and was able to spend this money according to my budget… I saved some money and budgeted for my home well."

—Woman participant, Zingalume

Adolescent girls and women emphasized that literacy and numeracy were the most useful aspects of the life skills module. Though the module provided limited instruction on these topics (adolescent girls received three hours of literacy and numeracy training per week and women two hours per week for the duration of the life skills module), participants shared several examples of how the module strengthened basic skills such as writing their names, counting, and recognizing the difference between hundreds and thousands. Many participants also said these improvements had tangible benefits for their work. For instance, participants said that improved numeracy skills enabled them to give correct change during transactions. Improved literacy and numeracy also supported learning on other

topics, such as budgeting, which participants also found useful and important for their work and households.

Box 4.6 Improvements to animal rearing learned in the technical/vocational skills module

"Sometimes when chickens got sick, the most common way they [participants], dealt with it was killing and eating the chickens. But after the course, they know chickens get sick and need to be vaccinated."

—Technical/vocational skills facilitator, Nyembe

"Before the course, anyone would enter the chicken coop. The course taught us that not just anyone should enter the coop and that it should be clean and disinfected."

—Woman participant, Dole

Participants valued the technical/vocational skills module because they said it helped them learn professional approaches to chicken and goat rearing. Before the start of the project, several participant households owned chickens (about 40 percent) or goats (about 20 percent). Participants said that they had worked to raise these animals before the project, but had limited knowledge of housing, hygiene, feeding, and practices that would allow them to rear healthier animals, protect their own well-being, and raise animals for sale. Participants and facilitators considered that the project provided instruction on practices that they could use to close these gaps. For example, several participants and facilitators spoke of the importance of learning to house animals (rather than letting them run wild) and controlling disease (to avoid premature animal deaths).

4.3 Participation in and implementation experiences with the business groups and follow-up services

EMPOWER's business groups offered adolescent girls and women the opportunity to form a business raising and/or selling chickens or goats. Participants formed business groups in the last month of the technical/vocational skills module and continued to work with their group during the project's six months of follow-up services. Winrock supported the business groups by providing start-up materials, including an initial supply of chickens or goats, and follow-up services designed to support business development, such as opportunities to network with suppliers. The project's hope for the business groups was that they develop over the life of EMPOWER and continue to function thereafter, providing adolescent girls and women with a source of self-employment after the project ended (Interviews with Winrock Staff 2020).

Because Winrock did not collect attendance records for the business groups or follow-up services, we cannot estimate participation rates for the full sample of adolescent girls and women enrolled in the project. Instead, we present self-reported participation rates (collected at endline) for the 586 adolescent girls and 368 women included in our analysis sample. (As described in Chapter 2, only adolescent girls and women that participated in at least one session of the life skills or technical/vocational skills module were included in the analysis sample.) Though we expect rates of participation to be higher for this sample compared to what they might have been had we been able to interview the full sample, this analysis is helpful for understanding how participation might inform the findings presented in Chapter 5 (which are based on the same analysis sample), as well as what happened to the business groups after the project ended.

4.3.1 Participation in the business groups

Almost all adolescent girls and women who participated in the technical/vocational skills module also took part in business groups (Table 4.1). The business groups started in the last month of the technical/vocational skills module. About 82 percent of adolescent girls and 87 percent of women in the analysis sample—almost all of those who took part in the technical/vocational skills module–joined

business groups (Table 4.1). About three-quarters of adolescent girls and women who joined business groups received technical/vocational skills training on chickens and joined chicken, rather than goat, business groups**.** Participants may have preferred to specialize in chickens compared to goats because chicken rearing was more common in their households before the start of the program—as shown in Chapter 3, chickens were the most common type of livestock owned by households at baseline. However, the high number of chicken groups could also reflect implementation decisions that were beyond participants' control. (Winrock indicated they also accounted for logistical considerations when selecting which animal would be at the center of each cohorts' training.) Participants' reasons for not joining a business group echo their discussions of general barriers to participation, including household responsibilities and illness (see Annex B, Table 4.4).

Table 4.1 Adolescent girls' and women's participation in EMPOWER business groups

	Girls		Women	
	Endline sample	Endline mean	Endline sample	Endline mean
Participated in business group in past year (if participated)	288	81.9	231	86.6
Participated in business group at endline (if participated)	272	43.8	219	48.9

Source: Analysis sample – endline survey (2021).

Notes: Results reported in percent unless otherwise noted. Sample sizes vary due to item non-response and missing data. "If participated" means if joined a business group.

Levels of participation in key follow-up services varied, but about one half of adolescent girls and women in the analysis sample took part in follow-up services. EMPOWER's follow-up services sought to support participants' transitions to employment, in part by supporting development of the business groups. These services included business mentorship, guest lectures on topics like animal feed, and opportunities to connect to business networks. As shown in Table 4.2, business mentorship had the highest rate of participation (about 70 percent adolescent girls and 80 percent of women in the analysis sample interacted with a business mentor) and networking events hosted by RWEN the lowest (about 48 percent of adolescent girls and 64 percent of women).[45] This pattern of participation is consistent with the project design as business mentors were encouraged to meet with participants about once per month (and organized other follow-up activities) while attendance to RWEN was only available to participants selected to represent their groups at networking events.

Table 4.2 Adolescent girls' and women's participation in EMPOWER follow-up services

	Girls		Women	
	Endline sample	Endline mean	Endline sample	Endline mean
Mentoring sessions led by business mentor	367	68.9	262	82.1
Mentoring sessions led by peer mentor	365	58.4	263	69.2
Guest lectures	365	58.4	262	69.5
Activities organized by RWEN	367	48.0	262	63.7
Other	370	0.8	263	0.8

Source: Analysis sample – endline survey (2021).

[45] Because many follow-up services were linked to business groups, most (but not all) girls that participated them completed the technical/vocational training and were members of a business group.

Notes: Results reported in percent unless otherwise noted. Sample sizes vary due to item non-response and missing data. The categories included in Table 4.2. are not mutually exclusive as participants could (and should have) participated in multiple follow-up services.

4.3.2 Implementation and sustainability of the business groups

Most business groups sustained their activities after project completion, but about half disbanded by the time of the endline survey. Most adolescent girls and women who joined a business group (82 percent of adolescent girls and 87 percent of women) continued to work with their group after the project ended. However, at endline, the share of adolescent girls and women involved in group activities dropped to 44 percent of adolescent girls and 49 percent of women (Table 4.1). Participants that joined a business group that disbanded estimated that their groups stayed together for an average of 11 months, which includes about 6 months of group activities during the project and about 5 months in the year after the project ended. These patterns of participation suggest that, although groups tried to say together, many were struggling to sustain themselves in the long-term.

Box 4.7 Accounts of business groups' ongoing activities

"We raised them [the chickens] and sold them… then, we ordered more chickens; we would raise them and … [and] sold them as well. We are still raising chickens. We use the money from the sales to order more items for sale; charcoal and foodstuffs… order beans, cooking oil. then we use the profits together to order more stuff [to sell]

—Girl Participant, Chimutende

At endline, some participants said they continued to work on chicken and goat rearing while others focused on unrelated activities. For instance, a few women said their groups conducted agricultural piecework (which is what participants call temporary jobs done for pay) such as weeding and harvesting because working as a group allowed them to obtain a better pay for their services. Others combined chicken and goat rearing with new forms of work, like selling fertilizer made of chicken droppings or other agricultural goods (like crops and cooked foods).

Box 4.8 Perspectives on groups' coordination challenges

"Others did not come on the assigned day, some would forget to put on the heated brazier [to keep the chickens warm], which still had smoke coming out of it. They did not wait for the smoke [from the brazier] to go out and as a result the chickens died."

—Girl participant, Chimutende

"Money problems were a challenge. Sometimes I would find that somebody sold the chickens and tried to hide the money."

—Technical/vocational facilitator, Mumbi

"The main challenge was at night. The place where the chicken coops are is far from most of our places [homes] so it was difficult to night shift (feeding and changing water). The chickens required a lot of time and our time is limited."

—Girl participant, Mwanjawanthu

Participants reported their groups disbanded because they struggled to coordinate and share responsibilities. As we noted above, some participants were frustrated with EMPOWER's decision to support the development of group-based rather than individual businesses. At endline, a few participants repeated this concern, and about a quarter of adolescent girls and women said that their groups disbanded because they struggled to manage their activities as a group (Figure 4.4). Groups' coordination problems included difficulties assigning tasks and ensuring group members would complete the tasks assigned to them. Participants said that some of these difficulties started during the technical/vocational skills module. Participants who did not attend all training sessions may have been unfamiliar with some aspects of animal care and struggled to complete the tasks assigned to them. Distance also affected coordination, as some participants lived far from the location where participants housed their animals and struggled to find the time and resources needed to get to them. For some chicken groups, this was especially problematic at night, since chickens need attention as they continue to feed at night.

Groups also struggled to generate income for group members. Approximately 25 percent of adolescent girls and 31 percent of women whose groups had disbanded said their groups disbanded because they did not succeed in their work activities (Figure 4.4). Further, among those who participated in business groups in the year after the project ended, about one in three participants received income from group activities. EMPOWER did not expect the business groups to serve as an immediate source of income. Rather, the project expected participants to use the profits from their first sales to continue to grow their business (for instance, by buying a new batch of animals or covering other expenses) into a viable livelihood opportunity. Facilitators said that this aspect of the groups was frustrating for participants, and that goat groups may have faced additional challenges in this respect because they took longer to reach their first sales compared to chicken groups.

Box 4.9 Perspectives on group income

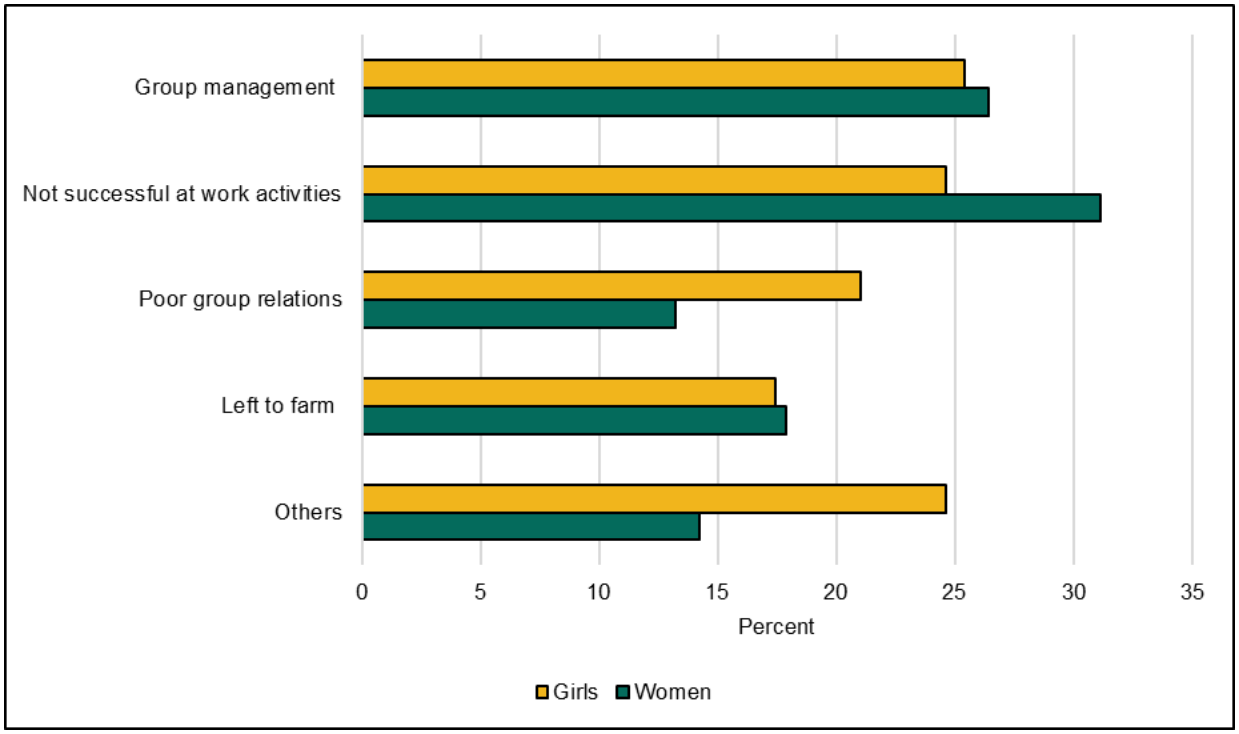
"Participants thought they would get income from animal rearing immediately after the first batch [of chickens] was sold, but this was not the case and this caused disappointment."

—Technical/vocational skills facilitator, Munyukwa

"They [participants] expected to receive money instantly. Once they heard that the money [profits] was not going to go to them as individuals but in a group, some stopped [business group activities].

—Life skills facilitator, Chafulu

Figure 4.4 Reasons that business groups disbanded, as reported at endline



Source: Analysis sample- endline survey (2021).

Notes: N= 138 adolescent girls and 106 women. The information included in this chart was provided by participants who joined a business group but said their group had disbanded by endline. Other responses include lack of proper facilities, issues with travel, and responses that indicated confusion about why the groups disbanded. Respondents were allowed to select multiple reasons for business groups disbanding. As such, these answers are not mutually exclusive and do not total to 100 percent.

As of the endline survey, many groups still had not registered with the Ministry of Community Development and Social Services (MCDSS), an important criterion for sustainability. The project encouraged groups to register with MCDSS because this would provide groups access to financial and other supports after the project ended. Winrock indicated that this was a key advantage of promoting group-based businesses and a critical step for ensuring groups' long-term sustainability (Winrock 2021; Interviews with Winrock staff 2020). Several participants said that their groups sent an application to MCDSS (and paid the application fee) but were unable to confirm if their registration had been successful. The absence of these benefits is another factor that likely contributed to groups' demise.

4.4 Implications of participation and implementation findings for project outcomes

EMPOWER's results framework assumes that life skills and technical/vocational skills modules would address gaps that constrain participants' work opportunities (Chapter 1). Further, the primary goal of the business groups and follow-up services was to ease pathways to employment by providing an opportunity to develop self-employment and by providing access to business networks that increase groups' or individuals' livelihood opportunities. The project's experiences with participation and implementation highlight several challenges that could potentially compromise participants' ability to use the skills and linkages promoted by the project to enhance their employment and livelihood opportunities.

1. **Due to irregular participation, its possible participants did not build the full set of skills needed to secure changes in their work and livelihoods.** In focus groups, adolescent girls and women

reported that skills learned in the project improved their work: for instance, literacy and numeracy lessons strengthened their ability to manage basic business financials. However, participants' exposure to the project was incomplete. Approximately 60 percent of adolescent girls and 71 percent of women completed life skills module and only 44 percent of adolescent girls and 56 percent of women completed the technical/vocational skills module (Figure 4.1). With this level of exposure, it's possible that participants did not take all lessons needed to secure changes in their work and livelihoods. For instance, when recounting the business groups' struggles with coordination, participants said that groups disbanded or suffered losses (animal deaths) because groups some members were unaware of and therefore did not implement key aspects of animal care taught in the technical/vocational skills module.

2. **Incomplete access to materials necessary to implement the project's animal rearing curricula may have also limited skill-building.** During the project's implementation participants and facilitators struggled to get lighting, vaccines, housing, and other critical materials needed to demonstrate how to care for the projects' chickens and goats. These gaps likely diminished skill building by reducing the quality of instruction and limiting participants' opportunities to apply their skills.

3. **Challenges that facilitators faced during the project could be indicative of those that adolescent girls and women could face while trying to turn their skill and animal businesses into lasting employment opportunities.** For instance, if participants sustain their access to lighting, vaccines, or housing in the absence of the project, it is unlikely they will be able to form chicken businesses that incorporate these aspects (and others taught by the technical/vocational skills module) of animal care. Registration with the MCDSS may have increased participants' access to some of the necessary materials resources. However, registration was also a struggle for groups and several groups reported being unable to confirm their registrations.

4. **The business groups did not offer a lasting connection to increased employment and livelihood opportunities**. About 80 percent adolescent girls and women in the analysis sample who joined business groups continued to work with their groups after the project ended, but this share dropped to between 40 and 50 percent at endline (Table 4.1). Groups faced multiple challenges to sustainability, including coordination issues and the inability to generate income for their members. Among the groups that remained, not all conducted work that was based on skills taught by the project (in particular, chicken and goat rearing). Rather, some groups conducted joint agricultural piecework, which was a major work activity for adolescent girls and women before the start of the project (Mumbuna 2017). This suggests that while adolescent girls and women valued the groups, they were not a clear or sustained channel for increasing employment or livelihood opportunities.

5. Changes in outcomes for adolescent girls and women over time

EMPOWER sought to reduce child labor by increasing adolescent girls' access to acceptable work and women's access to livelihood opportunities. In this chapter, we examine the extent to which EMPOWER achieved its intermediate outcomes and outcomes by comparing relevant outcomes for adolescent girls and women before they started EMPOWER and one year after they completed project activities. (a quantitative pre-post analysis). We use qualitative data from participants and implementing staff to contextualize these results. Annex tables for this chapter are in Annex B, Tables 5.1-5.14.[46]

5.1 Changes in skills emphasized by the life skills module, including perceptions of gender equity and child labor

The life skills module aimed to strengthen a variety of work readiness skills ranging from socioemotional skills to budgeting. This course also worked to raise awareness of gender equity, a potentially important constraint to adolescent girls' and women's economic empowerment, and child labor. In this section, we discuss how a subset of skills prioritized by the life skills module changed for adolescent girls and women and assess changes in their perceptions of gender equity and child labor.

Program participants showed gains in basic literacy and numeracy skills, which were taught as part of the life skills module. By design, EMPOWER recruited adolescent girls and women with low levels of literacy and numeracy. About 70 percent of adolescent girls and women who took part in EMPOWER had only attended primary school, and 8 percent of adolescent girls and 23 percent of women had never attended school at all. Before the life skills module, only 28 percent of adolescent girls could read a full sentence and about 16 percent of adolescent girls and 29 percent of women had no numeracy skills (meaning that they could not recognize single digit numbers) (Figure 5.1). Strengthening girl's and women's literacy and numeracy skills was a strong motivator for participants, as discussed in Chapter 4. Our pre-post outcomes analyses show that adolescent girls' and literacy and numeracy levels, and women's numeracy levels, increased by endline. The share of adolescent girls who could read a full sentence increased by about 12 percentage points (we do not have data on women's baseline literacy levels to conduct a similar analysis).[47] The share of participants with no numeracy skills or that were able to recognize lower digit numbers generally fell, while higher levels of number recognition rose. For instance, the share of adolescent girls and women that could recognize up to four-digit numbers (the highest level of number recognition included in the numeracy test) rose by 13 and 17 percentage points, respectively.

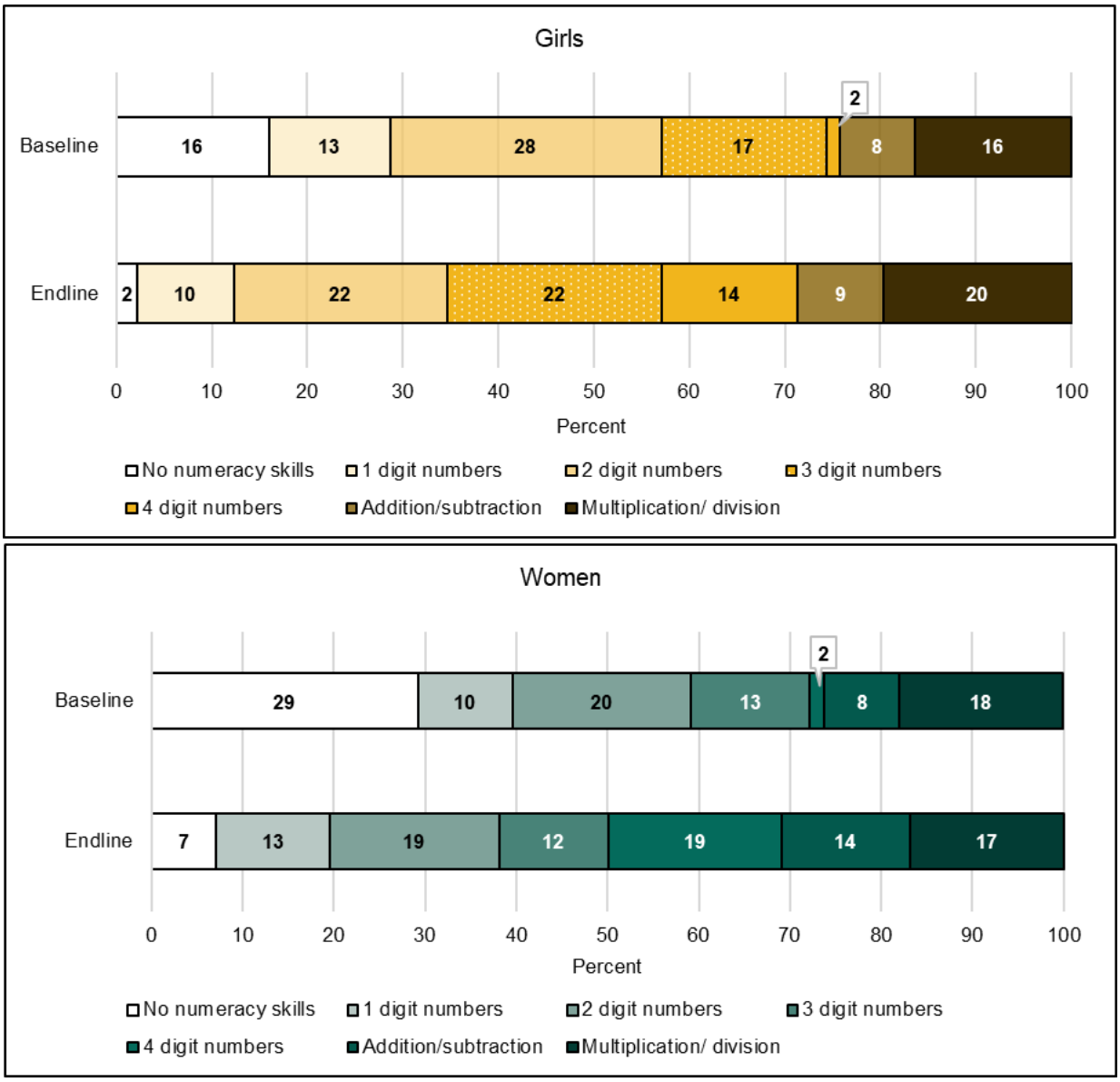
Although basic numeracy skills improved, participants still lacked important, fundamental arithmetic skills. The numeracy test allows us to see changes by several different skill levels: no numeracy skills, number recognition (by number of digits), addition/subtraction, and multiplication/addition. As discussed above, we find substantial improvements in number recognition, with participants being better able to identify numbers with more digits after the program. However, the share of adolescent girls who could add or subtract hardly changed from baseline to endline; and the share of adolescent girls who could multiply or divide increased very slightly (3 percentage points), if at all. For

[46] Annex C provides supplementary analyses of project outcomes, including sub-group analyses that assess whether outcomes were different for: (1) girls who had given birth at baseline, had secondary schooling, or lived with a woman that also took part in the project and (2) girls and women with higher levels of participation. We do not discuss these analyses here because they are based on small samples.

