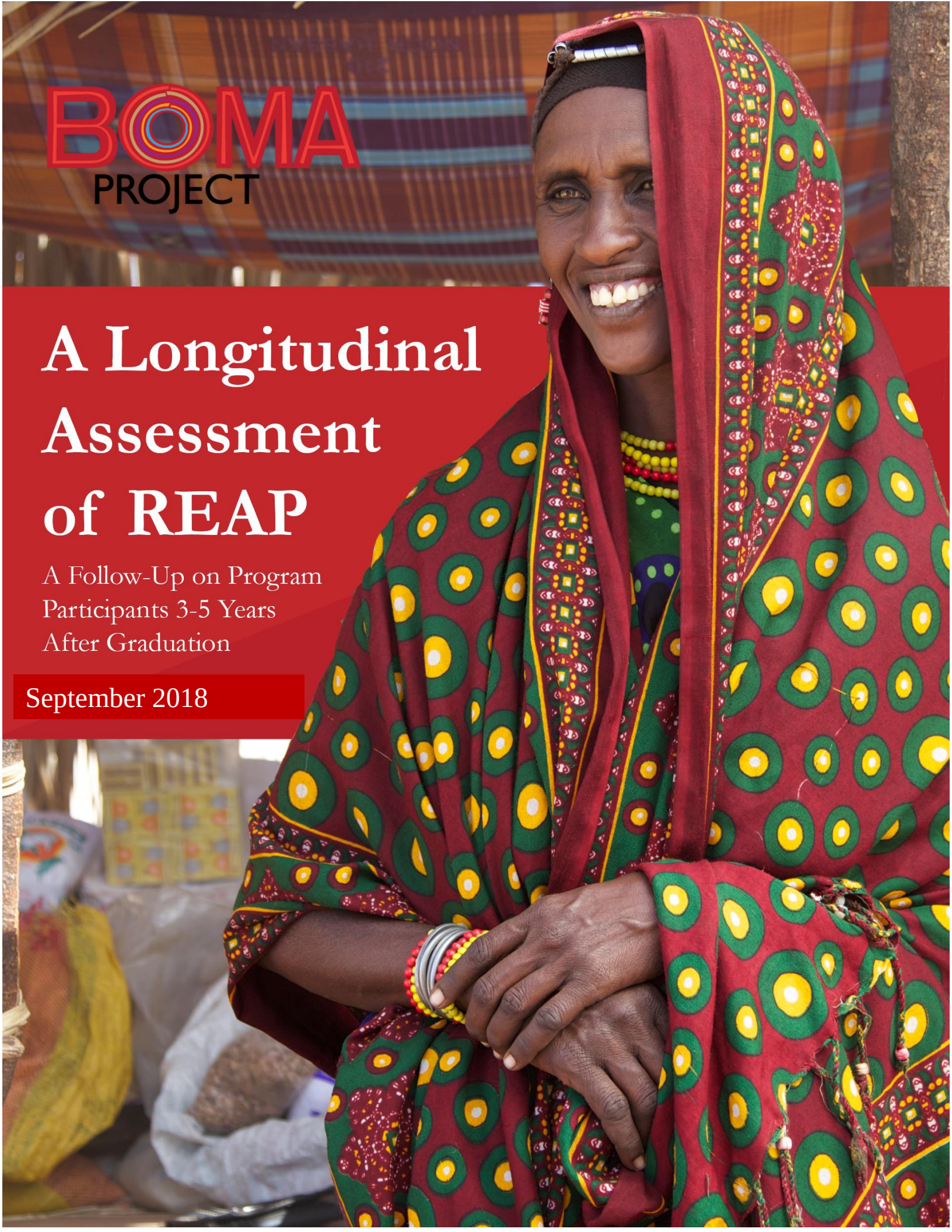

BOMA PROJECT

A Longitudinal Assessment of REAP

A Follow-Up on Program Participants 3-5 Years After Graduation

September 2018

Acknowledgments

This research was conducted by The BOMA Project and the undertaking was a multi-year effort. We acknowledge the detailed technical support of two fellows from the Princeton in Africa Program, who made significant contributions to the design, collection of data, analysis and report-writing: Neena Aggarwal and Alex Domash. Fellow Katharine Eger was involved in the qualitative assessment. Many thanks to BOMA Data Analyst Paul Bolo for finalizing the survey, coordinating the data collection and leading on the analysis. We also acknowledge the efforts of the field team for collecting the data, as well as the contributions made by Nancy Stroupe and David Boyer. Finally, we thank the participants for their time in participating in this study.

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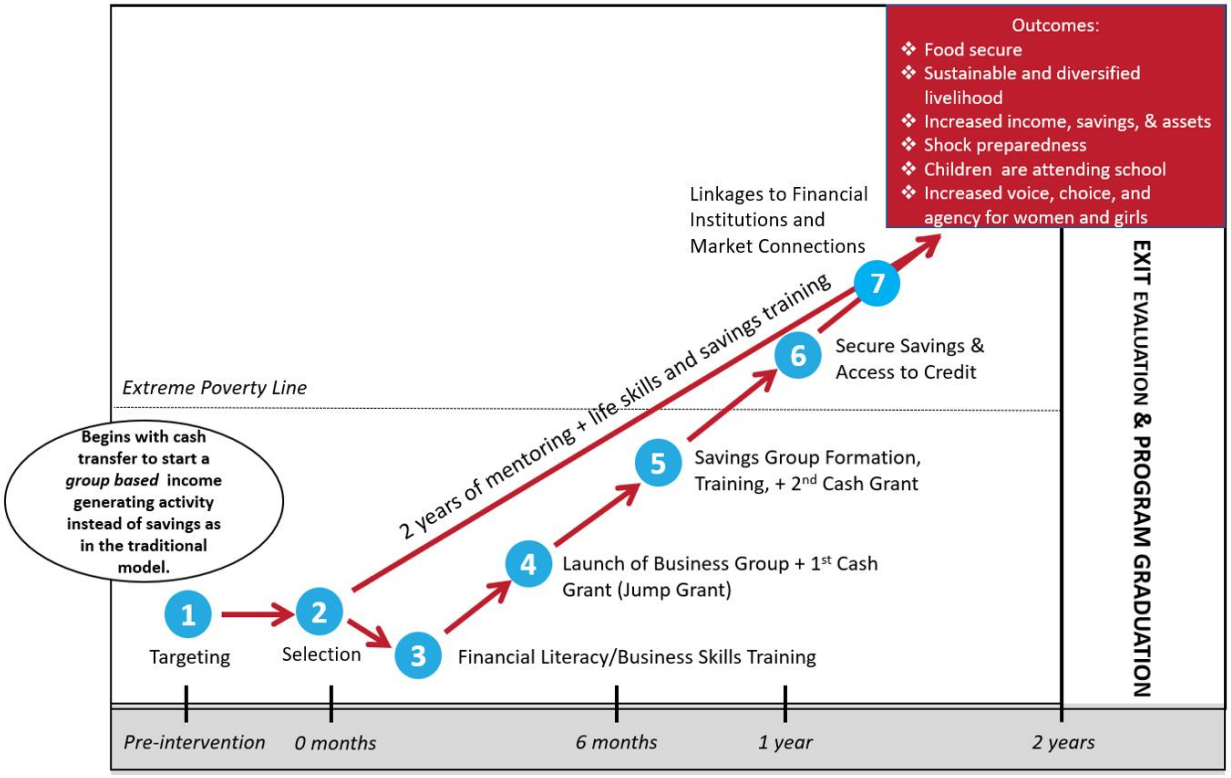
Executive Summary

The BOMA Project (BOMA) is a U.S. nonprofit and Kenyan non-governmental organization (NGO) with a proven track record, measurable results, and a transformative approach to alleviating poverty and building economic resilience in the arid and semi-arid lands (ASALs or drylands) of East Africa. The Rural Entrepreneur Access Program (REAP) helps ultra-poor women build a pathway out of extreme poverty by providing them with seed capital, business and life-skills training, a savings program and two years of mentoring.

Figure 1. The BOMA Model



By helping groups of women start small businesses and establish savings, BOMA's earlier research has established that women in BOMA's poverty graduation program are better able to feed their families, pay for school fees and medical care, accumulate savings, sustain themselves during drought and adapt to a changing climate. REAP businesses provide a new and diversified income, personal and business savings help women manage cash flow (for daily needs) and BOMA savings groups help women to plan for future expenses.

While exit studies, over the past 10 years, and a longevity study in 2012, show women's increased income and gains in savings and social equity, BOMA's model and approach has been significantly refined as a holistic graduation model with a defined exit strategy and measures of success. New learning and innovations have been embedded into the program. In February 2018, for this new longevity study, BOMA revisited past REAP participants who were enrolled in the program between 2011, and 2013 and graduated between 2013 and 2015, to ascertain the impact of REAP 3-5-years after completion of the program.

Key Questions

The study aims to answer the following six questions:

1) Are the impacts of REAP increased, decreased, or sustained 3-5 years after graduation? Specifically, are there impacts in the following main areas of interest for BOMA?

2) What percentage of REAP participants are still operating a business of some form?
3) How do measures of empowerment compare between women who graduated from REAP in 2013-15 and women entering REAP in early 2017?
4) How long do BOMA savings groups sustain themselves after participants graduate from REAP?
5) What are the challenges faced by REAP participants, who have graduated, that could be addressed with subsequent programming?
6) Are there any factors that predict success in key outcomes (presence of a sustainable livelihood, shock preparedness, food security, household expenditures, and asset ownership)?

The study population consists of 1,076 businesses and 3,228 participants. Twelve locations are included in the study: Archers Post, Illaut, Kargi, Karare, Korr, Laisamis, Lengima Namarey, Loglogo, Loiyangalani, Merille, Ngurunit and South Horr in Marsabit County, Kenya.

To measure the long-term impact of REAP, both quantitative and qualitative methods were utilized. For the quantitative component a survey was administered that combines selected questions from prior baseline and endline surveys as well as additional questions of interest to determine changes in household economic status and women's empowerment over time. For qualitative, facilitated focus group discussions (FGDs) were conducted with graduated REAP participants to look into the long-term impact of REAP and changes in empowerment that are more challenging to capture in a quantitative questionnaire. The findings from the FGDs supplement the quantitative component and the focus of this paper, to more fully depict the long-term changes in participants' lives.

Highlights of Study findings

A majority of REAP participants have a sustainable livelihood at exit. Specifically: Presence of a sustainable livelihood (ownership of a business, household income) **Households have a diversified income with an average of three sources of income. At follow-up, 81% of follow-up respondents (operate and) receive at least one source of income from a business.**

- Overall average household total income is 13% greater than the endline with the difference proving to be statistically significant at the 1% level ($p \leq 0.01$).
- The total business income at follow-up is 20% greater than the total business income at endline.
- The increase in selling livestock from 51% at endline to 86% at follow-up is significant

Shock preparedness (savings, confidence about ability to overcome shocks)

Part of the intention of providing the REAP program is to build the resiliency of participants and their households, **60% report that they are "very confident" that they could repay a loan if they had to take one. The majority felt they were fully able to provide food (79%) for their family and clothing for children (72%)**. When asked what the primary payment method they would use to pay for a medical or other types emergency, **the most common answers were selling an animal (36%), a loan from a BOMA business group (21%), and personal savings (19%).**

Food security (food consumption by former participant's household and their children)

The average number of times children ate increased by 6% from 2.10 at endline to 2.23 at follow-up. **Another notable change, and even more striking, is the change in the frequency that children have gone to bed without an evening meal in the last 7 days: rates of 40% at baseline dropped to 28% at endline and then to 13% at follow-up.** Going to bed without an evening meal in the past 30 days also dropped from baseline at 70% to follow-up at 28%, although the endline result was even lower at 16%

Livestock Assets

Expenditure for livestock and livestock-related expenses increased dramatically by 66% reflecting the increase and importance of the livestock business for income and as a saving asset. The changes in the percent of household livestock assets is quite striking. The data shows large increases in the average number of livestock the household owns. The 51% increase from 8.2 to 12.4 TLU for the household from endline to follow-up proved to be statistically significant at the 5% level ($p \leq 0.05$), and the 49% decrease for women from 7.2 to 3.7 TLU proved to be statistically significant at the 1% level ($p \leq 0.01$)**.** This is notable considering the survey was undertaken when the region was facing ongoing drought cycles.

School and medical expenditures both increased over time. School fees are being paid for members of considerably more households, increasing from 42% at baseline to 49% at endline, then jumping to 93% at follow-up. In Kenya, primary education is free, but expenses increase dramatically once a child enters secondary school This results in many children not being able to continue their education after graduating from primary school.

At endline, 58% of primary school-aged children were enrolled in school and 60% of primary school-aged girls were enrolled. **At follow-up on average, in a given household, 66% of primary school-aged children (boys and girls) are enrolled in school. Follow-up shows 71% of primary school-aged girls enrolled in school.** While BOMA cannot claim REAP solely increased school enrollment, the access to business income, savings and credit as well as positive mentoring messages on education has enabled better access to education opportunities for the children of REAP participants.

Savings

A majority of BOMA Saving Groups (SGs) are active several years after exiting REAP. **At follow-up, 73% of 387 respondents report that their BOMA SG is still active, and 71% are still a member.** Among those whose BOMA SGs are active, 98% are still a member of the SG, and

among those who are members of a BOMA SG, 96% have savings in the SG. In a given SG, approximately 87% of the average 12.8 members are from the original group , **92% of those owning a livestock business are still members of a BOMA savings group, compared to 80% of those who own a non-livestock business. ($p \leq .01$)**

Among the women who have savings in a bank, the amount of savings increased by 78% from KES 17,900 at endline to KES 31,777, and illustrates a shift towards formal banking. At follow-up, 86% reported having some form of savings, compared to 92% at endline. It is impressive that most women still had savings at follow-up, especially compared to the 40% who had savings at baseline.

Women's Empowerment

For all the questions, the number of women who report making decisions jointly is significantly higher in the follow-up cohort 3-5 years after graduation than in the March 2017 cohort at baseline. This includes differences for purchasing food ($p \leq 0.01$), paying for children's medical expenses ($p \leq 0.01$), paying school fees ($p \leq 0.01$), purchasing livestock for herself ($p \leq 0.01$), purchasing household items ($p \leq .05$) and deciding which children to send to school ($p \leq 0.01$). **Decisions are more likely to be made jointly, mostly, or fully for participants who graduated 5 years ago versus 3 years ago suggests that empowerment outcomes may improve over time for REAP participants.**

Social standing of BOMA participants in the community has changed as a result of participants' success with BOMA. **Fifty-eight percent provide business advice to others, with 77% sharing information with current and past REAP participants, and 64% sharing business information with women not in REAP.** These women feel like mentors in the community. Whereas before they were a burden to society, participants are now contributing in meaningful ways, which has positively affected their social status. **Fifty-seven percent report attending public meetings, and 68% are either completely or somewhat comfortable with speaking up at public meetings. Most (89%) donate to fundraisers in the community, with almost half (47%) donating either a few times a year or every month.**

The audience for this study includes BOMA staff, donors, funders, partners, other development workers in the global graduation community and others interested in studying the long-term effect of livelihoods programming. It is anticipated that this study will significantly add to the existing, yet limited, knowledge on the long-term impact of BOMA's poverty graduation model and will provide a more comprehensive picture of the long-term benefits women accrue from BOMA's REAP program and shed light on the sustainability of graduation programming. Thus, the study can potentially support the scaling of the graduation approach through donor funding, government adoption and strategic partnerships and can also be used to increase the REAP model impacts, ultimately improving the resilience of future REAP participants.

Introduction

The BOMA Project (BOMA) is a U.S. nonprofit and Kenyan non-governmental organization (NGO) with a proven track record, measurable results, and a transformative approach to alleviating poverty and building economic resilience in the arid and semi-arid lands (ASALs or drylands) of East Africa. The Rural Entrepreneur Access Program (REAP) helps ultra-poor women build a pathway out of extreme poverty by providing them with seed capital, business and life-skills training, a savings program and two years of mentoring.

BOMA's innovative poverty graduation approach for ultra-poor women[1] supports women in starting small businesses and saving money through a sequence of interventions, a clear exit strategy and data driven definitions of success. It is a leading edge and agile approach to international development that includes evidence-based best practices and innovations in technology, programming, empowerment and financial inclusion.

By helping groups of women start small businesses and establish savings, BOMA's earlier research has established that women in BOMA's poverty graduation program are better able to feed their families, pay for school fees and medical care, accumulate savings, sustain themselves during drought and adapt to a changing climate. Profits from each REAP business provide a new and diversified income, personal and business savings help women manage cash flow (for daily needs) and BOMA savings groups help women to plan for future expenses.

Over the past 10 years, BOMA has conducted more than 10 evaluations demonstrating clear improvements in the livelihoods of women after two years in REAP. In 2012, a three-year impact assessment was carried out internally on BOMA's micro-enterprise program, one year after graduation and 3 years from entry to REAP which found that,

> *"The average business was worth more than 450% of the original grant, livestock ownership significantly increased, and individuals improved their diet, owned more household assets, and were able to send more children to school."*

While the results of this study are notable, BOMA's model and approach has been significantly refined as a holistic graduation model with a defined exit strategy and measures of success. New learning and innovations have been embedded into the program. The businesses in the 2012 assessment consisted of five women, rather than three. Additional components have been added to the program including the addition of the Participant Targeting Tool to identify the poorest women in each community; the addition of a savings component and life skills training; and a switch from volunteer to full time paid mentors. Considering these changes and innovation it is necessary to revisit the question of the long-term impact of REAP to supplement and update past findings and understand the longer-term impact of REAP as it is now delivered 3-5 years after completion of the program.

[1] "Ultra-poor" here refers to "extreme poverty" widely refers to earning below the international poverty line of $1.9/day (in 2011 prices), set by the World Bank in 2018,. This measure is the equivalent to earning $1.00 a day in 1996 US prices, hence the widely used expression, living on "less than a dollar a day".

