WORLD BANK

HOUSEHOLD SURVEY ON A SAMPLE OF ENUMERATION AREAS IN MALAWI TO MEASURE WEEKLY LABOUR INPUTS IN FARMING

FINAL IMPLEMENTATION COMPLETION REPORT
(COVERING THE PERIOD AUGUST 2016 – SEPTEMBER 2017)

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Abbreviations

AT	Activity Tracking
CAPI	Computer Assisted Personal Interview
EAs	Enumeration Areas
MLWLABEXP	Malawi Labour Experiment
TA	Traditional Authority

1.   Introduction

1.1   Key Services in Study Implementation

The World Bank awarded a contract, Number 7179852 dated 15th June 2016, to Wadonda Consult Limited (WACO) to ***Conduct a Household Survey on a Sample of Enumeration Areas in Malawi to Measure Weekly Labour Inputs in Farming***, also known as the Malawi Labour Experiment Survey (MWLABEXP). In this contract, WACO was contracted to provide the following services:

- Recruitment and contracting of experienced enumerators, data entry clerks, data entry supervisor and field supervisors.
- Adapting survey instruments and translating into Chichewa, field testing and formatting of questionnaires.
- Training of enumerators and supervisors in the administration of the questionnaires provided by the World Bank team.
- Organizing and providing logistical support (transport, per-diem, etc.) to enumerators and supervisors while data are being collected.
- Collecting data using Computer Assisted Personal Interview (CAPI) and quality control of the information being collected during the survey's implementation.
- Delivery of reports relating to the overall organization and execution of the survey.

1.2   Implementation Phases

The implementation of the MWLABEXP was divided into three phases: (1) the baseline survey phase, (2) resident enumerator survey (weekly data collection) phase, and (3) the endline survey phase. The baseline phase was implemented between August 2016 and October 2016, and commenced with a household listing exercise in the target enumeration areas. The resident enumerator survey commenced at the beginning of November 2016 and was concluded on 31 May 2017. In February 2017, an Activity Tracking component was added to the experiment and run from March 2017 to end of May 2017. The endline survey phase commenced in June 2017 and was concluded in August 2017.

1.3   Study Sites and Sample Allocation

The MWLABEXP was conducted in Zomba and Ntcheu districts both of which are in southern Malawi. The study covered a total of 20 enumeration areas (EAs) – 10 EAs in Zomba district and 10 EAs in Ntcheu districts. These EAs were randomly selected from all rural EAs in each district. In Zomba, the EAs were drawn from 6 Traditional Authorities (TAs) while in Ntcheu EAs fell under 8 TAs. Table 1 below presents a list of EAs covered by the study.

The experiment started with three treatment arms based on data collection approaches, with a fourth arm added at endline survey phase. First, the Control Group 1 (C1) in which the standard agricultural labor module, with labor reported in the aggregate by recall for the entire season (endline survey) was used as a data collection approach with both baseline and endline surveys administered through face-to-face interviews. Secondly, the Treatment Group 1 (T1) in which data collection was based on weekly phone surveys for labor module for the duration of the rainy season, with the baseline and endline survey fielded to capture completed agricultural season yields and other inputs. Thirdly, the Treatment Group 2 (T2) in which an intensive interview labor module (Time-use survey) during the duration of the main season was administered every week with both the baseline and endline surveys fielded to capture

completed agricultural season yields and other inputs. Fourthly, Control Group 2 (C2) in which intensive interview of labour module was administered at the end of the agricultural season only (only included in the endline survey).

Based on the full household listing in each EA, 12 households were randomly selected for each arm, giving a total of 36 households. In each arm 2 households were further selected as replacement households in case of refusal from the original sample households.

Table 1 List of Enumeration Areas covered by the Study

EA ID	District	District Name	TA	TA Name	EA	Selection
20901045	209	Ntcheu	1	TA Phambala	45	1
20902030	209	Ntcheu	2	TA Mpando	30	2
20903023	209	Ntcheu	3	TA Kwataine	23	3
20904065	209	Ntcheu	4	TA Makwangwala	65	5
20906014	209	Ntcheu	6	TA Njolomole	14	6
20907007	209	Ntcheu	7	TA Chakhumbira	7	7
20908025	209	Ntcheu	8	TA Goodson Ganya	25	8
20908069	209	Ntcheu	8	TA Goodson Ganya	69	9
20909017	209	Ntcheu	9	TA Masasa	17	10
20904005	209	Ntcheu	4	TA Makwangwala	5	R04
30301012	303	Zomba	1	TA Kuntumanji	12	1
30301058	303	Zomba	1	TA Kuntumanji	58	2
30302042	303	Zomba	2	TA Mwambo	42	3
30302088	303	Zomba	2	TA Mwambo	88	4
30304055	303	Zomba	4	TA Chikowi	55	5
30305033	303	Zomba	5	SC Mbiza	33	6
30305085	303	Zomba	5	SC Mbiza	85	7
30306026	303	Zomba	6	TA Mlumbe	26	8
30306083	303	Zomba	6	TA Mlumbe	83	9
30307008	303	Zomba	7	TA Malemia	8	10

1.4   Study Management Team

The core management of the study was by Principal Researchers from the World Bank and collaborators from WACO Limited. This joint team was responsible for planning implementation and training of research assistants. All training activities were facilitated by the World Bank Group team in collaboration with WACO Ltd, namely:

Amparo Palacios-Lopez	World Bank Group
Isis Gaddis	World Bank Group
Akuffo Amankwah	World Bank Group
Talip Kilic	World Bank Group (video link – Activity Tracking)
Innocent Pangapanga-Phiri	World Bank Consultant (Activity Tracking & Endline)
Ephraim Chirwa	WACO Ltd
Peter Mvula	WACO Ltd
Monice Kachinjika	WACO Ltd

2.   Baseline Survey Phase

2.1   Training of Research Assistants

The training of research assistants was done in two phases at Annies Lodge in Zomba. The first phase of training was conducted from 22 – 23 August 2016 with respect to a household listing exercise in 20 selected Enumeration Areas in Zomba and Ntcheu districts. A total of 24 research assistants participated in the training. The training involved review of the household listing questionnaire in both paper and CAPI form. The second phase of training was conducted from 2 – 8 September 2016, after the completion of the household listing exercise. The second training focused on understanding the main survey instruments, review of the translation of the survey instruments and understanding of the CAPI program for data collection. A total of 25 research assistants participated in the training.

2.2   Housing Household Listing and Pilot Survey

Prior to commencement of the main survey, two field work activities were undertaken – household listing and pilot survey. First, a household listing exercises was conducted in 20 enumeration areas in Zomba and Ntcheu. The research assistants were divided into 4 teams each with 5 enumerators and 1 supervisor. The household listing exercise commenced on 26 August and was completed on 30 August 2016. However, one of the enumeration areas replaced in Ntcheu due to a funeral in the area was replaced with the wrong one, and the original enumeration area was listed on 4 September 2016. This exercise was successfully completed and formed the basis for selection of main survey households. Secondly, a pilot survey was conducted on 5 September 2016 in two enumeration areas in Zomba - among those not sampled for the main survey. This was done to validate the questions, their translations and the protocols in addition to providing the research assistants with real interview experience with farmers. The experiences of the pilot were shared and discussed on 6 September 2016.

2.3   Implementation of Baseline Survey

Field work for the baseline survey commenced on 16 September 2016 with the first interviews conducted on 17 September 2016 in Zomba. There were five teams deployed each with 4 enumerators, 1 supervisor and 1 driver. This was a change from the original plan of having 4 teams with 5 enumerators and 1 supervisor. This change was necessitated by the need to improve quality control and allowing ample time for the supervisor to check through a manageable number of interviews per day. The original planned sample was 36 households per enumeration area, giving a total of 720 household interviews in 20 selected enumeration areas. However, due to possibility of refusal in the treatment phase of the experiment it was decided and agreed to increase the sample to 42 households per enumeration area, giving a total of 840 households.