[47] As we discuss in Chapter 2, we did not a apply a full literacy test at endline, opting instead to use this simple measure of literacy. For this reason, we do not discuss other aspects of literacy, like reading level.

women, these gains were about 6 percentage points for addition or subtraction and hardly any change for multiplication or division. These findings suggest that although EMPOWER's numeracy curriculum helped participants improve basic skills, participants could benefit from more intensive functional numeracy instruction to obtain more advanced skills.[48]

Figure 5.1 Adolescent girls' and women's numeracy skills at baseline and endline



Source: Analysis sample – Literacy and numeracy test (2019), endline survey (2021).

Notes: Sample N=268 adolescent girls and 184 women.

[48] EMPOWER delivered lessons on literacy and numeracy throughout the life skills module — girls received 3 hours of functional literacy and numeracy training per week and women received 2 hours per week over 3 months. The content of the curricula varied by skill level; participants completed lessons in groups made up of girls or women with similar ability levels (Bulanda n.dd.). Also, EMPOWER's Interim Performance Evaluation came to a similar conclusion, suggesting that the project's literacy and numeracy curricula was too light touch to achieve more than the basics (Orsini 2019).

Adolescent girls' self-esteem was high at baseline, leaving little room for improvement. Several studies have established the importance of self-esteem and other social-emotional skills for work readiness and suggested that adolescence is the optimal period for building these skills (Guerra et al. 2014). To strengthen participants' self-esteem, the life skills module delivered lessons and exercises designed to help adolescent girls understand the importance of self-esteem and build confidence in their abilities.[49] We find that adolescent girls reported no changes to self-esteem over time, likely because the project had little room to change this variable. Adolescent girls' self-esteem was high at baseline (a score of 29 on a 30-point scale) and remained at a similar level at endline. It is unclear why self-esteem was so high at baseline, but it is possible this could be due to measurement error. Though studies have shown the Rosenberg Self-Esteem Scale produces a valid measure of self-esteem in diverse contexts, the questions that make up the scale are highly nuanced and it is possible that populations with low education levels might struggle to comprehend them.

Adolescent girls and women generally expressed similar levels of support for gender equity at baseline and endline. Almost all EMPOWER activities (including activities for men and communities) worked to promote gender equity because the project's design document drew a direct connection between gender norms and child labor. For instance, project documents assert that gender norms contribute to adolescent girls' high rates of school dropout and constrain women's access to work and other economic resources (Winrock 2017b). The life skills module included lessons that taught participants to recognize and practice gender equity, its advantages for women and men, and related material. Using a survey measure of gender equity (the GEI or Gender Equitable Index), we find that adolescent girls and women had similar GEI scores (both report average scores of about 47 of 56) and that neither groups achieved meaningful gains in their perceptions of gender equity between baseline and endline.[50]

[49] Women did complete the sections of the life skills module that focused on these subjects, hence the women's life skills collected at baseline did not include the Rosenberg Self Esteem Scale. However, this scale was included in the endline survey and we find that women also had high levels of self-esteem at endline.

[50] The GEI is an additive index comprised of 15 questions that ask participants to strong disagree, disagree, agree, or strongly agree with gender equitable statements. Answers that are more favorable to gender equity get assigned the four points, whereas those that are at least favorable get one point. The GEI is typically based on a scale from 1-60, but due to a survey programming error was missing one question at endline. As such, we scored the GEI from 1-56.

We find mixed perspectives on changes to economic equity. The components of the GEI cover several aspects of gender equity, including equity in leadership, education, and sexual reproductive health. The index does *not* cover equity in economic issues, such as shared responsibility for household expenses or equal division of household responsibilities, though this type of equity was a strong focus for EMPOWER. Qualitative accounts emphasize that the project contributed to improvements in economic equity. Facilitators and participants reported that the project's lessons on gender encouraged adolescent girls and women to reconsider relying only on their husband's income and think differently about the types of work that were proper for women. Despite this, other household members still played a large role in adolescent girls' and women's employment decisions. In the endline survey, one in three of both adolescent girls and women reported that they required a household member's permission to work (not shown, see Annex B, Table 5.14). Adolescent girls mostly needed their mother's permission to work, and women relied on their spouse to make this decision. Still, most participants—especially women—were not entirely left out of households' economic decisions. Only eight percent of women reported that they had no input into decisions on household resources. Sixty-two percent of adolescent girls said they had no input in households' economic decisions but this is consistent with most adolescent girls being unmarried (about 60 percent were unmarried at endline) and living with their guardians. We do not know whether these patterns of decision making changed over time because Winrock did not collect similar data at baseline.

Box 5.1 Learnings on economic equity

I did not know what we as women could do the same work or businesses as men do, I don't rely entirely on my husband anymore

—Woman Participant, Egichikeni

We are accustomed to say this work is particularly designed for men or women… but they came to understand that they can do all work … they can all be bricklayers, they can also do carpentry and all those other jobs

—Life skills facilitator, Kapichila

"We have changed because we were taught about business and how to go about different ways of doing business. We just don't have to be at the farm farming the whole day."

—Woman Participant, Egichikeni

Quantitative findings show no change in child labor awareness among women, but some qualitative reports were more positive. The life skills module worked to raise participants' awareness of child labor by delivering lessons on definitions and harms of child labor, often using local examples. The pre-post analysis of survey questions (developed by Winrock) on women's acceptance and knowledge of child labor and child rights suggests that women's acceptance of child labor did not change over time and that their knowledge of this topic declined (Table 5.1). However, these questions may not have been ideal measures of women's attitudes and learnings around child labor. These questions asked participants to recall specific aspects of complex definitions rather than a demonstrate a general understanding of child labor and could be difficult to answer as a result.[51] These questions also used complicated response formats, for instance multiple choice questions that include "all of the above" responses, that could be

[51] For instance, one question asked: Which of the following is not considered one of the rights of children: right to life, survival, and development, stay away to school after childbirth, education, parental support and guidance, freedom of expression?

Box 5.2 Changes in awareness in child labor

"I also changed the way I run my home and take care of my children. I used to make them work long hours in the fields, and make them carry heavy things (like firewood and heavy water containers) despite their age differences … without knowing it was child labor ... I learned how to assign suitable chores to my children according to their age and not over work them … I am grateful for this."

— Woman participant, Nyamphande

"We used to give children hard work to do, heavy buckets and plenty of them. Since EMPOWER, we have reduced these practices … So now, we give children fewer buckets and the distances are not as far as before."

— Woman participant, Dole

"Even when watering we just use few buckets to water and then we finish. I would tell my parents that I am a child, this is how my opinion [on child labor] has changed since EMPOWER."

— Girl participant, Dole

difficult for women to grasp, particularly during an oral interview. Winrock staff also expressed that some aspects of these questions, and the life skill tests in general, were likely difficult for participants to understand due to low literacy levels and lack of test-taking skills.

The qualitative interviews paint a somewhat different picture of changes in awareness of child labor. Many participants said that before the course they were largely unaware of child labor and that learning about this issue motivated them to change specific practices, like asking children to carry heavy loads, work long hours, and participate in activities harmful to their health, like charcoal burning. Facilitators noted similar improvements, though some also predicted that the project would likely reduce some child labor practices but stop short of fully eliminating child labor because households working in agriculture have little choice other than to employ all household members.

Table 5.1 Changes in women's attitudes and knowledge of child labor at baseline and endline

	Sample	Baseline mean	Endline mean	Difference
Attitudes towards child labor total score (1-28)	187	19.4	20.2	0.8**
Knowledge of child labor and child rights score (1-4)	205	1.7	0.9	-0.8***

Source: Analysis sample – life skills test (2019), endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA=not available. Sample sizes vary due to item non-response and missing data. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.

5.2 Changes in technical/vocational skills

The technical vocational skills module delivered academic and practical instruction on chicken or goat rearing and entrepreneurship training. As discussed in Chapter 4, around three-quarters of adolescent girls and women that participated in the technical/vocational module received training on chicken rearing. Many of these participants were likely familiar with chicken rearing before the course, as about 40 percent of participants' households owned chickens (compared to about 20 percent who owned goats). In this section, we assess changes to the level of adolescent girls' and women's knowledge of animal rearing and confidence in their entrepreneurship skills, another focus of the technical/vocational module.

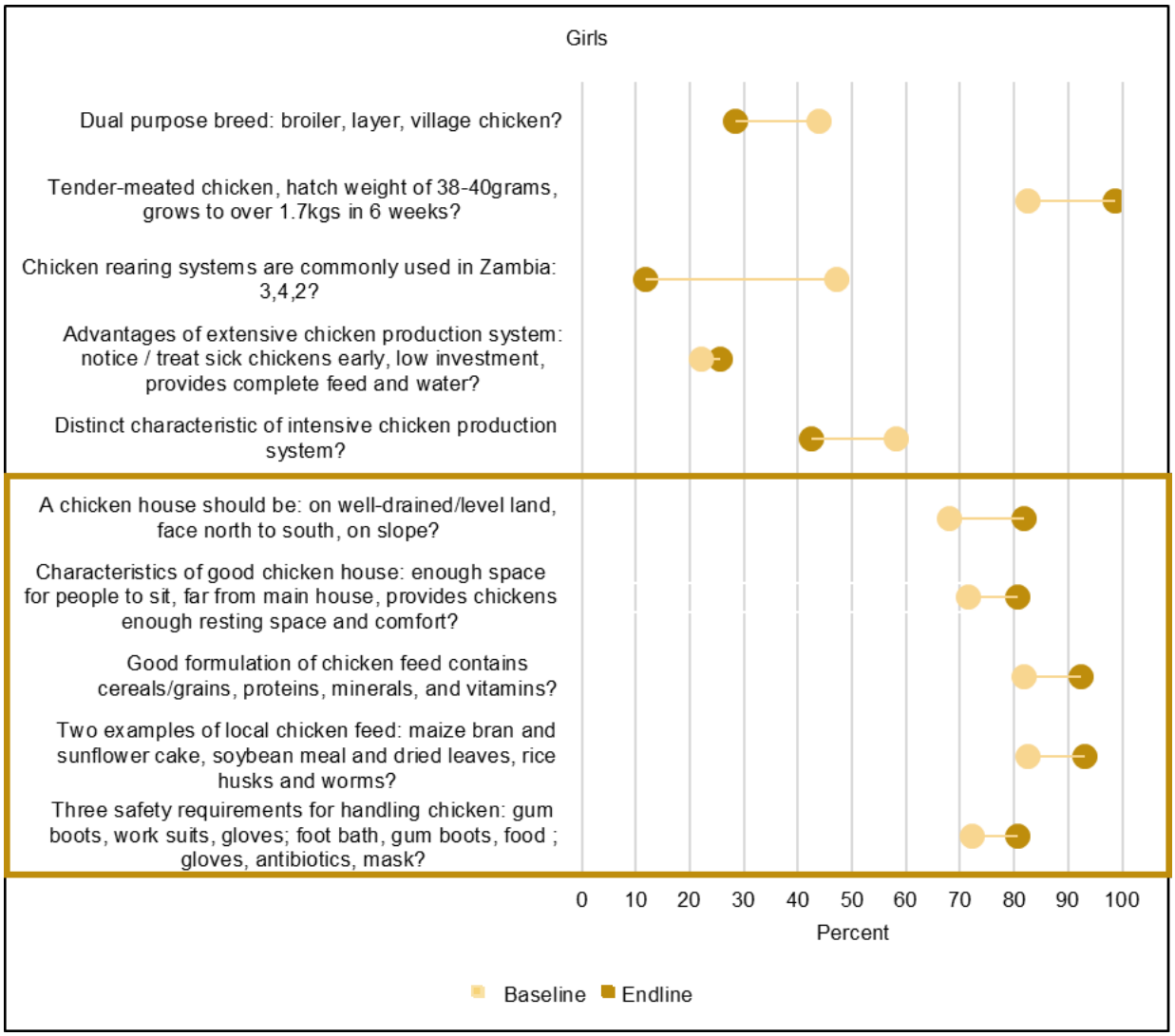
Aggregate results of participants' knowledge of chicken rearing do not demonstrate a change before and after the project, but questions related to practical knowledge show a positive trend. Winrock designed knowledge tests on animal rearing, which asked participants about definitions and

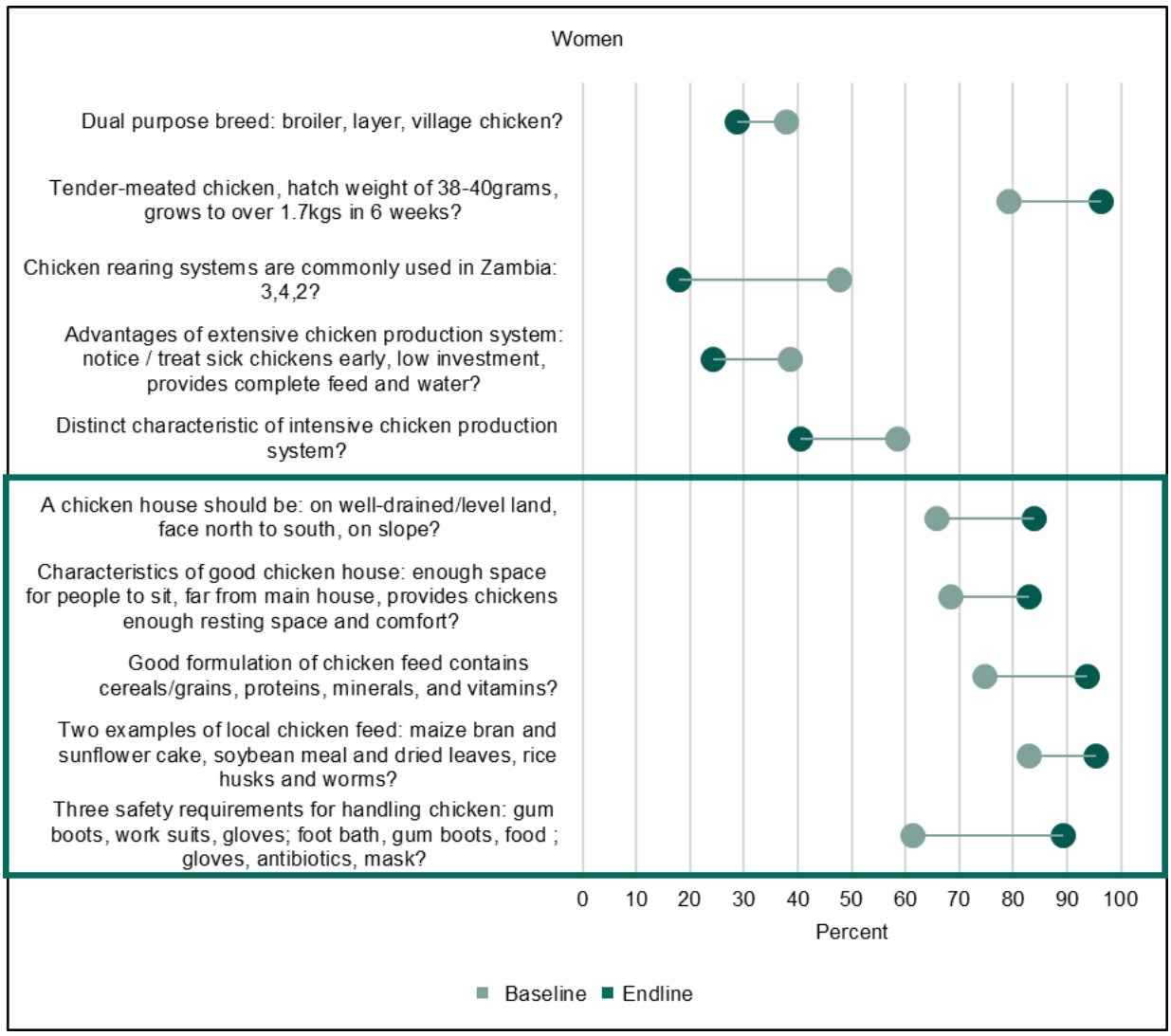
practices related to animal rearing specific to chickens or goats.[52] Using an aggregate measure of results from 10 questions, we find that knowledge of chicken rearing did not change after the project. Adolescent girls and women correctly answered approximately 60 percent of test questions at both baseline and endline. However, when looking at the questions included in the test, we find that the direction of responses differs for questions covering definitions compared to questions on rearing practices (Figure 5.2). For adolescent girls and women, there is an improvement of typically 10 points or more between baseline and endline for questions on knowledge of rearing practices; there is no change or a decline in knowledge definition questions.

The results for goat knowledge tests are based on a small sample (only 55 adolescent girls and 30 women) but are roughly consistent with our findings for the chicken knowledge tests in that there was slight (for adolescent girls) or no changes in overall knowledge.

[52] Questions on definitions asked about topics identifying chicken types (for instance, which is a tender-meated chicken with a hatch weight of 38-40 grams which grows over 1.7 kgs in 6 weeks?) and the characteristics types of breeding/rearing systems (for instance, what are the distinct characteristics of an intensive poultry production system?). Questions on rearing practices asked about implementing specific aspects of animal care (for instance, what are the characteristics of a good poultry house? or good formulation of chicken feed contains cereals/grains, proteins, minerals, and vitamins?).

Figure 5.2 Adolescent girls' and women's scores on chicken knowledge test (by component) at baseline and endline





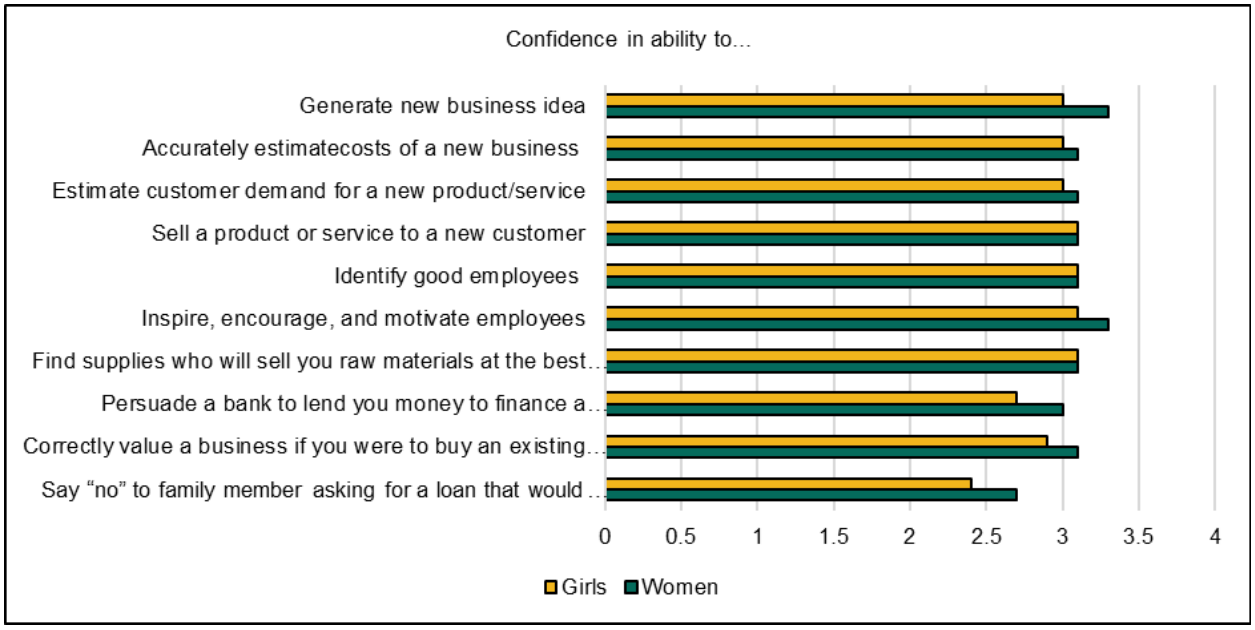
Source: Analysis sample – Technical and vocational skills tests (2019), endline survey (2021).

Notes: Sample N= 144 adolescent girls and 111 women. The boxed questions focus on practical aspects of chicken rearing, questions outside the box focus on definitions.

Adolescent girls and women expressed high levels of confidence in conducting a range of entrepreneurial tasks, with the exception of separating household and business finances. EMPOWER's entrepreneurship curriculum was part of the technical/vocational training module. It taught core skills for starting and running a business—for instance, deciding what to sell, pricing, and strategies for selling. Because we do not have baseline data on participants' entrepreneurship skills, we are unable to assess changes over time. Nevertheless, the component scores for the entrepreneurial self-efficacy score that Palm collected at endline are promising. As shown in in Figure 5.3, adolescent girls and women felt confident or very confident in their ability to conduct entrepreneurial tasks such as generating a business idea, identifying good employees, and finding a supplier offering good prices. One exception is that adolescent girls and women were not confident in their ability to deny a family member a loan that would come from business funds. Participant's low confidence in this aspect of business is consistent with the limited control participants said they have over economic decisions made within their households, including the decision to work, as mentioned above. This separation is relevant because

research shows that an inability to separate household dynamics and business decisions can have a negative effect on business development for female-owned micro-enterprises (Bernhardt et al 2019).

Figure 5.3 Components of the entrepreneurial self-efficacy score at endline



Source: Analysis sample- endline survey (2021).

Notes: Sample N= 365 adolescent girls and 262 women. We shortened questions for clarity. These questions correspond to a 4-point scale, where 1 represents strongly disagree and 4 represents strongly agree. Sample sizes vary due to item non-response and missing data. The source questionnaires for the self-efficacy score is McKenzie (2017). The entrepreneurial self-efficacy score was only measured at endline; we show the components of the score for descriptive purposes.

5.3 Changes in access to business and financial networks

EMPOWER's theory of change hypothesized that increasing access to business and financial networks would strengthen participants' access to employment and resources for developing self-employment opportunities. Thus, the project's follow-up services focused on connecting participants to local businesspeople (including business mentors), potential providers and customers for the business groups, and groups designed to support women entrepreneurs. The project did not implement activities designed to enhance access to financial networks but rather introduced participants to financial services through guest lectures by banks and other program partners on mobile money and other financial skills and products. In this section, we discuss changes to adolescent girls' and women's access to business and financial networks.