In February 2018, for this new longevity study, BOMA revisited past REAP participants who were first enrolled in the program between 2011 and 2013, and graduated between 2013 and 2015, to ascertain the 3-5-year impact of REAP after completion of the program. BOMA used a microenterprise approach until mid-2012, when it transitioned to a poverty graduation model which has also evolved over time in its implementation. Through the use of quantitative and qualitative research instruments, BOMA sought to answer a number of key questions:

Key Questions

The study aims to answer the following six questions:

1) Are the impacts of REAP increased, decreased, or sustained 3-5 years after graduation? Specifically, are there impacts in the following main areas of interest for BOMA?
    a. Presence of a sustainable livelihood (ownership of a business, household income)
    b. Shock preparedness (savings, confidence about ability to overcome shocks)
    c. Food security (food consumption by former participant's household and their children)
    d. Household expenditures (food, school fees and medical expenses)
    e. Asset ownership (livestock)
2) What percentage of REAP participants are still operating a business of some form?
3) How do measures of empowerment compare between women who graduated REAP in 2013-15 and those women entering REAP in early 2017? Specific empowerment measures of interest include:
    a. Household decision making
    b. Attending public meetings
    c. Comfort speaking at public meetings
    d. Leadership positions in the community and beyond
4) How long do BOMA savings groups sustain themselves after participants graduate from REAP?
5) What are challenges faced by graduated participants that could be addressed with subsequent programming?
6) Are there any factors that predict success in key outcomes (presence of a sustainable livelihood, shock preparedness, food security, household expenditures, and asset ownership)?

This paper summarizes how the findings from the quantitative longevity study answer the five research questions. The findings from the qualitative longevity study are used to deepen understanding of the quantitative finding within the paper.

Background

Context

BOMA works in the arid and semi-arid lands of Marsabit, Samburu, Wajir, Turkana and Isiolo Counties in Northern Kenya. Residents suffer from some of the highest poverty rates in the world. According to data gathered by the United Nations Children's Fund (UNICEF) in 2013, 92% of people live in poverty in Marsabit and the number of people living in extreme poverty is as high as 82%.[2] According to a 2011 report by the Kenyan Ministry of State, taken together, the seven districts of Northern Kenya had a UNDP Human Development Index lower than that of Sierra Leone, the lowest-ranked country in the world (Ministry of State, 2011). The last five years in Marsabit county has seen slow improvements but poverty rates remain high.

The region's low population density and lack of infrastructure mean there are no large employers and livelihood choices are minimal. Many of the villages where BOMA works are miles from the nearest trading post, paved road, public transportation, school, health center and financial institution. Low population densities, geographic remoteness and transportation challenges have meant that residents are largely forgotten by their own government, and only a handful of NGOs are willing to make investments beyond food aid or short-term humanitarian relief in times of crisis.

Livestock remains the traditional source of food and income in the area, herding is increasingly unsustainable as the severity of droughts escalates due to climate change. In 2011, the worst drought in 60 years triggered a hunger crisis in East Africa that impacted 13 million people and left an estimated 50,000 to 100,000 dead. The United Nations estimated the cost of the humanitarian response at $1.5 billion. The region has been in ongoing drought cycles, and its converse has been severe flooding that also impact livelihoods.

Weather shocks affect rural livelihoods, especially for pastoral and agro-pastoral households living in so-called arid and semi-arid lands (ASALs).[i] Vulnerability mapping identified Northern Kenya as highly vulnerable to climate change and associated weather shocks. This region has historically experienced frequent droughts and floods, causing the loss of human lives, decimating livestock herds, and reducing farm outputs. [ii]

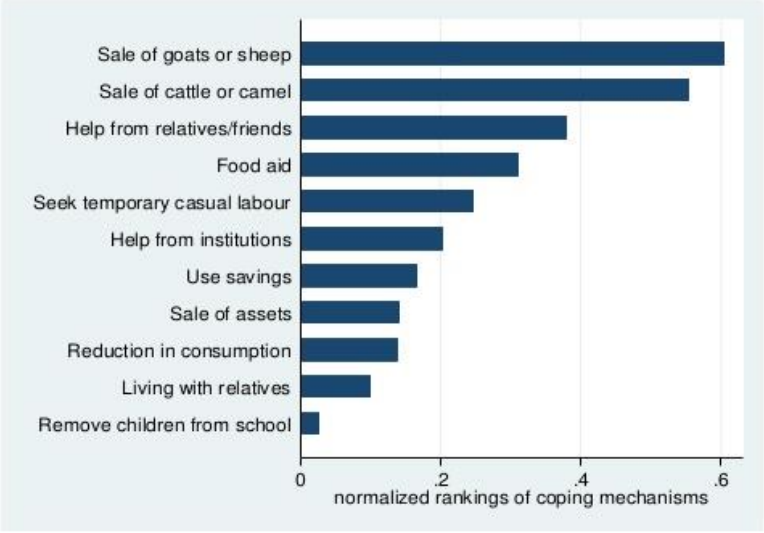
During the period that this study was conducted, Kenya was facing ongoing shocks that may have potentially impacted the long-term business success of participants, and their income and savings. Since 2015, the region has faced severe drought cycles that has impacted livestock, food and water resources upon which people depend. In addition, there were floods during the rainy seasons causing damage and loss of assets. The estimated economic impact of the drought is slowing down the country's economic growth by an average of 2.8 percent per year.

[2] https://www.unicef.org/kenya/Marsabit.pdf, Sources: MoPHS Surveys 2013 unless indicated, Kenya County Fact

The climatic challenges further compound other development challenges such as endemic conflicts, swelling population, land fragmentation, inadequate infrastructure and provision of social services, leading to further vulnerability.[iii] At the time of the longevity study follow-up area, Marsabit county was in its second month of drought conditions. The Kenya National Drought Management Authority (NDMA), issued Early Warning Drought Warnings for Marsabit County in January and February 2018. No rainfall was received in January and only light showers in isolated parts of the county in February. The 3-months Vegetation Condition Index for each month showed significant vegetation deterioration and shifted from a normal vegetation deficit band to a severe vegetation band thus exhibiting momentous vegetation deterioration conditions. Withering, wilting and drying up of maize and beans caused near total crop failure in the Agro-pastoral zone.[iv]

Production indicators showed livestock body condition was generally good to fair for camels and small stock whereas fair to poor for cattle across the livelihood zones in Marsabit County. Milk production significantly declined from 1.8Litres in December, 2017 to 1.2 liters in January and 1.0 liters in February, 2018. Milk consumption significantly declined to 0.75 liters which was below normal. No notifiable cases of livestock mortalities and livestock diseases attributed to drought were reported across the Marsabit livelihood zones. Household and livestock trekking distances to water points increased and fell outside the normal ranges; and terms of trade were not favorable as a result of above normal maize prices. Women and children are particularly vulnerable to the cycle of drought and famine in pastoral communities, as they are left in the villages—without food or income, often for as long as six months—while the men travel with the herds in search of increasingly scarce water and grazing terrain. The women survive by subsisting on food aid, credit from shopkeepers, and scraping together a small income from menial labor, such as collecting firewood or hauling water.

Figure 2. Adaptation Strategies of Agropastoral Communities

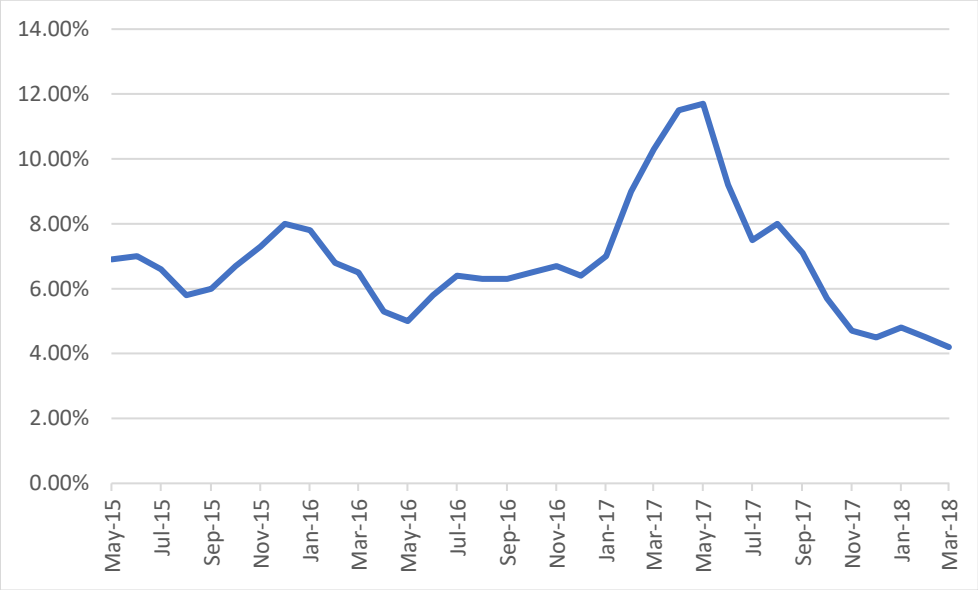


Coping strategies of agro-pastoral community in response to drought – Kajiado district, Kenya; ILRI 2008)

When faced with severe and prolonged climatic events, some of the most vulnerable people have to sell key productive assets such as land, livestock, farm tools, roofs from their homes or even resort to prostitution, thereby endangering their lives and livelihood in the long-term, which for many leads to destitution (GECHS, 2008).

Food security in Kenya deteriorated significantly at the end of 2016. UNICEF reports a significant increase in severe acute malnutrition. Food price increases drove inflation up from 9.04 per cent in February to 11.48 per cent in April, 2017. Consequently, within a year, the price of maize flour rose by 31 per cent, milk by 12 and sugar by 21 per cent. Starting in May 2016, Kenya saw a steep rise in the Consumer Price Index (an index of the variation in prices paid by typical consumers for retail goods and other items) and inflation, causing food prices to increase. This was exacerbated by shipping distances and few providers in the remote areas where BOMA Project works.

Figure 3. Kenya Interannual Consumer Price Index (May 2015 to March 2018)



Source: CountryEconomy.com

During drought periods with high food prices, many families are making do with just one meal a day. [v] There were nearly 110,000 children under-five treated for severe acute malnutrition, up from 75,300 in August 2016. Livestock and milk production declined, adversely affecting food consumption levels for communities, particularly women and children. In the hardest hit counties of Turkana, Samburu, Marsabit and Mandera, a third of children under 5 were acutely malnourished – double the emergency threshold. High malnutrition, when combined with an outbreak of cholera or measles, can lead to a surge in deaths among children and other vulnerable groups.[vi]

In January and February 2018, the NDMA Drought Early Warning Bulleting identified the nutritional status for children below the age of five years slightly worsened and was within the normal ranges. The food consumption score gradually declined but was acceptable and the

Coping Strategy Index increased as households employed more severe strategies to cope, according to NDMA.

The BOMA field team confirmed that:

- Food aid had increased at time of follow-up due to drought, although distribution was sporadic and not geographically consistent. This included:
    - Emergency Hunger Safety Net Programme cash transfers
    - County food distributions in February 2018
    - Food and cash transfers Caritas, Pacida, were distributed and other NGOs after the drought
- Food aid was prevalent at time of exit of the cohorts, but more prevalent at follow-up because of the severity of the recent drought.

While food aid contributes to relief, it does not provide long-term sustainable food security and may account for lower confidence in shock preparedness. On the other hand, participants confirmed that with businesses and savings groups, REAP contributed to their long-term food security because they are able to access cash and take food from their business, either as income or as credit. Lastly, the Kenya elections in both 2013 and 2017 caused disruptions that impacted the economy, which had an even greater effect on the ultra-poor and poor. All of these external factors should be considered when reviewing the results of the study.

Literature Review

The following brief literature review identifies similar long-term, longitudinal studies of enterprise and graduation models as a point of comparison for outcomes from the BOMA longevity study.

The international non-governmental organization (INGO) Village Enterprise (VE) implements a micro-enterprise model in East Africa, providing business training, seed capital grants, and ongoing mentoring. Village Enterprise conducted two long-term studies on their model, one published in 2008 and another in 2010. VE was still operating within a microenterprise approach during both of these studies and did not modify into a graduation model until 2013. At the time of the study, the micro-enterprise model was two years and business groups were comprised of five people.

The 2008 report documents a longitudinal impact assessment conducted by Village Enterprise in 2005 in Kenya, Tanzania and Uganda to measure changes in the standard of living of participants three to five years after the original funding date (Village Enterprise Fund, 2008). Like the BOMA study, this study design was created ex-post, and thus did not incorporate a control group. Randomizing by location, 284 business leaders entering the program from 2000-2003 were included in the survey, representing 7% of the original population. The study showed that the percentage of school-aged children in school increased by 40% and the average number of meals per day increased by 32%. Qualitative data showed that women had an improved standard of living in terms of quality and quantity of food and clothing as well as money for medical expenses.

Women reported increases in their sense of independence, equity within their households, and participation in activities, suggesting greater autonomy and self-worth. While the study concludes that the Village Enterprise program had a major long-term impact on the lives of the participants, the small sample size, lack of adjustment for attrition, and lack of statistical analysis limit the ability to generalize findings.

The 2010 Village Enterprise longitudinal study focused exclusively on determining if businesses remained in long term operation and factors contributing to the success or failure of the businesses (Rose, 2010). The study found that 74.7% of the Kenyan businesses that received seed capital from Village Enterprise 2-5 years prior were still operational in some form.

A study measuring the impacts of the graduation model, which incorporates a similar sequence of interventions as REAP, a series of six randomized control trials that were conducted on graduation programs in Ethiopia, Ghana, Honduras, India, Pakistan, and Peru, including 10,495 participants (Banerjee et al., 2015). This study sought to determine "whether a multifaceted Graduation program can help the extreme poor establish sustainable self-employment activities and generate lasting improvements in their well-being." The two-year program was adapted to the poorest individuals in a community, and included, life skills coaching, temporary cash consumption support, access to savings accounts, and access to health information or services. Consumption, food security, productive and household assets, financial inclusion, time use, income and revenues, physical health, mental health, political involvement, and women's empowerment were measured one year after the program ended, which is three years after the asset transfer. It was found that significant improvements were made in every outcome except for consumption, household assets, and food security.

A randomized control trial on BRAC's Targeted Ultra Poor (TUP) program in rural Bangladesh looked at whether basic entrepreneurship can transform the economic lives of the poor (Bandiera et al., 2013). TUP aims to shift its participants' occupational choices and livelihoods by supporting poor women to start businesses and giving them a livestock transfer. The study measured participants' occupational choices and livelihoods two years and four years after implementation of TUP to determine how capital and skills influence occupational choice in the long-term. They found a shift from wage employment to self-employment, a 34% increase in total annual earnings, a significant increase in livestock holdings, a 10-fold increase in savings over four years, and that 11% of women were lifted out of extreme poverty. Interestingly, effects were larger after four years than after two years.

These studies help inform the BOMA study, but while interesting and providing some insight, the differing approaches and different geopolitical contexts offer limited comparison to the approach evolution and context in which The BOMA Project operates.

Evolution of the Rural Entrepreneur Access Project

The BOMA Project started its Rural Entrepreneurship Access Project (REAP) in 2008 as a microenterprise program with 40 small businesses in Marsabit County, Kenya and has since expanded to help women establish 5868 businesses as of early 2018. Built on a strong global proof of concept[3] and thoughtful local adaptation, REAP helps pastoralist families build a pathway out of extreme poverty by addressing three interrelated elements that contribute to the cycle of poverty in ASALs: low incomes, inconsistent cash flows, and inadequate financial services.

As of 2018, REAP starts with community entry, targeting, writing a business plan and a grant. The grant is $250 initially, and then another grant of $50 is given after six months. Potential participants are first identified through a community-based participatory rural appraisal (PRA) methodology, and then selected through a BOMA-led participant targeting tool (PTT), which confirms characteristics of individual households. After agreeing to join the program, one in every three women, called the "anchor woman", identifies two other women from the PTT pool, to launch a small business to generate sustainable income and fund critical expenses such as food, medical expenses, and school fees. In each community, the BOMA Village Mentor, a paid employee of BOMA, provides the initial business training and subsequent mentoring and training to REAP participants that includes targeted assistance, the resolution of group conflicts, and encouragement to business-owners toward creative and innovative entrepreneurial strategies.

After six months, business groups form savings groups alongside 4 to 5 other BOMA business groups. BOMA savings groups convene monthly to save and lend, a process dependent on the sustainable income generated by the BOMA business activity during the first six months in REAP. BOMA Village Mentors use the monthly savings meeting structure to deliver one-hour "micro-trainings" in areas such as record-keeping, creditworthiness, family planning, and girl child education.

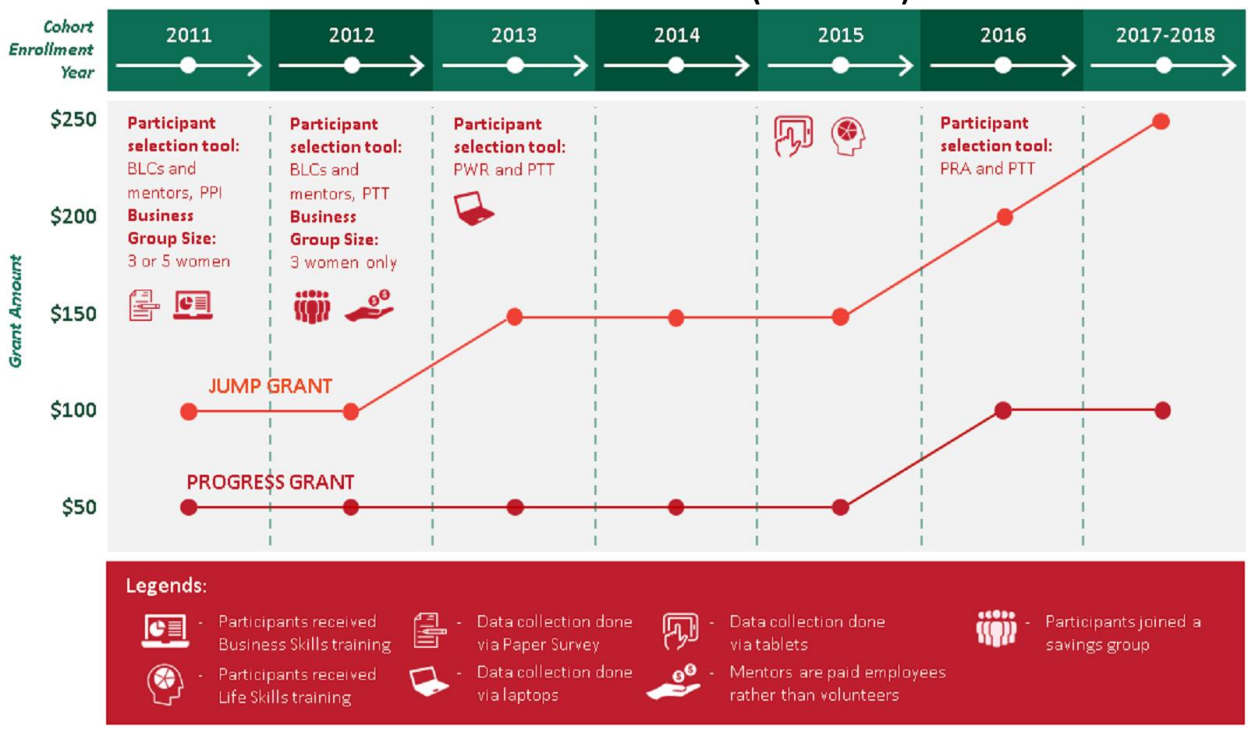
This sequence of interventions, BOMA's Poverty Graduation Model, aims to equip program participants with the resources, tools, life skills and support structures to build a sustainable pathway out of extreme poverty and adapt to a changing climate. After two years in REAP, participants exit the program and are assessed against a series of individual, household, and business-level criteria across five different areas of well-being: food security, savings, sustainable livelihoods, shock preparedness, and human capital investment. In 2017, after the cohorts in this study graduated, durable asset ownership was dropped as a criterion, to better reflect women's access to savings, business income and livestock as part of their asset base. This new graduation criteria are the main outcomes that BOMA collects data and measures participants achievement against by the time of exit.