Overall, the baseline survey was conducted in four weeks – in the first two weeks all teams worked in Zomba and then moving to Ntcheu for another two weeks. Baseline data collection was completed on 13th October 2016. In each of the enumeration areas, 42 interviews were completed – with 36 households targeted for initial allocation to the 3 treatment arms and 6 households as replacement households.

2.4 Key Lessons from the Baseline Survey Implementation

The main issue learnt from the baseline survey for the implementation of the weekly labour data collection phase, was the variable quality of infrastructure in enumeration areas. Some of the enumeration areas did not have basic facilities such as portable water and electricity. In addition, there was variable road infrastructure and mobile phone network in the enumeration areas. This had implications for the use of mobile phones in completing interviews in one of the treatment arms of the experiment. The baseline survey implied the following for the next phase:

- Some of the Resident Enumerators (REs) were unlikely to live in the enumeration area allocated to them due to poor basic facilities such as water and electricity. This had implication for the RE mobility to accomplish weekly interviews with respondents.

- The need to address local mobility of REs to facilitate their work for households in the face-to-face interview arm of the experiment including traveling to respondents' farm land to measure plots. It was noted that some of the enumeration areas were vast and remote with households having farm land far away from dwelling units. With this, there was need to provide bicycles to REs to facilitate their movement to the EA and within the EA.

- None of the enumeration areas was connected to the national electricity grid. This lack of electricity in enumeration areas, required investment in solar systems for charging tablets and phones as well as providing lighting to resident enumerators.

- The lack of electricity also posed a problem with respect to respondents' phone charging, particularly those in the telephone interview treatment arm. This implied additional capacity of the solar charging system to cater for respondents' requirements when needed.

- The variable mobile network signals in enumeration areas also posed risks for the telephone interviews as well as the data transmission from the resident enumerators. This suggested that the phones to be purchased for the respondents should allow sim-cards for both TNM and Airtel in order for the respondents to make a choice depending on the network signals in their areas.

3.   Resident Enumerator and Activity Tracking Survey

This phase involved placing Resident Enumerators in the sample EAs for weekly data collection from respondents in the T1 and T2 groups and weekly visits for activity tracking. The weekly data collection commenced in November 2016 in all selected 20 EAs. In February 2017, an Activity Tracking (AT) survey was added to experiment to monitor physical labour inputs into household activities. All these two activities were concluded by 31 May 2017.

3.1   Resident Enumerator Survey Data Collection

3.1.1   Deployment of Resident Enumerators

The Resident Enumerator Survey (RES) data collection activity started with testing the application among the resident enumerators (mock interviews) to test both face-to-face interviews and telephone interviews. The following issues were noted following the practice interviews which the World Bank team addressed:

- If the person says she/he is in form 2 and has a qualification of PSLC, the program is showing an error. That is happening to both T1 and T2, yet this qualification is taken in Malawi at Standard eight.
- If a person has never done anything the past week, the follow up question asks for the reason. However, if the reason is anything other than that to do with schooling, the program shows an error.
- REs also noted that some questionnaires have more questions than others yet all may have been indicated say T1D1 - Long questionnaire. REs were wondering whether this could be skip issues depending on the responses given by the different respondents or that indeed there is a problem with the program.
- On food security section, REs were of the view that it is was proper that names of members as well their ages must pop up since some questions required to check the composition and ages of the members before you ask. For example you cannot ask as to how many times children between 5-14 years eat meals in a day when the household does not have those children in that age category.
- REs also suggested that descriptions of the households should be included so as to better give the description of the new plot the household may have added, since it was obvious that they would be calling households that they did not go to in the first place.

The second activity after testing the application was identification of accommodation in study enumeration areas or neighbouring enumeration area and sensitization with the traditional leaders about the placement of resident enumerators in their villages. This was also combined with assessment of possible places in the enumeration areas for siting the rain gauges. This activity was done from 22nd October 2016 to 25th October 2016. This was followed by preparatory work – organising field materials - between 28th October 2016 and 7th November 2016. The REs moved to their respective enumeration areas between 8th November 2016 and 10th November 2016.

Owing to the anticipated workload for checking completed questionnaires and administrative activities by the RES Coordinator, Monice Kachinjika, it was decided that there should be two additional approval supervisors to assist RES Coordinator in approving questionnaires.

Winfrey Chiumia and Emmanuel Paketi were assigned the roles of Approval Supervisors with each allocated 8 REs initially, but increased to 9 REs after the introduction of the Activity Tracking component of the experiment noted below. Table 2 shows the team deployment to respective enumeration areas.

For EA 20902030 in TA Mpando in Ntcheu, Clifftone Mgala mutually resigned from his position as resident enumerator due to ill-health at the beginning of January 2017. He was immediately replaced by one of the resident enumerators on the reserve list, Loveness Kakhiwa. Since Clifftone had already left the work station, in the first week of her work in the EA, Loveness was introduced to the respondents by Emmanuel Paketi and Winfrey Chiumia who both also assisted her in clearing the backlog of interviews that Clifftone had left including the measurement of plots that Clifftone had not yet attempted.

Table 2 Deployment of Resident Enumerators and Approval Supervisors

EA ID	District	TA Name	EA	Resident Enumerator	Approval Supervisor
20901045	NTCHEU	Phambala	45	Alice KATUMBI	Monice KACHINJIKA
20902030	NTCHEU	Mpando	30	Clifftone MGALA / Loveness KAKHIWA*	Emmanuel PAKETI
20903023	NTCHEU	Kwataine	23	Dennis MFUNE	Emmanuel PAKETI
20904065	NTCHEU	Makwangwala	65	Yanjanani NYAKANYAKA	Emmanuel PAKETI
20906014	NTCHEU	Njolomole	14	Ruth NSABWE	Emmanuel PAKETI
20907007	NTCHEU	Chakhumbira	7	Eves MAKWAKWA	Emmanuel PAKETI
20908025	NTCHEU	Goodson Ganya	25	James MITAMBO	Emmanuel PAKETI
20908069	NTCHEU	Goodson Ganya	69	Wilson CHIPETA	Emmanuel PAKETI
20909017	NTCHEU	Masasa	17	Thoko MBOGA	Monice KACHINJIKA
20904005	NTCHEU	Makwangwala	5	Paul ARAME	Emmanuel PAKETI
30301012	ZOMBA	Kuntumanji	12	Nellie MWAKANEMA	Winfrey CHIUMIA
30301058	ZOMBA	Kuntumanji	58	Roselyn CHEMULA	Monice KACHINJIKA / Winfrey CHIUMIA **
30302042	ZOMBA	Mwambo	42	Olive MTUWA	Winfrey CHIUMIA
30302088	ZOMBA	Mwambo	88	Elizabeth CHIHANA	Winfrey CHIUMIA
30304055	ZOMBA	Chikowi	55	Mwayi M'MANGA	Winfrey CHIUMIA
30305033	ZOMBA	Mbiza	33	Emmanuel MAOMBA	Winfrey CHIUMIA
30305085	ZOMBA	Mbiza	85	Harry SAMITON	Winfrey CHIUMIA
30306026	ZOMBA	Mlumbe	26	Bettiner MAKUTA	Monice KACHINJIKA / Winfrey CHIUMIA**
30306083	ZOMBA	Mlumbe	83	Steve MLEKANO	Winfrey CHIUMIA
30307008	ZOMBA	Malemia	8	Christina MZUNZU	Winfrey CHIUMIA

<u>Note</u>: * Loveness Kakhiwa replaced Clifftone Mgala on 12th January 2017, ** Winfrey Chiumia replaced Monice Kachinjika as approval supervisor for the latter to take additional responsibility for oversight over Activity Tracking component.