Participation in business networks was limited at endline, but more than one third of women participated in a financial network. We do not have information on participant's baseline levels of involvement in business or financial networks, but we assume participants had no access to them based on preliminary information from Winrock (Beatty et al. 2017).[53] If this assumption is true, women, and to a

[53] Information collected through the intake survey showed that 12 or 13 of participants households had access to business or financial networks at baseline. However, this question measured whether any member of the household had access to financial services so this number might not apply to adolescent girls and women targeted by EMPOWER.

lesser extent adolescent girls, made limited gains in securing access to these networks over time (Table 5.2). At endline, 9 percent of adolescent girls and 17 percent of women said they had participated in a business network in the last three months; and 16 percent of adolescent girls and 37 percent of women said they had participated in a financial network in the last three months.

The type of financial networks women gained access to lack a clear link to EMPOWER. Adolescent girls and women who interacted with a financial network in the past three months said they mostly interacted with micro-credit (50 percent) and mutual insurance groups (20 percent). Based on our understanding of the project, EMPOWER did not facilitate connections to these types of networks. The project instead focused on providing access to financial skills and services such as mobile money. A far smaller share of participants (compared to those who participated in financial networks) say they used those types of services (that is, financial services provided by formal banking institution) in the past three months (9 percent of adolescent girls and 14 percent of women) (Table 5.2). The project could have influenced this outcome in other ways—for instance, increased knowledge of financial products and services could have encouraged participants to join these networks—but we do not have information needed to confirm this.

Table 5.2 Adolescent girls' and women's access to business and financial networks at endline

	Girls		Women	
	Sample	Mean	Sample	Mean
Participated in business network past 3 months	367	8.7	263	17.1
Participated in financial network/group past 3 months	368	15.5	263	36.5
Received financial services from formal banking institution in past 3 months	368	8.7	263	14.4

Source: Analysis sample – endline survey (2021).

Notes: Results reported in percent unless otherwise noted. Sample sizes vary due to item non-response and missing data.

5.4 Changes in acceptable work and livelihood opportunities

EMPOWER's primary outcome was increasing acceptable work — or work that is not child labor — among adolescent girls ages 15 to 17, as well as women's access to improved livelihood opportunities.[54] The project's results framework suggests that to achieve these aims it had to first ensure that adolescent girls and women address skills gaps that limited their work opportunities, as well as provide access to business networks that could link participants to employment or support self-employment. As we discussed earlier, we find little or mixed evidence that the project succeeded in reaching intermediate outcomes, particularly increasing life skills or technical/vocational skills. We also find that some business groups, which aimed to support transitions to self-employment, outlived the project but are unlikely to be sustained in the long term. Without this foundation, the project was unlikely to be able to achieve its broader aims for changing adolescent girls' and women's work. In this section we discuss changes to adolescent girls' participation in acceptable work, as well as adolescent girls' and women's participation in paid and self-employment, in an attempt to understand if outcomes improved despite limited improvement in intermediate outcomes.

[54] As explained in Chapter 2, our discussion on changes in work and employment includes only adolescent girl participants because we lack baseline data on women's work.

5.4.1 Changes to acceptable work

Because most adolescent girls aged into adulthood shortly after completing the program, we cannot draw any conclusions about changes to acceptable work. Acceptable work is a child labor concept and only applies to individuals under the age of 18. At endline, only 32 adolescent girls (of a total of 370 adolescent girls) were under 18, and we only had the data needed to assess change in acceptable work for 13 of these adolescent girls.[55] This sample is too small to produce valid or reliable results

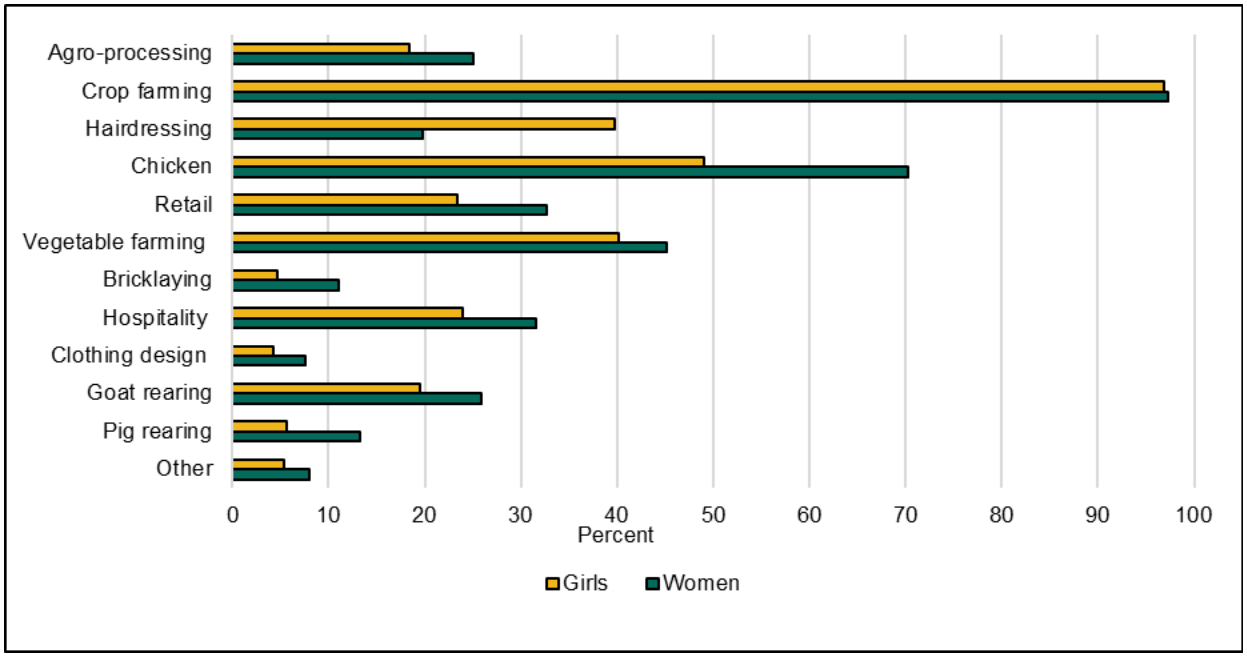
5.4.2 Changes to paid employment and self-employment

Almost all adolescent girls and women were working at baseline. Hence, EMPOWER sought to improve participants livelihoods by changing the characteristics of their work rather than their involvement in work. In this section, we examine changes to adolescent girls' and women's livelihoods by analyzing their involvement in paid and self-employment (including running a business)—aspects of work and employment that the project focused on. Because we lack baseline data on women's work and self-employment, we can only discuss changes in paid work for adolescent girls. We present descriptive information on all other variables at endline to provide context on what adolescent girls and women's work was like after the end of EMPOWER.

EMPOWER participants overwhelmingly worked in agriculture and most engaged in several types of work. At endline, practically all adolescent girls and women worked in the past year (100 percent of adolescent girls and women). Figure 5.4 provides an overview of participants' work activities at endline. During this time, girl and women participants typically worked on more than one work activity (on average adolescent girls worked in 3 activities and women in 4 activities) and were largely involved in agricultural work. For example, more than 95 percent of adolescent girls and women were involved in crop farming and about 40 percent were involved in vegetable farming. There are slight differences in the most common type of work conducted by girl and women participants. For instance, women participants were more involved in animal rearing than girl participants (49 percent of adolescent girls and 70 percent of women raised chickens in the past year); hair dressing was a more popular among adolescent girls than women (40 percent versus 20 percent); and both groups had similar levels of involvement in retail (23 percent of adolescent girls and 33 percent of women), which includes preparation and sale of foodstuffs.

[55] The remainder were missing baseline data or reported that they did not work in the last month (our questions on child labor only applied to girls that worked in the last month).

Figure 5.4 Adolescent girls' and women's work (by type of work) at endline



Source: Analysis sample — endline survey (2021).

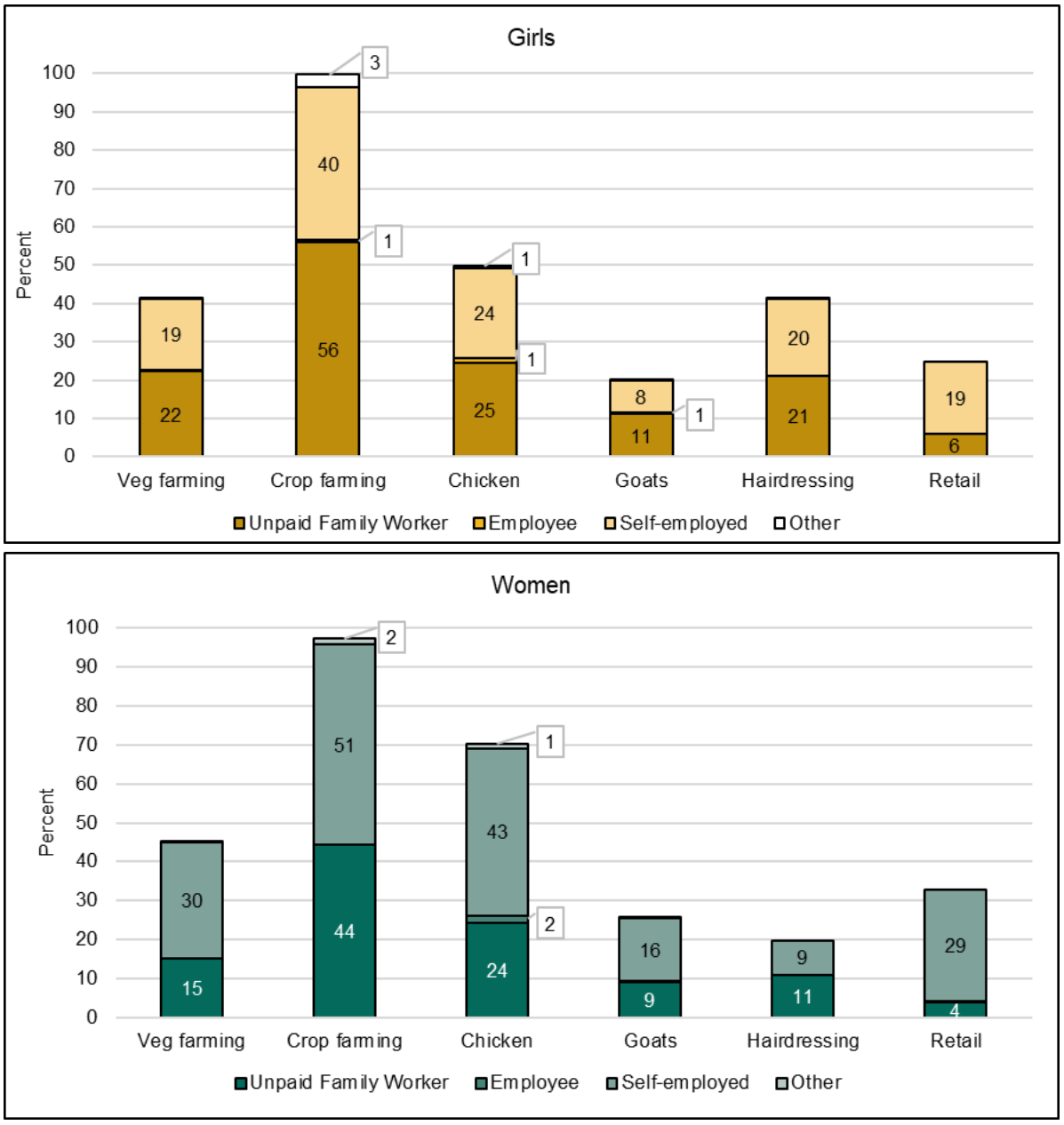
Notes: N= 359 adolescent girls and 263 women. Respondents were allowed to select multiple types of work. As such, these answers are not mutually exclusive and do not total to 100 percent.

Self-employment was common among participants at endline. When conducting the endline survey, Palm explained to participants that self-employment included piecework and running a business for oneself or with others.[56] Sixty-eight percent of adolescent girls and 79 percent of women indicated that they worked in self- employment in the past year. The share of adolescent girls and women who conducted specific types of work as self-employment varies (Figure 5.5). For instance, 40 percent of adolescent girls and 53 percent of women involved in crop farming conducted this activity as self-employment, whereas 75 percent of adolescent girls and 87 percent of women involved in retail activities (often selling small food stuffs) conducted them as self-employment. For all types of work, almost all adolescent girls and women who were not self-employed worked as unpaid family workers rather than paid employees.

For most types of work, women worked in self-employment at higher rates than adolescent girls**.** This could be because about two-thirds of adolescent girls were still unmarried at endline and likely lived in their families' households, where they worked for their family rather than running their own businesses. It could also be because they were still young and did not have the resources to build or manage a business.

[56] Piecework is a very important form of work for adolescent girls and women — Winrock noted this in the market assessment they conducted before the start of the project and participants spoke extensively about their involvement in piecework in the focus group discussions. We do not have the information needed to separate piecework from running a business and it was our sense that these concepts could be difficult for girls and women to distinguish because piecework can involve so many different tasks, some which participants could be doing as a business.

Figure 5.5 Adolescent girls' and women's involvement in self-employment (by type of work) at endline



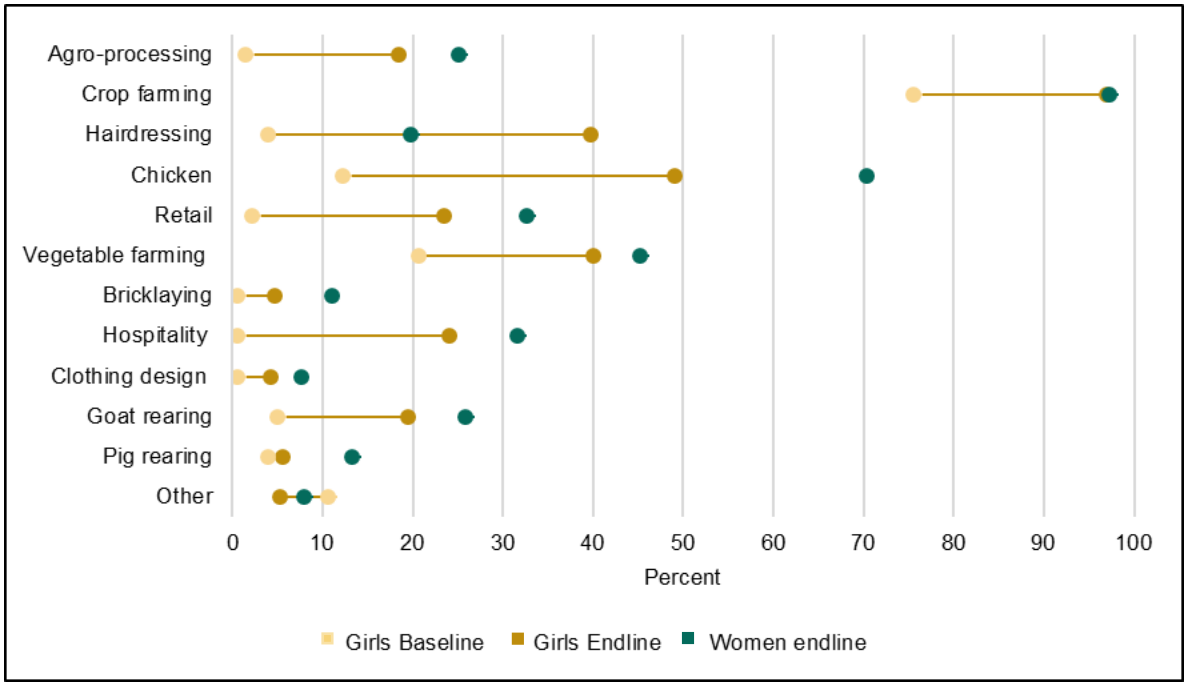
Source: Analysis sample— endline survey (2021).

Notes: N= 359 adolescent girls and 253 women. This figure shows common types of work conducted by girl and/or women participants. It does not show all types of work conducted by either participant group.

The diversity of adolescent girls' work activities increased between baseline and endline, but it is possible this is due to the adolescent girls entering adulthood during this timeframe. At baseline, adolescent girls were mainly engaged in crop farming, chicken rearing, and vegetable farming (Figure 5.6). These activities were still popular among adolescent girls at endline, but a substantial share of adolescent girls (over 20 percent) reported working on other tasks such as hairdressing, retail, and goat

rearing. Without a valid comparison group, it is not possible to determine whether these changes were due to EMPOWER or other factors like adolescent girls' transition to adulthood. As adolescent girls grew older, started families, and became increasingly mobile, its highly likely they took on more and various kinds of work. The similarity in the number of activities and distribution of activities conducted by adolescent girls and women supports this possibility, suggesting that adolescent girls caught up with women in their involvement in work as they grew older.

Figure 5.6 Adolescent girls' and women's involvement in work (by type of work) at baseline and endline



Source: Analysis sample— endline survey (2021).

Notes: N= 359 adolescent girls and 263 women. Numbers in this figure are conditional on being involved in each type of work activity.

Although the share of adolescent girls involved in paid work rose between baseline and endline, most were not paid for common types of work. The share of adolescent girls who were paid for any type of work —which, as we showed above, was almost all self-employment— rose from 25 percent at baseline to 57 percent at endline. (We do not have baseline data on paid work for women).[57] This change is consistent with adolescent girls' increased involvement in different types of work, but the magnitude of this change is hard to interpret because, as the likelihood of payment varies by type of work. For instance, among adolescent girls who worked in crop farming, chicken rearing, and vegetable farming at endline, 34 percent (crop farming), 28 percent (chicken rearing), and 50 percent (vegetable farming) received pay for this work. The relatively low likelihood of payment for these work activities and others conducted by

[57] At baseline, the intake survey measured girls' involvement in paid work by asking about payment for all work completed by participants (the reference period for this question is unclear, it could be month or year). At endline, Palm collected payment data by asking girls whether they received pay f*or each type of work* they did in the past year. Because of these differences, our baseline and endline data on payment for work may not be perfectly comparable.

a high share of adolescent girls suggest that adolescent girls still face important challenges to securing payment for their work.

Women's involvement in paid work follows a similar pattern to adolescent girls—half of women reported they were involved in paid work in the past year, and payment varied by type of work. Also, a high share of women did not receive payment for common work activities. For instance, 38 percent of women who worked in crop farming receive pay for their work and 45 percent women working in chicken rearing and vegetable farming received pay.

Box 5.3 Changes in work

"I learnt on how to start a business through EMPOWER. I never used to sell the vegetables that I grew in my garden (they were mostly for feeding the family and giving out for free to my friends and neighbors). But since EMPOWER I learnt some business skills that helped me turn my home garden into a business."

— Woman participant, Zingalume

"We did not change the way we work, we just learned many things …[but] we are yet to practice most of what we were taught…. The things we learnt of require a lot of money and we do not enough to use these lessons."

— Girl participant, Egichikeni

Winrock taught us a lot of things but did not give us capital…I did not feel like there was any change as a result.

— Woman participant, Dole

Participants' focus groups discussions offered mixed perspectives on how work changed as a result of the project. Several participants reported that the project provided skills that enabled them to engage new types of work, increase their participation in self-employment (particularly in running a business), and focus on more profitable activities. However, others said that EMPOWER provided tools that they were unable to use once the project ended. Participants explained that they felt prepared to start and run a business but lacked the money to do this. Piecework and other paid work available to participants only pays enough to cover necessities and does not allow participants to save money needed to start a business. During these discussions, participants also shared several examples of how lack of capital constrained attempts to implement skills learned in EMPOWER. For instance, more than one participant said they learned of the importance of animal vaccination in the project but could not implement this practice because they lacked the resources needed to pay for vaccines or other medicines.

5.5 Key learnings about project outcomes results

Our pre-post outcomes analyses measured changes in EMPOWER's intermediate outcomes (increased life and technical/vocational skills and awareness of child labor) and outcomes (increased access to acceptable work for adolescent girls and increased livelihood opportunities for women). These analyses yield the following learnings on project outcomes, Winrock's approach to measuring outcomes, and the evaluation.

1. **We find little or mixed evidence of change in EMPOWER's intermediate outcomes**. Specifically, we find: (1) few changes in life skills, though literacy and basic numeracy are an important exception; (2) slight or no changes in participants' overall knowledge of chicken or goat rearing; (3) broadly stable perceptions of gender equity and child labor; and (4) limited access at endline to business and financial networks emphasized by the project. These findings likely explain why the project also struggled to reach its outcomes of increasing adolescent girls' access to acceptable work and women's livelihood opportunities.

2. **Adolescent girls and women achieved modest gains in literacy and numeracy.** Despite EMPOWER offering limited instruction in literacy and numeracy, adolescent girls and women reported gains in these skills, particularly in basic numeracy. For instance, ability to recognize up to four-digit numbers increased by 13 percentage points for adolescent girls and 17 percentage points for women. Though most improvements in numeracy are limited to basic skills (participants generally lack arithmetic skills and reported at best small gains in these skills), these changes were important to participants. Many adolescent girls and women said that literacy and numeracy was the most useful aspect of the course and spoke of this skills' value to key work activities, like counting change. A more intensive course might be needed to obtain changes in more advanced skills.

3. **Measurement and missing data were important challenges to examining changes in participant's outcomes before and after EMPOWER**. As we discussed in Chapter 2, missing data are an important feature of the baseline databases and key challenge to our evaluation. For instance, we cannot measure changes in key outcomes (including women's involvement in paid work and self-employment) because women did not complete the intake survey. Further, we question whether the survey questions used to measure women's awareness of child labor—an important intermediate outcome that did not change over time—were appropriate for oral interviews and women with low literacy levels. These questions focused on women's ability to recall complex definitions (rather than a practical understanding of child labor) and used response formats that could be difficult to understand.

4. **Increasing acceptable work may have not been an appropriate outcome for this project.** EMPOWER project sought to change access to acceptable work for a population of adolescent girls that would reach adulthood shortly after the project. This implies that any gains in this outcome were bound to be short-lived. We are unable to measure changes to acceptable work at endline because very few adolescent girls were still under 18 at that point. Generating meaningful changes in outcomes for adolescent girls in late adolescence likely requires intervening at earlier ages. This said, the focus group discussions provide a positive assessment of the project's contributions to awareness of child labor. As adolescent girls continue to start families of their own, it is possible that these learnings will adjust their children's' involvement in child labor, as the project hoped to do for women.

5. **Adolescence is a critical period of transition — our analyses of work and employment highlight the difficulties of using a pre-post study to assess changes in the outcomes of adolescent girls**. Because we were missing data on women's work and self-employment at baseline, we are only able to examine change in the type of work adolescent girls did and their involvement in self-employment. Although the share of girl participants working at baseline and endline is unchanged (all adolescent girls worked), we find that they changed the mix of work they were engaged in and increased their involvement in paid work. However, without a valid comparison group, it is difficult to know the extent to which these changes are linked to EMPOWER. For instance, it seems highly likely that gains in work and employment are linked to changes that accompanied adolescent girls' transitions to adulthood such as increased rates of marriage and motherhood and increased mobility.