[3] Banerjee, A., Duflo, E., Goldberg, N., Karlan, D., Osei, R., Pariente, W., ... Udry, C. (2015). A multifaceted program causes lasting progress for the very poor: Evidence from six countries. *Science*, *348*(6236), 772-778. DOI: 10.1126/science. 1260799.

Table 1 exhibits how the REAP graduation model has evolved from 2011 to 2018. In 2011, REAP was primarily focused on helping women start a business and the model has since evolved to be more holistic and gender-focused in nature.

For instance, in 2011, participants were identified by BOMA Village Mentors and the use of the Grameen Foundation's Progress Out of Poverty Index (PPI). In 2012, the PPI was replaced with the PTT, and in 2013, BOMA incorporated BOMA Location Committees to assist the mentor with participant selection along with a community-based poverty wealth ranking (PWR) exercise. Unlike the PRA and PTT, the PWR asks village leaders to identify community members by wealth levels, whereas the PRA asks community members to identify their wealth levels themselves. Other differences from 2011 are that the business groups consisted of five women, jump grants (the initial grant given at the onset of participation in REAP) was smaller - $100-$200 instead of $250 - women received business skill trainings but not life skills training, only some joined a savings group and BOMA Village Mentors were volunteers instead of paid BOMA employees., In addition, the baseline and endline Standard of Living Index (SOLI) data was collected by the volunteer mentor via a paper survey or by a trained enumerator via laptops instead of by an trained enumerator via a mobile tablet. The 2012 and 2013 models reflect most of these changes, except for smaller jump grant sizes ($100 and $150, respectively) and the absence of life skills training.

Table 1. The Evolution of REAP (2011-2018)



These differences raise the question of whether outcomes from REAP participants in different cohorts is comparable. It is difficult to know how much the differences in targeting, jump grant size, savings group participation, life skills training, mentor status, and data collection methods affect outcomes. To address this issue, as well as to determine whether outcomes are different

3, 4, and 5 years after graduation, the Findings section presents data comparing key indicators of the different cohorts by year starting in 2011, 2012, and 2013.

Methodology

Research Design

To measure the long-term impact of REAP, we utilize both quantitative and qualitative methods. For the quantitative component, in February 2018, BOMA administered a survey that combines selected questions from prior baseline and endline surveys as well as additional questions of interest to determine changes in household economic status and women's empowerment over time. It should be noted that the data was placed in one dataset and averages and other statistics of all of the data points together were calculated.

Qualitative facilitated focus group discussions were conducted in December 2016 with graduated REAP participants from the same cohorts to get a deeper look into the long-term impact of REAP and changes in empowerment that are more challenging to capture in a quantitative questionnaire. The findings from the FGDs supplement the quantitative component and the focus of this paper, to more fully depict the long-term changes in participants' lives. These findings are briefly presented within the Findings section and further discussed in the Discussion section, as they triangulate findings from the quantitative survey. It should be noted that the data was placed in one dataset and then averages of all of the data points together were calculated.

The final study population consists of seven cohorts of REAP participants enrolled in 2011, 2012, and 2013. While there were 1,311 BOMA businesses launched during these three years, we only include those locations where BOMA is still active, due to ease of finding available participants. This includes 12 of the 15 locations where BOMA was active between 2011 and 2013; BOMA is no longer active in 3 locations due to program saturation. The population of interest thus consists of 1,076 businesses and 3,228 participants. The following 12 locations are included in the study: Archers Post, Illaut, Kargi, Karare, Korr, Laisamis, Lengima Namarey, Loglogo, Loiyangalani, Merille, Ngurunit and South Horr.

The sample size calculation was done in such a way as to ensure that the sample would be representative of the population, and that statistically significant results could be inferred. Given a population size of 1,076 businesses, a desired confidence level of 95% and a target margin of error of 5%, the sample size calculation formula yields a minimum sample size requirement of 289. Given an expected 25% attrition in our sample size, we increased our initial target sample to 464 participants to expect a final interviewed sample of at least 348 participants, 380 participants were ultimately interviewed. This represents 35% of businesses in the target population.

Once a sample of participants was selected, a mobilization process began in the twelve targeted villages. The survey was administered during a two-week data collection period carried out in the twelve target villages. The survey was conducted on tablets equipped with the TaroWorks mobile

data collection application and was conducted in participants' homes whenever possible. Enumerators synced data one time per day to minimize the risk of data loss.

To analyze our quantitative data, we compared it to the baseline and endline data and used t-tests and tests of proportions as tests of statistical significance. To make comparisons, we used n-values and percentages of categorical variables and averages of continuous outcome variables. Our source of comparison when using statistical tests was the endline data. Significance was reported at the 10%, 5% and 1% level. T-tests were done using data from participants for whom there was both endline and follow-up data.

This study also seeks to determine whether the different cohort years in our study realize different benefits in the long-run, based on how long ago they were enrolled in the program. For this method, we compared the 2011 group to the 2012 group, and the 2012 group to the 2013 group. We expected the 2011 group to show greater improvements than the 2012 group, and correspondingly the 2012 group to show greater improvements than the 2013 group.

Limitations

There are several limitations that exist in this study design that need to be noted.

Sample size estimate assumes that we are using a simple sampling strategy, rather than stratifying our sample: When applying stratification, if we want to be able to determine significant differences between our strata, this formula must be applied at the village-year level. In taking this approach, a village with 100 businesses, for example, would require a sample size of 80 businesses to be included. This approach would yield an overall sample size greater than 700 businesses across all villages, which is not feasible given the resource constraints of this study.

Small sample size within villages: Though the overall sample size has been calculated in such a way as to generate enough statistical power to detect differences between endline and follow-up data, the sample size within each village is likely not large enough to detect significant differences between them.

Lack of control group: Due to the nature of the study, it is not possible to include a proper control group for the quantitative analysis. Therefore, the long-term impacts of REAP cannot be concluded; we can only conclude how participants are faring years after graduation.

Representativeness of the program: This study assesses how REAP was in the years that the study participants were part of REAP. However, REAP has undergone many changes since 2011, and thus the evaluation is not evaluating the effectiveness of the REAP program as it exists today but rather how past participants are faring 3-5 years after REAP.

Timing of data collection: The data collection for this evaluation took place in February 2018, before the onset of the rainy season and during lean times for the communities. It is possible that the results we obtain will be different than the results we would obtain had we carried out the study after the rains have arrived, when participants are less anxious about the future.

Data quality: BOMA has revised the wording of SOLI survey questions over time as data has been analyzed and BOMA identified better ways of capturing high quality data. Some of the included questions were worded differently in the baseline and endline surveys than in the longevity survey, limiting the comparability of findings.

Findings

The focal point of the data presented in the Findings section is that of the follow-up survey but includes outcomes from data collected at the baseline and endline when available and relevant.

The baseline data was collected in 2011, 2012, or 2013, and the respective endline data was collected two years after the baseline, in 2013, 2014, or 2015. The follow-up data is from February 2018. While the 380 participants surveyed by the enumerators were expected to answer each question, due to errors and logistical complications in data collection, not all participants answered each question they were expected to answer. When results are not available (N/A), the cell has been greyed out. Values have been rounded up unless decimal points added value to understanding the result. All monetary amounts are in Kenyan Shillings (KES), and the current exchange rate is approximately 1 USD = 100.9 KES[4].

Tests of statistical significance were not run on all indicators, only on those of special interest. These tests compared changes from endline to follow-up, and comparisons to the baseline data were not tested for significance. P-values show significance at the 10%, 5%, and 1% level. A p-value is the chance that a trend happened just by chance without there being a real relationship. The trend is said to be statistically significant in this case if the p-value is less than or equal to .10, meaning that there is no more than a 10% chance that the trend in the data happened arbitrarily (and at least a 90% chance that the trend is real).

Demographics

Table 2 summarizes results for general demographic indicators from the 380 participants in the 2018 follow-up survey. Almost 60% of the 380 respondents came from settled villages, with 42% from semi-nomadic settlements.[5] Most of the female respondents are married (75%), with 18% widowed, and 6% divorced or separated, and only three women (1%) have never married. Of those who are married, 41% are in polygamous marriages, among whom 43% are first wives.

[4] As taken from www.xe.com on March 22, 2018.

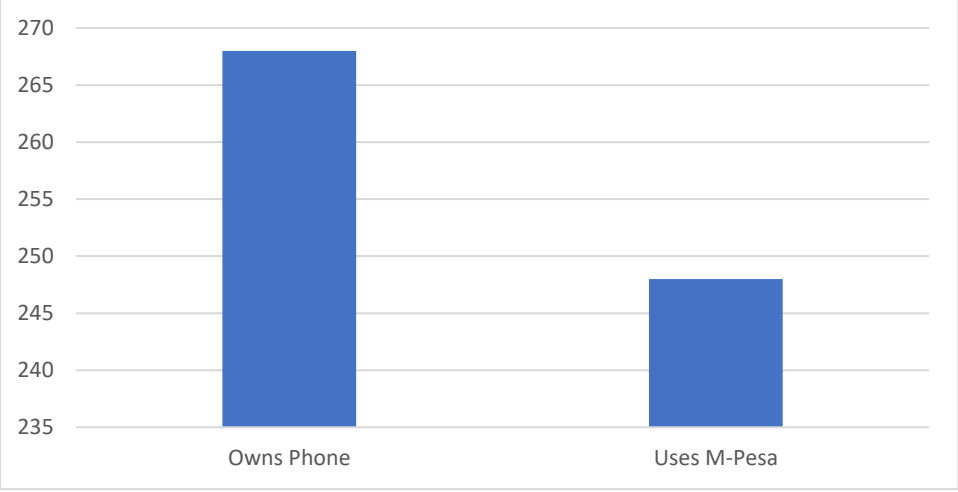
[5] BOMA looks at the organization of communities in northern Kenya as village clusters. Village clusters are defined by a central settled village of permanent residential and commercial buildings surrounded by semi-nomadic villages of semi-permanent residential structures primarily made of branches and skins. The semi-nomadic villages are also referred to as manyattas and can include a population of anywhere from 50 to 200 households. A village cluster might have up to 50 or more semi-nomadic villages that surround the settled village with a total population range of 5000 to 25,000 people.

Table 2. Participants' General Demographic Indicators

	Follow-up	
	N	**Percent**
Type of Village		
Semi-nomadic	160	42%
Settled village	220	58%
Marital Status		
Married	286	75%
Among married participants in a polygamous marriage	*118*	*41%*
Among participants in a polygamous marriage is a first wife	*51*	*43%*
Widowed	69	18%
Divorced/Separated	22	6%
Single (never married)	3	1%
Literacy		
Can read	44	12%
Can write	45	12%
Average Age	372	41 years

To better understand how the well the participants can access mobile innovations, the survey included questions asking if the respondent owned a phone and if she uses M-Pesa. 71% of participants own a phone and 65% use M-Pesa.

Figure 4: Phone Ownership Among Respondents



Average household composition changed little over time with small differences between baseline, endline and follow-up results. As of the follow-up, most households have about one adult female. Two areas where there is a decline over time are average number of children and biological children. About half of the household children are female, with a slight increase in average number over time.

Table 3: Household Composition of Respondents

	Baseline	Endline	Follow-up
Avg number of female adults		0.9	1.2
Avg number of children	4.9	3.7	4.2
Avg number of biological children	4.3	4.0	3.9
Avg number of female children	1.7	1.8	2.0

At endline, 58% of primary school-aged children were enrolled in school and 60% of primary school-aged girls were enrolled. **At follow-up on average, in a given household, 66% of primary school-aged children (boys and girls) are enrolled in school. Follow-up shows 71% of primary school-aged girls enrolled in school.** It is also possible that the increase in primary school enrollment seen at follow-up can be attributed to an increase in school enrollment in the community over time, local girl child education campaign efforts, devolution allowing counties to spend more on education, and an increase in schools, bursaries, and early childhood development resources (ECDs). Although the trend in girl-child enrollment rates is positive from endline to follow-up, the 71% primary-school enrollment rate shows room for improvement.

In 2014, Marsabit County had 66% of primary school-aged children enrolled in primary school and 13% of secondary school-aged children in secondary school. At endline, the participants in this study had a smaller primary school enrollment, but a greater secondary school enrollment. At follow-up, the primary school enrollment was the same as Marsabit County's 2014 value (Ministry of Education, Science and Technology, 2016).

Across Kenya, from 2009 to 2014, there was a slight increase in primary school enrollment from 87.5% to 88.2%. If this trend continued through 2018, then the increase seen from endline to follow-up among these REAP participants is greater than the national average.

Nationally, secondary school enrollment increased more dramatically from 33.1% in 2009 to 47.4% in 2014. In contrast, from endline to follow-up in this study, there was no change in secondary school enrollment. Both primary and secondary school enrollment at endline and follow-up are below the national averages for 2014 (Ministry of Education, Science and Technology, 2016). It is interesting that secondary school enrollment for girls decreased despite the increase in government subsidies for secondary school that went into effect at the start of the 2018 school year (Oduor, 2017).

Since endline, there have been additional girl child education campaigns, such as *Operation Come-To-School*, launched in October 2015 by UNICEF and Qatar's Education Above All Foundation's Educate A Child program. Its goal was to reach 300,000 children in the most remote areas of Kenya, including Marsabit, by 2017 through increasing demand for education, improving school facilities, strengthening in-school teaching and the learning process, providing mobile

schools and alternative basic education for nomadic children, and strengthening county education systems (Education Above All & UNICEF, 2015). There have also been individuals promoting girl child education (Senda, 2015).

In addition to girl child campaigns, Marsabit County has invested more in education since endline. In August 2016, the County Government of Marsabit reported that in "past years", the department of Education and Youth Affairs has implemented new programs, including an ECDE teachers in-service course, a standard assessment for schools and polytechnics, and capacity building for youth polytechnics principals and boards of governor. Onward of 2015, the county also had plans increase school enrollment by improving conditions of schools (such as the construction of toilets and solar power for electricity), increasing the number of schools, and constructing new classrooms (County Government of Marsabit, 2016; Muchui, 2015). These factors may have contributed to the increase in primary school enrollment.

To better understand school enrollment follow-up findings, the BOMA Field Team conducted additional inquiries on other actors and factors leading to the increase in school enrollment and lack of change in secondary school enrollment. They found:

- Increase in primary school enrollment
    - A renewed National focus on primary education;
    - Impact of REAP (now, all participants want all of their kids to be in school) and other programs (such as Food for Hunger, Kanacho Nomadic Education Foundation, Compassion, Senates, and World Vision) that pay for school fees and provide other support for children to go to primary school; and
    - The addition of nursery schools in villages as a result of devolution and the hiring of nursery school teachers by the Marsabit County government. When children complete nursery school they are more likely to go to primary school.
- No increase in secondary school enrollment
    - Programs described above focus on primary education, but there is less support for increasing secondary school enrollment in Marsabit; and
    - Parents often send secondary school-aged girls to relatives who pay for their school fees in exchange for the girls working for them.

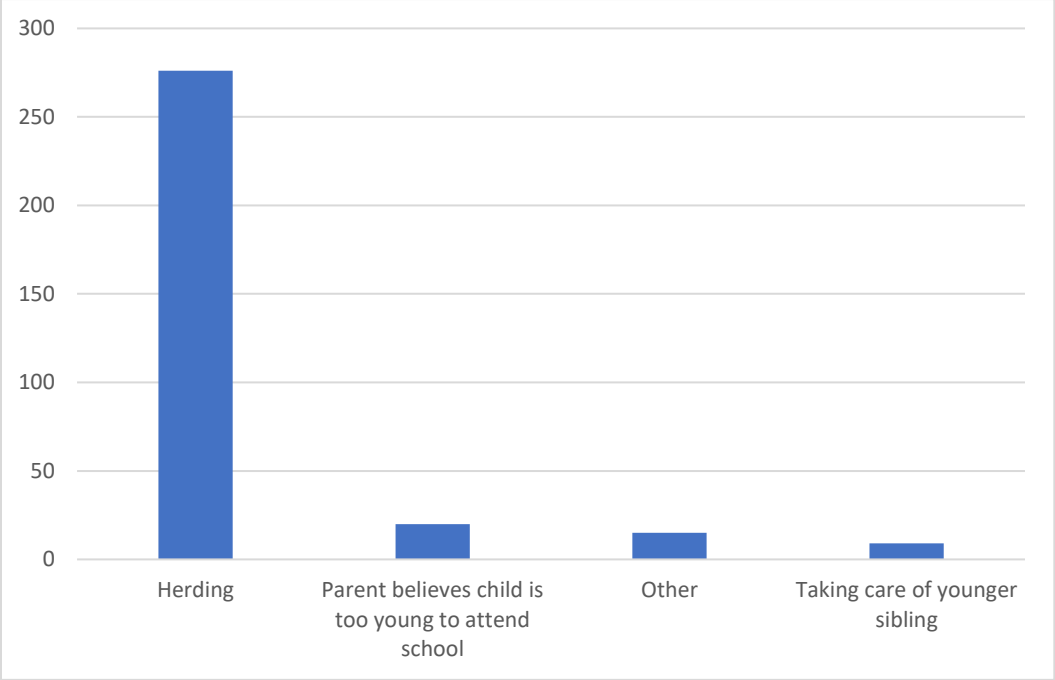
Nevertheless, it is interesting to note that at endline and follow-up, on average, **the percentage of girls in primary and secondary school is higher than that of all children (boys and girls)**. In some villages though, school enrollment by gender may be equal. In contrast, nationally in 2014, there were more boys than girls in both primary and secondary school, though the enrollment rates were becoming more equal over time (Ministry of Education, Science and Technology, 2016). It should be noted that increased school enrollment does not necessarily translate to increased attendance. As shown in Figure 4, herding is the most common reason for school-aged children to not be in school. This makes sense if there are fewer boys in school than girls, since boys herd more often than girls. At follow-up, 37% of primary school-aged boys were kept out of school to herd, compared to 22% of primary school-aged girls.