3.1.2 Completion of Resident Enumerator Survey

The weekly labour data collection using Resident Enumerators (RE) was completed by 31 May 2017. The implementation of the RES was a highly collaborative effort between the World Bank team and WACO Ltd. The RES Coordinator was critical in ensuring that the project is implemented in an efficient manner with weekly updates via email to the World Bank team and WACO Ltd management. The weekly reports presented issues experienced in the field and had provided timely information for changes that have been made in the protocols as well as administrative issues. There had also been regular and timely feedback from the World Bank team on all issues requiring critical decisions.

Each RE was responsible for interviews both face-to-face and telephone interviews in the assigned enumeration areas. Given the initial concerns of our intent from the respondents and

the fact that we were visiting or calling these households on weekly basis, the respondent retention rate is high. Table 3 presents the number of respondents by type of treatment in study enumeration areas. This was attributed to the good rapport that the RES Coordinator and the REs had with the communities including the traditional leaders in the enumeration areas. In all the enumeration areas, the RES Coordinator organised community meetings which included the traditional leaders explaining the intention of the research project. For most areas in Zomba, this was not difficult due to previous experience of WACO Ltd working with communities in a long term research project. The enumeration areas in Ntcheu proved to be the most difficult ones, but the teams succeeded in convincing communities about the project and the way research would be carried out in the areas.

Table 3 Respondents in the Experiment upon Completion

EA ID	District	TA Name	EA	Number of Respondents
20901045	Ntcheu	Phambala	45	23
20902030	Ntcheu	Mpando	30	19
20903023	Ntcheu	Kwataine	23	21
20904065	Ntcheu	Makwangwala	65	22
20906014	Ntcheu	Njolomole	14	22
20907007	Ntcheu	Chakhumbira	7	20
20908025	Ntcheu	Goodson Ganya	25	24
20908069	Ntcheu	Goodson Ganya	69	24
20909017	Ntcheu	Masasa	17	20
20904005	Ntcheu	Makwangwala	5	23
30301012	Zomba	Kuntumanji	12	24
30301058	Zomba	Kuntumanji	58	23
30302042	Zomba	Mwambo	42	24
30302088	Zomba	Mwambo	88	24
30304055	Zomba	Chikowi	55	22
30305033	Zomba	Mbiza	33	23
30305085	Zomba	Mbiza	85	24
30306026	Zomba	Mlumbe	26	23
30306083	Zomba	Mlumbe	83	23
30307008	Zomba	Malemia	8	21

Eight replacements were done after week one. These were made where feasible because some of the households at baseline had moved out of the area or they did not want to participate in the experiment. Table 4 shows the list of initial households that required replacement at the beginning of the RES. As can be seen from the table, the main reason for not participating is that the household moved away from the enumeration area. Of the 13 cases requiring replacement only 3 refused to participate in the study and one passed away.

Table 4 Initial Households Requiring Replacements

No	District	Interviewer	Respondent	EA	TA	Type	Reason
1	Ntcheu	Thoko	Errant Austin	17	Masasa	T1D2	Refused thinks we are satanic
2	Zomba	Christina	Gladwel Mvona	8	Malemia	T1D2	Moved to another district Mzuzu
3	Ntcheu	Paul	Mwatikisa Mayila	5	Makwangwala	T2D1	She got insane
4	Ntcheu	Paul	Robert Chafulumira	5	Makwangwala	T2D1	Not interested to participate as he is always busy with other things
5	Zomba	Roselyn	Pililani Mkwanda	58	Kuntumanji	M	Moved to another EA
6	Zomba	Roselyn	Lone Makunganya	58	Kuntumanji		Moved to Blantyre
7	Ntcheu	Cliftone	Nafulumira Fatisoni	30	Mpando	T1D1	Refused thinks we are satanic
8	Zomba	Emmanuel	Alick Liwonde	33	Mbiza	T1D2	They do not stay in the EA - only come to farm but lives in Blantyre
9	Ntcheu	Ruth	Wison Satiano	14	Njolomole	T2D2	Respondent passed away
10	Zomba	Roselyn	Rony Makunganya	58	Kuntumanji	M	Moved to Blantyre
11	Ntcheu	James	Nalesi Eleki	25	Goodson Ganya	T1D1	Refusal
12	Ntcheu	James	Heston Daisi	25	Goodson Ganya	T2D2	Moved to Blantyre
13	Ntcheu	Alice	Carolyne Mkomwe	45	Phambala	T1D2	Moved to another EA

Not all households were replaced owing to design of the study. For each treatment group (T1 or T2) within an EA there were up to two replacement households, including those replaced immediately after the baseline. Some households within a group were replaced at the beginning of the revisit, and therefore within those groups, there was no households for further replacements. For a group where replacements were not made at the end of the baseline but required replacements, these were made.

There were also a number of respondents who withdrew from the project for various reasons after their participation from October 2016 to February 2017. Most of the withdrawals as indicated in Table 5 were witnessed following the introduction of the Activity Tracking belt monitor, but there were also other reasons for withdrawals.

Table 5 Number of Respondent's Withdrawals

No	District	Interviewer	Respondent	EA	Ta	Type	Reason
1	Ntcheu	Eves	Lytton Anderson	7	Chakhumbira	T2D2	Wife is pregnant and is afraid that team may be satanic so it may disturb her to give birth.
2	Zomba	Christina	George Jonaje	8	Malemia	T2D1	Has moved to Lilongwe
3	Zomba	Christina	James Manyunga	8	Malemia	T2D2	Moved to another area - Mayaka
4	Zomba	Christina	Aurther Chatsika	8	Malemia	T2D1	Moved to another area
5	Zomba	Mwayi	James Namuyenda	04	chikowi	T1D2	Lied to have plots for farming but did not have any
6	Zomba	Mwayi	Madalitso Wala	04	Chikowi	T1D1	Not interested
7	Zomba	Bettiner	Adini Wyson	06	Mlumbe		Moved to Blantyre
8	Zomba	Bettiner	Falida Katimbe	06	Mlumbe	T1D1	Since they received the phone, the daughter just gets sick.
9	Zomba	Steve	Wyson Mungomo	083	Mlumbe	M	Husband was in prison so when he came back he suspected RE to be dating his wife as he found her with a phone
10	Ntcheu	Alice	Fatsani Skweya	45	Phambala	T2D1	Sex worker, somewhere around week 9, she left and never came back
11	Ntcheu	Ruth	James Makiyi	14	Njolomole	T2D2	Introduction of belt log activity
12	Ntcheu	Dennis	Flora Gustino	23	Kwataine	T2D2	Introduction of belt log activity
13	Ntcheu	Thoko	Fyrod Kaunda	9	Masasa	T2D1	Introduction of belt log activity
14	Ntcheu	Thoko	Emily Alfred	9	Masasa	M	Husband encouraged her to stop as they were on separation when she joined the project
15	Ntcheu	Thoko	Medias Cheuka	9	Masasa	T2D2	No longer interested in the project as it has no benefits of fertilizer
	Ntcheu	Thoko	Rebecca Levi	9	Masasa	M	Refused, thinks we are satanic
16	Ntcheu	Loveness	VaisonSemu	30	Mpando	T2D2	Introduction of belt log activity- lied that he is leaving for Mozambique
17	Ntcheu	Yanjanani	Joseph Kunkeyani	065	Makwangwala	T1D1	Does not want to be part of the project
18	Ntcheu	Loveness	Anachanji Kuvala		Mpando		Satanism issues
19	Ntcheu	Loveness	Wilfred Kambiri		Mpando	T2D1	Satanism issues
20	Ntcheu	Loveness	Yusuf Biliati		Mpando	T2D1	Introduction of the belt activity - lied that they are leaving for Mozambique

There were 7 deaths of household heads and we also experienced a number of family member deaths within the household and outside the household. Household heads who died are as follows:

- Wilson Saitano from Ruth's EA, Kamdembe village, Dwelling unit 126, T2D2, Traditional Authority Njolomole, died soon after baseline study and when we went to his house week one, he had already passed away. Unfortunately, he was the only person who lived in this household.