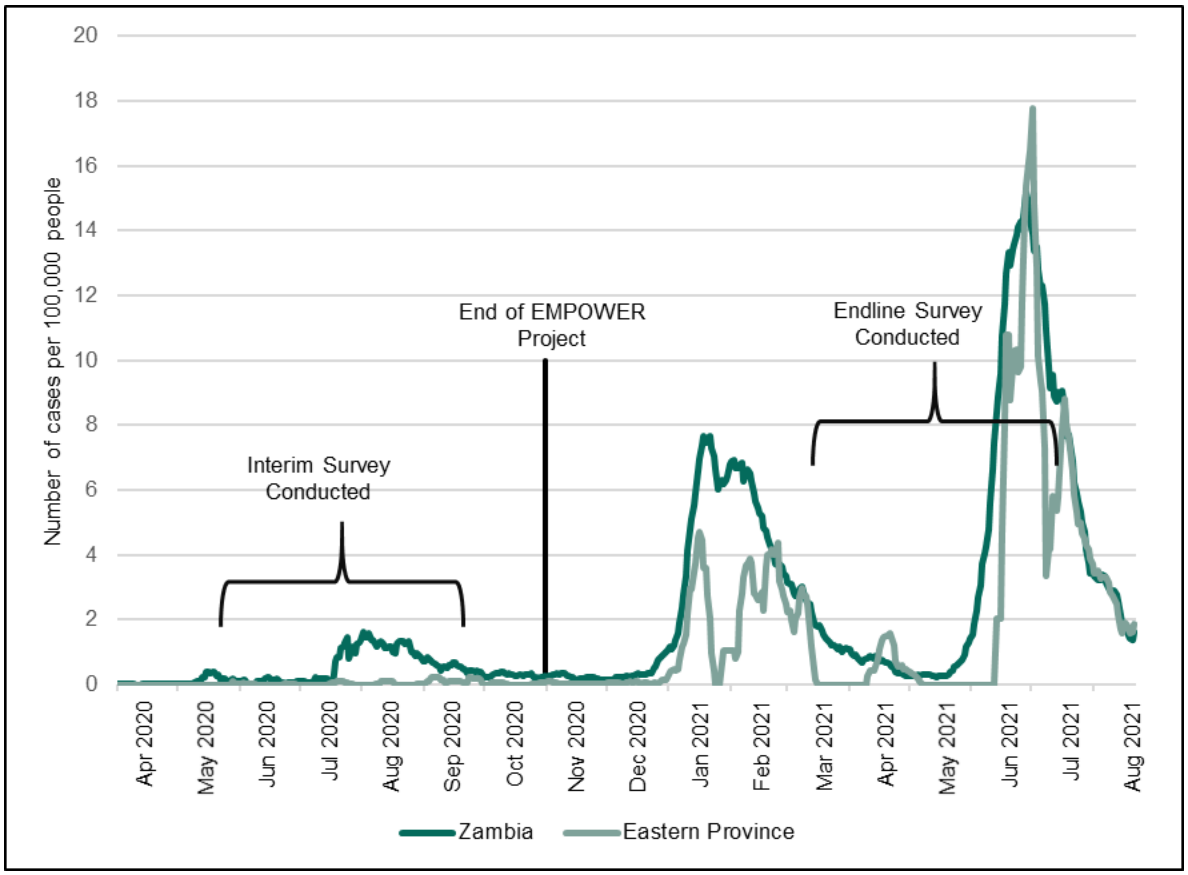
6. EMPOWER participants' knowledge of and experience with COVID-19

In understanding the results described in Chapters 4 through 5, it is important to consider the effects of the COVID-19 pandemic, which has had lasting impacts Zambia. The first registered case of COVID-19 in Zambia was confirmed in March 2020, around the same time that follow-up services to EMPOWER activities were wrapping up for adolescent girls and women in the evaluation cohorts (Chipimo et al. 2020). Since then, Zambia has experienced three waves of COVID-19, each larger than the previous, peaking in July 2020, January 2021, and June 2021. COVID-19 directly impacted many aspects of Zambian society, including the economy, which contracted by 4.2 percent in 2020, the first time an economic contraction has occurred in over 20 years. As of the writing of this report, the Zambian Ministry of Health has expressed concern that a potential fourth wave may stretch health systems in early 2022 (Zambia Ministry of Health 2021). The first two confirmed cases COVID-19 in Eastern Province, where EMPOWER was implemented, were recorded in late May of 2020. In Eastern Province, the COVID-19 case rate was low relative to the country as a whole during the first wave and parts of the second wave. During the third wave, the case rate in Eastern Province more closely tracked with, and sometimes surpassed, that of the country. As such, the province was flagged in July 2021 by the Ministry of Health as a rising hotspot that needed "technical and logistical support…[and heightened] preventive, monitoring and treatment interventions" (Zambia Ministry of Health 2021).

Although the original scope of the evaluation did not focus directly on public health indicators, we included COVID-19 related questions[58] in the interim and endline surveys to get a sense of how EMPOWER participants and their households might have been affected by the pandemic. As discussed in Chapter 2, Palm conducted the interim survey by phone as COVID-19 began to first spread in Zambia and the government implemented initial restrictions on movement and to social activities. Roughly one year later, Palm completed the endline survey in-person, spanning parts of the second and third waves. Figure 6.1 shows the number of cases in Zambia and Eastern Province along with indications of when Palm conducted the two survey rounds. Analysis tables for this chapter are in Annex B, Tables 6.1-6.3.

[58] These questions touched on topics such as adolescent girls' and women's awareness of COVID-19, precautions they had taken in response to the pandemic, and the effects that the pandemic had on their work and income.

Figure 6.1 Seven-day average of new COVID-19 cases per 100,000 people in Zambia and Eastern Province and evaluation survey timing



Source: Zambia Statistics Agency and Zambia Data Portal

Notes: These figures likely understate the severity of the COVID-19 situation in the country, as studies suggest that much of sub-Saharan African countries (Maclean 2021), and specifically Zambia (Mwananyanda et al. 2021; Mulenga et al. 2021), are underreporting cases, largely due to a shortage of testing capabilities.

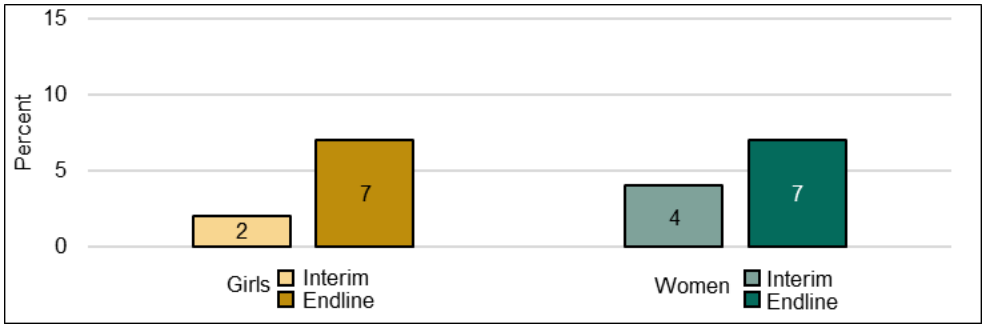
6.1 EMPOWER participants' awareness of COVID-19

The large majority of adolescent girls and women are familiar with COVID-19. At the interim survey, the entire sample of adolescent girls and women indicated familiarity with COVID-19, despite very low numbers of confirmed cases at the time; 92 percent of respondents were familiar with COVID-19 at endline. Given the low number of confirmed cases, the main driver of COVID-19 awareness was likely the restrictions implemented by the Zambian government, which began in March 2020 and limited key aspects of public life such as weddings, funerals, and schools (President Lungu 2020; Billima-Mulenga et al. 2021). Sensitization campaigns by multiple groups also reached Eastern Province (UN Volunteers 2020; James 2021; Baskar 2020), which may have contributed to the high levels of reported awareness.

The share of participants familiar with someone who had contracted COVID-19 increased slightly from interim to endline but remained low. As discussed above, the number of daily COVID-19 infections rose during the second and third waves that occurred in Zambia in 2021, with each wave increasingly affecting Eastern Province relative to the country as a whole. These waves took place in the context of more contagious variants, fewer government-implemented restrictions, and reduced uptake of

preventative measures (Chimba 2021; President Lungu 2020). However, as Figure 6.1 shows above, even at endline, the overall number of confirmed cases as a share of the population in Eastern Province remained relatively low, peaking at around 18 per 100,000 in late June 2021 (Zambia Statistics Agency 2021). The official case counts align with the reported experiences of EMPOWER participants[59]; Figure 6.2 shows that the percentage of adolescent girls and women that reported knowing someone who had ever been sick with COVID-19 was low.[60]

Figure 6.2 Percent of participants who know someone who had been sick with COVID-19, interim to endline



Source: Analysis sample – interim (2020) and endline (2021) surveys

Notes: N = 264 adolescent girls and 159 women. COVID-19 cases are identified as such by survey respondents.

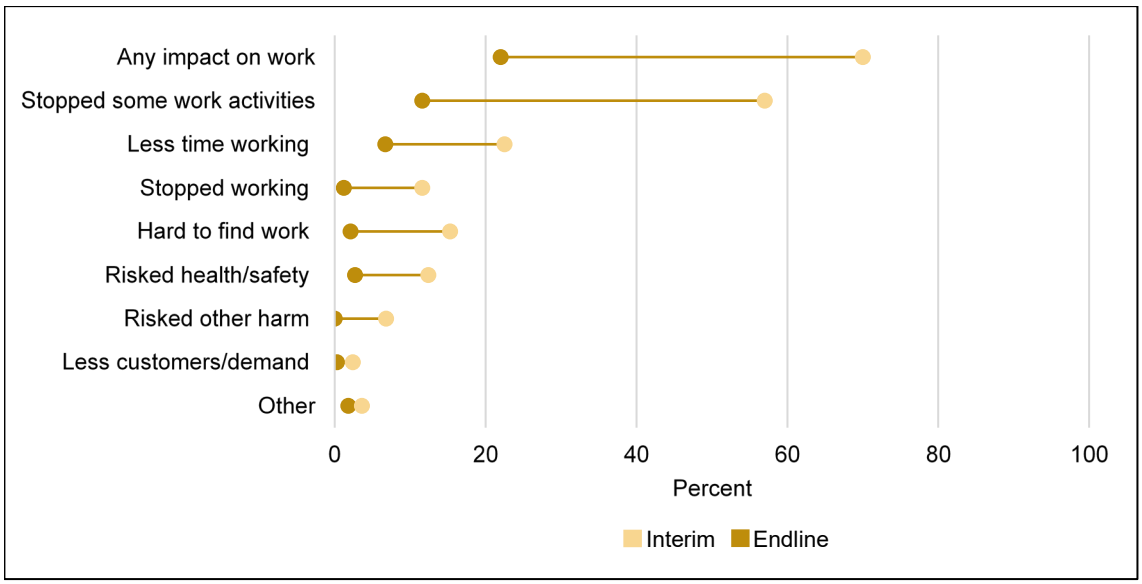
6.2 How COVID-19 affected participants' work and household income

Participants reported that COVID-19, and the restrictions that followed, had a much larger impact at interim than at endline. In the context of the lockdown during the interim survey, 70 percent of adolescent girls and 76 percent of women said the virus had affected their work, compared to 22 and 32 percent at endline. Those whose work was affected by COVID-19 indicated the virus mainly did so by causing them to stop some work activities and/or spend less time working. This reflects the broader trend of the pandemic and related restrictions leading participants to stay at home, limit contact with others, travel out less, and avoid big groups (see Annex B, Table 6.2). One life skills facilitator mentioned that "here we…have a Sunday open market which is partially closed because [of] COVID." Girls and women more frequently identified these issues at interim, with the prevalence of all types of reported negative impacts from COVID-19 decreasing by endline (see Figure 6.3 below); despite the increased prevalence of COVID-19 at endline, there was even a large drop among the number of adolescent girls and women who perceived there were COVID-19-related health, safety, or other risks in the workplace. Shifting perceptions of risk could have played a role at interim, as initial fears surrounding the then-unknown COVID-19 virus may have led respondents to overreport these risks, a common phenomenon during the onset of emergencies such as a pandemic (Coelho 2020).

[59] The questionnaire did not include a question about whether respondents if had ever contracted COVID-19.

[60] In comparison, one survey in October 2020 reported that nearly 70 percent of Americans reported knowing someone who had ever been sick with COVID-19 (Choi 2020).

Figure 6.3 Effects of COVID-19 on adolescent girls' work activities

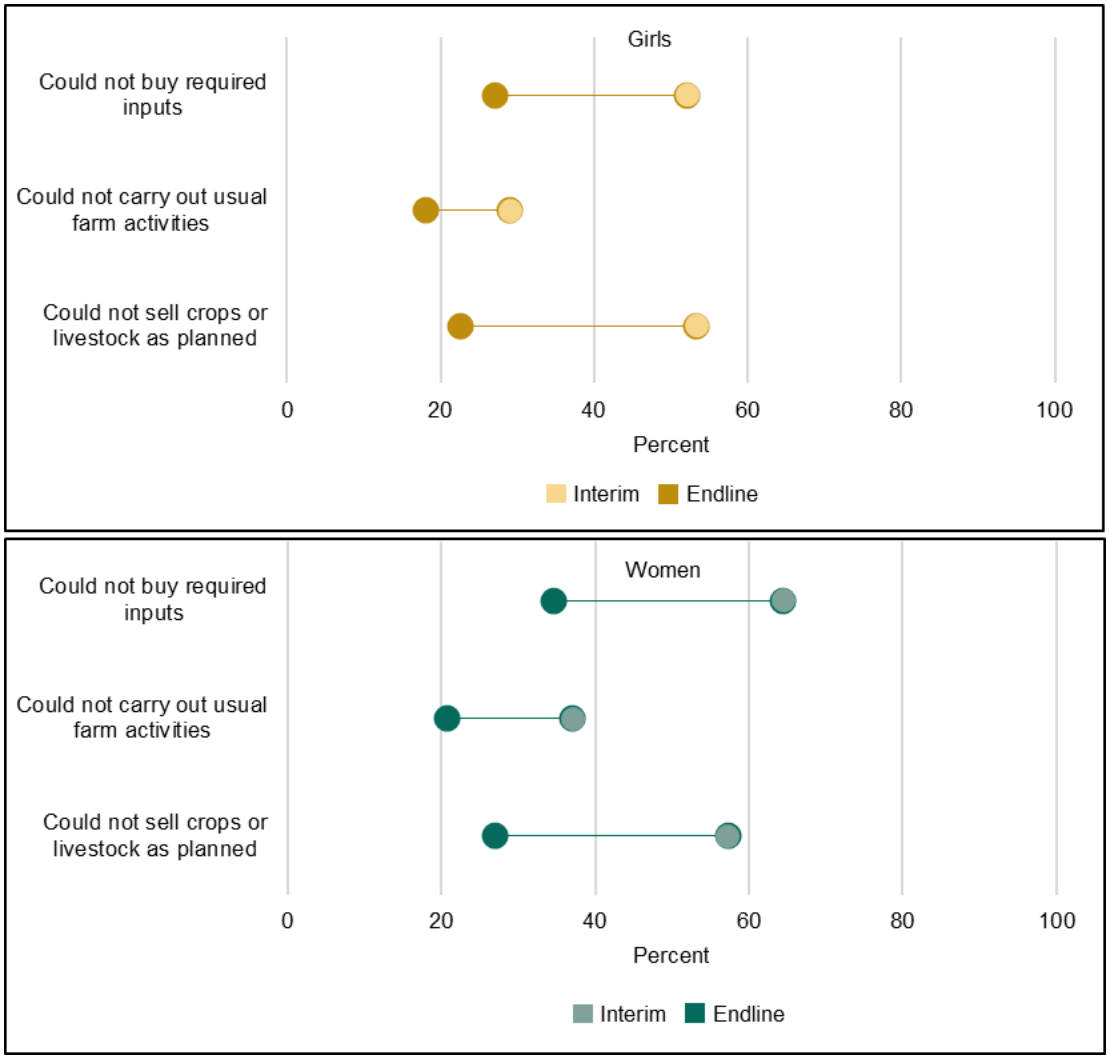


Source: Analysis sample – interim (2020) and endline (2021) surveys

Notes: N = 249 adolescent girls and 154 women. Changes are shown for adolescent girls only, as women's changes were similar across all activities. Women's changes are listed in Annex B, Table 6.3.

At endline, some COVID-related restrictions continued to affect a sizeable share of adolescent girls and women working in agriculture. These restrictions clearly affected respondents at interim, as more than half the adolescent girls and women who worked in agriculture (nearly all of our evaluation sample worked in agriculture) reported that they could not buy required inputs because of the pandemic, and a similar share reported not being able to sell crops or livestock as planned. A smaller share, 29 percent of adolescent girls and 37 percent of women, reported not being able to carry out usual farm activities. As shown in Figure 6.4 below, these shares fell at endline, but remained high, particularly for the share of respondents experiencing issues buying required inputs (27 percent of adolescent girls and 35 percent of women).

Figure 6.4 Effects of COVID-19 restrictions on adolescent girls' and women's agricultural work activities

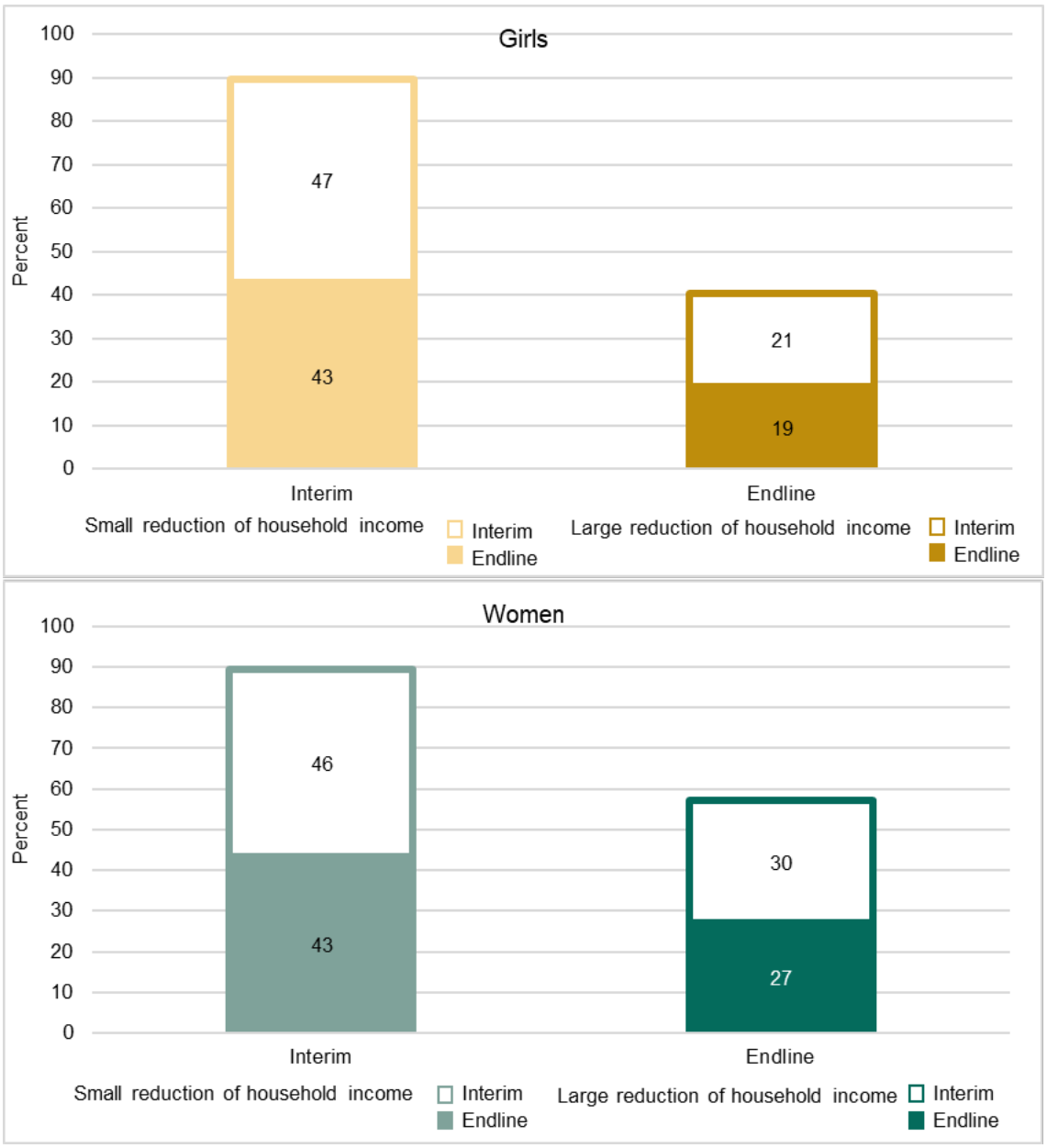


Source: N = 169 adolescent girls and 124 women. Analysis sample – interim (2020) and endline (2021) surveys
Notes: These figures show change over time from interim (light orange/green) to endline (dark orange/green).

Work-related COVID-19 restrictions negatively impacted many households' incomes at interim, and much of this impact persisted through endline. In the context of constrained and reduced work activities, at interim around 90 percent of adolescent girls and women reported that their household income had reduced because of the pandemic, and more than half of those 90 percent self-reported that that the reductions were large. At endline the share reporting a reduction in income relative to before the pandemic decreased to 40 percent of adolescent girls and 57 percent of women (likely due to decreased restrictions), but once again half of these respondents reported large reductions in income (see Figure 6.5 below). It is unclear why a gap has emerged at endline between the household financial situations reported by adolescent girls and women, though it may be the case that women's closer proximity to (and frequently, their position as) the head of household provides them with additional insight on their overall financial condition. These COVID-19-based financial constraints appear to have materially impacted participants' households; as discussed in Chapter 4, participant households' likelihood of being below Zambia's food-based poverty index actually increased from baseline to endline, despite access to

agricultural assets. This unfortunate outcome demonstrates the far-reaching impacts that COVID-19 and related restrictions have had on work activities (and specifically agricultural work activities) in Zambia.

Figure 6.5 Effects of COVID-19 on adolescent girls' and women's household incomes relative to pre-pandemic levels



Source: N = 235 adolescent girls and 142 women. Analysis sample – interim (2020) and endline (2021) surveys
Notes: These figures show the share of adolescent girls and women who reported that their household incomes decreased over time relative to pre-pandemic levels.