Table 4. School Enrollment Indicators

	Baseline	Endline	Follow-up
Avg number of primary school-aged children	3.2	2.6	2.5
Avg number of primary school-aged children currently in school	2.1	1.5	1.6
Avg percent of primary school-aged children in school	72%	58%	66%
Avg number of primary school-aged girls	1.4	1.2	1.2
Avg number of primary school-aged girls currently in school	1	0.7	0.8
Avg percent of primary school-aged girls in school	73%	60%	71%
Avg number of secondary school-aged children		.48	0.64
Avg number of secondary school-aged children currently in school[1]		0.1	0.21
Avg percent of secondary school-aged children in school		32%	32%
Avg number of secondary school-aged girls		0.16	0.29
Avg number of secondary female school-aged children in secondary school[2]		0.05	0.09
Avg percent of secondary school-aged girls in school		41%	35%

From endline to follow-up, there are increases in the average percent of a household's primary school-aged children and girls in school of 8% and 11%, respectively. There was no change in the average percent of a household's secondary school-aged children in school (32%); and a decrease of 6% in the average percent of a household's secondary school-aged girls in school. Reasons for the increase in school enrollment from endline to follow-up include an increase in school enrollment in the community over time, devolution allowing counties to spend more on education, and an increase in schools, bursaries, and early childhood development resources (ECDs).

Figure 4. Reasons Why School-Aged Children Are Not in School



During Longevity FGDs, participants shared that unlike before they had savings, when they depended on their husbands to pay school fees, now they can provide for their children's education independently. Furthermore, savings in the BOMA savings box made it possible to send children to secondary school. In pastoral settings including Marsabit County, raising and selling livestock is the primary livelihood.

"We can help our children to achieve what they want to achieve because BOMA has equipped us with knowledge and has brought the savings to us" (Ilaut Participant 14).

As a result, there has historically been little emphasis placed on education. Instead, children spent their time herding and helping with chores at home, while girls are married as early as 8 years. Over the years, the Kenyan government, religious organizations, UN agencies and local NGOs have advocated extensively on the importance of education in these locations. Likewise, modules on education, with emphasis on girl child education, are presented by BOMA mentors to all REAP participants at the initial Jump Grant training and during monthly business and savings group meetings to encourage participants to enroll their children in school.

Participants indicated that they understood the importance of education and appreciated BOMA for encouraging them to send their children to school. Many of them are now advocates for girl child education in their communities (*A Longitudinal Assessment of the Rural Entrepreneurship Access Program 2017*). Participants at the FGDs agreed about the importance of education for their children. They see that education gives their child a brighter future, and also that their child can later give back to their family:

One participant explained that she values her child's education so much that she prioritizes her children's education over her other responsibilities. Participants expressed appreciation for

BOMA in encouraging them and providing mentorship to send their children to school. As a result of the mentorship they received and money saved, participants are confident that their children can achieve their goals for their education.

Participants also shared that they are now advocates for girl child education in their households and community:

> ***"There is a challenge in being pastoralist… If you have 4 or 5 kids, the men will tell you only one child will go to school, the other will go for shops, some will go for cattle, some will go for livestock. If there are small kids the kid can take care. Men do not see the school being useful, they only see the animal as of help to them. That is one of the big challenges… When we went to those manyattas and asked people why they were not sending children to school, most people told us girls are not supposed to go to school. You educate a child and the next thing she does is get married and has some beads put on so she gets married. So we advocate for education and we tell them that the education of a boy and a girl is all equally important… and now we see that it is not the way it was before. You can take 3 kids to school. So we are only working in the outside manyattas to try to change that. Still we need support to push our children to go to school. Mostly, we want to push for girl children education" (FGD, Participant 10).***

The Longevity FGDs highlighted that participants value the education of their children to the point that they have become advocates for education in their community. Their increase in social capital has allowed more voice and influence in education decisions in the household and community with some past participants in leadership roles in community committees. It is clear that the BOMA savings groups have enabled participants as well as the larger community to be able to take their children to school and ensure that children do not miss school unnecessarily.

School fees are being paid for members of considerably more households, increasing from 42% at baseline to 49% at endline, and then jumping to 93% at follow-up. While BOMA cannot claim that REAP solely increased school enrollment, the access to business income, savings and credit as well as positive mentoring messages on education has enabled better access to education opportunities for the children of REAP participants. With the increased education support at national and county levels and a number of international NGOs focusing on education, Marsabit County and the BOMA Program Area is seeing a positive trend in education enrollment and understanding of its importance for boys' and girls' success in the changing economy of the region.

> *"Later we learned the importance of education. We want our children to go to school so we can learn. They can come and change our lives" (FGD, Participant 10).*

Business Activity

At follow-up, 81% of the 393 respondents[6] have a business, which is a statistically significant decline from the endline value of 89% (p≤0.01). Of the women who own a business 87% report having only one business, but there is an average of three sources of income for the household of which two are not considered businesses. 81% of those who run a business run a kiosk/duka, followed by livestock, for 20% of participants. The average value of a single business is KES 26,743 at current KES value.

In the qualitative assessment, participants felt that BOMA "opened their eyes" to how they could provide for themselves and their families. After exiting REAP, the discontinuation of mentor support did not affect them, because they were able to apply what they learned from the mentors. In addition, their children are now involved in the business, helping with record keeping and helping the businesses to grow as a family business. (*A Longitudinal Assessment of the Rural Entrepreneurship Access Program 2017*). Table 5 summarizes monthly business outcomes for respondents.

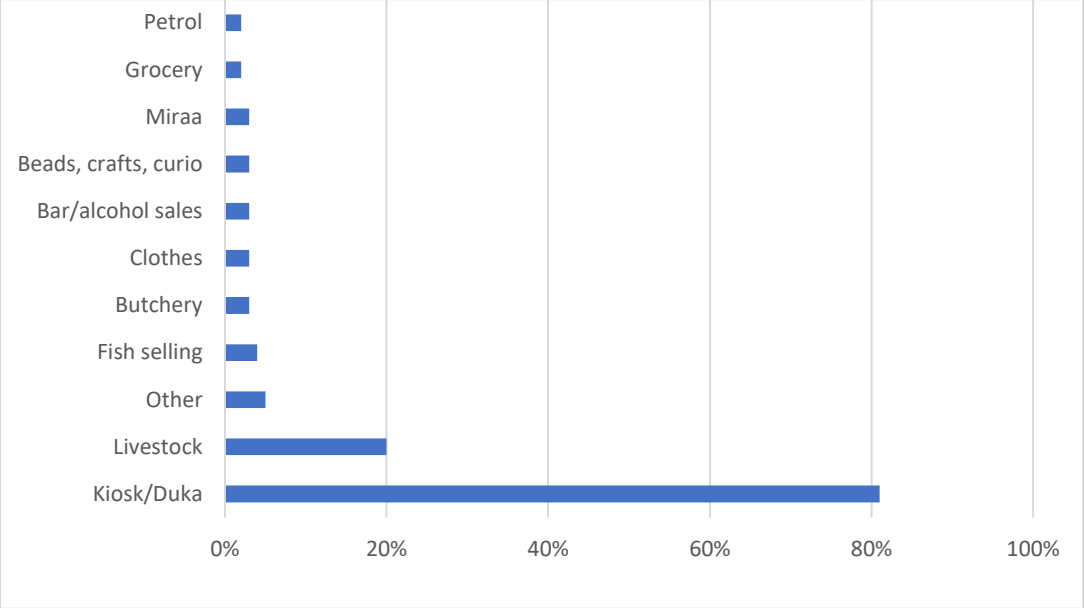
Table 5. Comparison of Respondents' Monthly Business Outcomes at Endline and Follow-up

	Endline		Follow-up	
	N	**Percent**	**N**	**Percent**
Do you currently own a business?	403	89%	314	81%***
How many businesses do you own?				
1			274	87%
2			40	13%
Average business value			26,743	
Business income				
Avg cash taken as income			2,363	
Avg food and goods taken as income			540	
Avg total business income	2,421		2,904***	
Credit paid off using business income			339	

The total business income at follow-up is KES 2,904, 20% greater than the total business income at endline of KES 2,421 (a statistically significant difference with p≤0.01, not accounting for inflation).

[6] While 380 participants were in the final sample, additional participants answered certain questions of interest, such as some about business ownership.

Figure 5. Types of Businesses Owned by Respondents



Business-Related Success Factors and Challenges

For each factor, most participants indicated that it somewhat or very much contributed to business success. Participants were asked how much positive group dynamics with their business partners, mentorship from their BOMA mentor, trainings delivered by their mentor, hard work and social support from friends and family contributed to the success of their businesses.

In particular, 95% reported that hard work very much contributed to the success of the business. The factor that contributed the least was social support from friends and family. Still, only 6% reported that social support did not contribute at all, and 64% reported that it very much contributed.

When asked about challenges to maintaining a business, the most common response was credit. Aside from credit, other common challenges include debt, drought, financial management, group dynamics, record keeping, and the cost or logistics of transporting goods**.** Less common challenges mentioned include fluctuating prices, low profit, low savings or funds (to support business), and lack of training or mentorship. Five people (1%) mentioned theft or community conflict. Field officer observations and conversations with participants show that unrepaid loans, distance between business partners, literacy, numeracy, and ability to speak Swahili are also major challenges to sustaining a business.

Table 6: Summary of Success Factors and Challenges at Follow-up

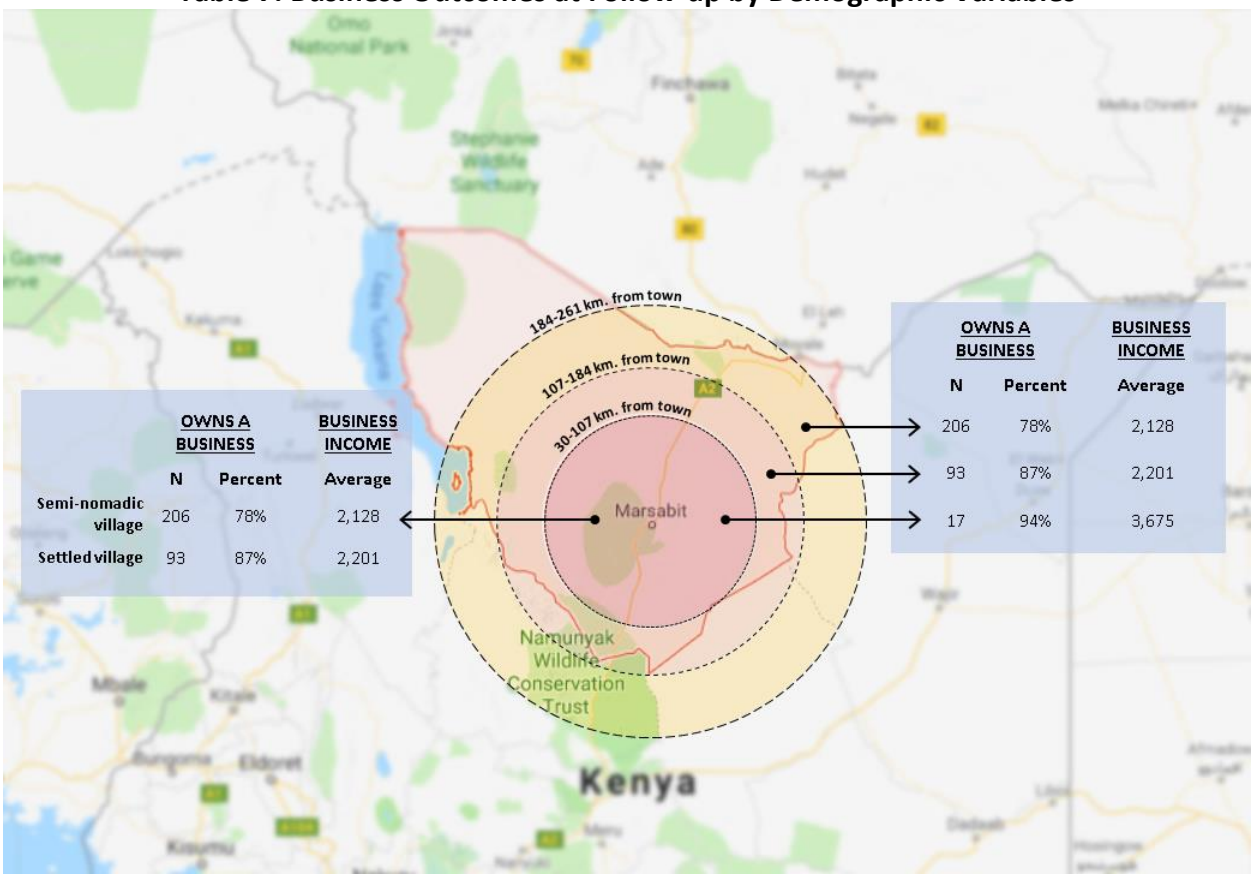
	Follow-up	
	N	**Percent**
How much has each factor contributed to the success of your business?		
Positive group dynamics with business partners (including trust and good division of labor)		
Not contributed at all	4	2%
Somewhat contributed	51	21%
Very much contributed	189	77%
Mentorship		
Not contributed at all	10	3%
Somewhat contributed	58	20%
Very much contributed	222	77%
Trainings received		
Not contributed at all	10	3%
Somewhat contributed	47	16%
Very much contributed	230	80%
Hard work		
Not contributed at all	2	1%
Somewhat contributed	14	5%
Very much contributed	276	95%
Social support from friends & family with running a business		
Not contributed at all	18	6%
Somewhat contributed	85	30%
Very much contributed	184	64%
Challenges to maintaining a business		
Other	132	35%
Credit	78	21%
No challenges	54	14%
Debt	51	14%
Drought	39	10%
Financial management	34	9%
Group dynamics	31	8%
Record keeping	29	8%
Transporting goods	29	8%

Predictors of Success

Business outcomes at follow-up are shown by demographic variables in Table 7. The twelve locations in this study were divided into groups based on distance from the nearest main town. For all the locations, the nearest main town is Marsabit, with the exception of Archers Post, where the nearest main town is Isiolo. The table illustrates distance from town and percent that own a business. It is interesting to note that the further distance from town, the more income the business makes. The type of business is divided into two categories: people who have a livestock business, and people who have a business, but not a livestock business.

Type of village and type of business are correlated with business income at the 5% ($p \leq .05$) and 1% level ($p \leq .01$), respectively. Twice as many people who live 107-184 km away from a main town own a business as those who live closer to a main town. It is possible that other characteristics associated with the locations comprising the groups of distances from the main town are influencing this relationship.

Table 7. Business Outcomes at Follow-up by Demographic Variables



For correlations between demographic variables and business ownership outcomes that were statistically significant, odds ratios were calculated as shown in Table 8. An odds ratio is the odds of an outcome happening for a certain demographic in comparison to a reference demographic variable. Because an odds ratio is just a statistical estimate, a 95% confidence interval accompanies an odds ratio. A 95% confidence interval can be interpreted as that we are 95%

confident that the true odds ratio falls in that interval. The lower bound of the confidence interval is the first number in parentheses and the upper bound is the second number. The p-value reflects the significance of the odds ratio being different from 1, in which case the chance of an outcome is equally likely among all demographic groups.

A model was built to find which variables are significant predictors of business income. A p-value of .10 or less means that there is at least a 90% chance that the variable really is a predictor of business income. P-values are not reported for variables that are not significant predictors.

Table 8. Predictors of Business Outcomes at Follow-up

	Own a business	Business income
	Odds ratio (95% confidence interval)	**P-value**
Type of village		
Semi-nomadic		
Settled (ref.)		.05
Distance from Marsabit town		
30-107 km (ref.)	--	
107-184 km	1.90 (1.01, 3.58)**	
184-261 km	4.87 (.63, 37.35)	
Type of business		
Livestock		.01
No livestock		

*Significant difference between outcomes: *p≤0.1 (10%), **p≤0.05 (5%), ***p≤0.01 (1%)*

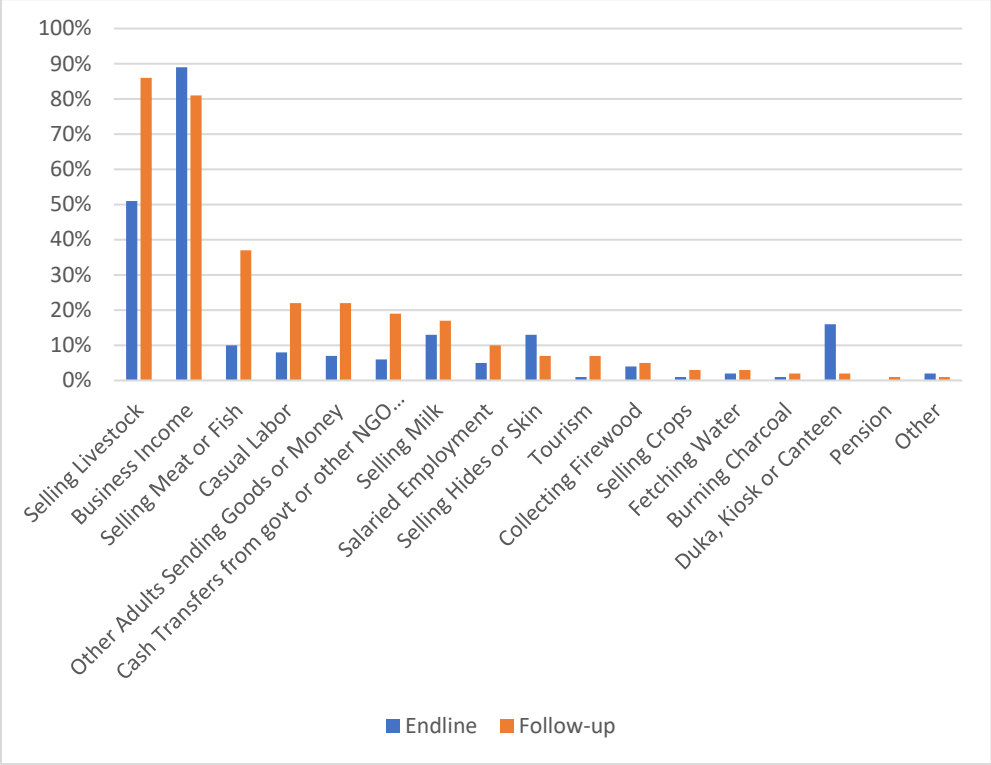
Income

Households have a diversified income with an average of three sources of income. At follow-up 81% of follow-up respondents (operate and) receive at least one source of income from a business. The increase in selling livestock from 51% at endline to 86% at follow-up is significant.