- From Ruth's EA, Dancan Kanyandula, Matale 2 village, dwelling unit #164, District Ntcheu, Traditional Authority Phambala, T1D1. He died on 21st October, 2017.
- From Christina's EA, Mr Byson Mafuta, of Msauka village, Tradional Authority Malemia, EA 08, T1 D2.
- Mr Abasi Lemani from Ulongwe village, traditional Authority Malemia, EA08, T2D2 who died soon after baseline.
- From Elizabeth's EA, Mr Manuel Namankhwa, from Semani village, EA 088, Traditional Authority Mwambo T1D1,
- From Emmanuel's EA, Ganizani Ephraim, Thumba village, Dwelling structure 575, Zomba District, Traditional Authority Mb'iza, EA 033.
- We also lost a husband to Magret Chikakuda from Kazembe 1 village, Dwelling number 517, Zomba, Traditional Authority Mb'iza EA 033.

3.1.3   Issues and Challenges in Weekly Data Collection

There were several issues and challenges that arose in the implementation of weekly data collection from study sites. These include the following:

- *Superstitions and Satanism*: The main community based issue that the teams had to work through was the issue of superstitions and Satanism associated with strangers in the community. These issues were observed more in enumeration areas in Ntcheu compared to those in Zomba. However, with increased sensitization and inclusion of traditional leaders in the conversation about the experiment over time the teams gained acceptability in the study areas.
- *Phone Management by Respondents*: The other challenge that we have had to deal with constantly in the experiment is on the management of mobile phones by respondents. We had anticipated that some of the respondent will lose their phones and we made provisions for replacing lost phones only in the telephone interview treatment arm. By the end of March 2017, we have had to replace 40 mobile phones due to damage or being stolen. In addition to the problem of lost phones among the telephone interview group, there was a problem of phone batteries being damaged due to use of unconventional charging mechanisms used in rural areas (charging quicker and less expensive to respondents) but tend to damage batteries. A total of 60 phone batteries were replaced.
- *Problems with Rain Gauges and Equipment Battery Consumption*: There have also been problems experienced with rain gauges. With some overtime not functioning and failing to provide readings on temperature and rainfall data. Some rain gauges were not providing temperature and it meant an error being blank and some had issues on how the readings that were appearing to be inconsistent with the requirements. A number of rain gauges were replaced, a total of 9 were replaced. In addition, there was reported high consumption of batteries for rain gauge. The GPS units were also reported to be high consumers of batteries.
- *Long Distances to Plots for Measurement and Changes in Number of Plots*: Another issue was the long distances to plots and the changes in the number of plots between the baseline survey and the RES. In a number of cases, REs reported that some of the respondents were abandoning their plots either because they could not afford the expenses like fertilizer, seed or some because of labour issues. Some respondents added the plots during the baseline interviews as they thought that we will give them hand-outs of inputs. In addition, it appeared that some of the respondents did not understand what a plot really meant so some of the plots that were reported as one plot were actually two plots according to the definition in the study. The implication of this is that we may have

missed the exact activities that were done on the plot at the beginning as two plots were being asked as one plot.

- *Malfunctioning of Tablets*: There had been cases where tablets had been changed. A total of 4 tablets were changed as they were malfunctioning – such as freezing or not being turned on. Alice's tablet was freezing, Roselyn's tablet was not taking GPS even when the location was on, Bettina's tablet just switched off and could not switch on and Clifftone's tablet was changed at baseline since it could not take GPS though location was on.

- *Law suits and violent conduct by respondent's spouse*: We also have had two unfortunate incidents with respondents. First, one of the respondent sued the RES team for excluding her household in the experiment and the issue was taken to the local court. The second incident was a violent attempt on one of the REs by a husband who came out of prison and found the wife with a project phone and thought that the wife was having an affair with the RE. This case was sorted with the intervention of the Police and the support of the Chief and the community. Families fighting for ownership of the phone and ownership of the watch. For the watch, more especially when the owner of the watch could not read and write so the one given responsibility to help in that wanting to take the watch as theirs.

- *Second Measurement of plots*: Most participants did not understand why plots should be measured twice so some of them were refusing to escort the Interviewers to measure the plots again. Mostly, they are indicating that they are busy with harvesting and drying of their produce so they wouldn't find time to do it again. They were usually delegating the work to the young ones who mostly had difficulties to exactly know the boundaries of the plots.

- *Measured Plots still Appearing in the Tablet*: It was noted by the RE that when they finished measurement of plots in a household, the plots were still opening and requesting for measurements and as such, this confused them as plots were many and keeping track of that manually was not easy.

- *Network Issues*: There were network issues in most EA's and usually on the day when data had been assigned, people had to move from their areas to the nearest trading centre where they could receive their work. In some cases, RE's could not make it to get their work even when they moved to the nearest trading centre. This meant that interviews that had to be done on that day were shifted to the next day. This was very common.

- *Great Expectations by the participants*: Although respondents were given all the presents that they got, being that we are doing a labour study that concerns their gardens, they expected to get inputs and not sugar and phones. In all the sensitization meetings that were done, this expectations was apparent.

3.2   Activity Tracking Data Collection

The Activity Tracking (AT) component was added to the MALLABEXP in February 2017 with the aim of monitoring physical activity in a sub-sample of MALLABEXP households. This work was done by a separate team of graduate research assistants who were resident at the district centres. This AT required respondents to wear a physical activity belt monitor around the waist for a period of three weeks and also respond to a time use questionnaire. Given the superstitious issues that were addressed during the implementation of the weekly data collection, the introduction of the belt monitor was feared to lead to more withdrawals from the labour experiment. This was planned with a lot of care in terms of how we introduced it in the community as part of the existing work. It was therefore decided that there should be

increased sensitization of the AT by involving chiefs and respondents with the RES Coordinator and the REs being key to such sensitization.

3.2.1 Training of Research Assistants

The training of research assistants was conducted in Lilongwe at the World Bank Offices from 13th - 18th February 2017 with video links with a team of experts at the University of San Diego, California. A total of 10 graduate research assistant were trained and 8 were selected for deployment based on a series of assessments.

3.2.2 Community Sensitization

Since the AT was introduced in the middle of weekly data collection and the sensitivity of the belt monitors, it was deemed necessary to embark on community sensitization about the new activity. A community sensitization programme was drawn with the initial meetings held in Zomba will all teams. The sensitization meetings were led by Monice Kachinjika (RES Coordinator) and Innocent Pangapanga-Phiri (World Bank Consultant) with the help of the RE of the enumeration areas. The RES Coordinator was present at the first meetings in Zomba and Ntcheu, but subsequent meetings were facilitated by the Activity Tracking Teams without the RES Coordinator. The sensitization began with telephone calls to all traditional leaders in the study areas about the additional activity in the experiment that would be added and sensitization meetings were arranged based on the plan drawn by the team. The sensitization activities were conducted from the 20th February 2017 to 26th February 2017. There was high attendance of respondents and the traditional leaders during the meetings.

The idea was for the Activity Tracking team to observe the approach used for engaging the communities and to have ideas about the kind of questions respondents would be asking in subsequent sensitization meetings. A separate report of the first sensitization meeting was presented to the World Bank Team. Respondents and traditional leaders had the opportunity to ask questions and the teams provided convincing responses that led to high levels of acceptability of the additional activity in the experiment. The team addressed many issues including superstitions about the red colour of belts and phones, effects of belts, benefits from the project such as provision of farm inputs, taking weight measures, and how to care for belts.