7. Conclusion

EMPOWER aimed to reduce child labor by increasing adolescent girls' access to acceptable work and women's access to livelihood opportunities. This evaluation used pre-post and descriptive analysis to examine participation and changes in EMPOWER's intermediate outcomes, complemented by qualitative data to contextualize our findings. Below we summarize the key findings by research question and then discuss our key learnings and suggestions.

When considering our findings, learnings, and suggestions below, it is important to consider that the interim survey (April to September 2020) and endline survey (March to July 2021) took place in the context of the global COVID-19 pandemic. Project implementation, at least for the cohorts included in the evaluation, was largely completed before the start of the pandemic, and thus project implementation was not affected. However, participants were clearly affected by pandemic-related restrictions after project activities ended. For example, some participants had trouble buying agriculture inputs and selling crops and livestock. At the time of the interim survey, more than half of adolescent girls and women reported that they could not buy required agriculture inputs, and a similar share reported not being able to sell crops or livestock as planned. A smaller share, 29 percent of adolescent girls and 37 percent of women, reported not being able to carry out usual farm activities. The share of participants reporting these challenges fell at endline but remained substantial for respondents experiencing issues buying required inputs (27 percent of adolescent girls and 35 percent of women).

Participants also saw a decline in income. At interim around 90 percent of adolescent girls and women reported that their household income decreased due to the pandemic, and more than half reported severe decreases. By endline the share of participants reporting a decrease in income relative to before the pandemic decreased to 40 percent of adolescent girls and 57 percent of women (likely due to reduced restrictions) but was still substantial. Due to a lack of a comparison group, we are unable to understand whether the project helped buffer the challenges faced by the pandemic. But these conditions could be one factor contributing to challenges faced by the business groups and project sustainability we discuss below.

7.1 Findings summary by research question

RQ1: To what extent did adolescent girls and women selected for EMPOWER participate in the program? (Chapter 4)

A large share of adolescent girls and women who participated in the life skills and technical/vocational skills modules did not complete these modules:

- 86 percent of adolescent girls and 90 percent women who enrolled in the project participated (meaning they attended at least one session) in the life skills module. Participation in the technical vocational skills module dropped to 61 percent of adolescent girls and 66 percent of women who enrolled in the project.
- Using a threshold of having attended 75 percent of sessions to qualify as having completed the module, 60 percent of adolescent girls and 71 percent of women completed the life skills module, and 44 percent of adolescent girls and 56 percent of women completed the technical/vocational skills module.

- Facilitators and participants reported that difficulties travelling to the course and household responsibilities were major challenges to participation.

Almost all participants who attended the technical vocational module also joined a business group; only about half of these groups were still active at endline. Groups disbanded due to problems coordinating group activities, failure to produce income for group members, and lack of support to access group-based support services.

RQ2: What was the change in adolescent girls' and women's skills targeted by EMPOWER, such as life skills, functional literacy, entrepreneurship skills, and agriculture-focused technical/vocational skills, before and after enrolling? (Chapter 5)

- *Life skills:* We found few changes in adolescent girls' self-esteem since this was already high at baseline.
- *Literacy and numeracy:* The share of adolescent girls who could read a full sentence increased by about 12 percentage points. (No baseline data on literacy were available for women.) Adolescent girls' and women's basic number recognition skills improved over time. The share of adolescent girls unable to recognize 1-digit numbers dropped by 14 percentage points (by 22 percentage points for women); and the share of adolescent girls able to recognize 4-digit numbers increased by 13 percentage points for adolescent girls and 17 percentage points for women. However, there was little change in participants' ability to carry out addition, subtraction, multiplication, or division.
- *Entrepreneurship skills:* Component scores for the entrepreneurial self-efficacy score at endline showed that adolescent girls and women felt confident or very confident in their ability to conduct entrepreneurial tasks such as: generating a business idea, identifying good employees, and finding a supplier offering good prices. One exception to this pattern was that adolescent girls and women said they did not feel confident in their ability to separate business and household finances. We do not have baseline data for this result and thus cannot report results over time.
- *Agriculture-focused technical/vocational skills:* Overall results of knowledge assessments related to chickens and goats showed no change in agriculture-focused technical/vocational skills over time. However, results were more positive if we examine only questions related to more practical knowledge for chicken rearing (increases of about 10 percentage points or more, compared to zero or negative changes for definitional knowledge questions). (There was no change in knowledge for goats, which comprised a much smaller fraction of trainings.)

RQ3: What was the change in women's knowledge and awareness of child labor, child rights, and gender equality before and after enrolling in EMPOWER? (Chapter 5)

- There were nearly no changes to women's and adolescent girls' perceptions of gender equity between baseline and endline.
- There were no changes in women's awareness of child labor and child rights. Some qualitative reports from a small number of participants were more positive, indicating that they changed what type of tasks and the duration of the tasks they asked adolescents and children to do as a result of EMPOWER.

RQ4: What was the change in adolescent girls' and women's participation in business-oriented networks before and after enrolling in EMPOWER? (Chapter 5)

A small share of participants, mostly women, reported having participated in business and financial networks at endline. At endline, 9 percent of adolescent girls and 17 percent of women reported they had participated in a business network in the last three months; and 16 percent of adolescent girls and 37 percent of women reported they had participated in a financial network. (Based on Winrock's recommendation, we assumed that adolescent girls and women had no participation at baseline, so these numbers indicate change from zero.) Moreover, the type of financial networks women gained access to lack a clear link to EMPOWER. Adolescent girls and women who interacted with a financial network in the past three months said they mostly interacted with micro-credit (50 percent) and mutual insurance groups (20 percent). Based on our understanding of the project, EMPOWER did not facilitate connections to these types of networks.

RQ5: What was the change in adolescent girls' participation in acceptable work before and after enrolling in EMPOWER? (Chapter 5)

Changes in acceptable work among participants may not have been an appropriate outcome because most adolescent girls aged into adulthood within a year of completing the program. By endline only 32 of 370 adolescent girls with data needed to estimate changes in acceptable work were still under 18 years old (the age at which acceptable work is relevant). This sample is too small to provide meaningful estimates for this outcome.

RQ6: What was the change in adolescent girls' and women's participation in paid employment and self-employment before and after enrolling in EMPOWER? (Chapter 5)

The share of adolescent girls who were paid for any type of work rose from 25 percent at baseline to 57 percent at endline. Although almost all adolescent girls were working at baseline and endline, the diversity of adolescent girls' work increased over time. The change in the mix of work undertaken by adolescent girls contributed to changes in paid work, with adolescent girls increasingly taking on types of work that were more likely to be paid. However, without a valid comparison group, it is not possible to determine whether these changes were due to EMPOWER or other factors like adolescent girls' transition to adulthood. As adolescent girls grew older, started families, and became increasingly mobile, it is highly likely they took on more and various kinds of work.

We do not have baseline data on self-employment for adolescent girls and women or paid employment for women. At endline, while all participants were working, 68 percent of girl participants and 79 percent of women participants indicated that they worked in self-employment in the past year. For all types of work, almost all adolescent girls and women who were not self-employed worked as unpaid family workers rather than paid employees.

7.2 Learnings and suggestions

Based on findings highlighted above, we identified the following learnings and suggestions on project design, implementation, measurement, and expected outcomes.

Participation was a substantial challenge for EMPOWER, in part because of the time commitment required of adolescent girls and women. As we discussed in Chapter 4, the project experienced drops in participation as participants moved from enrollment in the life skills module to the vocational training module. One barrier to participating was travel time. Although Winrock recruited adolescent girls from a 10-kilometer radius of the hub (public facilities where facilitators implemented course sessions), this distance was a barrier for many participants who lacked access to or could not afford transportation and

had to walk to the hub. A second barrier was household responsibilities. Although Winrock felt the distance and time commitment was feasible for girls at project outset, adolescent girls and women actually had less time than expected to devote to the project. This was particularly true for adolescent girls. Winrock assumed adolescent girls would have high availability for the project because they were out of school, but they found that adolescent girls had higher-than-expected rates of pregnancy and marriage and accompanying increases in household responsibilities.

Suggestion: Pilot what course schedule works for participants and better understand what constraints the target beneficiaries face to participation; work to adapt project activities to address these constraints. It was hard to anticipate these challenges without testing out the project before full implementation. As we indicated in Chapter 1, the project did implement a pilot in two sites, but Winrock staff indicated that their capacity to learn from this pilot was limited due to the brief period between the pilot and project start along with other pressures to their timeline.

Training alone may be insufficient to cause changes in adolescent girls' and women's work and employment outcomes. Though participants reported that EMPOWER helped them build critical skills for work — including literacy and numeracy skills and professional approaches to chicken and goat rearing — they also indicated that that they were unable to apply key skills learned in the project. Specifically, participants indicated that they lacked the resources needed to start a business or to incorporate important practices like vaccination into their work. These accounts, and other findings included in the report, suggest that the project's training alone was not sufficient to ensure changes to women's work and employment outcomes.

Suggestion: Offer a more comprehensive program or seek out partners to provide complementary and supporting services. In the case of EMPOWER, adolescent girls and women lacked the resources needed to make the training successful, such as infrastructure for animal rearing like lights, electricity, and animal vaccines. Similar projects in the future might seek opportunities for partnerships to bring additional resources and skills to support the project.

The project demonstrated some improvements in basic literacy and numeracy and these aspects of the course were very popular among participants. The share of adolescent girls able to read a full sentence increased from 28 to 40 percent, and the share of adolescent girls and women unable to even recognize one-digit numbers declined by 14 percent for adolescent girls and 22 percent for women. While these are basic skills, and perhaps expected given that EMPOWER only offered 2-3 hours of literacy and numeracy per week for the duration of the life skills module, they are still an important project achievement. Participants clearly appreciated these lessons and indicated high demand for these skills.

Suggestion: Future youth life skills projects for adolescent girls and women in Eastern Zambia may want to consider incorporating more extensive literacy and numeracy programming. A more intensive course than that offered through EMPOWER would likely be popular and would allow adolescent girls and women to obtain higher level skills that could contribute to improved employment outcomes.

The goal of changes to acceptable work may not have been a good fit for this project because most adolescent girls aged into adulthood within a year of completing the program and because some project activities were counterproductive to this goal. There were several challenges in implementing a project aimed at increasing adolescent girls' involvement in acceptable work. First, the project sought to increase access to acceptable work among adolescent girls, many of whom would age out of child labor, meaning they would turn age 18, within a year of project implementation. EMPOWER's focus on changing acceptable work for a population for whom the characterization was imminently no longer

relevant may have been a somewhat futile use of resources. Second, the project promoted chicken and goat rearing while animal herding is a form of hazardous work that qualifies as child labor according to the project's definition of child labor (see Chapter 2). Winrock staff reported that the technical/vocational skills module included training instruction on occupational safety that could offset some of the harms associated with animal herding. But unless participants were able to implement and maintain these practices, which seems unlikely given their general struggles to access equipment needed to implement practices learned in the project, this aspect of implementation could have undermined acceptable work goals (in the short term, before participants aged into adulthood).

Suggestion: Projects seeking to make a meaningful change to adolescent girls' involvement in child labor should consider intervening before late adolescence (age 15-17). Alternatively, projects that work with adolescent girls in late adolescence should consider whether acceptable work is the relevant outcome for this age group. Given that adolescent girls in late adolescence will age into adulthood soon after project implementation is over, it might be more relevant to focus on their employment or livelihoods-related outcomes in early adulthood. It is possible that chicken and goat rearing were the most relevant subjects on which to train the project's target population from an employment or livelihoods perspective, but that goal conflicted with short-term acceptable work aspirations.

Business groups likely needed additional support to realize their full potential. Winrock's decision to promote group-based rather than individual businesses was centered on the expectation that groups had easier access to formal markets, the opportunity to pool resources like time and labor, and could access support (such as financing and other supports provided by the MCDSS) that were less available to individuals. We find that adolescent girls and women struggled to maintain the groups and secure access to the benefits Winrock sought for the business groups. One challenge was just that it was hard for adolescent girls and women to maintain a shared vision and coordinate. They had different availability and levels of commitment; it was hard to meet frequently when they lived far apart. At endline, less than half of adolescent girls and women who had joined business groups were still involved in them in some way. Another challenge was that by endline many groups still had not registered with the MCDSS, which was supposed to provide groups access to financial and other supports after the project ended. A third issue was that even with groups that had sent an application to MCDSS (and paid the application fee), they were unable to confirm if their registration had been successful or if they would receive associated benefits.

Suggestion: If implementers want to support a business group model, participants need ongoing support to help them be successful. Participants could have benefited more from support on meeting and staying together and jointly managing their animal assets. They also could have benefitted from implementer follow-up with groups to ensure groups apply to MCDSS and with MCDSS to ensure that applications are processed.

Data that are useful for monitoring purposes might not meet evaluation needs. Winrock invested in designing an extensive monitoring evaluation system and collected several types of implementation data, including an intake survey, attendance records, and skills tests. These data were useful for tracking project activities, but they were not structured or collected in a manner conducive to an outcomes evaluation. Moreover, implementers may not in a position to ensure that their monitoring evaluation systems produce evaluation-quality data, due to limited resources and experience.

One especially challenging example is acceptable work, which requires applying a highly specialized questionnaire collecting information on adolescent girls' involvement in almost 40 types of work or work

conditions. Collecting this data successfully requires careful consideration of examples, probes, and colloquial language that will ensure the instrument is clear and relevant to adolescent girls (and especially adolescent girls with limited education). It is unlikely that most implementers—and even some survey collection firms—have the capabilities needed to ensure these instruments are applied successfully and, when collected over time, in a standardized fashion.

Suggestion: Ensure that implementer M&E requirements are feasible for the implementer to execute; if not, consider outsourcing complex data collection tasks to data collection experts or limiting what outcome measures the implementer is expected to collect. Especially with acceptable work, DOL should consider working with an experienced data collection firm. It is also important to collect documentation not just on survey questions used at each data collection round, but also about administration instructions provided, as these too should be replicated to ensure comparability. DOL could support this data collection by directly hiring data collectors or resourcing evaluations to collect baseline data to ensure quality and comparability with endline, rather than relying on monitoring data to serve this purpose.

Some aspects of project design proved too ambitious to implement in the context of Eastern Province. EMPOWER sought to reduce child labor in rural areas faced with high rates of poverty, school dropout, and limited educational and employment opportunities outside of small-holder agriculture. Winrock changed project design plans as it learned more about this challenging environment. For example, Winrock's market assessment initially identified five technical/vocational training tracks that could be profitable for project participants. Because the distance between implementation sites and other logistical constraints made it too difficult to offer some tracks, Winrock decided to focus the technical/vocational training on only two tracks (chicken and goats). Sites' location, along with participants' low education levels, also pushed the project to create its own technical/vocational training program, in partnership with the Ministry of Fisheries and Livestock, rather than provide access to existing training programs.

Despite these modifications, EMPOWER continued to face contextual challenges once the project started. For instance, the project's technical/vocational training on chickens taught participants to rear broiler chickens, a type of chicken grown for meat. Facilitators noted that, to reach an appropriate sale weight, broilers require specialized materials, such as lighting to ensure the chickens eat at night. These materials (and others such as vaccines) were not always available for course demonstrations and participants had no access to them. The animals included in the start-up materials given to business groups at the end of this course also arrived late or were unavailable in some cases. Winrock indicated that resource constraints influenced the availability of materials, but it is likely that other contextual factors (such as lack of electricity) also hampered facilitators' and participants' capacity to engage with course materials as intended.

Suggestion: Explore more piloting and other opportunities to better understand implementation context. Allow time to incorporate pilot findings into implementation. Engage in continuous learning and adapting to improve project implementation based on monitoring findings. These difficulties provide important context for findings on participation and skill-building but also suggest that the project could have benefited from a more extended preparatory period or a more extensive pilot.

References

Bandara, A., R. Dehejia, and S. Lavie-Rouse. "The impact of income and non-income shocks on child labor: Evidence from a panel survey of Tanzania." World Development, vol. 67, 2015, pp. 218-237.

Baskar, P. “Who Do People Trust for Coronavirus Info? In Zambia, It's Nuns on The Radio.” NPR, Thursday, June 4, 2020, Goats and Soda.

Beatty, A., E. Borkum, T. Coen, A. Mamun. “Evaluation Design Report for the EMPOWER Project.” Washington, DC: Mathematica Policy Research, October 2018.

Billima-Mulenga, T., E. Collins, and L. Debenedetti. “Mitigating the Impacts of COVID-19 in Zambia: Insights from RECOVR 2.” Innovations for Poverty Action, April 20, 2021.

Bowen, R., and Chambeshi M. "Final Performance Evaluation of EMPOWER: Increasing Economic and Social Empowerment for Adolescent Girls and Vulnerable Women in Zambia Project." Columbia, MD: IMPAQ International, November 2020.

Bernhardt, A., E. Field, R, Pande, and N. Rigol. "Household Matters: Revisiting the Returns to Capital among Female Microentrepreneurs." American Economic Review: Insights, vol. 1, no. 2, September 2019, pp. 141-160.

Bulanda, D., and S. Speed. "Rural Entrepreneurship and Leadership (REAL) Course Curriculum." Arlington, VA: Winrock International, 2018.

Bulanda, D. "REAL Functional Literacy Curriculum." Arlington, VA: Winrock International, n.d.

Care. “Care’s Gender Equitable Index: Toolkit 2014.” Atlanta, GA: Care, November 2014. Available at www.care.org/wp-content/uploads/2020/05/CARE-GEI-Toolkit-FINAL-WEB.pdf.

Center for International Teacher Education (CITE). “Rural Teachers in Africa: A Report for ILO.” Geneva, Switzerland: International Labor Organization (ILO), 2016.

Chama, Diran and Hope Bwalya. “Surge in Child Labour Cases Worries Govt.” Times of Zambia. June 13, 2017.

Chimba, M. “Genomic Sequencing explains variant spread in Zambia.” Washington, DC: PATH, March 2021.

Chipimo P.J., Barradas D.T., Kayeyi N., et al. “First 100 Persons with COVID-19 — Zambia, March 18–April 28, 2020.” MMWR Morbidity and Mortality Weekly Report, vol. 69, no. 4, October 2020, pp. 1547–1548. dx.doi.org/10.15585/mmwr.mm6942a5external icon.

Choi, J. “68 percent of Americans say they know someone diagnosed with COVID-19: poll.” The Hill, Tuesday, October 27, 2020.

Coelho, C.M., P. Suttiwan, N. Arato, and A.N. Zsido. “On the Nature of Fear and Anxiety Triggered by COVID-19.” Frontiers in Psychology, vol. 11, no. 9, November 2020, p. 3109.

Coates, J., A. Swindale, P. Bilinsky, "Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide." Washington, D.C.: United States Agency for International Development (USAID), 2007.

Demographic and Health Surveys Program (DHS). "New Data Available from DHS-7 Questionnaire: Literacy, Ownership of Goods, Internet Use, Finances, and Tobacco Use." June 2017. Available at https://blog.dhsprogram.com/dhs7-part-3/. Accessed September 2021.

European Commission. "Empowering Women and Girls to End Child Labour." Brussels, Belgium: European Union, March 2021.

Evans, D.K. and A. Popova. "What Really Works to Improve Learning in Developing Countries? An Analysis of Divergent Findings in Systematic Reviews." The World Bank Research Observer, Vol. 31, No. 2, August 2016, pp. 242–270. https://doi.org/10.1093/wbro/lkw004.

Government of Zambia, Ministry of General Education. "Educational Statistical Bulletin 2014." Lusaka, Zambia: Government of Zambia, 2014.

Government of Zambia. "Prohibition of the Employment of Young Persons and Children (Hazardous Labour) Order, 2013 (S.I. No. 121 of 2013)." Lusaka, Zambia: Government of Zambia, 2013.

Guarcello, L., S. Lyon, and C. Valdivia. "Adolescents in Hazardous Work: Child Labor among Children Aged 15-17 Years." Working Paper. Rome: Understanding Children's Work (UCW) Programme, July 2016.

Guerra, N., K. Modecki, W. Cunningham. "Developing Social-Emotional Skills for the Labor Market: The PRACTICE Model." Washington, DC: Social Protection and Labor Global Practice Group, World Bank Group, November 2014.

Hardin, A. "EMPOWER Case Study: Understanding Variation in Course Attendance and Achievement." Arlington, VA: Winrock International, October 2020.

Himelein, K., S. Eckman, C. Lau, and D. McKenzie. "Mobile Phone Surveys for Understanding COVID-19 Impacts: Part II Response, Quality, and Questions." World Bank Blogs, April 8, 2020. Available at: blogs.worldbank.org/impactevaluations/mobile-phone-surveys-understanding-covid-19-impacts-part-ii-response-quality-and. Accessed September 2021.

Hipp, L., M. Bünning, S. Munnes, and A. Sauermann. "Problems and Pitfalls of Retrospective Survey Questions in COVID-19 Studies." Survey Research Methods, vol. 1, no. 2, 2020, pp. 109-1145.

Innovations for Poverty Action (IPA). "Remote Surveying in a Pandemic: Research Synthesis." New Haven, CT: IPA, July 2020. Available at https://www.poverty-action.org/sites/default/files/publications/IPA-Evidence-Review-Remote-Data-Collection-Modes-Updated-December-2020.pdf. Accessed September 2021.

IPA. "Zambia 2015 PPI: Scorecard and Look-up Tables." Washington, DC: Innovations for Poverty Action, November 2017.

Japan International Cooperation Agency (JICA). "Country Gender Profile: Zambia Final Report." Tokyo, Japan: JICA, March 2016.

Karlan, D. and M. Valdivia. “Teaching Entrepreneurship: Impact of Business Training on Microfinance Clients and Institutions.” The Review of Economics and Statistics, vol. 93, no. 2, 2011, pp. 510–527.

Lungu, E.C. “STATEMENT BY HIS EXCELLENCY, DR EDGAR CHAGWA LUNGU, PRESIDENT OF THE REPUBLIC OF ZAMBIA ON THE COVID-19 PANDEMIC.” Lusaka, Zambia: State House, April 2020. Available at: www.cabri-sbo.org/uploads/files/Covid19BudgetDocuments/090420-PRESIDENT-LUNGU-MAKES-SECOND-ADDRESS-TO-NATION-ON-COVID19.pdf.

Maclean, R. “A Continent Where the Dead are Not Counted.” New York Times, Saturday, January 2, 2021.

McKenzie, D. “GET Ahead Business Training Program Impact Evaluation 2013 - 2017, Baseline & Follow-up Surveys.” Washington, DC: The World Bank, December 2017.