Business income refers to a business that the participant herself (not another household member) owns. The other sources of income, such as a duka or livestock, refer to businesses that another household member has, or a source of income that is not a business. For example, a participant may work at a duka without owning it (and thus would not be part of business income).

While selling livestock is often a business, this could be a business operated by another household member. A participant may also sell her own livestock to generate income but not be a business- a business is an intentional practice of buying and selling to make a profit. If the livestock is a business, it is included in the percent of participants who have a business. Livestock is captured separately where it is not the participant's business (it is another household member's business, or the household has generated income buy selling their livestock but it is not a business).

Figure 6. Sources of Income at Endline and Follow-up



Several sources other than selling livestock show increases, such as selling meat or fish, casual labor, remittances, cash transfers, selling milk and salaried employment. These increases reflect the increase in livestock trading (selling meat and milk), an increase or improvement in personal and government money transfer systems, and greater economic opportunity in the regions (salaried employment). Participants have more diversified income opportunities and options.

BOMA Field Staff provided the following insights:

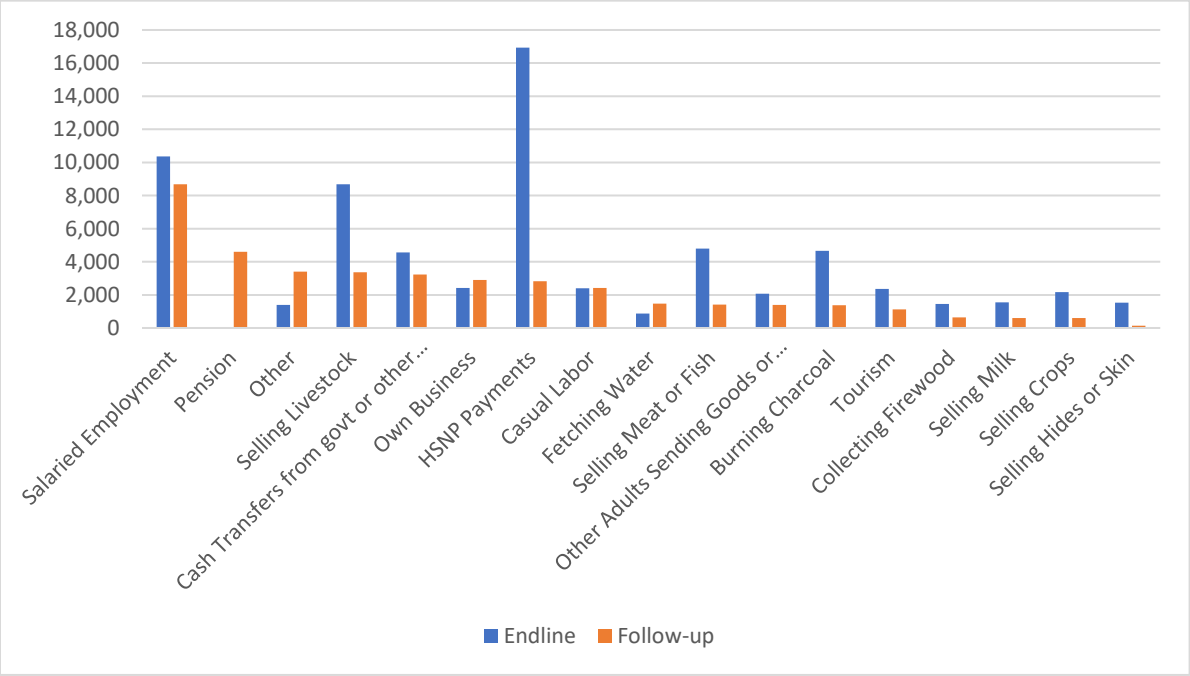
- The increase in selling livestock is attributed to the recent opening of new livestock; marketplaces and new roads that facilitate transportation of livestock to larger markets and abattoirs in Nairobi;
- The increase in households receiving income from milk is a result of the establishment of a central distributing center or milk cooperative;
- The increase in households receiving income from fish is the result of:
    - Increases in businesses in the community that cook fish
    - A fish-eating promotion by county government in which fish is sold at a subsidized price;
- The increase in salaried employment is the result of an increase in county funded projects and hiring by the county government; and

- Income from burning charcoal decreased because burning charcoal is not seen as a desirable business.

The dramatic increase in the receipt of GoK's Hunger Safety Net Programme (HSNP) benefits, from 16% at endline to 74% at follow-up, partially reflects the scale-up of HSNP payments, including emergency HSNP payments following the 2017 drought (Merttens, Binci, Haynes, Laufer, & Scott, 2017). Regular payments (to beneficiaries who receive an HSNP cash transfer every month) were made in January, and emergency payments (to beneficiaries who receive a cash transfer only in the event of a drought) were made in January and February, right before the time of the follow-up survey (Hunger Safety Net Programme, 2018). In addition, there were a number of delayed payments that resulted in large lump sum payments during the survey period. However, it is unlikely that this and the scale-up of HSNP fully accounts for the 58% increase.

Figure 7 shows the income estimates from each income source in the past month, among those who reported that their household gets income from that source. Income estimates at follow-up are presented at current value and adjusted for inflation. **Average total household income is KES 7,945. This is 13% greater than the endline estimate of KES 7,016, with the difference proving to be statistically significant at the 1% level (p≤0.01). However, at follow-up, the total income adjusted for inflation is KES 6,129.** Without taking into account inflation, salaried employment has the highest average at KES 8,676 for the prior month, and pension at about half of that at KES 4,600. After salaried employment, pension and other, selling livestock has the next highest income, as expected. Government and other NGO payments potentially reflect a significant amount of income as well, averaging over 40% of average total income estimates at the point of follow-up study.

Figure 7. Income Estimates from Prior 30 Days (KSH) at Endline and Follow-up



For most of the income sources, the amount of income decreases from endline to follow-up. This decline combined with the increase in the percentage of households receiving income from many sources suggests that households are diversifying their income sources and collecting less income from each source.

Expenditures

The amount spent on common household expenditures in the prior 30 days, including cash spent and value of goods or services taken on credit, at baseline, endline and follow-up is shown in Table 10. **Total expenditures (cash and credit) on common household items is KES 9,277 (KES 7,137 inflation adjusted), which exceeds the total income estimate of KES 7,945 (KES 6,129 inflation adjusted) However, only cash expenditures are less than total income.**

Furthermore, it is possible that some participants who believed that BOMA would give them money or other assets if they met a certain threshold of poverty at the time of the follow-up survey may have underreported their income. Qualitatively, participants report being able to better "manage" themselves and their children in terms of their ability to provide for their children's needs and buy things for themselves, such as clothes and livestock. Before BOMA, they were begging and asking for credit, but now, "All of those problems are behind [them]", and they are respected contributing members of their communities (*A Longitudinal Assessment of the Rural Entrepreneurship Access Program 2017*).

"Before some people didn't even have any livestock and now they have some… [Now] you can buy clothes for yourself and we also bought clothes for our children," (Loglogo, Participant 10).

Table 10. Household Expenditures for Prior 30 Days (Adjusted for Inflation)

	Baseline	Endline	Follow-up- not adjusted for inflation	Follow-up- adjusted for inflation
Food for household consumption	4,928	6,873	5,421	4,166
Livestock and livestock-related expenses		413	1,238	951
Clothes for others		403	422	325
Other			362	271
Travel	112	236	345	261
Sweets, cookies, tobacco, miraa, and alcohol		149	296	230
House repairs	132	167	290	228
Clothes for yourself	281	317	282	217
Cosmetics (perfume, hair oil, red ochre, etc.)	181	137	237	183
Special events or ceremonies	85	291	235	182
Household items	0	198	178	136

Beads		112	127	98
Business investment (equipment, building materials, etc.)			107	80
Total expenditures, cash			7,090	5,448
Total expenditures, credit			2,188	1,689
Total expenditures, combined			9,277	7,137

Expenditure for livestock and livestock-related expenses increased dramatically by 66% reflecting the increase and importance of the livestock business for income and as a saving asset. The amount spent on clothes for others, house repairs, travel, cosmetics, beads and sweets, cookies, tobacco, miraa (khat) and alcohol increased from endline to follow-up, while the amount spent on food, clothes for the participant, household items, and special events or ceremonies decreased from endline to follow-up. That the majority of expenses increased from baseline to endline to follow-up for non-essential items, including on cosmetics, beads, and sweets, cookies, tobacco, miraa, and alcohol suggests that households' disposable income has increased.

School and medical expenditures both increased over time. School fees are being paid for members of considerably more households, increasing from 42% at baseline to 49% at endline, then jumping to 93% at follow-up. In Kenya, primary education is free, but costs for uniforms and books are not included, . expenses increase dramatically once a child enters secondary school This results in many children not being able to continue their education after graduating from primary school.

Data from FGDs shows that women, as a result of their BOMA businesses, are able to pay school fees, while before BOMA, they had to wait for their husbands to pay them as they were mostly away in livestock satellite camps (The BOMA Qualitative Report, 2017).

> ***"The worry was, some women were saying 'I'll take this child to school but who will pay the school fees. After class 8 let them stay at home' But since we joined BOMA, this program, everyone has a plan that when we have [to pay] school fees after class 8 we can get a loan and take our children to school" (Ngurunit Settled FGD, Participant 10).***

Participants expressed that the presence of the BOMA savings box is what has made it possible for them to send their children to secondary school, in that it has given them the ability to access loans. In many locations, prior to BOMA there was nowhere to get credit for a child to continue their education.

Table 11. School and Medical Expenditures (Adjusted for Inflation)

	Baseline	Endline	Follow-up	Follow-up-inflation adjusted
Total amount of money paid for school expenses and transport by others in the last year (among those reporting that school fees were paid)			8,573	6,554
Total amount of money paid for school expenses and transport by the household in the last year (among those reporting that school fees were paid)			19,028	14,455
Total amount of money paid for school expenses and transport by the household in the last year (among all participants)	924	3,933	17,626***	13,447***
Total amount paid for school expenses, by the household and by others (among those reporting that school fees were paid)		19,028	27,601	21,009
Total amount of money paid for medical fees, medicine, and transport to the hospital by others in the last year (among those reporting that household member received health care)			3,766	2,914
Total amount of money paid for medical fees, medicine, and transport to the hospital by the household in the last year (among those reporting that household member received health care)			8,147	6,262
Total amount of money paid for medical fees, medicine, and transport to the hospital by the household in the last year (among all participants)	678	1,570	5,533***	4,261***
Total amount paid for medical fees, medicine, and transport to the hospital in total, by household and others, in the last year (among those reporting that household member received health care)			11,913	9,175

Among the 93% of households for which school fees are being paid for at least one member, there are an average of 2.4 household members attending school. The total amount paid for tuition, uniforms, supplies, and transportation by the household increased dramatically from KES 3,933 at endline to KES 17,626 at follow-up (proving to be a statistically significant increase, at the 1% level, $p \leq 0.01$). Some of this increase at follow-up can be attributed to the average household having twice as many secondary-school aged children in secondary school (.21) then at endline (.10). The increase could also reflect a change in the cost of living, and an increase in school fees overtime. However, the questions used to estimate this expenditure are more rigorous and more accurate than in prior surveys (for instance, decreasing the chance of recall error). Unfortunately, it is not possible to understand the difference between a real increase in expenditures versus the improvements in data collection.

Reported total money paid for medical care and medicine by the household increased by 132% from KES 678 at baseline to KES 1,570 at endline, and by 336% from endline to KES 6,845 at follow-up (with the difference between the endline and follow-up proving to be statistically significant at the 1% level, $p \leq 0.01$). Increases for medical care and medicine are also striking at follow-up. 68% of households interviewed claimed that at least one person in their household sought medical treatment or bought medicine in the past year, and among those households, an

average of 1.3 people sought care. Adding in contributions from others outside of the household, medical expenditures at follow-up are estimated at KES 12,258. As with school fees, it is difficult to say if more people were treated as a result of an increase in health infrastructure (clinics, dispensaries and hospitals) at a county level or if costs have risen. Plus, data collection methods are now more accurate. Although others outside the household are helping with these expenses, it is possible that for both school and medical expenditures, households can contribute more money towards these expenses.

Savings Groups and Savings

A majority of BOMA savings groups SGs are active several years after exiting REAP. At follow-up, 73% of 387 respondents report that their BOMA SG is still active (with 21% knowing for sure that it is not active), and 71% are still a member. Among those whose BOMA SGs are active, 98% are still a member of the SG, and among those who are members of a BOMA SG, 96% have savings in the SG. In a given SG, approximately 87% of the average 12.8 members are from the original group (11.1). Reasons for SGs coming to an end, as gleaned from BOMA field staff, include loan default, members not meeting due to living far apart from each other and losing the support of the BOMA mentor. The loss of mentor support for savings groups had a greater impact as women without literacy and numeracy skills had challenges keeping accounts.

Table 12. Summary of Savings Group Activity at Follow-up

	Follow-up	
BOMA SG still active	**N**	**Percent**
Yes	82	21%
Not Sure	22	6%
No	281	73%
Still a member of a BOMA SG	274	71%
If your BOMA SG is still active, are you still a member of the SG?	274	98%
If you are a member of your BOMA SG, do you have savings there?	260	96%
Group had share out where members took savings	45	14%
Which describes what happened after the share-out?		
A new group started (with some new members)	2	5%
No new group was started	20	46%
The group started over again after the share-out	22	50%
What are some examples of how people (not necessarily you) used their money after the share-out?		
Personal use	20	48%
Expanded business	13	31%
School fees	6	14%
Started business	3	7%
Bought livestock	3	7%
Built/renovated house	3	7%
Everyone took to do their own business	1	2%
Has another savings group started in the area after this one, either with some of the BOMA participants or without?	63	19%

Avg number of members in SG	12.8
Avg number of original members in SG	11.1
Avg total amount of savings in box	26,023
Avg total amount out on loan	27,591

"Before, we didn't have money to give our children when they would go to school. When our children are sent from school because of school fees, our children come and stand with us and walk around with us and we have nothing to give them to go back to school. A mother walks around walks around and if God brings them some money, we can send them back to school. When we enrolled in BOMA, we have never had any time where our child is sent to school and misses something from us" (Kargi Semi-Nomadic FGD, Participant 15).

On average, the amount of savings in a BOMA SG is estimated at KES 26,023, and another KES 27,591 is out on loan. More is out on loan than in the box due to security issues: it is less likely to be stolen when out of the box, and when spread out between the box and loans, in case of calamity, it is unlikely that all the savings will be lost. Participants also reported that they can now pay for any expense themselves. There was a minimal change in the amount of savings with a BOMA SG from endline (KES 8,746) to follow-up (KES 8,778).

In a qualitative assessment, participants reported that savings with their BOMA savings group and the savings box allows them to respond to emergencies (such as a drought or medical emergency), prevent children from missing school when their school fees have not been paid and the husband is away at a satellite camp, and send children to secondary school (*A Longitudinal Assessment of the Rural Entrepreneurship Access Program 2017*).

Only a small percentage (14%) report that their BOMA SG has had a share-out where the group stops saving and members get their cash contributions, plus any interest income. This low number could be due to a misunderstanding in what "share-out" means among respondents. In addition, BOMA's savings program does not include a share-out, so participants have adapted to more common practices of village savings and loans associations. Share-out had mixed success in terms of group continuity. Half (50%) reported that the group restarted again, a few said that a new group started with some new members (5%), and for the rest, the group ended altogether (46%). That almost half ended after a share-out is not surprising; BOMA originally set up its savings groups without a share-out because other savings groups that started in the region with share-outs subsequently did not restart. Following the share-out, many used the cash for personal use (covering a variety of expenses) and for expanding their business. It should be noted that the uses of share-out in the chart below represent only a small percentage of overall women in savings groups.

These figures are simply an estimate, and the percent of participants who are still members of their BOMA savings group is likely an overestimate, as there was some confusion at the time of the survey between BOMA savings groups and other savings groups started in the same areas by Care. Only 19% report knowing of another savings group starting in the area. While this estimate is based on self-perception, rather than a census of groups, from a programming standpoint it is helpful to know that members are aware of other groups, and that some groups have replicated.

Predictors of Success

Compared to those living in a settled village, participants in a semi-nomadic village are almost 3 times as likely to be a member of a BOMA SG ($p \leq .01$).