3.2.3 Deployment of Teams and Belt Activity Tracking

Four teams working in pairs were deployed to the study areas – 2 teams of mixed gender based in each district. The work plan was to work in four waves of three weeks each for selected households with each team allocated 5 enumeration areas. In each wave, 3 households and 2 members in each enumeration area were targeted for the activity tracking. A total of 460 respondents from at least 230 households were sampled for the activity tracking component. This meant that each team had a target of 30 respondents in 15 households in each wave. The set-up of the activity tracking component was as follows:
- Each selected respondent was provided a wrist watch, a packet of sugar and a belt log sheet for recording the times the belt is worn. The meter belt was expected to be worn by the respondent all day and put off just when they are going to bed and when they want to bath. The respondents kept the wrist watch at the end of the wave.

- Each respondent was visited once a week to monitor compliance with data from the meter belt downloaded into laptops on the second and third visit. On the third visit the belt meter was picked up and deployed to respondent in the next wave.
- At each visit the respondents were provided with gifts such as piece of cloth for women and soaps (two tablets for washing and one big tablet for bathing) and lotion for men. For second visit as well, each respondent was given a packet of sugar.
- On the third visit the time allocation and anthropometry (weight measurement) module was administered to the respondents.

Figure 1 below shows the deployment schedule for each team in blocks of 5 enumeration area per team.

2 Districts, 10 EAs per District, 20 EAs in Total. 12 Households per EA, 2 Working Age Participants per Household, 24 Participants per EA, 480 Participants in Total. 8 Activity Tracking Field Staff will be recruited, to be formed into 4 Teams of 2. 30 Activity Trackers will managed by each team (120 in total) and 1 (new) laptop will be assigned to each team. Each activity tracking field staff will wear 1 activity tracker during the study period such that it is seen by the participants. 2 Teams will be assigned to each district and 5 EAs will be assigned to each team. 3 visits to each household, once per week, in accordance to the sample fieldwork schedule on the right. Activity tracking data will be downloaded onto the laptops in visit 2 and upon pick-up in visit 3. There will be 2 days in between the conclusion of fieldwork in a given cluster of households in a given EA AND the deployment of the activity trackers in a different cluster of households in that EA for recharging and initializing. Total Activity Tracking Days = 90.	Sample Fieldwork Schedule For an Activity Tracking Team				
	EA1 HH1-HH2-HH3	EA2 HH1-HH2-HH3	EA3 HH1-HH2-HH3	EA4 HH1-HH2-HH3	EA5 HH1-HH2-HH3
	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
	DAY 9	DAY 10	DAY 11	DAY 12	DAY 13
	DAY 17	DAY 18	DAY 19	DAY 20	DAY 21
	EA1 HH4-HH5-HH6	EA2 HH4-HH5-HH6	EA3 HH4-HH5-HH6	EA4 HH4-HH5-HH6	EA5 HH4-HH5-HH6
	DAY 24	DAY 25	DAY 26	DAY 27	DAY 28
	DAY 32	DAY 33	DAY 34	DAY 35	DAY 36
	DAY 40	DAY 41	DAY 42	DAY 43	DAY 44
	EA1 HH7-HH8-HH9	EA2 HH7-HH8-HH9	EA3 HH7-HH8-HH9	EA4 HH7-HH8-HH9	EA5 HH7-HH8-HH9
	DAY 47	DAY 48	DAY 49	DAY 50	DAY 51
	DAY 55	DAY 56	DAY 57	DAY 58	DAY 59
	DAY 63	DAY 64	DAY 65	DAY 66	DAY 67
	EA1 HH10-HH11-HH12	EA2 HH10-HH11-HH12	EA3 HH10-HH11-HH12	EA4 HH10-HH11-HH12	EA5 HH10-HH11-HH12
	DAY 70	DAY 71	DAY 72	DAY 73	DAY 74
	DAY 78	DAY 79	DAY 80	DAY81	DAY 82
	DAY 86	DAY 87	DAY 88	DAY 89	DAY 90

Figure 1 Schedule of Visits for the Activity Tracking Teams

Table 6 shows the deployment of teams to study areas. One male research assistant resigned after working for one week and was replaced immediately by one on the reserve list.

Table 6 Activity Tracking Team Deployment

Team	District	Research Assistants	EAs
1	Ntcheu	Darlene DZIMWE Felix SANUDI	Njolomole 14, Chakhumbira 07, Kwataine 23, Mpndo 30 and Makwangwala65
2	Ntcheu	Thokozire CHAVULA Bright MBEYE* / Kondwani LIGHT	Goodson Ganya 25, Mankwangwala 069, Goodson Ganaya 045 and Phambala EA017
3	Zomba	Benjamin BALUWA Tiwonge PHIRI	Mwambo 088, Mlumbe083, Kuntumanji 58, Mwambo 42 and Kuntumanji 12
4	Zomba	Gerald CHIZONDA Patricia NAMATE	Mbiza 33, Chikowi 55, Mbiza 85, Mlumbe 26 and Malemia 08

Notes: * Bright Mbeye resigned after working for 8 days and was replaced by Kondwani Light

3.2.4   Completion of Activity Tracking

The AT team provided weekly updates of the progress being made in this activity. The weekly updates demonstrated excellent progress being made in the implementation of the AT with high compliance rates in subsequent waves. The first wave targeting a total of 120 respondents. By 20th March 2017, the first wave was nearly completed with 107 respondents complying out of 112 respondents for which the belt was deployed. On average, about 95% of participants had 12 and above valid days, where 83% had all Activity Tracking Experiment (14) days with wearing days. Time allocation and anthropometry modules were also administered to all participants.

The AT commenced on 27th February 2017 and was completed on 27th May 2017. The meter belt was deployed to a total of 416 participants. The following is what was achieved following completion of implementation of activity tracking:
- 96.88% (403/416) of the participants for which the meter belt was deployed have at least 10 valid days and above of data.
- 2.64% (11/416) of participants have 7 to 9 valid days of data.
- 0.48 % (02/416) of participants have 6 and below valid days of data.
- Time Allocation Questionnaire was administered to all 416 except one participant that we deployed the meter belt.

Overall, this being a new activity that was introduced in the middle of the main experiment, the implementation was very successful with impressive compliance results from participants.

4.   Endline Survey Phase

4.1   Study Design

The endline study had four groups of respondents. The first two were T1 and T2 respondents who were part of the baseline survey and weekly labour revisit. The third group was C1, and was part of the baseline survey but not included in the weekly revisits, and the fourth group was a new C2 which was neither in the baseline nor in the weekly revisits. Questionnaire for each of the treatment arm had the following modules or sections:-
- Household Identification Information
- Household Roster
- Education
- Health
- Labour Modules
- Food Consumption
- Housing
- Durable Goods
- Farm Implements and Machinery
- Agriculture Modules

4.2   Training of Research Assistants

Research Assistants for the endline survey were mostly drawn from the resident enumerators and activity tracking teams. Training for the endline survey took place at T&D Guest House in Zomba from 7th June to 23rd June 2017. There was a break of six days in between to allow additional programming of the survey instrument in Survey Solutions, that is, from 13th June 2017 to 18th June 2017. The training involved going through question by question of the Household and Agricultural Questionnaire. The training involved the following processes:
- Research Assistants (RAs) went through question by question, including all the codes and skipping patterns to ensure that everyone understood the different instruments. A lot of questions were asked and addressed in the various sections and amendments of some of the questions were also done at the same time.
- Every day, teams had a recap of what we had done the previous day just to make sure that everybody was on the same page. Usually during this time, a lot of questions were raised and explanations were provided to enlighten on misunderstandings in the questionnaire.
- After all the tools had been reviewed, interviews were loaded in the tablets. RAs were put in pairs where one to one interviews (mock interviews) were administered to test the Survey Solution application. The objective was to ensure that everyone was comfortable with tapping responses in the tablet and is familiar with asking the questions. During this exercise, other errors that were not noticed during training were noted, rephrased and others were corrected or reported to the programmers for improvements. The Chichewa translations were also checked just to make sure that they addressed the question as it was in English. Some discrepancies were taken note of and these were addressed.