Ministry of Agriculture and Livestock. "Small Ruminant Production In Zambia: Part 1: Goat Management Practices." Lusaka, Zambia: Zambia Ministry of Agriculture and Livestock, February 2013.

Ministry of Health Zambia. “Statement on COVID-19 in Zambia.” Facebook, July 18, 2021. Available at: https://www.facebook.com/mohzambia/posts/statement-on-covid-19-in-zambialusaka-sunday-18th-july-2021government-is-extreme/1959068904267757/.

Mirchandani, K. "Feminist insight on gendered work: New directions in research on women and entrepreneurship." Gender, Work & Organization, vol. 6, no. 4, 1999, pp. 224-235.

Mulenga, L.B., J. Hines, S. Fwoloshi, L. Chirwa, M. Siwingwa, S. Yingst, A. Wolkon, et al. “Prevalence of SARS-CoV-2 in six districts in Zambia in July, 2020: a Cross-Sectional Cluster Sample Survey.” Lancet Glob Health, vol. 9, no. 6, June 2021, pp. 773–e781. https://doi.org/10.1016/S2214-109X(21)00053-X.

Mumbuna, M. Mwambwa, C.Mathatha, C. Mwafulirwa. "A market assessment for vocational and technical skills and livelihood opportunities in Eastern Province, Zambia.” Chipata, Zambia: Winrock International, December 2017.

Mwananyanda, L., C. J. Gill, W. MacLeod, G. Kwenda, R. Pieciak, Z. Mupila, R. Lapidot, et al. “Covid-19 Deaths in Africa: Prospective Systematic Postmortem Surveillance Study.” BMJ (Clinical research ed.), vol. 372, no. 334, February 2021. https://doi.org/10.1136/bmj.n334.

Orsini, D. “Interim Performance Evaluation: Increasing Economic and Social Empowerment of Adolescent Girls and Women in Rural Zambia (EMPOWER).” Washington, DC: U.S. Department of Labor, Bureau of International Labor Affairs, May 2019.

Poulin, M. “Gender Assessment, Rural Zambia: A Qualitative Inquiry” Washington DC: World Bank, March 2014.

Rosenberg, M. “Society and the adolescent self-image.” Princeton, NJ: Princeton University Press, 1965.

Schmitt, D.P, and J. Allik. “Simultaneous Administration of the Rosenberg Self-Esteem Scale in 53 Nations: Exploring the Universal and Culture-Specific Features of Global Self-Esteem.” Journal of Personality and Social Psychology, vol. 89, no. 4, 2005, pp. 623–642. https://doi.org/10.1037/0022-3514.89.4.623.

Understanding Children’s Work (UCW) Program. “Towards Ending Child Labour in Zambia: An Assessment of Resource Requirements.” Rome, Italy: UCW Program, September 2012.

United Nations Population Fund. “Adolescents and Youth Dashboard- Zambia.” 2018. Available at https://www.unfpa.org/data/adolescent-youth/ZM. Accessed September 2021.

UN Volunteers and UNDP. “Reaching the Unreached: Youth in Zambia Help Lead COVID-19 Response.” UN Volunteers, August 12, 2020. Available at www.unv.org/Success-stories/reaching-unreached-youth-zambia-help-lead-covid-19-response.

UNICEF. “Child Labor Database.” May 2016. Available at https://data.unicef.org/topic/child-protection/child-labour/#. Accessed June 27, 2017.

University of Maryland. “Rosenberg Self Esteem Scale.” June 2021. Available at https://socy.umd.edu/about-us/rosenberg-self-esteem-scale. Accessed November 5, 2021.

U.S. Department of Labor (DOL). “2015 Findings on the Worst Forms of Child Labor: Zambia.” Washington, DC: DOL, 2015.

Winrock International. "Comprehensive Monitoring and Evaluation Plan, EMPOWER: Increasing Economic and Social Empowerment for Adolescent Girls and Vulnerable Women in Zambia." Arlington, VA: Winrock International, n.da.

Winrock International. "Details about the Process WI Uses to Screen and Verify Girls." Arlington, VA: Winrock International, May 2018a.

Winrock International. "EMPOWER: Child Labor Definitions." Arlington, VA: Winrock International, May 2017a.

Winrock International. "EMPOWER Entrepreneurship Manual." Lusaka, Zambia: Winrock International, n.db.

Winrock International. “EMPOWER: Increasing Economic and Social Empowerment for Adolescent Girls and Vulnerable Women in Zambia – Project Description.” Arlington, VA: Winrock International, April 2017b.

Winrock International. "EMPOWER Project Design." Washington, DC: Mathematica Policy Research, April 2017c.

Winrock International. "EMPOWER Project - Zambia: Business Mentorship Training Guide." Arlington, VA: Winrock International, n.dc.

Winrock International. "EMPOWER Zambia: Approach to Community Selection." Arlington, VA: Winrock International, May 2017d.

Winrock International. "Family Poultry Training Course: Trainee's Manual." Arlington, VA: Winrock International, n.dd.

Winrock International. "REAL Course Life Skills Module." Arlington, VA: Winrock International, n.de.

Winrock International. "Selection and Recruitment of Women for the REAL course." Arlington, VA: Winrock International, n.df.

Winrock International. "Technical Progress Report: EMPOWER." Arlington, VA: Winrock International, October 2020.

Winrock International. "Technical Progress Report: EMPOWER." Arlington, VA: Winrock International, January 2021.

World Bank. "International Development Association, International Finance Corporation, and Multilateral Investment Guarantee Agency Country Partnership Strategy for the Republic of Zambia for the Period FY13-FY16." Washington, DC: World Bank, February 2013. Available at https://documents1.worldbank.org/curated/en/182591468178437607/text/750890CORRIGEN0IC00IDA0R20130002703.txt. Accessed September 2021.

World Bank. "Primary education, teachers (% female) – Zambia." 2020. Available at data.worldbank.org/indicator/SE.PRM.TCHR.FE.ZS?locations=ZM. Accessed September 2021.

Zambia Data Portal. "Population and Demography of Zambia, 2016." Lusaka, Zambia: Central Stasticial Office of Zambia, December 2015. https://zambia.opendataforafrica.org/ZMPAD21016/population-and-demography-of-zambia. Accessed September 2021.

Zambia Statistics Agency (ZSA). "Zambia COVID-19." Zambia Data Hub, Accessed August 2021, https://zambia-open-data-nsdi-mlnr.hub.arcgis.com/pages/zambia-covid19

ZSA, Ministry of Health (MOH) Zambia, and ICF. "Zambia Demographic and Health Survey 2018." Lusaka, Zambia, and Rockville, MD: Zambia Statistics Agency, Ministry of Health, and ICF, January 2020.

ANNEX A: OVERVIEW OF TECHNICAL ASSISTANCE MATHEMATICA PROVIDED TO WINROCK FOR THE EMPOWER PROJECT

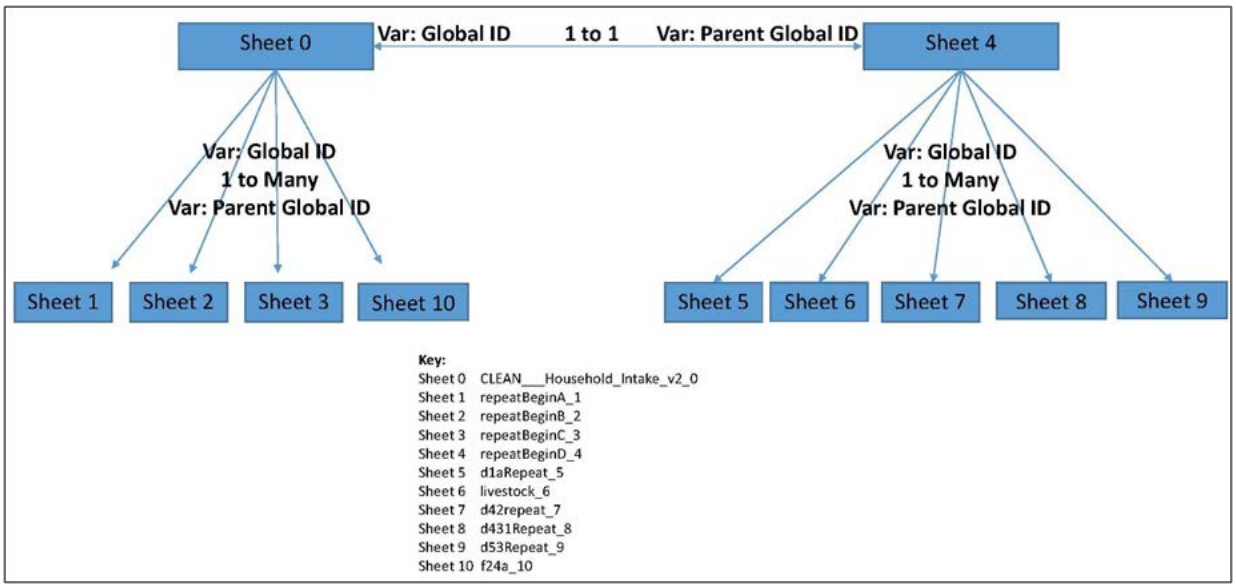
As discussed in Chapter 2, the baseline or "pre-implementation" measures used in the evaluation were collected as part of Winrock's implementation data by their monitoring and evaluation (M&E) staff and interns in Zambia. Independent of the evaluation, Winrock used these implementation data for their internal project purposes, including progress reports and other documentation delivered to DOL. Starting with pilot cohorts of adolescent girls and women, Winrock began collecting the types of data used in this evaluation—such as intake survey data, course attendance data, life skills pre-test (including measures of literacy and numeracy) data, and technical/vocational skills pre-test data—in early 2018, and Mathematica began reviewing these databases later in the year with the intention of assessing overall data quality. Specifically, Mathematica intended to assess the feasibility of using implementation data from later cohorts for the evaluation (data from the pilot cohorts were not included in the evaluation). In doing so, Mathematica assisted Winrock by raising awareness of best practices related to data collection and management, and by flagging issues of potential concern. After receiving the implementation data for the evaluation cohorts in mid-2019, Mathematica provided further assistance by reviewing those data and iteratively working with Winrock to improve their quality. Table 1.1 below lists the main technical assistance activities provided to Winrock:

Table 1.1 Main technical assistance activities undertaken by Mathematica

Data source	Assistance provided
Multiple	Mathematica flagged that Winrock's decision to use unique IDs at the household level, rather than at the individual level, limited their ability to effectively merge data across multiple sources. Mathematica then assisted Winrock in transitioning to an individual-based, unique ID system for adolescent girls, women, and men, and provided follow-up guidance on households with more nuanced situations (such as households with multiple adolescent girls enrolled in the course).
Multiple	Mathematica flagged and worked with Winrock to correct cases of name and/or age discrepancy between datasets for adolescent girls and women.
Multiple	Mathematica assisted Winrock in creating new IDs for adolescent girls and women who joined the course after it had already begun, ensuring that the new identifiers still allowed for adolescent girls and women in the same household to be linked to one another.
Intake Survey	Mathematica helped Winrock link intake survey data (output from the data entry software Survey123) across several sheets (separate rosters of data). As part of this effort, Mathematica developed and provided Winrock with a diagram to help them understand these linkages (See Figure 1.1 below).
Intake Survey	For the pilot data, Mathematica flagged variables with large amounts of missing data and/or non-response, and also flagged data collection rosters that were not functioning as intended. These reviews helped inform Winrock's awareness of their internal issues related to data quality. Winrock edited their survey programming and retrained course facilitators to more effectively implement data collection.
Intake Survey	Mathematica flagged instances where Winrock accidentally entered and uploaded duplicate intake data with discrepancies between entries. Relatedly, Mathematica highlighted to Winrock the best practice of dual data entry with reconciliation as to avoid such discrepancies from occurring.
Course attendance records	Mathematica flagged to Winrock that the paper attendance records (on which attendance was recorded), did not fully align with the dimensions of the pages they were printed on. As such, there was not room to record participation for several participants for the last week of sessions for a given module (life skills or technical/vocational skills). Following this review, Winrock updated their attendance records to allow for more accurate attendance data.
Life skills pre-tests and technical-vocational skills	Mathematica flagged instances where adolescent girls' data were accidentally entered as women's data and vice versa. Mathematica also flagged cases where men were accidentally listed as women or adolescent girls. Winrock used these reviews to correct their course pre-test data.
Life skills pre-tests and technical-vocational skills	Mathematica flagged instances where adolescent girls' and women's pre-test scores were accidentally attributed to other participants. Winrock used these reviews to correct their course pre-test data.

Notes: This list, while not exhaustive, covers the main technical assistance activities provided to Winrock for the EMPOWER project.

Figure 1.1 Diagram provided to Winrock to assist their understanding of intake survey data linkages



Notes: As described in Table 1.1 above, Mathematica provided this diagram to Winrock to assist with efforts to link data across multiple output sheets.

ANNEX B: MAIN ANALYSIS TABLES

ANNEX B: CHAPTER 2 TABLES

Table 2.1. Response rates for adolescent girls and women by district and implementation site

	Girls			Women		
	Target sample (#)	Complete interviews (#)	Response rate (%)	Target sample (#)	Complete interviews (#)	Response rate (%)
All districts	586	383	65.4	368	275	74.7
Chadiza	92	68	73.9	33	26	78.8
Chasefu	56	32	57.1	34	24	70.6
Chipangali	23	18	78.3	15	12	80.0
Katete	174	126	72.4	136	97	71.3
Kasenengwa	25	15	60.0	6	6	100.0
Lundazi	80	36	45.0	47	34	72.3
Petauke	136	88	64.7	97	76	78.4

Source: Endline survey (2021).

Notes: Target samples and complete interviews are reported in numbers. Response rates are reported in percentages.

Table 2.2 Reasons for non-response for adolescent girls and women

	Girls		Women	
	Sample size	Mean	Sample size	Mean
Respondent relocated	203	61.6	93	15.1
Unable to find respondent for interview (other than relocation)	203	24.1	93	45.2
Respondent was not available at time of interview (temporary travel, illness, other)	203	10.3	93	28.0
Refusal	203	1.0	93	2.2
Ineligible	203	2.0	93	6.5
Incomplete interview	203	0.5	93	1.1
Other	203	0.5	93	2.2

Source: Endline survey (2021).

Notes: Results reported in numbers. Ineligible respondents are respondents who had the same name and lived in the same community as an EMPOWER participant but claimed to not participate in the program or otherwise failed to verify their participation in EMPOWER (within the cohorts of interest to the evaluation).

ANNEX B: CHAPTER 3 TABLES

Table 3.1 Adolescent girls' and women's background characteristics at baseline and endline

	Girls			Women	
	Sample	Baseline mean	Endline mean	Sample	Endline mean
Age in years	285	16.3	19.9	192	45.5
Head of household	369	1.6	3.8	NA	NA
Lives with mother/ female guardian	204	NA	76.5	NA	NA
Has a disability	366	1.9	NA	NA	NA
Married	370	14.9	43.0	NA	NA
Age in years at first marriage or cohabitation (if married/ co-habiting)	162	NA	18.2	NA	NA
Has given birth	369	50.4	78.3	NA	NA
Age in years when first gave birth (if gave birth)	290	NA	17.5	NA	NA
Has one child	343	44.0	57.4	NA	NA
Has two children	343	3.5	17.8	NA	NA
Has three or more children	343	0.0	1.5	NA	NA
Currently pregnant	369	6.2	13.6	NA	NA

Source: Analysis sample – intake survey (2019) and endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes for individual vary due to item non-response and missing data. We report on "Lives with mother/ female guardian" only for adolescent girls that lived with a woman project participant at baseline but assume that patterns observed for this group of adolescent girls are apply to others in our sample. Because women did not complete the intake survey, we have limited data on women's baseline characteristics (attendance records are the source for ages at baseline, including for women).

Table 3.2 Adolescent girls' schooling at baseline and endline

	Sample	Baseline mean	Endline mean
Highest level attended (women)			
Never attended school	262	NA	23.3
Primary (Basic)	262	NA	67.9
Junior secondary	262	NA	7.6
Senior secondary+	262	NA	1.1
Highest level attended (adolescent girls)			
Never attended school	370	16.5	7.6
Primary (Basic)	370	67.6	71.1
Junior secondary	370	14.6	20.8
Senior secondary+	370	1.4	0.5
Age left school (if out-of-school)	315	13.4	NA
Reasons for leaving school (if out-of-school)			
Gave birth	315	17.1	NA
Cost of school	315	43.2	NA
Non-work-related illness	315	5.7	NA
Not good at school	315	13.7	NA
Not valuable	315	14.0	NA
Other	315	16.5	NA
Attended school in past 12 months	315	0.0	4.4
Level attending (if attended)			
Primary (Basic)	14	NA	42.9
Junior secondary	14	NA	50.0
Senior secondary	14	NA	7.1
Reasons for returning to school (if returned)			
Job	14	NA	35.7
Child aged	14	NA	14.3
Other	14	NA	21.4
Received support from EMPOWER to re-enroll/attend school (if returned)	14	NA	28.6
Attended technical training in past 12 months, excluding EMPOWER	370	0.0	3.8
Subject of technical training attended (if attended)			
Agriculture	14	NA	50.0
Masonry	14	NA	7.1
Tailoring	14	NA	7.1
Business	14	NA	28.6
Other	14	NA	35.7

Source: Analysis sample – intake survey (2019) and endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data. We have limited data on women's educational experiences, so we largely focus this table on adolescent girls' education. However, we include information on women's highest level reached, because this indicator is available and is important for contextualizing the educational experiences of both groups. The baseline questionnaire uses the "past 12 months" as the reference period for questions with a one-year recall period. For

simplicity, we adjusted the framing of these questions to "past year" at endline. We classify adolescent girls as having returned to school if they reported being out-of-school at baseline or interim but reported have attended school in the past 12 months at endline.

Table 3.3 Background characteristics of adolescent girls' and women's households at baseline and endline

	Girls			Women		
	Sample	Baseline mean	Endline mean	Sample	Baseline mean	Endline mean
Household size (# people)	363	6.0	6.9	234	5.9	7.1
Poverty Probability Index (PPI) (percent likelihood below Food Poverty Line)	207	39.8	49.1	121	43.0	50.8
Owns and/or rents land for agricultural activities	357	94.7	99.4	234	94.4	99.6
Size of land for agricultural activities (if owns/rents, hectares)	333	3.6	2.1	218	3.5	2.6
Owns livestock	362	64.4	77.1	234	61.1	81.6
Cattle	359	37.3	47.1	232	30.2	48.7
Goats	359	18.4	26.5	232	18.1	28.9
Pigs	360	11.7	12.2	232	9.1	9.1
Chicken	358	44.7	67.0	232	43.5	72.4
Doves	358	5.6	2.8	231	5.2	3.5
Ducks	360	2.8	6.7	232	2.2	7.8
Other	362	1.4	3.6	234	1.3	5.1
Household Food Insecurity Access Score (HFIAS) (0-27)	350	NA	6.5	250	NA	8.1
Food secure	362	NA	26.5	259	NA	18.5
Mildly food insecure	362	NA	8.0	259	NA	8.5
Moderately food insecure	362	NA	24.0	259	NA	28.6
Severely food insecure	362	NA	41.4	259	NA	44.4

Source: Analysis sample – intake survey (2019) and endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data. Women who participated in EMPOWER were females (often mothers or guardians) who lived in the same household as adolescent girl participants. At baseline, Winrock assumed adolescent girls and their mothers/female guardians lived in the same household and collected one set of household characteristics for each group of adolescent girls and their mothers/female guardians. At endline, we expected that some proportion of adolescent girls would not be living with their mothers/female guardians due to marriage, migration for work, and other. We designed the endline survey so Palm Associates would collect one set of household characteristics for women and girl participants living in the same household and two sets of characteristics for adolescent girls and women living in separate households. We calculated the figures above considering all household characteristics. The Poverty Probability Index (PPI) computes the likelihood that a household is living below the poverty line based on questions related to asset ownership and household conditions. Higher scores indicate a higher likelihood of living below the poverty line (IPA 2015). The Household Food Insecurity Access Score measures the degree of food insecurity households experienced in the past 30 days based on questions that capture households' behavioral and

psychological manifestations of insecure food access. Lower scores are indicative of less food insecurity and higher scores of more food insecurity (Coates et al., 2007).

Table 3.4. Background characteristics of course facilitators

	Life Skills		Technical/Vocational skills	
	Interim Sample	Interim Mean	Interim Sample	Interim Mean
Facilitator age	29	35.6	18	43.1
Facilitator is female (0 = Male, 1 = Female)	28	42.9	18	27.8
Groups taught by the facilitator				
Adolescent girls	28	89.3	NA	NA
Women	28	78.6	NA	NA
Men	28	64.3	NA	NA
Number of cohorts taught	29	2.9	18	2.8

Source: Facilitator interviews (2020).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data.

ANNEX B: CHAPTER 4 TABLES

Table 4.1 Adolescent girls' and women's participation in EMPOWER activities

	Girls		Women	
	Sample	Mean	Sample	Mean
Life skills				
Full sample				
Participated in course (attended at least 1 session)	715	86.2	404	89.9
Completed course (if participated)	616	69.8	363	78.5
Completed course (regardless if participated)	715	60.1	404	70.5
Average number of sessions attended (if participated, max = 31 sessions, adolescent girls; 20 sessions women)	616	23.1	363	15.8
Analysis sample				
Participated in course (attended at least 1 session)	370	99.7	263	98.5
Completed course (if participated)	369	74.3	259	81.1
Completed course (regardless if participated)	370	74.1	263	79.8
Average number of sessions attended (if participated, max = 31 sessions, adolescent girls; 20 sessions women)	369	24.2	259	16.2
Technical, vocational, and entrepreneurship skills				
Full sample				
Participated in course (attended at least 1 session)	688	61.2	378	66.1
Completed course (if participated)	421	72.4	250	84.4
Completed course (regardless if participated)	688	44.3	378	55.8
Average number of sessions attended (if participated, max = 26 sessions)	421	19.6	250	21.6
Analysis sample				
Participated in course	352	77.8	244	76.2
Completed course (if participated)	274	74.5	186	84.4
Completed course (regardless if participated)	352	58.0	244	64.3
Average number of sessions attended (if participated, of 26 sessions)	274	20.0	186	21.6

Source: Full sample and Analysis sample – attendance records (2019).

Notes: Results reported in percent unless otherwise noted. NA = not available. The sample size available for the full sample is smaller for the technical/vocational skills module than the life skills due to missing technical/vocational skills attendance records for the entire implementation site of Kameta).