Table 13. BOMA Savings Group Outcomes at Follow-up by Demographic Variables

	Member of a BOMA savings group		Average amount of savings in BOMA savings group
	N	**Percent**	**Average**
Type of village			
Semi-nomadic	132	83%	5,245
Settled	136	62%	10,849
P-value	*<.01*		*<.01*
Distance from main town			
30-107 km	181	69%	8,225
107-184 km	81	76%	9,732
184-261 km	13	72%	5,100
P-value	*.44*		*.03*
Type of business			
Livestock	49	92%	9,329
No livestock	171	80%	8,118
P-value	*.03*		*.05*

Participants with a livestock business are over 3 times as likely to be a member of their BOMA SGs than participants with a non-livestock business, such as a duka. ($p \leq .05$). Type of business is a predictor of amount of savings in the BOMA SG ($p \leq .05$)**. Of those owning a livestock, 92% business are still members of a BOMA savings group, compared to 80% of those who own a non-livestock business. ($p \leq .01$) The average savings in a BOMA savings group is higher among those owning a livestock business (KES 9,329) than those owning other types of businesses (KES 8,118), and this is significant at the 5% level ($p \leq .05$).**

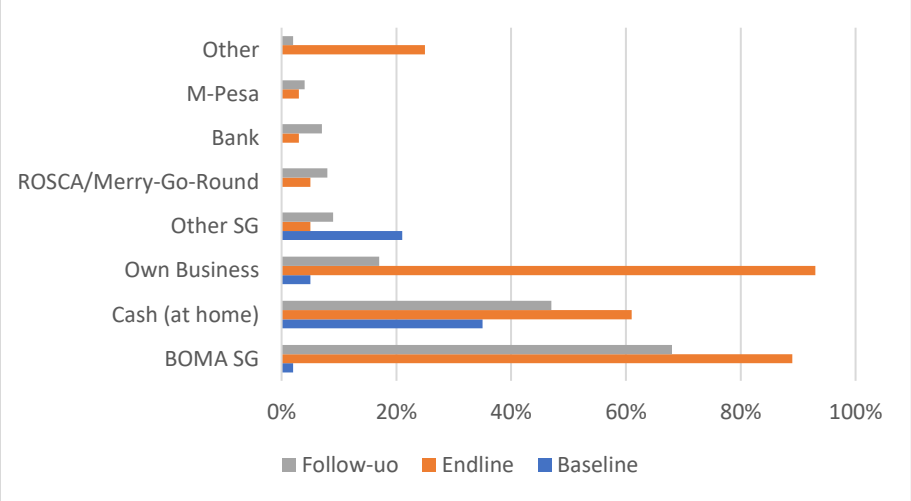
Table 14. Predictors of BOMA Savings Group Outcomes

	Member of a BOMA savings group	Amount of savings in BOMA savings group
	Odds ratio (95% confidence interval)	**P-value**
Type of village		
Semi-nomadic	2.91 (1.79, 4.75)***	N/A[7]
Settled (ref.)	--	
Distance from main town		
30-107 km		N/A[8]
107-184 km		
184-261 km		
Type of business		
Livestock	3.15 (1.08, 9.21)**	.04
No livestock (ref.)	--	

*Significant difference between outcomes: *p≤0.1 (10%), **p≤0.05 (5%), ***p≤0.01 (1%)*

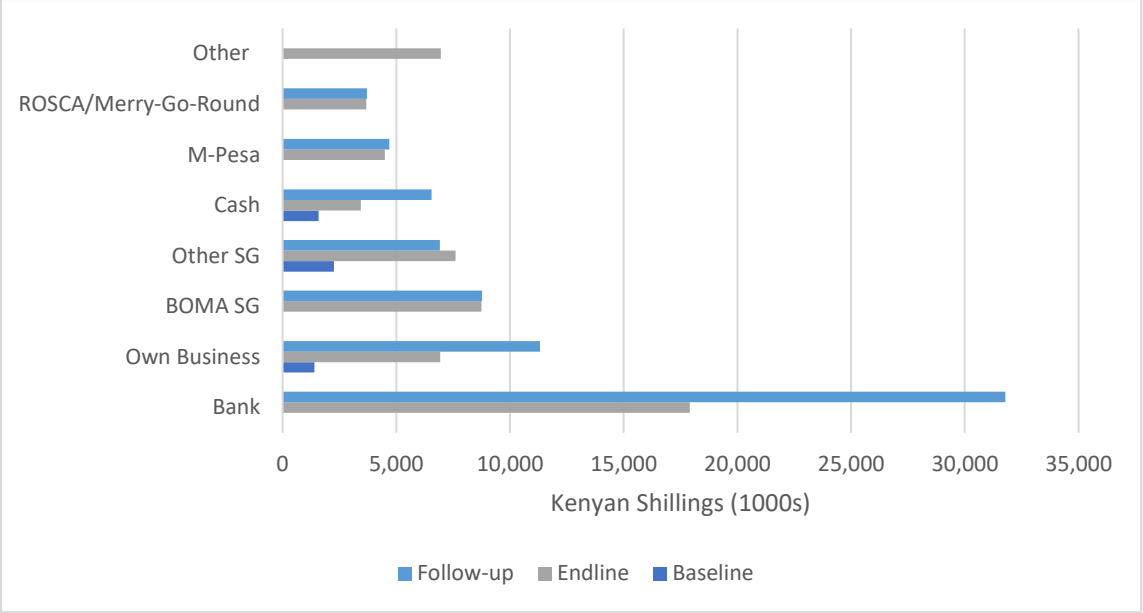
The data in Figure 8 looks beyond BOMA saving groups to illustrate the most common savings mechanism among prior REAP participants. At endline, savings was mostly held with the woman's business, the BOMA SG, or in cash that is being saved but is not available for daily expenses. At follow-up participants were using a greater diversity of saving options, although there is only a small increase in the percentage of people using less common savings methods, such as a non-BOMA SG, ROSCA/merry-go-round, bank or M-Pesa. This indicates a shift in how they manage their savings post-REAP. People may be saving in the form of livestock, the traditional form of savings. As discussed further in the next section, household livestock ownership has increased from endline, though women's livestock ownership has decreased.

Figure 8. Most Common Savings Mechanisms



[7] Predicts success perfectly.
[8] Predicts success perfectly.

Figure 9. Average Reported Amounts of Savings by Mechanism



T**he percentage of women saving in cash decreased from 61% to 47%, but the amount of cash savings increased by 91% from KES 3,438 to KES 6,557**. **For those that were saving money within the business, there was a 66% increase over the amount saved at endline and a 91% increase in money saved in cash within the household.**

Much fewer women report saving in their business at follow-up than at endline, declining from 93% to 17%, but among those who do have savings in their business, the amount of savings increased by 63% from KES 6,931 to KES 11,317. **Among the women who have savings in a bank, the amount of savings increased by 78% from KES 17,900 at endline to KES 31,777**, and illustrates a shift towards formal banking.

"In our savings groups and in manyattas also men were looking down, and now they recognize us in our savings because we have savings and money we have something. People recognize you out of that. Sometimes some men also who want to go into Nairobi will come and borrow some money from you. Then they repay with some profit. BOMA has actually promoted women in that." (Korr Semi-Nomadic FGD, Participant 3).

For those who have money saved within these savings instruments, the largest average amounts are in a bank, followed by the participant's business, cash, the BOMA savings group, another savings group, M-Pesa, and merry-go-rounds. As the financial ecosystem has expanded in the region, BOMA participants have diversified their locations for keeping savings and have entered into formal banking systems with an increase in digital banking despite literacy and numeracy barriers. Still, only 9% of participants are saving in a bank at follow-up. Lastly, the average total amount saved at follow-up, for all respondents, is KES 14,738. This is barely over half of the KES 27,882 saved at endline, and the decline is statistically significant at the 1% level ($p \leq 0.01$).

It is not clear why savings dropped - a variety of factors could influence savings, such as payment of school fees at the time of data collection, investing in livestock, increased expenses during droughts that drain funds over time, etc. A consideration to help explain the drop, however, is also access to financial instruments that help hold and accrue savings. For instance, for women who are no longer active in savings groups, they could be struggling with maintaining savings amounts without the commitment device of the group.

Still, participants reported during FGDs that while the impact of a drought on livestock is a major stressor, having savings that they didn't have before BOMA provides them with a cushion *(A Longitudinal Assessment of the Rural Entrepreneurship Access Program 2017*). At follow-up, 86% reported having some form of savings, compared to 92% at endline. It is impressive that almost all women still had savings at follow-up, compared to the 40% who had savings at baseline, especially given that the mentors were no longer providing formal support to the BOMA SGs.

Livestock Ownership

The changes in the percent of household livestock assets is quite striking. The data shows large increases in the average number of livestock the household owns. During FGDs, participants expressed that as a result of participation in BOMA, they now have money to buy livestock for themselves (*A Longitudinal Assessment of the Rural Entrepreneurship Access Program 2017*). The percentage of households owning each type of livestock did not change significantly from endline to follow-up. The largest change was in the ownership of cattle; the percentage of households reporting ownership of cattle decreased from 55% at endline to 46% at follow-up.

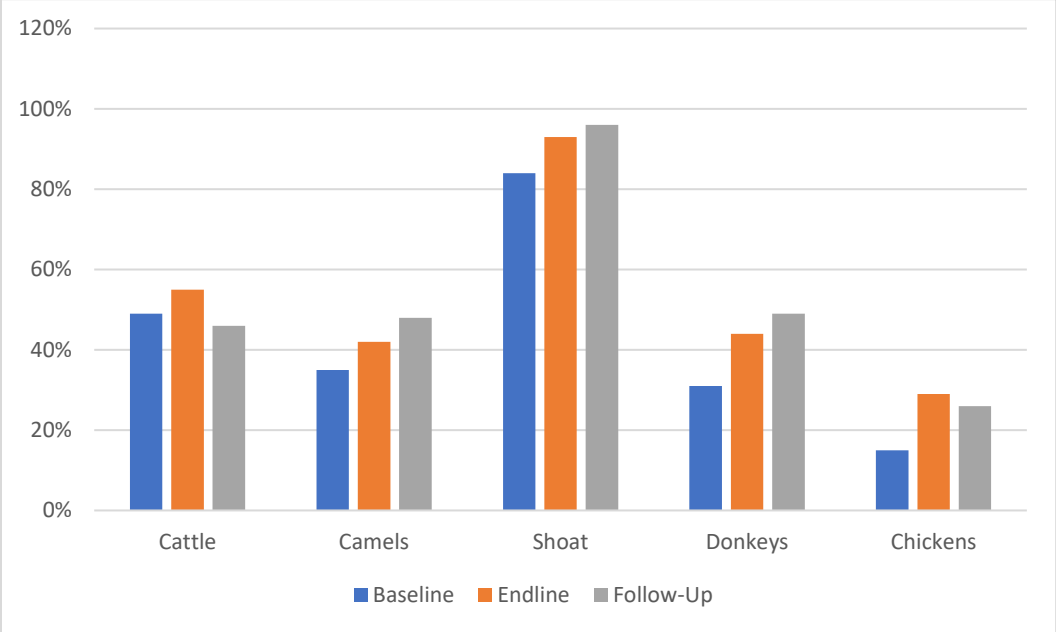
Cattle are less resilient to drought than the other types of livestock, and many died during the drought, which may explain the decline in cattle ownership. In addition, Field Staff confirmed that during the conduct of the survey, there were no restocking programs- but rather a destocking program conducted by the government which buys livestock during droughts. Other reason for reduction in cattle may include:

- Cattle were most often cared for in remote satellite camps;
- Livestock that is purchased by women may be considered to be owned by the HH and not the women specifically; and
- Women are regularly buying and selling livestock and using the income for HH consumption. Because of the rapid turn-around time of purchase and reselling by women at livestock markets, the livestock asset may not be present at the time of the survey.

Lower-value livestock such as donkeys and chickens saw a minimal increase. Shoats (goats and sheep) represent the largest percent of livestock ownership. In addition to the lower investment cost, they are more drought tolerant.

BOMA calculates livestock ownership through the use of *tropical livestock units* (TLU), which converts livestock numbers to a common unit. 1 TLU = 0.7 camel; or = 1 cattle; or = 10 shoats; or =2 donkeys; or = 100 chickens.

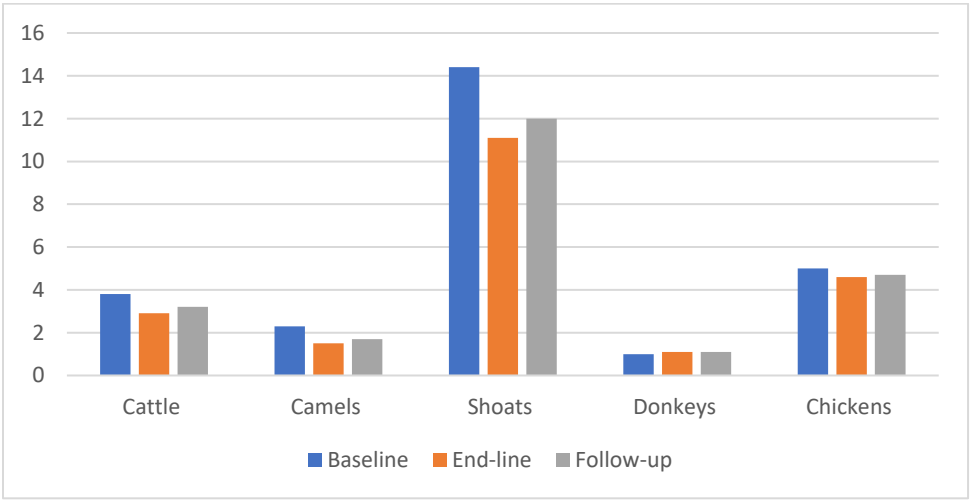
Figure 10. Household Ownership of Livestock Types



The 51% increase from 8.2 to 12.4 TLU for the household from endline to follow-up proved to be statistically significant at the 5% level (p≤0.05).

There was a 49% decrease for livestock owned by women from 7.2 to 3.7 TLU, and this proved to be statistically significant at the 1% level (p≤0.01). This is notable considering the survey was undertaken when the region was facing ongoing drought cycles.

Figure 11.Average Number of Livestock Owned by Respondents



The increase in household TLU implies that households have had the ability to invest more money in livestock over time and have prioritized it due to an increase in their income earning potential. During FGDs, participants expressed that as a result of participation in BOMA, they now have money to buy livestock for themselves (*A Longitudinal Assessment of the Rural Entrepreneurship Access Program 2017*). Despite this, quantitative data shows a decrease in women's TLU. Overall, though, this increase in major assets is an encouraging sign for the wealth of these otherwise vulnerable households.

Table 15: Summary of Livestock Owned by Respondents

	Baseline		Endline		Follow-Up		Total	
Does your household own livestock?	**N**	**Percent**	**N**	**Percent**	**N**	**Percent**	**N**	**Percent**
Cattle	220	49%	141	55%	176	46%	537	49%
Camels	163	35%	88	42%	182	48%	433	41%
Shoat	381	84%	241	93%	363	96%	985	90%
Donkeys	141	31%	113	44%	185	49%	439	40%
Chickens	68	15%	74	29%	100	26%	242	22%
Avg number of livestock owned (among participants whose HHs own that type of livestock)								
Cattle HH owns	2.6		5.8		8.4		5.3	
Cattle woman owns or controls			3.8		2.9		3.2	
Camels HH owns	2.7		4.0		7.4		5	
Camels woman owns or controls	0		2.3		1.5		1.7	
Shoats HH owns	11.5		22.3		32.2		21.8	
Shoats woman owns or controls	0		14.4		11.1		12	
Donkeys HH owns	1.3		1.6		1.7		1.5	
Donkeys woman owns or controls			1.0		1.1		1.1	
Chickens HH owns	3.2		4.6		4.8		4.3	
Chickens woman owns or controls			5.0		4.6		4.7	
TLU of livestock (among all participants)								
Livestock HH owns	3.7		8.2		12.4**		7.8	
Livestock woman owns or controls			7.2		3.7***		5.4	

*Significant difference between the endline and follow-up outcomes: *p≤0.1 (10%), **p≤0.05 (5%), ***p≤0.01 (1%)*

Regarding the decrease in the total number of households that own cattle while more cattle are owned per household (but not the case for camels or shoats), this could be attributed to the change described in the Feinstein International Center's analysis framework of "Moving Up, Moving Out," where wealthier pastoralists are commercializing (acquiring more livestock for larger markets), and poorer herders are leaving the trade altogether (Catley 2017). Additionally, the increase in shoats likely reflects a shift away from cattle to more adaptive animals during times of drought, since shoats can endure difficult weather conditions over time.

Although household livestock ownership has increased significantly, it is important to understand why ownership has decreased for women. This finding is surprising considering the increase in livestock market locations along with recent observations by BOMA staff of current REAP participants engaging directly in these markets, a new development that may affect livestock

ownership length and patterns of business. While women traditionally kept small numbers of livestock in the household for milk, their engagement in livestock trading challenges traditional gender norms. Women may also be specializing in shoats which are a lower cost investment, they require less graze and water, and do not compete head to head with men buying and rearing cattle and camels.

Men typically do the herding and control the large livestock assets. The few numbers of cattle and camels owned by women in the data reflect ownership of widows or women who are separated from their husbands at follow-up. If women do own cattle they are traditionally given to men to care for in livestock satellite camps, accounting for a decrease in the number of cattle women say they control.

Ownership of cattle and camels by women may be influenced by REAP participation but acquired animals may be immediately considered owned by the household, or contributed to the household by the women, due to their large value. Another explanation for the decline could be that women, with greater access to markets, are regularly buying and selling livestock weekly (hence attendance at nearby livestock market places) and using livestock for household consumption, and thus do not keep large amounts of livestock at any one time, including during the survey period. At endline, there was a 35-percentage point increase in households earning income from livestock.

In subsequent evaluations it would be useful to know if there are changes in related indicators to better understand the decline in women's control and ownership, such as whether more women are trading directly in the markets, and how women perceive ownership of livestock that they purchase (whether it belongs to them or the household).

Food Security

The average number of times children ate increased by 6% from 2.10 at endline to 2.23 at follow-up. This increase is statistically significant at the 1% level ($p \leq 0.01$). Children may eat slightly more than their parents, who ate 2.05 times per day at follow-up, because they get lunch provided at school. Food security outcomes over time are encouraging in terms of improvements in the well-being of prior REAP participants. Although the average number of times per day the respondent ate food did not change much, hovering close to 2 for each data point, pastoralist families typically only eat two meals per day.

"Before I was just sitting on the chairs in the house and I stayed with my children in the shade of the house until my children became weak because of them starving. When we tried to walk up, we see they want to fall and I see that they are becoming weak… Nowadays that has changed. It's not about starvation now, it's about mboga (greens). We are not cooking less preferred food. Nowadays we are cooking royco, I cook beans, I cook spices… even cabbage! And I didn't know all these things before, but now life has changed," (Ilaut FGD, Participant 13).

Participants shared during FGDs that before BOMA, their children were often starving and malnourished, and they could not provide for them. Women now say that their kids are eating more. Furthermore, they have more dietary diversity. With income from their business, it means that food is always available for the children and other

family members. The adequacy of the diet and dietary diversification were frequently cited changes since joining BOMA reported by participants in the qualitative assessment.

> ***"They (children) feed on all types of food, even the kinds of food I don't usually get to eat… And they shall also grow up and get good health because there is not a single day that they go to bed without food. And before, sometimes the children would go to bed without food and we only eat one kind of food. And sometimes we just eat little and go to bed. We mostly ate one single type of food, and now that has changed. Now, there's not one single type of food that we eat now. We also have money to buy those different types of food."***
> ***(Ngurunit Semi-Nomadic FGD, Participant 8).***

Another notable change, and even more striking, is the change in the frequency that children have gone to bed without an evening meal in the last 7 days: rates of 40% at baseline dropped to 28% at endline and then to 13% at follow-up. Going to bed without an evening meal in the past 30 days also dropped from baseline at 70% to follow-up at 28%, although the endline result was even lower at 16%; reasons for this dip and then increase are not known, although questions asked from endline to follow up were changed from asking how many times children went to bed hungry to how many times children went to bed without an evening meal.

Table 16: Food Security Indicators

	Baseline		Endline		Follow-up	
Avg number of times per day ate food in last 7 days	1.95		2.04		2.05	
Avg number of times per day children in household ate food in last 7 days			2.10		2.23***	
	N	**Percent**	**N**	**Percent**	**N**	**Percent**
Children have gone to bed without an evening meal (due to lack of food or lack of money to buy food) in last 7 days	2	40%	75	28%	50	13%***
Children have gone to bed without an evening meal (due to lack of food or lack of money to buy food) in last 30 days	315	70%	20	16%	105	28%***
Has ever received food aid			171	72%	334	88%***
If yes, when was the last time you received food aid?						
In the last 30 days			13	54%	221	66%
1-6 months ago			10	42%	101	30%
7-12 months ago			1	4%	7	2%
More than 1 year ago			0	0%	5	2%

*Significant difference between the endline and follow-up outcomes: *p≤0.1 (10%), **p≤0.05 (5%), ***p≤0.01 (1%)*

At baseline and endline, the reason the percentage of participants with children going to bed without an evening meal is higher for the past 7 days than the past 30 days is because different cohorts responded to the question asking about the past 7 days than the cohorts that responded to the question asking about the past 30 days. As with the number of times the children ate per day, changes in these two evening meal indicators also proved to be statistically significant at the 1% level ($p \leq 0.01$).