On anthropometry measurements, RAs were trained by an expert from the NSO who participated in training IHS4 field staff. Anthropometric measurements included heights and weight. Questions were asked and responses were provided with the help of everyone in the

room. Later, practice was offered and each and every one had a chance to take measurements. In the practice, everyone was asked to read the measurements of one person just to see if there would be variations and this helped a lot in terms of uniformity when taking the measurements.

4.3   Field Practice

The study chose a nearby place for pretesting the data collection instruments. Pre-testing took place in Village Headman Mluwira in Traditional Authority Kuntumanji in Zomba District. The chosen area had similar characteristics of those places where the endline would take place. All RAs were given a chance to interview a respondent. The team surely got a more understanding of how challenging the work would be in the field. The field practice also helped RAs get acquitted with the World Bank Survey Solution Application and the flow and/or logic of questions. All challenges that were noted in the Application were noted and addressed during debriefing. Besides, pretesting helped the study team to have a better perception on time taken for each questionnaire on either treatment arm. Following the pre-testing, the field team provided comments in terms of challenges with the Survey Solutions Questionnaire Design. Some of the comments included:

Household Questionnaire
- *Education Module: C08:* On highest class attended, the system only talks about Secondary education up to Form 6. Codes for those who proceeded to college or university does not appear
- *Labour Module:-D1_04_d*: Should we include shelling of maize? If yes, how are we going to identify harvest on a specific plot?
- *Labour Module:-D1_13-a:* When a person is absent due to illness, it still asks Q **D1_15a** yet this Person already has an activity
- *Labour Module:-D3_J01:* There's no options for wild animals like mice
- *Labour Module:-D3_J03:* The system still asks this question even when you have not selected hunt and rear or tender animals in **D3_J01**
- *Health Module:* No Chichewa translations in the Tablets
- *Food Consumption module:-F03a:* Unit codes for other foods like banana, 'tanaposi', and Tomato pops an error. Beverages like Tea, when you choose Liters it popped an error message.

Agriculture Questionnaire
- *Plot detail module-D60:* There's a need for filter question to establish if the household intends to cultivate the land again, mainly for rented fields/plots.
- *Plot detail module-Hired Labor:* There's a need for filter question to establish if a household hired some people or not. Currently the system is just going straight to ask how many Men aged 15yrs and above did you hire and alike
- *Plot detail module-E3A02:* When someone is reporting on behalf of someone in the household, the list of household members does not pop up in the tablet
- *Seed Module:* There's need to review the unit code for sweet potato as alternative codes pops an error when selected and coupon seed for sweet potato not available
- *Livestock module:* A **NO** in all items in **M01**, the system still asks about animal products in **N01**, as such N01 becomes difficult to ask, and if possible activate field for comments for enumerators on this section

4.4 Field Implementation

A total of 31 experienced Research Assistants were deployed for the endline survey. These were organized into six teams each with 1 Supervisor, 4 Interviewers and 1 Driver. Monice Kachinjika was the overall Field Coordinator. Field work for the endline survey commenced on 23rd June 2017 with the first interviews conducted on 24th June 2017 in both Zomba and Ntcheu. Each RA was expected to complete a Household and Agricultural Questionnaire per day. However, this depended on household composition, food consumed in the home, the amount of activities done per week in the household, total number of plots owned, the number of hired labourers in the plots mentioned and others. A field team was supposed to do a maximum of 48 Household Questionnaires per EA. Table 4 shows that 857 out of 920 household interviews were successfully done. A total of 63 households were not done and 30 of 63 were replaced and successfully done (see Annex 1).

Table 7 Household Questionnaires Administered, Replaced and Not Done

	Supervisor	Total Questionnaires	Done	Not done	Replacements provided	Replacements Completed	Replacement Not completed	Total Completed	Total Not Complete
1	Thoko	154	143	11	6	5	1	148	12
2	Winfrey	157	148	9	6	6	0	154	9
3	Alice	156	152	4	3	3	0	155	4
4	Emmanuel	153	145	8	3	3	0	148	8
5	Paul	152	138	14	4	4	0	142	14
6	Gift	148	132	17	8	5	3	136	20
	Total	**920**	**857**	**63**	**30**	**26**	**4**	**883**	**67**

Out of the 30 replacements, 26 households were successfully administered with a household questionnaire. Replacements were mainly because of migration (7 out of 30) of households, Satanism association (6 out of 30 households), refusal (2 out of 30), untraceable (4 out of 30) and combined of two split households (one out of 30). Overall, the endline survey successfully administered 883 different household questionnaires. It was also planned that an EA would be completed in two weeks plus two days. However, in practice, it turned out that an EA was done in two weeks and 3 days. This included dealing with call backs and errors in the administered questionnaire. It was quite common to have the questionnaires incomplete, mostly due to the following reasons:

- Funerals which involve sampled household members
- Initiation ceremonies which were involving members of the sampled household
- Wedding ceremonies which were taking place in the community
- Too many activities going on at a household like farming, fetching water and other personal activities
- Unavailability of household respondent due to their engagement in other households business that are done far the house e.g. at the market or in other areas within the district.

The endline survey took two months to complete field work. Teams came back to Zomba on different days depending on call backs and workload they had to finalize in the field. Gift's team came back on the 19th August, 2017; Alice's team came back on 22nd August 2017;

Thoko's and Paul's teams came back on 21st August, 2017 and Winfrey and Emmanuel's teams came back on 23rd August, 2017. All but one Research Assistants worked on the project for the whole survey time. Felix Sanudi left on 20th July 2017 as he was given a scholarship to study for his post-graduate degree in India. The rest of the team members were available from the beginning of the project up to the end with minimal illnesses or personal excuses.

4.5   Challenges, Solutions and Lessons

4.5.1   Challenges during Data Collection in Survey Solutions

There were several challenges with the questionnaire design in Survey Solutions. Nonetheless, most of these challenges were addressed prior to field work. Only a handful of challenges recurred through the study data collection duration. The following issues were noted among household interviews conducted during endline study:

- Subjective assessment of well-being module was supposed to be asked to household members that were 15 years and above, but it was opening for everyone, that is even to little children under 5 years.
  - *Solution: An agreement was made that questions should be left blank for all those that were not eligible*

- On Crops (rainy season) module, if the respondent mentioned a crop that was not on the option list but was supposed to be specified, e.g. mucuna, the specified crop was not coming up in the seeds module as well as in sales/storage module.
  - *Solution: No space came up so some remembered to record in note pads but mostly many forgot and skipped this.*

- Tablets were frequently freezing, and when it came back it was not getting back to where the interview was, instead it could go back to the previous module. This prolonged the length of the interviews and at the same time disturbed the flow. This was the case with every interviewer and throughout the survey.
  - *Solution: There was no better solution but interviewers employed interviewing techniques to maintain the flow of the interview.*

- For cassava crop, it was difficult to get its information. This crop was supposed to appear only under Tree/permanent crops module. However, it was not possible for this crop to appear under that module alone if it was a sole crop on the plot. This was so because crops rainy season module could not be left blank in such a case.
  - *Solution: The application insisted that one record the information in both modules. It was done exactly that way but accompanied by a note.*

- Time use and labour module question D104A, was supposed to be asked to household members that were aged 10 years and over, but the application was opening to non-eligible members, like as young as 1 year old children.
  - *The challenged was resolved through fielding in another version of the questionnaire.*

- Module AG-K (Seeds) and (AG-L) was allowing whole numbers only and decimals because of the keyboard that was coming up.

- o *Solution: Teams did it differently here; others recorded this to the nearest whole number whilst others were writing the decimal part in the comment box against the question.*

- Module AG-J (Tree/permanent crop production last 12 months) especially question J06. It was very difficult to record beginning (month and year) and end (month and year) of harvest for crops that were recently planted.

- Control New D1 aggregated, E3A02, the application could not bring a list of household members to select the one responding on behalf of the other.