Table 4.2 Challenges to participation for adolescent girls and women

	Girls		Women	
	Interim sample	Interim mean	Interim sample	Interim mean
Challenges to participating in EMPOWER activities				
Travel to sessions	50	36.0	14	21.4
Duration of course	50	12.0	14	0.0
Work	50	18.0	14	28.6
Weather	50	16.0	14	14.3
Sickness	50	18.0	14	21.4
Pregnancy or marriage	50	12.0	14	14.3
Frustrations with facilitators	50	4.0	14	21.4
Disinterest in course	50	10.0	14	0.0
Moved	50	2.0	14	0.0
Other	50	6.0	14	7.1

Source: Analysis sample – interim survey (2020).

Notes: Results reported in percent unless otherwise noted. NA = not available. This table only shows data for adolescent girls and women that self-reported participating in but not completing project activities. The sample size is small due to a large share of respondents who self-reported completing project activities.

Table 4.3. Course facilitators' perspectives on the life skills and technical/vocational skills modules implementation

	Life Skills		Technical/Vocational skills	
	Interim Sample	Interim Mean	Interim Sample	Interim Mean
Facilitator rating of course material difficulty (scale of 1-5, 1 = very easy and 5 = very difficult)	29	2.0	18	2.2
Facilitator covered material sessions on child labor, work conditions, or acceptable work	NA	NA	18	88.9
Facilitator believes participants changed any aspect of their work due to course material	29	96.6	16	87.5
Facilitator followed up with participants after completion of course	29	89.7	NA	NA
Facilitator helped participants establish/operate business groups	NA	NA	18	83.3
Reasons flagged by facilitator for girl/woman participant drop-out				
Travel to sessions	29	51.7	18	38.9
Poor weather conditions	29	0.0	18	11.1
Duration of course	29	20.7	18	22.2
Pregnancy/Marriage/Household responsibilities	29	69.0	18	88.9
Relocated/moved	29	34.5	18	27.8
Unhappy with group (or with the idea of working with a group)	29	20.7	18	0.0
Ashamed of (lack of) skills	29	17.2	18	0.0
Disinterest in/suspicion of course	29	44.8	18	33.3
Joined course too late to effectively catch up	29	0.0	18	5.6
Injury/illness	29	13.8	18	44.4
Other	29	6.9	18	0.0

Source: Facilitator interviews (2020).

Notes: Results reported in percent unless otherwise noted. NA = not available.

Table 4.4 Adolescent girls' and women's participation in business and financial networks

	Girls		Women	
	Endline sample	Endline mean	Endline sample	Endline mean
Business groups				
Participated in any business group	368	80.7	263	89.4
Chicken business group	297	74.7	235	77.9
Goat business group	297	25.3	235	22.1
Participated in business group in past year (if participated)	288	81.9	231	86.6
Participated in business group at endline (if participated)	272	43.8	219	48.9
Average number of months business groups operated (if participated)	221	14.7	198	14.9
Received income from business groups (if participated in last year)	232	37.5	198	42.4
Reasons business group stopped operating (if participated and group stopped)				
Group management	138	25.4	106	26.4
Not successful at work activities	138	24.6	106	31.1
Group relations	138	21.0	106	13.2
COVID-19	138	0.7	106	0.9
Left to farm	138	17.4	106	17.9
Other	138	24.6	106	14.2
Composition of business group (if participated in any group)				
Adolescent girls/women only	296	11.5	235	6.8
Mixed adolescent girls and women	296	88.5	235	93.2
Reasons for not participating in a business group				
Work at home	62	8.1	28	14.3
Pregnant	62	14.5	28	0.0
Ill/injured	62	19.4	28	39.3
Far from home	62	9.7	28	7.1
Rejected by co-op	62	3.2	28	14.3
Saw no benefit	62	12.9	28	14.3
Other	62	48.4	28	14.3

Source: Analysis sample – endline survey (2021)

Notes: Results reported in percent unless otherwise noted. Sample sizes vary due to item non-response and missing data. We consider that adolescent girls and women participated in an EMPOWER activity if they attended at least one session for that activity, according to attendance records or self-reported participation. The endline survey defined business networks as groups that respondents participate in regularly that are focused on developing work or business activities (for instance a community group that meets to discuss business opportunities). The survey asked respondents *not* to consider friendship or religious groups or other activities whose main purpose is not business in their answer. When asking respondents about services provided formal banking institution we asked them to consider loans or bank accounts provided by a bank, mobile money, and similar services. Due to a survey programming error, the types of other responses were not collected for respondents' reasons for not participating in a business group.

Table 4.5 Adolescent girls' and women's participation in EMPOWER follow-up activities

	Girls		Women	
	Endline sample	Endline mean	Endline sample	Endline mean
Participation in follow-up activities				
Mentoring sessions led by business mentor	367	68.9	262	82.1
Mentoring sessions led by peer mentor	365	58.4	263	69.2
Guest lectures	365	58.4	262	69.5
Activities organized by Rural Women's Entrepreneurship Network	367	48.0	262	63.7
Other	370	0.8	263	0.8

Source: Analysis sample – endline survey (2021).

Notes: Results reported in percent unless otherwise noted.

ANNEX B: CHAPTER 5 TABLES

Table 5.1 Adolescent girls' and women's changes in life skills, literacy, and numeracy from baseline to endline

	Girls				Women			
	Sample	Baseline mean	Endline mean	Difference	Sample	Baseline mean	Endline mean	Difference
Life skills								
Rosenberg Self-esteem Scale (1-30)	287	29.1	28.6	-0.5*	248	NA	27.7	NA
Gender Equitable Index (1-56)	300	47.0	45.1	-1.9***	184	47.8	46.4	-1.4**
Entrepreneurial self-efficacy score (1-40)	349	NA	29.6	NA	248	NA	31.1	NA
Functional literacy and numeracy								
Able to read full sentence	370	28.1	40.3	12.2***	263	NA	36.1	NA
Numeracy level								
No numeracy skills	268	16.0	2.2	-13.8***	184	29.3	7.1	-22.3***
Recognizes 1 digit numbers	268	12.7	10.1	-2.6	184	10.3	12.5	2.2
Recognizes 2 digit numbers	268	28.4	22.4	-6.0*	184	19.6	18.5	-1.1
Recognizes 3 digit numbers	268	17.2	22.4	5.2	184	13.0	12.0	-1.1
Recognizes 4 digit numbers	268	1.5	14.2	12.7***	184	1.6	19.0	17.4***
Addition/subtraction	268	7.8	9.0	1.1	184	8.2	14.1	6.0**
Multiplication/ division	268	16.4	19.8	3.4	184	17.9	16.8	-1.1
Applied numeracy exercise (percent correct)	318	90.9	87.1	-3.8	202	95.0	86.6	-8.4***

Source: Analysis sample – intake survey (2019), life skills test (2019), endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA= not available. Sample sizes vary due to item non-response and missing data. The source questionnaires for the Rosenberg self-esteem scale and entrepreneurial self-efficacy score are Rosenberg (1965) and McKenzie et al. (2017). Respondents listed as having no numeracy skills were not able to recognize one-digit numbers. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test. The Gender Equitable Index is based on a scale from 1-60, but due to a survey programming error was missing one question at endline. As such, we scored the Gender Equitable Index from 1-56 (questions are each scored up to 4 points).

Table 5.2 Components of Gender Equitable Index at baseline and endline

	Girls			Women		
	Sample	Baseline mean	Endline mean	Sample	Baseline mean	Endline mean
Women have the right to hold leadership positions in the community	321	3.5	3.3	203	3.3	3.4
A female president can be as effective as a male president	320	3.0	3.0	204	3.2	3.3
At home, both boys and girls should ask permission to go play with their friends	322	3.4	3.2	202	3.4	3.2
Girls have the same right to go to school as boys	321	3.6	3.6	204	3.7	3.6
It is good for boys to talk about their problems with their male friends	323	2.9	3.4	204	3.3	3.4
Men and women both have the right to enroll in advanced schooling	321	2.7	3.5	201	3.6	3.5
I respect a man who walks away from a fight	324	3.6	NA	203	3.6	NA
A husband and a wife should decide together if they want children	320	3.7	3.5	200	3.7	3.6
Both men and women have the right to choose who to marry	322	3.2	3.4	202	3.6	3.5
Girls should be allowed to play sports	323	3.6	3.3	203	3.5	3.2
Boys should be allowed to play sports	320	3.5	3.4	203	3.5	3.4
If I heard a man insulting a woman, I would tell the man to stop	321	3.4	3.2	203	3.5	3.4
If I heard a woman insulting a man, I would tell her to stop	318	3.5	3.3	201	3.5	3.5
Men should know about family planning before marriage	321	3.6	2.3	197	2.8	2.5
Women should know about family planning before marriage	321	3.3	2.4	201	2.8	2.6

Source: Analysis sample – life skills test (2019), endline survey (2021).

Notes: Results reported in percent unless otherwise noted. The data on this table corresponds to our life skills analysis sample. Sample sizes vary due to item non-response and missing data. We do not report changes in the individual components, focusing instead on changes to adolescent girls' and women's overall attitudes towards gender equity. We show the components of the score for descriptive purposes and because some subgroups of components (e.g., question on gender equity in relationships between women and men) are of interest to the evaluation. We adjusted the wording of questions for adolescent girls slightly (for instance, we replaced the word "girl" with "women") considering this wording was a better fit for adolescent girls' age at endline. As a result, we applied the same questions to women and adolescent girls at endline. Due to a survey programming error, the question prompting a response to "I respect a man who walks away from a fight" was left out from the endline survey. These questions correspond to a 4 point scale, where 1 represents strongly disagree and 4 represents strongly agree.

Table 5.3 Changes in women's attitudes and knowledge of child labor from baseline to endline

	Sample	Baseline mean	End mean	Difference
Attitudes towards child labor total score (1-28 point scale)	187	19.4	20.2	0.8**
Knowledge of child labor and child rights score (1-4 point scale)	205	1.7	0.9	-0.8***

Source: Analysis sample – life skills test (2019), endline survey (2021).

Notes: Results reported on 28 and 4 point scales for the attitudes towards and knowledge of child labor scores, respectively. NA = not available. Sample sizes vary due to item non-response and missing data. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.

Table 5.4 Components of women's knowledge of child labor from baseline to endline

	Sample	Baseline mean	Endline mean	Difference
Attitudes towards child labor score				
Parents should be prevented from allowing their children to work in hazardous jobs	200	2.7	2.9	0.2*
Actions should be taken against employers that hire children for work that keeps them out of school	198	3.0	3.1	0.2
It is ok to send your child to work as a domestic boy/girl if you need the money	199	2.8	2.8	-0.0
Children learn more important skills from working than from attending school	199	3.1	3.1	-0.1
In this household, everyone including the children have to work to contribute to meeting family needs	202	2.2	2.5	0.3***
Children in this household are free to choose to work to meet their own basic needs	202	2.4	2.3	-0.0
Adults should do dangerous work so that children don't have to	203	3.2	3.4	0.2*
Knowledge of rights of children and child labor				
Knowledge of rights of children and child labor score (1-4)	205	1.7	0.9	-0.8***
Rights that are not rights of children: right to life, survival, and development, stay away to school after childbirth, education, parental support and guidance, freedom of expression? Stay away from school after childbirth	205	62.9	28.8	-34.1***
Risks of child labor: long term health problems, mental and behavioral health problems, injury and death, all of the above? All of the above	205	46.8	6.3	-40.5***
Activities that are not child labor: animal herding, charcoal burning, fishing, a boy age 13-14 sweeping the house, none of the above? A boy ages 13-14 sweeping the house	204	34.3	47.5	13.2**
What is the definition of acceptable work: work performed of by children of legal working ages that does not exceed 8 hours/day or 43 hours/week, non-hazardous, does not prevent education, all of the above? All of the above.	205	27.8	10.2	-17.6***

Source: Analysis sample – life skills test (2019), endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data. The attitudes towards child labor questions correspond to a 4 point scale, where 1 represents strongly disagree and 4 represents strongly agree. The knowledge of rights of children and child labor score is on a scale from 1-4, 1 point per correct answer. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.

Table 5.5 Women's perspectives on EMPOWER and child labor at endline

	Sample	Endline mean
Knows adolescent girls involved in child labor	261	14.2
Reasons why these adolescents are involved in child labor (if knows adolescents involved in child labor)		
Below working age of 12	37	35.1
Left school to work	37	18.9
Work 43+ hours per week	37	10.8
Work is harmful to health	37	48.6
Work is harmful to safety	37	16.2
Work is harmful in other way	37	5.4
Hazardous labor	37	10.8
Other	37	2.7
EMPOWER changed views on work done by adolescent girls (work activities, conditions, environment)	261	83.5
How EMPOWER changed awareness of work done by adolescent girls (if changed awareness)		
Awareness of legal age limits for working, doing excessively long or heavy work, or engaging in work some conditions and environments	213	81.7
Awareness of work activities that is acceptable for adolescent girls and children of other ages	213	70.4
Awareness of work that is harmful for health	213	23.0
Awareness of work that is harmful to safety	213	17.8
Awareness of worth that otherwise harmful or hazardous	213	9.9
Awareness of appropriate work conditions and environment	213	23.0

Source: Analysis sample - endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data. The survey question measuring whether women know adolescent girls involved in child labor asked if women knew adolescent girls in their own household or their communities who are involved in child labor.

Table 5.6 Adolescent girls' and women's changes technical/vocational skills from baseline to endline

	Girls				Women			
	Sample	Baseline mean	Endline mean	Difference	Sample	Baseline mean	Endline mean	Difference
Chicken knowledge test score (if trained in chicken, percent)	144	63.1	63.5	0.5	111	61.5	65.3	3.8*
Goats knowledge test score (if trained in goats, percent)	55	50.9	57.6	6.7**	30	54.1	55.9	1.8

Source: Analysis sample – life skills test (2019), endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.

Table 5.7 Components of technical and vocational skills tests at baseline and endline

	Girls			Women		
	Sample	Baseline mean	Endline mean	Sample	Baseline mean	Endline mean
Chicken knowledge test score						
Dual purpose breed: broiler, layer, village chicken? Village chicken is dual purpose breed of chicken	144	43.8	28.5	111	37.8	28.8
Tender-meated chicken with a hatch weight of 38-40 grams which grows to over 1.7kgs in 6 weeks: quail, village chicken, broiler? Broiler chickens grow to over 1.7kgs in 6 weeks	144	82.6	98.6	111	79.3	96.4
Chicken rearing systems are commonly used in Zambia: 3,4,2? 3 systems are commonly used in Zambia	144	47.2	11.8	111	47.7	18.0
Advantages of extensive chicken production system: notice and treat sick chickens early, low investment, provides complete feed and water? Low investments costs are an advantage of the extensive chicken production system	144	22.2	25.7	111	38.7	24.3
Distinct characteristic of intensive chicken production system: chickens housed, hens and cocks together, water provided? Chickens are kept in chicken houses in an intensive chicken production system	144	58.3	42.4	111	58.6	40.5

	Girls			Women		
	Sample	Baseline mean	Endline mean	Sample	Baseline mean	Endline mean
A chicken house should be: on well-drained/level land, face north to south, on slope? A chicken house should be on well-drained/level land	144	68.1	81.9	111	65.8	83.8
Characteristics of good chicken house: enough space for people to sit, far from main house, provides chickens enough resting space and comfort? A good chicken house provides chickens with resting space	144	71.5	80.6	111	68.5	82.9
Good formulation of chicken feed contains cereals/grains, proteins, minerals, and vitamins? This is true (true/false question)	144	81.9	92.4	111	74.8	93.7
Two examples of local chicken feed: maize bran and sunflower cake, soybean meal and dried leaves, rice husks and worms? Maize bran and sunflower cake are two examples of local chicken feed	144	82.6	93.1	111	82.9	95.5
Three safety requirements for handling chicken: gum boots, work suits, gloves; foot bath, gum boots, food ; gloves, antibiotics, mask? Gum boots, work suits, and gloves are safety requirements for handling chicken	144	72.2	80.6	111	61.3	89.2
Goats knowledge test score						
Not an advantage of goats: smaller and easier to handle than pigs, breed more than once a year and are a source of income, useful for ploughing? Goats are not useful for ploughing	55	25.5	54.5	30	36.7	56.7
Goats tend to suffer high kid mortality and loss through predators? This is false (true/false question)	55	41.8	32.7	30	36.7	26.7
Not a breed of goat: local, tonga, boer? Tonga is not a breed of goat	55	56.4	14.5	30	46.7	10.0
Only high-quality animals that are not closely related should be allowed to mate (to ensure performance of flock)? This is true (true/false question)	55	80.0	81.8	30	76.7	63.3

	Girls			Women		
	Sample	Baseline mean	Endline mean	Sample	Baseline mean	Endline mean
Incorrect considerations on breeding goats: breeding stock is sold from reliable source with known history of breeding, eyes are bright and intelligent, animals have been fed 3 types of feed? It is not necessary that animals have been fed 3 types of feed when selecting breeding	55	34.5	29.1	30	40.0	26.7
A goat can kid up to three times a year? This is false (true/false question)	55	60.0	69.1	30	50.0	60.0
It's not necessary to house goats (they roam)? This is false (true/false question)	55	76.4	80.0	30	46.7	83.3
Goats' gestation period is 4-5 months This is false (true/false question)	55	23.6	63.6	30	33.3	73.3
Goat disease is controlled by: regular deworming, spraying, dipping and picking; hot water bath, multi-vitamins? Goat disease is controlled by regular deworming, spraying, dipping and picking	55	56.4	81.8	30	63.3	56.7
Not best food for goats: succulents, roughage, red meat? (percent correct) Red meat is not the best food for goats	55	52.7	76.4	30	83.3	80.0
Major purpose of castrating goats: quicker growth, prevent aggressive behavior, control breeding? The major purpose of castrating goats is to control breeding	55	25.5	54.5	30	36.7	56.7

Source: Analysis sample - endline survey (2021).

Notes: Results reported in percent unless otherwise noted. Sample sizes vary due to item non-response and missing data. We do not report changes in the individual components, focusing instead on changes to adolescent girls' and women's overall skill levels. We show the components of the score for descriptive purposes. All questions included in the technical and vocational skills tests were closed questions with multiple response options. This table summarizes the questions and response options provided to respondents, and we report the percent of respondents that answered each question correctly.

Table 5.8 Components of entrepreneurial self-efficacy score at endline

	Girls		Women	
	End Sample	Endline mean	End Sample	Endline mean
Confidence in ability to come up with a new business idea	365	3.0	262	3.3
Confidence in ability to estimate accurately the costs of a new business ventures	363	3.0	260	3.1
Confidence in ability to estimate customer demand for a new product or service	364	3.0	257	3.1
Confidence in ability to sell a product or service to a customer you are meeting for the first time	366	3.1	260	3.1
Confidence in ability to identify good employees who can help a business grow	362	3.1	261	3.1
Confidence in ability to inspire, encourage, and motivate employees	363	3.1	260	3.3
Confidence in ability to find supplies who will sell you raw materials at the best price	364	3.1	261	3.1
Confidence in ability to persuade a bank to lend you money to finance a business venture	367	2.7	262	3.0
Confidence in ability to correctly value a business if you were to buy an existing business	367	2.9	262	3.1
Confidence in ability to say “no” to family member who approaches you asking to loan them money, which would have come out of funds you have for your business	367	2.4	262	2.7

Source: Analysis sample - endline survey (2021).

Notes: These questions correspond to a 4 point scale, where 1 represents strongly disagree and 4 represents strongly agree. Sample sizes vary due to item non-response and missing data. The source questionnaire for the self-efficacy score is McKenzie et al. (2017). The entrepreneurial self-efficacy score was only measured at endline; we show the components of the score for descriptive purposes.

Table 5.9 Access to business and financial networks

	Girls		Women	
	Endline sample	Endline mean	Endline sample	Endline mean
Business networks				
Participated in business network/group past 3 mo	367	8.7	263	17.1
Total hours participated in network in past 3 mo (if participated)	29	7.3	41	8.3
Financial networks				
Participated in financial network/group past 3 mo	368	15.5	263	36.5
Type of financial network (if participated)				
Credit/microfinance group	57	49.1	92	52.2
Mutual help/insurance group	57	26.3	92	22.8
Other financial group	57	24.6	92	25.0
Received financial services from formal banking institution in past 3 mo	368	8.7	263	14.4
Type of service received (if received)				
Received a formal bank account	32	6.3	38	0.0
Received formal bank loan	32	21.9	38	26.3
Received/sent formal bank transfer	32	68.8	38	73.7

Source: Analysis sample - endline survey (2021).

Notes: Results reported in percent unless otherwise noted. Sample sizes vary due to item non-response and missing data.

Table 5.10. Changes in acceptable work among adolescent girls (under age 18, work conducted in past month)

	Sample	Baseline mean	Endline mean	Difference
Participation in acceptable work and child labor				
Conducted acceptable work in past month	13	0.0	30.8	30.8**
Conducted child labor in past month	13	100.0	69.2	-30.8**
Components of child labor				
Worked long hours	13	30.8	7.7	-23.1
Worked after dark	13	7.7	0.0	-7.7
Carried heavy load	13	100.0	72.7	-27.3*
Worked in hazardous activities	12	50.0	41.7	-8.3
Worked in hazardous conditions	12	91.7	50.0	-41.7*
Worked in industrial undertaking in past month (only age 15)	0	NA	NA	NA
Exposure to other negative work conditions (e.g., shouting, sexual harassment) in past month	12	41.7	25.0	-16.7

Source: Analysis sample – life skills test (2019), endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data. We report acceptable on work and child labor only for adolescent girls who were under 18 who worked in the past month at the time of each survey. The sample size for worked in industrial undertaking in

past month is equal to 0 because there were not any adolescent girls at endline aged 15 or below. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.