> *"Before, when the husband was away with livestock and there was drought, and you weren't with BOMA, we were moving around with cups begging for something little to cook for kids. And the husband, you are sending the message to your husband to sell something for you and your kids… If it was depending on the husband, children will faint from starvation kind of. Now that's no longer there, we operate our business, we no longer ask husbands to sell goats for us. We no longer wait for husbands to give us, to bring money or to sell goats there" (Korr Settled FGD, Participant 11).*

Due to the drought, many participants received food aid in the preceding months of the survey. Receiving food aid is higher at follow-up (88%) than at endline (72%). 66% reported receiving it in the prior month, and an additional 30% received it 1-6 months ago. It is challenging to assess the degree or likelihood that REAP participation has influenced the increase in food security or the role food aid has played since food aid is distributed without any specific targeting methodology to identify the most vulnerable, but we may assume it has had some role in food security at time of the study. Typically, food aid distribution is blanketed to the region by village. The percentage of households receiving cash transfers from NGO's or the government increased from endline to follow-up.

At the time of follow-up, cash transfers were provided by the World Food Programme (WFP) (Mwendwa, 2018). Food for Assets and Cash for Assets were providing 50% of a monthly food basket in the form of food or cash. Supplementary feeding programs continued, such as one implemented by the WFP, which provided assistance twice a month to all children 6-59 months and all pregnant and breastfeeding mothers in Kargi, Korr, Laisamis, Loglogo, Loiyangalani, Ngurunit, and South Horr ("Kenya - Food Security Outlook: Tue, 2017-10-31," 2017; "Kenya - Food Security Outlook: Wed, 2018-02-28," 2018).

At endline, food aid was also prevalent. According to the Marsabit County Department of Agriculture, Livestock and Fisheries Development, the most important source of food for the "very poor" in 2013 was food aid, and in March 2014, the county was "heavily [dependent] on relief food" (2014). Nationwide, food insecurity was high between 2014 and 2015, and the World Food Programme provided significant food assistance (County Government of Marsabit, 2016; Lawrence-Brown, 2014). Although these cohorts of REAP participants were receiving food aid at endline, at follow-up, 66% reported receiving food aid in the past month compared to 54% at endline (though statistical significance has not been determined). **Nevertheless, the children in these households are faring better than they were a few years prior.**

Empowerment

Household Decision-Making

Pastoralist communities, including those where BOMA works, are generally patriarchal. Household decision making in pastoralist areas rests heavily on the male head of the family, who traditionally is the sole decision maker in key decisions regarding sending children to school, purchasing livestock and paying for medical expenses, among others. Women have very little role, if any, in household decisions and are rarely consulted by their husbands.

"Nowadays we also have something that belongs to us. Before, it was only the husband who had authority over everything and we didn't have anything. It's now changing that husbands are borrowing from us, we do not borrow from them anymore. Now the husband knows that we now have something that we own and they also respect us on that," (Ngurunit Semi-Nomadic FGD, Participant 6).

Tables 17, 18, and 19 exhibit results from indicators of women's empowerment. Table 16 starts with household decision-making outcomes from the follow-up. Since these indicators are relatively new to BOMA's regular data collection, there are no comparable questions from the baseline or endline surveys.

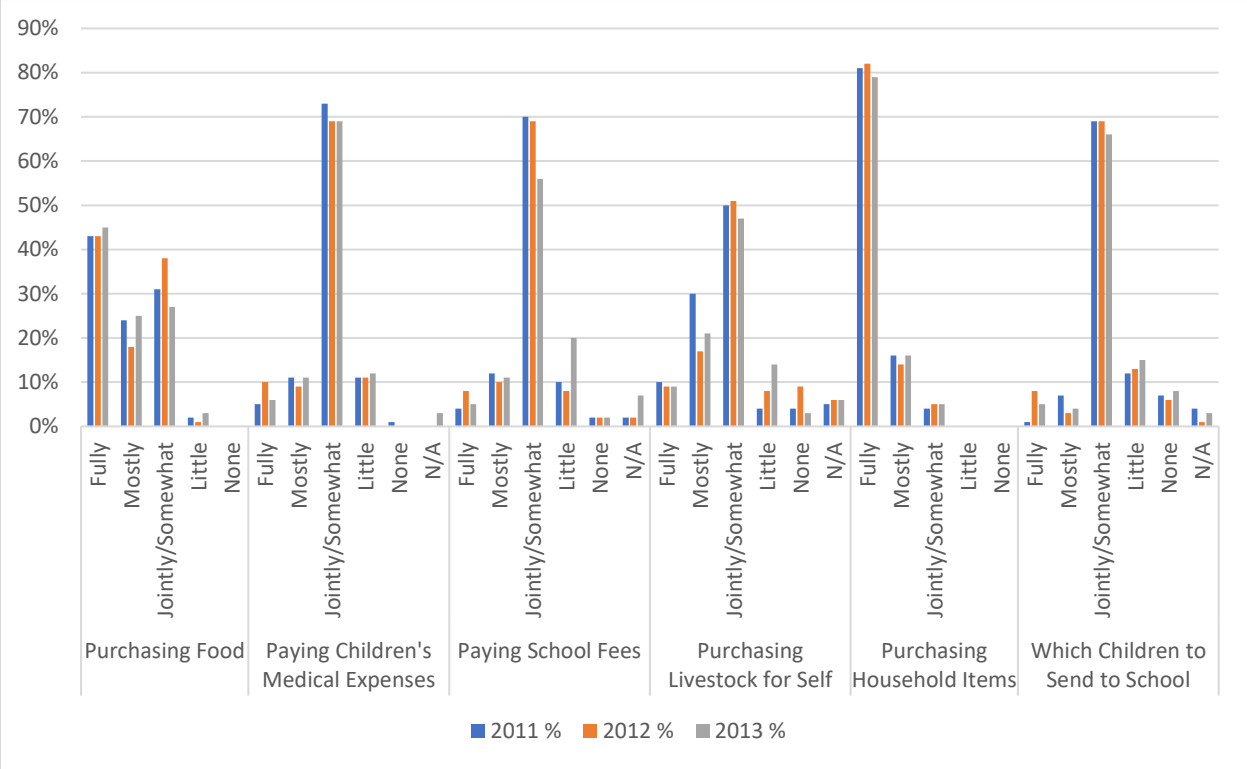
The survey asked, "To what extent are you involved in household decisions regarding…" for six types of decisions. Respondents could choose from six answer options:

- Fully – I can make the decision without consulting my husband
- Mostly – I make the decision with some consultation from my husband
- Jointly – I make the decision jointly with my husband
- Little – My husband makes the decision with some consultation with me
- None – My husband makes the decision without consulting me
- N/A

The 2018 outcomes from graduated participants are instead compared to a "proxy baseline," or a baseline with a cohort starting REAP in March 2017. The assumption is that women starting the program in March 2017 may have similar perceptions on household decision-making as participants in this longevity study when they started in 2011-13. Participants who are not married (25%) did not answer questions about household decision-making since they do not have a partner with whom to make decisions.

Eighty-six percent of the 2011 cohort makes that decision fully, mostly, or jointly, compared to 72% of the 2013 cohort. The biggest difference is seen in decision making about paying for school fees, in which the percentage of participants making this decision jointly with their husbands is 70% for the 2011 cohort but 56% for the 2013 cohort.

Figure 12. Involvement of Respondents in Household Decision-Making (2011-2013)



Decisions are more likely to be made jointly, mostly, or fully for participants who graduated 5 years ago versus 3 years ago suggests that empowerment outcomes may improve over time for REAP participants. For household decision making, the total percent reporting that they make decisions jointly, mostly, or fully is higher in the 2011 than in the 2013 cohort for decisions about purchasing food, paying school fees, purchasing livestock for yourself, and deciding which child to send to school, and it was the same for decisions about purchasing household items.

Even though for paying children's medical expenses, there was an increase in 3% from the 2011 to 2013 cohort in the percent of participants make the decision jointly, mostly, or fully, in 2013, an additional 3% said that the decision was not applicable. For some decisions, the percent of the 2012 cohort reporting that they make decisions jointly, mostly, or fully was higher than both the 2011 and 2013 cohort values.

For all the questions, the number of women who report making decisions jointly is significantly higher in the follow-up cohort 3-5 years after graduation than in the March 2017 cohort at baseline. This includes differences for purchasing food ($p \leq 0.01$), paying for children's medical expenses ($p \leq 0.01$), paying school fees ($p \leq 0.01$), purchasing livestock for herself ($p \leq 0.01$), purchasing household items ($p \leq .05$) and deciding which children to send to school ($p \leq 0.01$).

Furthermore, the percent of participants making each decision fully, mostly or jointly is higher in the follow-up group than in the March 2017 baseline cohort. This suggests that women gain more decision-making power in their households as a result of REAP participation.

However, results from the question, "Do you have an equal opportunity as your husband in making decisions," show mixed perceptions amongst the sample. **Fifty-four percent of the women say they do not have equal decision-making opportunity as their husbands, while 33% say they do, and 13% report they are not sure.** Unfortunately, there is no data from baseline, endline or the March 2017 baseline cohort to compare.

Table 17. Involvement of Respondents in Household Decision-Making at Baseline and Follow-up

	March 2017 Baseline		Follow-up	
	N	Percent	N	Percent
Do you have an equal opportunity as your husband in making decisions?				
Yes			94	33%
Not sure			37	13%
No			155	54%
How involved are you in household decisions about…?				
Purchasing food				
Fully	324	45%	126	44%
Mostly	212	29%	64	22%
Jointly/somewhat	146	20%	90	32%***
Little	32	4%	6	2%
None	8	1%	0	0%
Paying children's medical expenses				
Fully	45	6%	21	7%
Mostly	96	14%	29	10%
Jointly/somewhat	372	53%	200	70%***
Little	135	19%	32	11%
None	44	6%	1	1%
N/A	6	1%	3	1%
Paying school fees				
Fully	36	5%	16	6%
Mostly	66	10%	31	11%
Jointly/somewhat	287	41%	184	65%***
Little	140	20%	37	13%
None	52	7%	6	2%
N/A	117	17%	12	4%
Purchasing livestock for yourself				
Fully	94	13%	26	9%
Mostly	148	21%	64	22%
Jointly/somewhat	147	20%	139	49%***
Little	73	10%	26	9%
None	88	12%	15	5%
N/A	172	24%	16	6%

Purchasing household items				
Fully	588	81%	230	80%
Mostly	113	16%	43	15%
Jointly/somewhat	15	2%	13	5%**
Little	2	1%	0	0%
None	4	1%	0	0%
Which children to send to school				
Fully	23	4%	14	5%
Mostly	42	7%	13	5%
Jointly/somewhat	248	41%	193	68%***
Little	126	21%	39	14%
None	141	23%	20	7%
N/A	30	5%	7	2%

Although an increase in joint involvement across a variety of indicators is positive, it is worth asking if there are areas where more women should have full involvement, or make decisions without consulting her husband, such as purchasing livestock for herself.

"It is not like how it was before with husbands deciding everything. We must consult on everything. He consults me, I also consult him. We are seeing that it's improving. It is moving from where it was before and we are somewhere now," (Ngurunit Semi-Nomadic FGD, Participant 10).

The results from the FGDs indicated that since joining BOMA, women have become co-actors in household decisions and have expanded their previously restricted role. Based on data from the qualitative assessment, this shift occurs because men validate their wives' financial contributions to the household by making space for more joint consultation. Participants report that their marriages are improved as result of being able to buy things for their husbands and their families, and their husbands appreciate them more than before.

"Our husband loves what we do. The husbands admit the groups have actually helped them. When your child is sent from school because of fees, even those in primary level, they tell you, 'Mom, I need some money for fees or monthly school charges.' The children run to their mothers and the mothers give them some money. And that group has actually helped both of us, and the husbands know that." (Loglogo FGD, Participant 4).

Social Standing and Community Engagement

Social standing of BOMA participants in the community has changed as a result of participants' success with BOMA. Whereas before they viewed themselves as a burden to society, participants are now contributing in meaningful ways, which has positively affected their social status.

"My community in Rendille was saying women cannot do anything… [BOMA] gave us names and changed this and removed the poverty in us. It has changed our lives a lot." (Ilaut, Participant 13).

Within a patriarchal society, a women's role in the community is minimal. Traditionally, it is only men that participate in community meetings (barazas) and women do not attend. Participants reported that since joining BOMA, they are now comfortable attending and speaking in public meetings.

Across FGDs, there were reports of gradual but sustained improvements in women's participation in meetings.

In Illaut, the most remote location of all FGDs, one woman described the magnitude of change that has occurred in her community:

> ***"What made us to speak now in the barazas is being in this program. And for now, there's nothing that we can compare with this program of BOMA. My community in Rendille we were saying women cannot do anything… That life, that changed where men are turning to me now, it has changed. That is the life that the program has changed. BOMA made my neck big, made me stand out…We can stand even in baraza until people clap for us." (Ilaut, Participant 13).***

One participant from Korr described the influence REAP has had on women in her community:

> ***"In Rendille culture, women don't have much rights. Since they joined BOMA, they now become recognized because they have some strength and they have their voices also. People can hear their voices." (Korr Semi-Nomadic FGD, Participant 3).***

Participants also described themselves as respected mentors in the community who are frequently consulted for business advice. Participants openly share business advice so that others can benefit from this knowledge.

> ***"For those who were also not in BOMA, they also see us, how we operate and also we advise them on what they should do. We tell them this and this, this is what you should do. We can also tell them, 'if you have this money, buy this kind of stock, if you have little do this.' And they also have small businesses because they have seen from us. Because they saw us struggling and they are seeing everyone now with some kind of business and are doing something for ourselves and they learn from us." (Ngurunit Settled FGD, Participant 7).***

Finally, participants expressed that there is evidence their status has changed in the community because now they are always asked to buy goods and support community fundraising efforts for medical fees, school fees and other emergencies or events.

> ***"We go to the market and everyone is always pushing you to buy their own goods as if we have so much money" (Korr Settled FGD, Participant 5).***

> ***"I have benefitted a lot and have gotten a lot of skills from the BOMA training. If people want fundraising now, I'm the person they will come to first. I will not be bypassed." (Korr Settled FGD, Participant 12).***

Part of the FGDs involved a visual data collection component that asked participants to indicate their social standing before and after participating in REAP on a scale from 1 (lowest) to 7 (highest). The results from all the five sites indicated that participants considered significant improvement in the way they were perceived by the community members since joining REAP. Figure 1 and 2 provide the graphical presentation of the changes as observed in Ilaut and Loglogo.

Figure 13. Loglogo participants` Self-evaluation of Their Social Standing in Their Community Before REAP and at Present

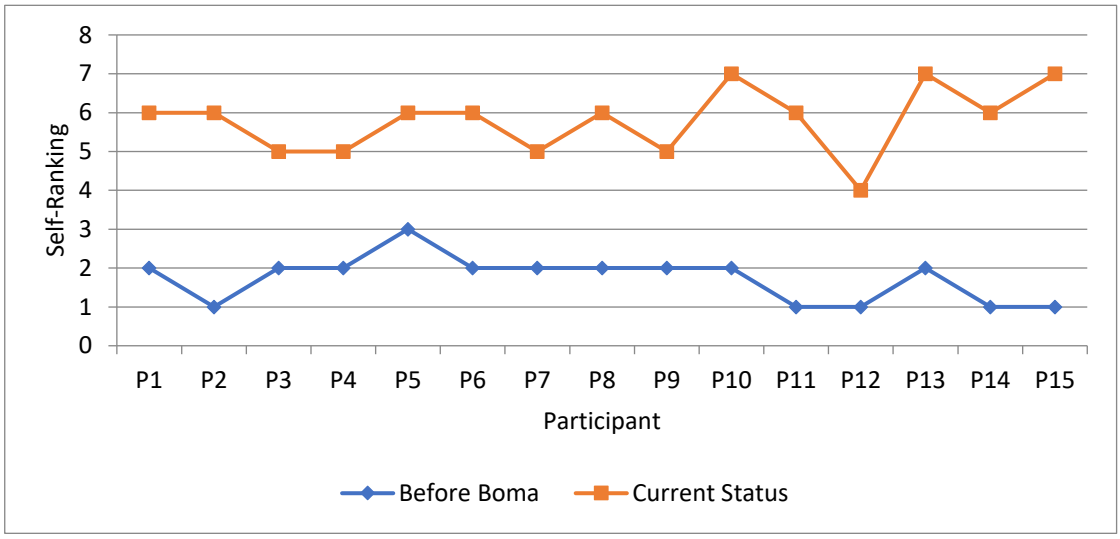
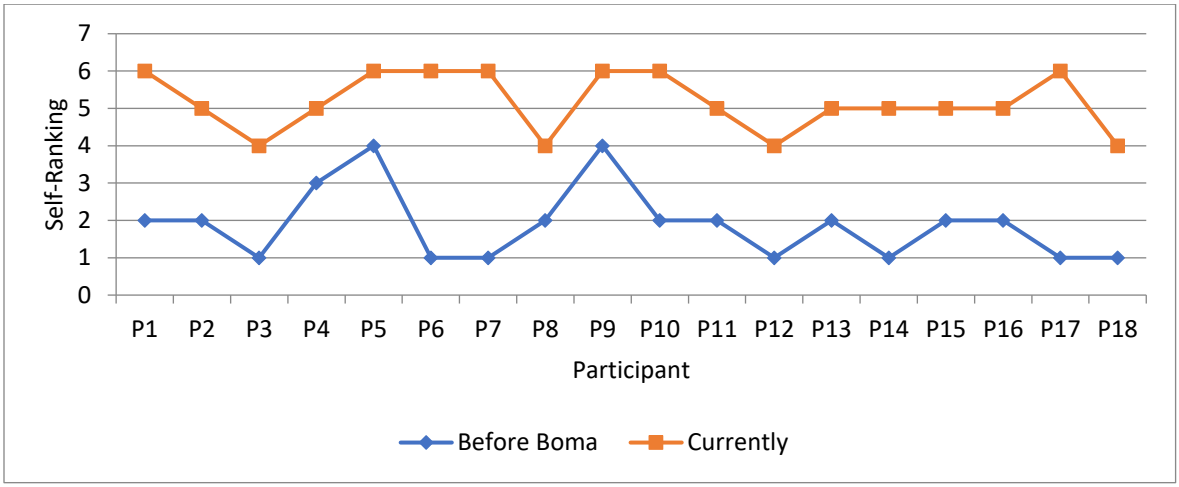


Figure 14. Ilaut participants` Self-evaluation Of Their Social Standing In Their Community Before REAP and at Present



The main reasons provided for the improvement in social standing included ownership of business, diversification of sources of livelihoods, ownership of livestock, ability to provide for children, acquisition of household assets, improved access to credit, ability to save, ability to pay school fees and take children to school, and ability to provide good clothing and food for household members. Among these factors, ownership of livestock, availability of savings, access to credit, and ability to take children to school stood out prominently in all locations. In summary, there is a much greater respect from the community towards women following participation in REAP.