- Household Roster –member details module, question B26b, when a couple's marry or form a consensual union in 2017, it brought an error message.

- Household roster module, when headship changed in B04, any age recorded in B05 brought an error message saying the member is too young to be the household head regardless what the age is.

- There were still outstanding issues on food consumption, crops and seeds modules. Units which are common were giving an error message. For example, 5 litre 'chigoba' (tin pail) on flour was giving error message.
  - o *Solution: Teams continued to use the same units as they are common codes. There were cross discussion between teams so that right codes can be used but unfortunately, most of them still indicated an error message.*

- Control New D1, opened for plots that were fallow, the program demanded that the plots should be measured. Furthermore, there were still great outstanding issues on food consumption, crops and seeds modules. Units which are common were giving an error message. For example, 5 litre 'chigoba' (tin pail) on flour was giving error message.
  - o *Solution: We continued to use the same units as they are common codes. We tried to do cross discussion between teams so that right codes can be used but unfortunately, most of them still indicated an error message*

- There were missing of unit codes in cross related sections like No 10 0r No 12 in AG-H section yet when you come to Sales/Storage section unit codes were unavailable.

- Labor Module was giving some problems in relating to work performed by Respondents such as *Ganyu* as the Industry codes are not in the context of Malawians.

- Plot Measurement, some plots were popping up as unmeasured yet they were already measured twice by the resident enumerators.

- Livestock, for Cows, a question on how many cows were born within 12 months period was deactivated and information on this was recorded in the comment box against the question on "how many cows are owned now".
  - o *Solution: For this we agreed to put a note indicating that the respondent is not in a position to know as the crops may take time to be ready for harvesting.*

4.5.2 General Challenges

There were also other challenges experienced in the implementation of the endline survey in addition to issues raised on the questionnaire. These included the following:

- Distance was one of the major obstacles to plot measurement. Some households cultivated their crops far from their dwelling units. For example, in Ntcheu district, some plots were located in Mozambique and this required some permits. Plots located along the border of Malawi and Mozambique, were measured in the company of at least two or three people for security reasons.

- The study field teams experienced some difficulties in administering some modules in the questionnaire. Although the consumption module took some time to administer, households could respond to most of the contents. However, respondents had difficulties to understand what they were being asked in some of the following modules:
  - Labor and time use, relating what the respondent was doing with occupation title, task and duties and name of establishment was not easy. This automatically means that the team leaders also had difficulties to put ISCO codes' as most of the Industry codes were not in the context of Malawians and depended on what the interviewers had written
  - Shock Section was amongst those that the respondents had difficulties to respond to.
  - Lack of translation of most of the diseases under livestock module proved difficult for households to know and respond accordingly.

- Few plots were not measured because of refusals, plots located further in Mozambique. In addition, some rented plots were not measured as most people did not feel right to measure someone's plot. In total, the study did not measure 27 plots from 17 households (See Annex 2). On the other hand, most of the plots that were not measured during baseline study due to distances or owner refusing to measure plot were finally measured at endline.

- Most respondents were finding it so difficult to recall the number of days and hours spent working on a particular plot for the entire cropping season especially for control households.

- Understanding the concept of the question was subject to literacy level of the respondent.

- Knowledge of the size of the plot by respondents was also a challenge to most of them.

- Knowing the exact amount of harvest per plot for common variety was a challenge as crop harvest is done continuously and when they harvest, they just heap the harvest in one place, so in most cases estimates were applied based on respondent's judgment.

- It was difficult to locate control households as some houses had no listing numbers due change of doors, others rubbed off our listing numbers and some were providing 'ghost' names during listing.

o Similarly, chiefs together with the team members tried all they could to trace the households using neighbouring numbers and asking around the names to people who have stayed in the area for a long time.

- Due to the length of the questionnaire, respondents were losing interest and some were even refusing to be given break. Though this was the case, they looked really tired when responding to the questions.

- Gift's team in Ntcheu was involved in a car accident. However, no injuries were sustained by the two passengers in the car.

- For treatment households, basic household information module, some of the ages for old members differed with what they reported during the interviews compared to what was recorded during baseline. In order to make sure that we are correcting the right ages, RA's were encouraged to go back and confirm using relevant documents such as passports, church documents, voter legislation cards etc.

- For soil erosion conservation straight edges, it was hard for respondents to know when it was first adopted especially for rented in plots as the respondent may have just cultivated the plot that season alone, and had no information of the previous seasons.

- Some questions were not translated like Social safety nets section and livestock diseases and we believe that enumerators were finding it hard to translate them.

4.5.3 Key Lessons Learnt

The following lessons were learnt in the implementation of the endline survey:

- Work was easy especially in the EA's where Resident Enumerators created a good relationship with the community. It was tough in areas where it was opposite. In such areas, one of the ways of trying to get good reception from the Community, was to involve Chiefs to liaise with those households who were not receptive of our survey activities in the area.

- Some respondents were very thankful as the study is like an eye opener to them on agricultural issues, more especially on knowing the size of their plots. Apart from this, they saw the need to keep other records like amount of seeds planted, fertilizer applied and also total harvested.

- Provision of gifts contributed to the willingness of respondents to take part in the project even though some control respondents were refusing to participate by saying that the gifts they are receiving can't be compared to the phones given to treatment respondents. They also compared the 'chitenje' (wrap cloth) present that was given to belt log respondents indicating that they were expensive and big than what they were getting.

- Following WACO field protocols of informing the Police, DC, Traditional Authorities, Group Village Headmen and Village Headmen about the study is crucial for any project. In cases where teams had problems being received in the community, it was easy to deal with such issues through these gate-keepers.

- For a long project and especially for resident-enumerator projects, it is important to have sensitization meetings so that everyone understands what is going on. Explaining individually to all the members in the EA did not help that much as people pretended that they never understood what was going on and preferred to spread force rumours to the people.

- There is need to give respondent feedback on the finding of the study as many were claiming that most of surveys are just beneficial to RAs who work and get money. Taking into consideration the length of the project, interviewers are expecting a lot from this and if we do not provide any feedback, in the future we may face some challenges in convincing them to participate in a different study.

- It was also noted that the RA's failed to get used to the questionnaire as there were almost like four sets of questionnaires. They experienced new things all the times and with the length of the questionnaire it was difficult for them to get used to the work.

5.   Inventory of Equipment

Table 8 shows a summary of the equipment provided by the World Bank for handover. Most of the items are in good state and working conditions. There were 2 faulty tablets, 2 pouches and 1 power bank that was stolen from the vehicle while in the field in Ntcheu. One laptop charger could not be traced and is reported missing.

Table 8 Summary of Equipment for Handover

Equipment name	Got	Now	Tracking	Missing	Baseline	Comment
Laptops	9	9	4	0	5	
Laptop Charger	9*	8*	4	1	5	One laptop charger missing
Tablets	34	31	4	3	27	One with Akuffo, 2 stolen in the field
Tablet Pouch	25	23	0	2	23	Stolen with the two tablet
New Pouch	4	4	0	0	4	10 Inch pouches
Tablet Chargers	31	31	4	0	24	
Power Bank	5	4	0	1	4	1 stolen in the filed
Huawei Router	6	6	1	0	5	
GPS Devices	10	10	0	0	10	
Scale	1	1	1	0	0	
Monitors	**	22	0	0	22	
Sensors	**	23	0	0	23	
Rain Gauge	**	22	0	0	22	
Height Boards	12	12	0	0	0	NSO Equipment (2 height boards for the team) were returned
Belt	1	1	1	0	0	

6.   Conclusions

The implementation of the Malawi Labour Experiment in Farming Households from August 2016 to September 2017 was very successful. This was despite initial difficulties of suspicions about the experiment and the resident enumerator concept in the community. Community sensitization and involvement of traditional leaders in project launch processes and the hard working spirit of research assistants are attributed to the success of implementation. The highly collaborative approach used by the World Bank team and the responsiveness of the team to matters arising in the implementation the study has also been critical to the success of the experiment. Field work, especially when experimenting new innovations, typically experience several challenges. However, with the support of WACO Management and the World Bank Group Team, the field teams were able to resolve the challenges to come to a successful completion of the study.