Table 5.11. Detailed components of acceptable work and child labor among adolescent girls at baseline and endline (under age 18, work conducted in past month)

	Sample	Baseline mean	Endline mean	Difference
Worked long hours				
Maximum number of hours worked per day in past month	13	5.0	7.8	2.8**
Average number of hours worked per week in past month	13	34.9	21.9	-13.0**
Worked after dark				
Worked before sunrise	13	7.7	0.0	-7.7
Worked after sunset	13	0.0	0.0	0.0
Carried heavy load				
Carried 10-liter container	12	91.7	75.0	-16.7
Carried 5-liter container for 4 hours or more	8	0.0	0.0	0.0
Worked in hazardous activities in past month				
Animal herding	6	16.7	50.0	33.3
Selling or serving in bars	6	0.0	16.7	16.7
Operating power or manual driven machinery	6	0.0	0.0	0.0
Using or handling sharp cutting tools	6	83.3	50.0	-33.3
Handling tobacco on all stages of production	6	0.0	16.7	16.7
Handling cotton on all stages of production	6	33.3	16.7	-16.7
Making bricks or blocks	6	0.0	0.0	0.0
Burning charcoal	6	16.7	0.0	-16.7
Crushing stones	6	0.0	0.0	0.0
Doing excavation or drilling	6	0.0	0.0	0.0
Welding	6	0.0	0.0	0.0
Using explosives	6	0.0	0.0	0.0
Worked in hazardous conditions in past month				
Exposure to pesticide or herbicide	12	8.3	8.3	0.0
Toxic chemicals and gases	12	0.0	0.0	0.0
Exposure to extreme heat for long hours	12	41.7	25.0	-16.7
Exposure to dust	12	91.7	16.7	-75.0***
Exposure to high levels of noise	12	16.7	8.3	-8.3
Exposure to high voltage	12	0.0	0.0	0.0
Working underground	12	0.0	0.0	0.0
Working at a great height	12	0.0	0.0	0.0
Working where there may be falling objects	12	0.0	0.0	0.0
Working where there is no ventilation	12	0.0	8.3	8.3
Working near or in water that may carry disease or infections	12	0.0	0.0	0.0
Working under insufficient light	12	0.0	0.0	0.0
Worked in industrial undertaking in past month (only age 15)				

	Sample	Baseline mean	Endline mean	Difference
Mining, Quarrying, or any other works to extract minerals from the earth	0	NA	NA	NA
Construction, maintenance, repair, or demolition	0	NA	NA	NA
Manufacturing, production, processing of other goods/articles or transformation of materials	0	NA	NA	NA
Transportation of passengers or goods by road or rail (excluding by hand) and handling of goods at docks, warehouses	0	NA	NA	NA
Exposure to other negative work conditions in past month				
Constantly shouted at	12	41.7	25.0	-16.7
Repeatedly insulted	12	16.7	16.7	0.0
Beaten/physically hurt	12	8.3	8.3	0.0
Sexually abused	12	0.0	8.3	8.3

Source: Analysis sample – life skills test (2019), endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data. We report on acceptable work and child labor only for adolescent girls who were under 18 and who worked in the past month at the time of each survey. The sample size for subcomponents of worked in industrial undertaking in past month is equal to 0 because there were not any adolescent girls at endline aged 15 or below. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.

Table 5.12 Changes to adolescent girls' and women's work in past year at baseline and endline

	Girls				Women			
	Sample	Baseline mean	Endline mean	Difference	Sample	Baseline mean	Endline mean	Difference
Conducted any work in the past year	370	97.6	99.7	NA	263	NA	100.0	NA
Work activities in past year (if worked)								
Agro-processing	359	1.4	18.4	17.0***	263	NA	25.1	NA
Crop farming	359	75.5	96.9	21.4***	263	NA	97.3	NA
Hairdressing	359	3.9	39.8	35.9***	262	NA	19.8	NA
Chicken	359	12.3	49.0	36.8***	263	NA	70.3	NA
Retail	359	2.2	23.4	21.2***	263	NA	32.7	NA
Vegetable farming	359	20.6	40.1	19.5***	263	NA	45.2	NA
Bricklaying	359	0.6	4.7	4.2***	263	NA	11.0	NA
Hospitality	359	0.6	24.0	23.4***	263	NA	31.6	NA
Clothing design	359	0.6	4.2	3.6***	262	NA	7.6	NA
Goat rearing	359	5.0	19.5	14.5***	263	NA	25.9	NA

	Girls				Women			
	Sample	Baseline mean	Endline mean	Difference	Sample	Baseline mean	Endline mean	Difference
Pig rearing	359	3.9	5.6	1.7	263	NA	13.3	NA
Other	359	10.6	5.3	-5.3**	263	NA	8.0	NA
Received payment for any work activity in the past year (if worked, cash and/or in kind)	360	25.0	56.9	31.9***	263	NA	58.9	NA
Agro-processing	71	NA	21.0	NA	66	NA	27.3	NA
Crop farming	358	NA	34.4	NA	256	NA	37.5	NA
Hairdressing	149	NA	26.2	NA	52	NA	19.2	NA
Chicken	181	NA	28.2	NA	185	NA	44.9	NA
Retail	89	NA	46.1	NA	86	NA	44.2	NA
Vegetable farming	149	NA	50.3	NA	119	NA	45.4	NA
Bricklaying	17	NA	23.5	NA	29	NA	10.3	NA
Hospitality	91	NA	7.7	NA	83	NA	1.2	NA
Clothing design	16	NA	12.5	NA	20	NA	40.0	NA
Goat rearing	72	NA	22.2	NA	68	NA	35.3	NA
Pig rearing	21	NA	14.3	NA	35	NA	31.4	NA
Other	20	NA	30.0	NA	23	NA	26.1	NA
Self-employed (if worked)	369	NA	67.5	NA	263	NA	78.7	NA
Agro-processing	67	NA	16.4	NA	65	NA	27.7	NA
Crop farming	358	NA	40.2	NA	256	NA	52.7	NA
Hairdressing	149	NA	48.3	NA	52	NA	44.2	NA
Chicken	179	NA	48.0	NA	185	NA	62.7	NA
Retail	89	NA	75.3	NA	86	NA	87.2	NA
Vegetable farming	149	NA	45.0	NA	119	NA	66.4	NA
Bricklaying	17	NA	29.4	NA	29	NA	37.9	NA

	Girls				Women			
	Sample	Baseline mean	Endline mean	Difference	Sample	Baseline mean	Endline mean	Difference
Hospitality	90	NA	14.4	NA	83	NA	26.5	NA
Clothing design	16	NA	50.0	NA	20	NA	45.0	NA
Goat rearing	72	NA	41.7	NA	68	NA	63.2	NA
Pig rearing	21	NA	28.6	NA	35	NA	54.3	NA
Other	20	NA	35.0	NA	23	NA	30.4	NA
Employee (if worked)								
Crop farming	358	NA	0.6	NA	256	NA	0.0	NA
Hairdressing	149	NA	0.0	NA	52	NA	0.0	NA
Chicken	179	NA	2.2	NA	185	NA	2.7	NA
Retail	89	NA	0.0	NA	86	NA	1.2	NA
Vegetable farming	149	NA	0.7	NA	119	NA	0.0	NA
Goats	72	NA	2.8	NA	68	NA	1.5	NA
Pigs	21	NA	0.0	NA	35	NA	0.0	NA
Unemployed family worker (if worked)								
Crop farming	358	NA	56.2	NA	256	NA	45.7	NA
Hairdressing	149	NA	51.0	NA	52	NA	55.8	NA
Chicken	179	NA	49.2	NA	185	NA	34.6	NA
Retail	89	NA	24.7	NA	86	NA	11.6	NA
Vegetable farming	149	NA	53.7	NA	119	NA	33.6	NA
Goats	72	NA	55.6	NA	68	NA	35.3	NA
Pigs	21	NA	71.4	NA	35	NA	45.7	NA

Source: Analysis sample – life skills test (2019), endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = Not available. The data on this table corresponds to the analysis sample. Sample sizes vary due to item non-response and missing data. The baseline questionnaire uses the “past 12 months” as the reference period for questions with a one year recall period. For simplicity, we adjusted the framing of these questions to “past year” at endline. The reported self-employment outcomes for each listed work activities are conditional upon working in that given activity in the last year. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.

Table 5.13 Adolescent girls' and women's participation in work over the past year, month, and week at endline

	Girls		Women	
	Endline sample	Endline mean	Endline sample	Endline mean
Worked in the past year				
Conducted any work in the past year	370	99.7	263	100.0
Months worked in the past year (if worked in the past year)	359	7.7	261	9.5
Work in past month				
Worked in past month	369	81.6	263	88.6
Work in past week				
Worked in past week	345	76.2	260	84.6
Number of days worked in past week (if worked in past week)	263	5.5	218	5.7
Share of day worked in the past week (if worked in past week)				
Full day	263	19.8	220	32.7
Part of the day	263	93.2	220	88.6

Source: Analysis sample – endline survey (2021).

Notes: Results reported in percent unless otherwise noted. NA = Not available. Sample sizes vary due to item non-response and missing data.

Table 5.14. Adolescent girls' and women's self-efficacy in decision making

	Girls		Women	
	Endline sample	Endline mean	Endline sample	Endline mean
Person who usually makes decisions about household resources				
Father	363	49.0	260	62.3
Mother	363	24.8	260	36.5
Girl	363	1.7	260	0.4
Other	363	5.8	260	0.8
Respondent provides input in decision making on household resources				
No input or some input on a few decisions	217	62.2	247	7.7
Input into some decisions	217	35.9	247	57.9
Input into most or all decisions	217	1.8	247	34.4
Share of money earned working in that past year that was given to household				
None	206	30.1	154	7.8
Less than half	206	15.5	154	20.8
About half	206	34.5	154	43.5
More than half	206	12.6	154	18.2
All of it	206	43.2	154	55.2
Respondent required permission from any household member or acquaintance to work in past year	369	33.3	263	27.8
Required permission to work from:				
Spouse	359	8.6	241	18.3
Father	359	6.1	241	0.0
Mother	359	15.9	241	0.8
Brother	359	0.8	241	1.2
Sister	359	1.4	241	2.1
Other	359	3.3	241	0.0

Source: Analysis sample – endline survey (2021).

Notes: Results reported in percent unless otherwise noted. Sample sizes vary due to item non-response and missing data.

ANNEX B: CHAPTER 6 TABLES

Table 6.1. Adolescent girls' and women's awareness of COVID-19 at interim and endline

	Girls				Women			
	Interim sample	Interim mean	Endline sample	Endline mean	Interim sample	Interim mean	Endline sample	Endline mean
Aware of COVID-19	264	100.0	370	90.8	159	100.0	263	93.5
Knows someone who was sick with COVID-19	264	1.9	370	7.1	159	3.8	263	6.8

Source: Analysis sample – interim survey (2020), endline survey (2021).

Notes: Results reported in percent unless otherwise noted. Infection with COVID-19 was identified by respondents as such.

Table 6.2. Precautions taken by adolescent girls and women in response to COVID-19 at interim and endline

	Girls				Women			
	Interim sample	Interim mean	Endline sample	Endline mean	Interim sample	Interim mean	Endline sample	Endline mean
Took any precaution in response to COVID-19	202	95.5	370	55.1	147	98.0	263	65.8
Washed hands more	201	94.0	366	44.0	147	97.3	261	48.7
Stayed home more	201	56.7	366	12.0	147	64.6	261	18.0
Wore mask more	201	72.6	366	40.7	147	70.1	261	46.7
Limited contact with others	201	47.3	366	18.3	147	49.7	261	20.7
Avoided big groups	201	76.1	366	14.2	147	84.4	261	15.7
Used more hand sanitizer	201	28.4	366	4.1	147	21.8	261	3.4
Traveled out less	201	34.3	366	4.1	147	30.6	261	7.7
Covered mouth when coughing	201	36.3	366	2.5	147	37.4	261	1.5
Go to work less	201	13.9	366	0.5	147	12.9	261	0.4
Stocked up on food	201	5.5	366	1.1	147	6.1	261	0.4
Other	201	6.0	366	1.1	147	4.8	261	3.4

Source: Analysis sample – interim survey (2020), endline survey (2021).

Notes: Results reported in percent unless otherwise noted.

Table 6.3. Effects of COVID-19 on adolescent girls' and women's work at interim and endline

	Girls				Women			
	Interim sample	Interim mean	Endline sample	Endline mean	Interim sample	Interim mean	Endline sample	Endline mean
Considers COVID-19 has affected their work in any way	260	70.0	328	22.0	159	75.5	247	32.4
Stopped some work activities	249	57.0	328	11.6	154	64.3	247	21.9
Less time working	249	22.5	328	6.7	154	28.6	247	12.1
Stopped working	249	11.6	328	1.2	154	8.4	247	1.2
Hard to find work	249	15.3	328	2.1	154	13.6	247	3.6
Risked health/safety	249	12.4	328	2.7	154	14.9	247	1.2
Risked other harm	249	6.8	328	0.0	154	8.4	247	0.0
Reduction in customers/demand	249	2.4	328	0.3	154	5.2	247	2.0
Other	249	3.6	328	1.8	154	4.5	247	3.2
COVID-19 reduced household income	262	89.7	354	40.4	159	89.3	261	57.1
COVID-19 has reduced household income a great deal (if reduced)	235	52.3	143	53.1	142	51.4	148	52.7
COVID-19's effects on agricultural work (if worked in agriculture)								
Could not buy required inputs	169	52.1	328	27.1	124	64.5	237	34.6
Could not carry out usual farm activities	169	29.0	328	18.0	124	37.1	237	20.7
Could not sell crops or livestock as planned	169	53.3	328	22.6	124	57.3	237	27.0

Source: Analysis sample – interim survey (2020), endline survey (2021).

Notes: Results reported in percent unless otherwise noted.

ANNEX C: SUPPLEMENTAL ANALYSIS TABLES

ANNEX C: CORRELATIONAL ANALYSIS OF ADOLESCENT GIRLS' BASELINE CHARACTERISTICS WITH COURSE PARTICIPATION AND COMPLETION

Table 1.1 Correlational analysis of adolescent girls' baseline characteristics with life skills module participation

	Baseline Sample	Correlation Coefficient
Individual/household characteristics		
Age	438	0.0
Head of household	664	0.0
Married	666	0.0
Has given birth	665	0.1**
Household size	667	0.1*
Household Poverty Probability Index (PPI) (percent likelihood below Food Poverty Line)	377	0.1
Household owns and/or rents land for agricultural activities	666	-0.1**
Household owns livestock	666	-0.1**
Adolescent girls' education and other indexes		
Educational level higher than primary school	665	0.1
Able to read full sentence	666	0.1**
Able to recognize 4 digit numbers	459	0.1
Rosenberg Self-esteem Scale (1-30)	495	0.0
Gender Equitable Index (1-56)	518	0.0
Work activities in past year (if worked)		
Crop farming	641	0.0
Vegetable farming	641	0.0
Chicken	641	0.0
Goat rearing	641	0.0
Districts		
Chadiza	715	-0.1
Chasefu	715	0.0
Chipangali	715	0.0
Katete	715	0.3***
Kasenengwa	715	-0.2***
Lundazi	715	-0.1**
Petauke	715	-0.1

Source: Full sample – intake survey (2019), life skills test (2019), attendance records (2019)

Notes: Results reported in percent unless otherwise noted. Sample sizes vary due to item non-response and missing data. For example, there are a high amount of missing values for age at baseline. We also recode a handful of adolescent girls' and women's ages as missing due to large age discrepancies between baseline and endline. Stars of * / ** / *** indicate correlations significant at the .10 / .05 / .01 level.

Table 1.2 Correlational analysis of adolescent girls' baseline characteristics with technical/vocational skills module participation

	Baseline Sample	Correlation Coefficient
Individual/household characteristics		
Age	438	0.0
Head of household	419	0.0
Married	420	0.0
Has given birth	419	0.0
Household size	421	0.1
Household Poverty Probability Index (PPI) (percent likelihood below Food Poverty Line)	235	-0.1
Household owns and/or rents land for agricultural activities	420	0.0
Household owns livestock	420	0.0
Adolescent girls' education and other indexes		
Educational level higher than primary school	419	0.0
Able to read full sentence	420	0.1*
Able to recognize 4 digit numbers	321	0.1***
Rosenberg Self-esteem Scale (1-30)	356	0.1
Gender Equitable Index (1-56)	365	0.0
Work activities in past year (if worked)		
Crop farming	406	0.0
Vegetable farming	406	-0.1*
Chicken	406	0.0
Goat rearing	406	0.0
Districts		
Chadiza	445	-0.2***
Chasefu	445	0.0
Chipangali	445	0.0
Katete	445	0.3***
Kasenengwa	445	0.0
Lundazi	445	0.1*
Petauke	445	-0.2***

Source: Full sample – intake survey (2019), life skills test (2019), attendance records (2019)

Notes: Results reported in percent unless otherwise noted. NA = not available. Sample sizes vary due to item non-response and missing data. Stars of * / ** / *** indicate correlations significant at the .10 / .05 / .01 level.

ANNEX C: COMPARISON OF RESPONDENTS PRESENT AT BASELINE AND ENDLINE COLLECTION VS BASELINE ONLY

Table 2.1. Comparison of adolescent girls present at baseline and endline collection vs baseline only

	Baseline Only Sample	Baseline Only Mean	Baseline and Endline Sample	Baseline and Endline Mean	Difference
Individual/household characteristics					
Age	126	16.3	292	16.3	0.0
Head of household	202	0.0	381	0.0	0.0
Married	203	0.1	382	0.1	0.0
Has given birth	203	0.4	381	0.5	0.1***
Household size	203	5.6	383	5.9	0.3*
Household Poverty Probability Index (PPI) (percent likelihood below Food Poverty Line)	110	0.4	226	0.4	0.0
Household owns and/or rents land for agricultural activities	203	1.0	382	0.9	0.1
Household owns livestock	203	0.6	382	0.6	0.0
Adolescent girls' education and other indexes					
Educational level higher than primary school	202	0.1	382	0.2	0.1
Able to read full sentence	203	0.2	382	0.3	0.1
Able to recognize 4 digit numbers	142	0.2	273	0.3	0.1
Rosenberg Self-esteem Scale (1-30)	146	28.8	307	29.0	0.2
Gender Equitable Index (1-56)	157	45.7	315	47.0	1.3**
Work activities in past year (if worked)					
Crop farming	195	0.8	370	0.8	0.0
Vegetable farming	195	0.2	370	0.2	0.0
Chicken	195	0.2	370	0.1	0.1
Goat rearing	195	0.1	370	0.1	0.0
Districts					
Chadiza	203	0.1	383	0.2	0.1*
Chasefu	203	0.1	383	0.1	0.0
Chipangali	203	0.0	383	0.0	0.0
Katete	203	0.2	383	0.3	0.1**
Kasenengwa	203	0.0	383	0.0	0.0
Lundazi	203	0.2	383	0.1	0.1***
Petauke	203	0.2	383	0.2	0.0

Source: Full sample – intake survey (2019), endline survey (2021)

Notes: Results reported in percent unless otherwise noted. NA = not available. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.

ANNEX C: SUBGROUP ANALYSES

Table 3.1 Changes in outcomes over time for adolescent girls who hadn't given birth by baseline

	Sample	Baseline mean	Endline mean	Difference
Life skills				
Rosenberg Self-esteem Scale (1-30)	144	28.6	28.4	-0.2
Gender Equitable Index (1-56)	145	47.2	44.5	-2.8***
Functional literacy and numeracy				
Able to read full sentence	183	18.6	31.1	12.6***
Numeracy level				
No numeracy - recognizes 3 digit numbers	133	82.0	66.9	-15.0***
Recognizes 4 digit numbers	133	0.8	15.8	15.0***
Addition/subtraction	133	6.8	7.5	0.8
Multiplication/ division	133	10.5	9.8	-0.8
Technical, vocational, and entrepreneurship skills				
Chicken knowledge test score (if trained in chicken, percent)	62	59.4	63.4	4.0
Goats knowledge test score (if trained in goats, percent)	24	45.5	58.7	13.1***
Attitudes and knowledge of child labor (only women)				
Attitudes towards child labor total score (1-28)	NA	NA	NA	NA
Knowledge of child labor and child rights score (1-4)	NA	NA	NA	NA
Work				
Paid for any work activity (if worked, cash and/or in kind)	177	24.3	53.1	28.8***

Source: Full sample – intake survey (2019), life skills test (2019), endline survey (2021)

Notes: Results reported in percent unless otherwise noted. NA = not available. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.

Table 3.2 Changes in outcomes over time for adolescent girls and women who completed both course modules

	Girls				Women			
	Sample	Baseline mean	Endline mean	Difference	Sample	Baseline mean	Endline mean	Difference
Life skills								
Rosenberg Self-esteem Scale (1-30)	147	29.2	28.8	-0.5	134	NA	27.9	NA
Gender Equitable Index (1-56)	151	47.1	46.0	-1.2*	111	46.9	47.2	0.3
Functional literacy and numeracy								
Able to read full sentence	180	32.2	43.9	11.7***	141	NA	40.4	NA
Numeracy level								
No numeracy skills	132	66.7	52.3	-14.4***	106	63.2	46.2	-17.0***
Recognizes 4 digit numbers	132	2.3	13.6	11.4***	106	0.9	17.9	17.0***
Addition/subtraction	132	9.1	11.4	2.3	106	12.3	17.9	5.7
Multiplication/ division	132	22.0	22.7	0.8	106	23.6	17.9	-5.7
Technical, vocational, and entrepreneurship skills								
Chicken knowledge test score (if trained in chicken, percent)	104	63.6	65.0	1.4	89	61.2	66.1	4.8*
Goats knowledge test score (if trained in goats, percent)	29	52.8	56.2	3.4	20	50.4	54.6	4.2
Attitudes and knowledge of child labor (only women)								
Attitudes towards child labor total score (1-28)	NA	NA	NA	NA	115	18.9	20.1	1.1**
Knowledge of child labor and child rights score (1-4)	NA	NA	NA	NA	121	1.7	0.9	-0.8***
Work								
Paid for any work activity (if worked, cash and/or in kind)	174	28.2	56.3	28.2***	141	NA	61.0	NA

Source: Full sample – intake survey (2019), life skills test (2019), endline survey (2021)

Notes: Results reported in percent unless otherwise noted. NA = not available. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.

Table 3.3 Changes in outcomes over time for adolescent girls with mothers who participated in EMPOWER

	Sample	Baseline mean	Endline mean	Difference
Life skills				
Rosenberg Self-esteem Scale (1-30)	169	29.2	28.7	-0.4
Gender Equitable Index (1-56)	173	46.7	45.1	-1.6***
Functional literacy and numeracy				
Able to read full sentence	213	27.7	38.5	10.8***
Numeracy level				
No numeracy - recognizes 3 digit numbers	153	71.2	56.9	-14.4***
Recognizes 4 digit numbers	153	2.6	16.3	13.7***
Addition/subtraction	153	10.5	9.8	-0.7
Multiplication/ division	153	15.7	17.0	1.3
Technical, vocational, and entrepreneurship skills				
Chicken knowledge test score (if trained in chicken, percent)	100	63.3	62.9	-0.4
Goats knowledge test score (if trained in goats, percent)	24	54.2	56.7	2.6
Attitudes and knowledge of child labor (only women)				
Attitudes towards child labor total score (1-28)	NA	NA	NA	NA
Knowledge of child labor and child rights score (1-4)	NA	NA	NA	NA
Work				
Paid for any work activity (if worked, cash and/or in kind)	209	24.4	53.6	29.2***

Source: Full sample – intake survey (2019), life skills test (2019), endline survey (2021)

Notes: Results reported in percent unless otherwise noted. NA = not available. Stars of * / ** / *** indicate differences significant at the .10 / .05 / .01 level, two-tailed test.