There was high retention of respondents in the main experiment and high compliance in the Activity Tracking component. Inevitably, with weekly visits to households, some of the households had dropped out of the experiment but this is a small proportion of the sample. Respondents have to be commended for their endurance and participation in the study. It is also pleasing to note that some of the respondents gained knowledge through the experiment such as size of their plots, the way they were spending their time, their physical activity and well as information about their health (weight).

Annexes

Annex 1: Replacement Households

No	District	Interviewer	Respondent	EA	TA	Type	Reason
1	Zomba	Winfrey	Cecilia Simeon	42	Mwambo	314	Migrated
2	Zomba	Winfrey	Steven Sukwala	42	Mwambo	506	Migrated
3	Zomba	Winfrey	Robert Kaula	42	Mwambo	503	Migrated
4	Zomba	Winfrey	Thomas Edwin	42	Mwambo	357	Migrated
5	Zomba	Winfrey	Gerald Saiti	42	Mwambo	214	Migrated
6	Zomba	Winfrey	Tiyankhulenji Philimoni	17	Masasa	255	Refused Thinks we are Satanists
7	Ntcheu	Paul	Hendreson Yoyola	17	Masasa	202	Moved
8	Ntcheu	Paul	Wasiki Jefrey	17	Masasa	309	Could not be traced
9	Ntcheu	Paul	Tereza Rabison	17	Masasa	445	Refused
10	Ntcheu	Paul	Ester Mipande	7	Chakhumbira	540	Moved
11	Ntcheu	Gift	Nesta Smart	7	Chakhumbira	502	Refused Thinks we are satanists
12	Ntcheu	Gift	Framcy James	7	Chakhumbira	327	Interviewed wrong person
13	Ntcheu	Emmanuel	Edson Blessings	25	Goodson ganya	559	Refused Thinks we are satanists
14	Ntcheu	Emmanuel	Brighton Baziwell	25	Goodson ganya	365	Refused Thinks we are satanists
15	Ntcheu	Emmanuel	Liviyere Alfred	25	Goodson ganya	138	Moved
16	Ntcheu	Alice	Alidi Chigwale	58	Mwambo	117	Church does not allow this
17	Ntcheu	Alice	Zipangani Solomba	58	Mwambo	506	Could not be Traced
18	Zomba	Thoko	Joel James	83	Mlumbe	217	Moved to another respondents house
19	Zomba	Thoko	Efelo Frank	83	Mlumbe	606	Refused doesn't want
20	Zomba	Thoko	Divason James	83	Mlumbe	223	Moved to Mozambique
21	Zomba	Thoko	Lufina Kabudula	83	Mlumbe	505	Moved to Blantyre
22	Zomba	Thoko	Dorophy Daiton	83	Mlumbe	125	Refused, due to religious reason
23	Zomba	Thoko	Modester Kalipo	83	Mlumbe	418	Refused Thinks we are Satanists
24	Zomba	Thoko	Chilipo Salamu	55	Chikowi	524	Moved to Blantyre
25	Zomba	Winfrey	Daniel Daisi	85	Mb'iza	506	Did not cultivate past season
26	Zomba	Alice	Esmie Black	12	Kuntumanji	158	Could not be traced
27	Ntcheu	Emmanuel	Patrick Kandevu	65	Makwangwala	121	Moved to Ntcheu
28	Ntcheu	Emmanuel	Basai Stephano	65	Makwangwala	350	Moved to Blantyre
29	Ntcheu	Emmanuel	Davie Mbewe	65	Makwangwala	450	Moved to Lilongwe
30	Ntcheu	Emmanuel	Banda	65	Makwangwala	610	Moved to NU
31	Ntcheu	Paul	Grey Son Chimbamba	69	Goodson Ganya	332	Moved to Mwaza
32	Ntcheu	Gift	Biziwiki Peter	30	Mpando	542	Moved
33	Ntcheu	Gift	Manesi Mandondolo	30	Mpando	206	Refused_Doesnt want
34	Ntcheu	Gift	Samson Samba	30	Mpando	323	Refused thinks we are satanists
35	Ntcheu	Gift	Davide Toto	30	Mpando	324	Refused_Doesnt want
36	Ntcheu	Gift	Josiya Steven	30	Mpando	322	Refused_Doesnt want
37	Ntcheu	Gift	Magret Fainosi	30	Mpando	411	Refused_Doesnt want
38	Ntcheu	Gift	Rosalia Galiseni	30	Mpando	520	Refused Not interested
39	Ntcheu	Gift	Just Witike	30	Mpando	607	Refused_Doesnt want
40	Ntcheu	Alice	Ellen Charles	88	Mwambo	514	Moved
41	Ntcheu	Paul	Wayaki Alidi	23	Kwataine	242	Moved to SA
42	Ntcheu	Paul	Limited Matiki	23	Kwataine	113	Refused sees no benefit
43	Ntcheu	Gift	Benson Chikondenji	5	Makwangwala	208	Refused thinks we are Satanists
44	Ntcheu	Gift	Sinodeni Tumbani	5	Makwagwala	566	Refused thinks we are Satanists
45	Ntcheu	Gift	Leonard Jobe	5	Makwagwala	333	Refused thinks we are Satanists
46	Ntcheu	Gift	Agness Binda	5	Makwagwala	118	Refused_doesnt want
47	Ntcheu	Gift	Anne Thongeya	5	Makwangwala	551	Refused_Doesnt want
48	Ntcheu	Gift	Kerena Kagona	5	Makwagwala	256	Refused_Doesnt want
49	Ntcheu	Winfrey	Missy Chilembwe	26	Mlumbe	425	Could not be traced
50	Ntcheu	Winfrey	Mary Kachembere	26	Mlumbe	528	Moved
51	Ntcheu	Winfrey	Faison Jefrey	8	Malemia	608	Moved
52	Ntcheu	Emmanuel	Fera Chapita	14	Njolomole	502	Moved to another area
53	Ntcheu	Alice	Esme Black	12	Kuntumanji	158	Could not be traced

Annex 2: Plot Not Measured and Reason for Not Measuring

No	Respondent	District	TA CODE	EA	Dunit	Plots	Type
1	Matias Chiphwanya	Zomba	02	088	221	1	Plot in Phalombe
2	Major Kachepa	Ntcheu	02	30	246	1	Rented_Owner refused
3	Phillimon Mtambalika	Ntcheu	02	30	235	1	Rented Owner refused
4	Saviyeni Stephano	Ntcheu	02	30	601	1	Refused
5	Eness Sandramu	Ntcheu	04	005	210	4	Owner Refused
6	Afiki Suwande	Ntcheu	04	005	562	3	Respondent Refused
7	Biston Chikonole	Ntcheu	04	005	569	2	Respondent refused
8	John Tchele	Ntcheu	09	17	207	1	Far from the road
9	Aida Manyalika	Ntcheu	04	005	579	1	Respondents refused
10	Wyson Nderema	Ntcheu	04	005	439	1	Rented Owner refused
11	Mcver Loleni	Ntcheu	04	005	138	1	Rented Owner refused
12	Frank Kanin'ga	Ntcheu	04	005	438	1	Rented Owner refused
13	Wested Willy	Ntcheu	06	014	526	1	Rented Owner refused
14	Henry Matemba	Ntcheu	06	014	213	2	Plot in Mozambique
15	Ellen Banda	Ntcheu	06	014	104	2	Plot inMozambuque
16	Befiya Dniyi	Ntcheu	06	014	404	2	Plot in mozambuque
17	Geofrey Bomani	Ntcheu	01	045	135	1	Rented_Owner refused