> ***"We were like sheep with a black neck and no ears, but now we are almost like the government." (Korr Settled FGD, Participant 7)***

Fifty-seven percent report attending public meetings, and 68% are either completely or somewhat comfortable with speaking up at public meetings. The second area of quantitative analysis for women's empowerment in the study is engagement in the community. Results from the community engagement indicators, only collected at the 2018 follow-up, show a fairly engaged group of women.

Table 18. Community Engagement Indicators

	Follow-up	
	N	Percent
Attend public meetings	217	57%
If you attend public meetings, how comfortable do you feel speaking up at them?		
Completely comfortable	47	22%
Somewhat comfortable	99	46%
Not at all comfortable	71	33%
Donate to fundraisers in the community	337	89%
Frequency of donations, among those who donate		
Every month	1	1%
A few times a year	155	46%
Once a year	181	54%
Ever not been able to contribute due to a lack of money, among those who donate	182	54%
Provide business advice to others	220	58%
If you provide business advice, to whom do you provide it? (multiple responses possible)		
Current and past BOMA participants	169	77%
Women not in BOMA that want to start a business	141	64%
Men that want to start a business	4	2%

FGDs indicated that meeting participation has increased because of REAP.

> ***"We speak in meetings. We sometimes call the meetings. Before we didn't even know to go to meetings." (Kargi Semi-Nomadic FGD, Participant 6) (The BOMA Qualitative Report, 2017).***

Another participant from Kargi described the respect that women now have at public meetings:

> ***"Nowadays we speak and people call us majuaji (someone who knows too much). And we go to meetings it's now us even training people. Nowadays we can even stand and speak." (Kargi Settled FGD, Participant 5).***

The degree to which women participated in public gatherings varied by region. In areas such as Loglogo, women shared that they are allowed to talk in meetings contingent on doing so while being seated.

> ***"Women can speak in the meeting while seated… Women in the meeting speak very well. We only fear to stand when men are there." (Loglogo FGD, Participant 10).***

Nevertheless, participants in all locations credited BOMA for their increased voice.

Most (89%) donate to fundraisers in the community, with almost half (47%) donating either a few times a year or every month. Fifty-four percent only donate once a year, with the same

percentage claiming they have not been able to contribute at some point due to lack of money. Even though over half have not been able to contribute at some point in the last year, focus group discussion participants mentioned that now, they are always asked to support fundraising efforts because of the money they have.

Fifty-eight percent provide business advice to others, with 77% sharing information with current and past REAP participants, and 64% sharing business information with women not in REAP. These women feel like mentors in the community.

> ***"The roots that other people are following, it's us."***
> ***(Kargi Semi-Nomadic FGD, Participant 14) (The BOMA Qualitative Report, 2017).***

It is difficult to gauge how these outcomes compare to other groups of women, or other community members, but based on numbers alone, these women could be considered fairly empowered via community engagement.

> ***"In Rendille culture, women don't have much rights. Since they joined BOMA, they now become recognized because they have some strength and they have their voices also. People can hear their voices."***
> ***(Korr Semi-Nomadic FGD, Participant 3) (The BOMA Qualitative Report, 2017).***

They feel that they serve their communities through their businesses, their ability to offer loans to others in the community through their savings groups, and their ability to contribute to fundraisers. They report having improved social standing in the community mainly because of ownership of livestock (although the quantitative data shows that livestock owned by women has decreased since endline), access to credit, ability to pay school fees and availability of savings.

Leadership

Overall, only a small number of respondents' report being members of committees or holding leadership positions. Fourteen percent of women at follow-up report being on a committee. The leadership results initially seem less encouraging than the decision-making and community engagement outcomes. This is half of the percent at endline that is on a committee, but at endline, many of those in a committee reported being in a BOMA committee, which helped decide who would be BOMA participants in the next cohort and provided ongoing support to participants and the mentor in the delivery of REAP. The BOMA committees were not asked about at follow-up. Excluding participants who reported being in a BOMA committee at endline, the 14% percent of women on a committee at follow-up is slightly greater than the 13% at endline.

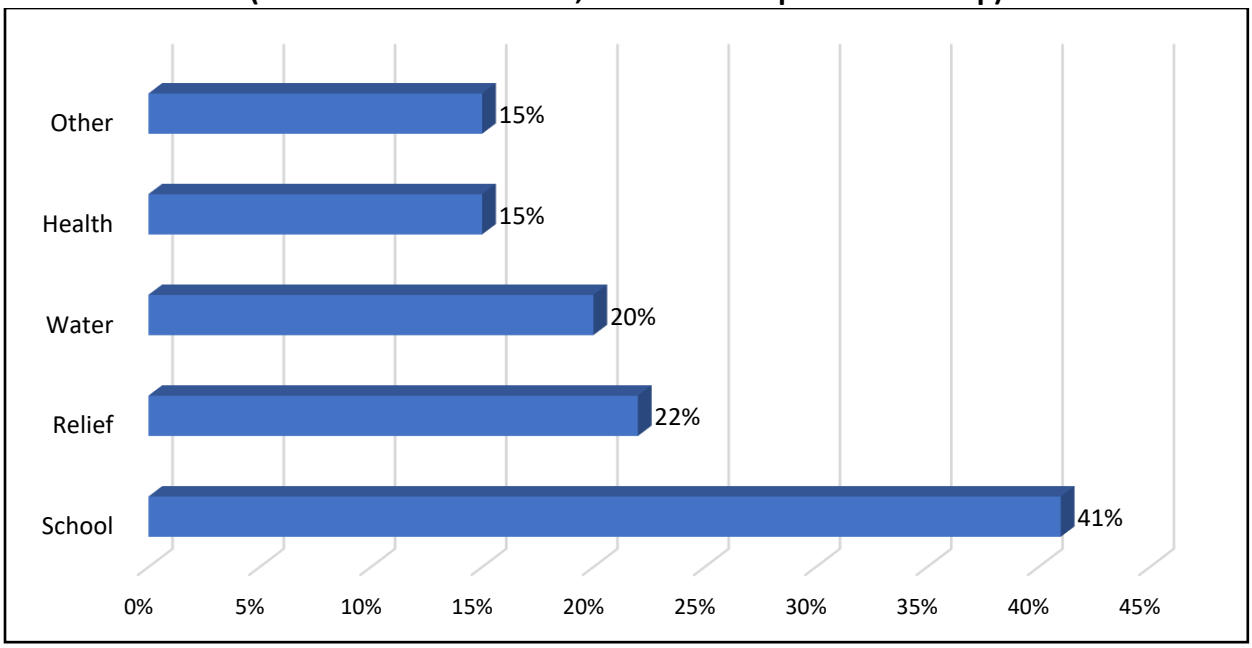
Table 19. Leadership in the Community at Endline and Follow-Up

	Endline		Follow-Up	
	N	Percent	N	Percent
Member of any committees (including BOMA committee)*	21	28%	54	14%
Member of any committees (not including BOMA committee)*	10	13%	54	14%
Hold any other leadership positions			29	8%

*A BOMA committee was only applicable at endline, not all cohorts were asked these questions about committees.

Of the 8% of the women who hold leadership positions, 34% hold one in a religious group, 24% in a women's group, 21% in a BOMA location committee, and 17% in a community service or development group. A few others are in a choir or self-help group. However, it's difficult to say whether these percentages are high or low considering that there are naturally only a small number of leadership positions available. It is interesting to see much of the leadership is in schools, given the low literacy rates of the women. Results for committee membership (regardless of being a leader), is displayed in Figure 16. Out of the 54 women who are members of committees as of the follow-up, allowing for multiple membership, the highest number are in school committees (22); then relief (12); water (11); health and other (8 each), and lastly, other (2).

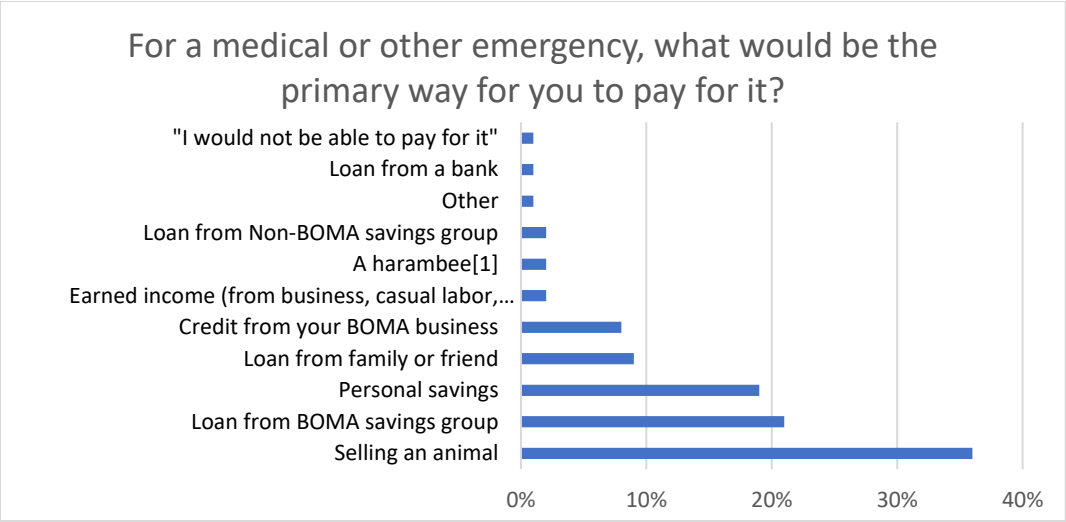
Figure 15. Community Committee Membership at Follow-Up (of those in a committee; includes multiple membership)



Resiliency and Disaster Preparedness

When asked what the primary payment method would be used to pay for a medical or other emergency (if one occurred), the most common answers were selling an animal (36%), a loan from a BOMA business group (21%), and personal savings (19%). Part of the intention of providing the REAP program is to build the resiliency of participants and their households. BOMA has collected data on responding to emergencies and disaster preparedness to estimate levels of, and changes in, resiliency.

Figure 16. How Respondents Pay for an Emergency



[1] A harambee is a community self-help event, such as a fundraiser.

Unfortunately, data on these questions are only available for the 2018 follow-up. These outcomes underscore a few important points:

1) the value of having high or mid-level livestock on hand to sell when needed,
2) the value of the liquidity in the BOMA savings group to use for immediate loans
3) the low non-financial liability aspect of BOMA loans (as opposed to "strings attached" that come with taking loans from family and friends), and
4) the importance of cash savings on hand.

A loan from a family or friend ranked as fourth most common method, and credit from the BOMA business came in fifth. Participants prefer to use assets or cash that they already have, or low-liability loans, before turning to others. As shown in Table 20, when asked if the respondent had acted to prepare her family for emergencies or improve their quality of life since joining BOMA, 56% said yes However, **60% report that they are "very confident" that they could repay a loan if they had to take one.**

Table 20. Responding to Emergencies Indicators at Follow-up

	Follow-up	
	N	Percent
Acted to prepare family for emergencies or improve quality of life since joining BOMA (yes)	213	56%
Confidence repaying loan taken to cover cost of emergency		
Not confident at all	40	11%
Somewhat confident	114	30%
Very confident	226	60%

Participants shared in FGDs that before BOMA, they had nowhere to turn to for financial assistance in case of emergencies, but now they can turn to their BOMA savings groups.

> ***"When we were not in BOMA before, we only asked for credit from Yusef and Ali, the business people in town. We'd go and beg credit and sometimes also you can cry as you borrow that credit because your child can be sick and you want to borrow credit they would not give us credit. You go to Yusef's house and beg, beg, beg, before they give you something little… Sometimes people can maybe die, the sick person can die, as you wait for Yusef to make the decisions… Since we are in this BOMA program, we have the savings box and save money and our money accumulates, I don't think that there's any person who's going back to those shops to ask for credit the way it was before," (Ngurunit Settled FGD, Participant 10).***

Although 50% report that they are somewhat worried to provide for their future in the family, 45% report they are not worried at all. Only 6% are very worried. Overall, the group of graduated REAP participants look fairly, or moderately, prepared for a future disaster such as a drought. Conducting the survey in February, before the long rains arrived, may influence their view.

Table 21 lists indicators of perception of disaster preparedness. **The majority felt they were fully able to provide food (79%) for their family and clothing for children (72%)**. At follow-up, participants were asked to what extent they would feel able to provide a variety of necessities for their family. The outcomes were mixed amongst the factors. As for providing balanced and nutritious food for children (27%), buying clothing for husband (26%), and dealing with immediate drought threats (39%), only some of the participants felt fully able to do these things. About two-thirds (64%) thought they could access food during a drought, and only a small percentage (7%) took children out of school to herd in the past year during a drought.

Table 21. Perception of Disaster Preparedness at Follow-up

	Follow-up	
	N	Percent
To what extent do you feel able to provide the following?		
Ability to buy food for family		
Not at all able	2	1%
Somewhat Able	77	20%
Fully Able	300	79%
Ability to provide balanced and nutritious food for children		
Not at all able	35	9%
Somewhat Able	241	63%
Fully Able	103	27%
Ability to buy clothing for children		
Not at all able	2	1%
Somewhat Able	106	28%
Fully Able	272	72%
Ability to buy clothing for husband		
Not at all able	23	8%
Somewhat Able	163	57%
Fully Able	75	26%
N/A	25	9%

Qualitative findings show that women's businesses and BOMA savings groups help them to endure droughts. They can also rely on the stock of food in their businesses.

> ***"I am seeing the drought is affecting us a lot. I see if a group has started with maybe 2 or 3 goats, the drought has affected them a lot. I say thank you because if we didn't even have that, I could have cried a lot. I am saying that they (BOMA) brought a great thing to us and what affects it is the drought situation. And we are still progressing," (Ilaut FGD, Participant 8).***

Still, a drought and the associated death of livestock are major stressors. In addition, people are often unable to repay loans to savings groups during times of drought.

> ***"The only thing we are worried about is drought. All of these animals that we bought, I am worried that the drought will be prolong and all of these animals will die," (Ngurunit Semi-Nomadic FGD, Participant 12) (The BOMA Qualitative Report, 2017).***

Discussion, Learning Questions and Conclusions

The focus of the presentation of findings and subsequent discussion is to understand how a sample of past REAP participants are faring today. Due to the lack of random assignment of the program, as well as a lack of a control group, it is not possible to attribute causality of changes to BOMA's program. Changes in data collection methods and survey questions over time, particularly estimates of savings, income and expenditures, create comparability issues. Additionally, significant outside circumstances influence the well-being of these households, both in positive and negative ways. Thus, as outcomes are discussed, the emphasis is less on questions of attribution and more on an understanding how these households are faring overall.

Analysis by Year

Key outcomes were disaggregated by year to determine how they compare from exit at three versus four versus five years ago. The follow-up results are similar for cohorts of different funding years (and different times of exiting). Total business income and total savings decreased from the 2011 to 2012 to 2013 cohort, which graduated five, four, and three years ago, respectively, though the changes are not statistically significant.

This suggests that for these outcomes, the impacts of REAP may slowly increase over time. It may also reflect small changes in the structure of the REAP program. Another explanation is that over the years that BOMA works in a given area, saturation of businesses (and consequent competition) increase. For this reason, the 2011 cohort may have had a head start over the 2013 cohort. Meanwhile, total income and business ownership were slightly higher for the 2013 cohort than the 2011 cohort.

Table 22. Income, Savings, and Expenditures (Adjusted for Inflation)

	2011				2012				2013			
	BL	EL	Follow-up- not adjusted for inflation	Follow-up-adjusted for inflation	BL	EL	Follow-up- not adjusted for inflation	Follow-up-adjusted for inflation	BL	EL	Follow-up- not adjusted for inflation	Follow-up-adjusted for inflation
Total income		11,991	7,914	5,723		4,590	7,841	5,994	3,239	5,465	8,072	6,595
Total business income		2,300	3,372	2,439		1,735	2,988	2,284			2,472	2,020
Total expenditures (cash)			7,450	5,387			7,639	5,839			6,342	5,182
Total expenditures (cash and credit)			9,628	6,963			9,883	7,554			8,507	6,951

The purpose of the table below is to show differences in the 2011 vs. 2012 vs. 2013 cohorts. While business ownership has declined from endline, diversification of income sources as well as an increase in formal employment has occurred. In addition, those who own a business of some sort show an increase in business value and business income compared to endline.

Table 23: Business Ownership

	2011				2012				2013			
	Endline		Follow-up		Endline		Follow-up		Endline		Follow-up	
	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Own a BOMA or non-BOMA business	143	89%	101	77%	111	82%	98	85%	149	94%	114	81%

Understanding their current position today also creates an opportunity for BOMA to address needs with subsequent programming and/or improve its current programming. How well do the findings answer the six key research questions of the longevity study? A discussion of each question, and ancillary issues, follows.

1. **Are the impacts of REAP sustained, increased or decreased 3-5 years after graduation? Specifically, are there impacts in the following main areas of interest for BOMA?**

Evidence of a sustainable livelihood (household income, assets, savings and ownership of a business)

A majority of REAP participants have a sustainable livelihood at exit. Specifically: Presence of a sustainable livelihood (ownership of a business, household income) **Households have a**

diversified income with an average of three sources of income. At follow-up 81% of follow-up respondents (operate and) receive at least one source of income from a business.

- Overall average household total income is13% greater than the endline with the difference proving to be statistically significant at the 1% level ($p \leq 0.01$);
- The total business income at follow-up is 20% greater than the total business income at endline; and
- The increase in selling livestock from 51% at endline to 86% at follow-up is significant.

The REAP graduation criteria requires more than one source of income in order to diversify income sources and reduce risk to shocks. This income diversification has carried beyond graduation and has been incorporated into livelihoods, although business diversification has not been as significant over time.

Shock preparedness (savings, confidence about ability to overcome shocks)

Regarding savings, a commonly used resource used to deal with shocks, there has been a significant decline in average savings since the endline. However, the increase in average livestock TLU could off-set the decrease in cash savings, as livestock are often sold to cover expenses just as cash savings would do. The most common savings mechanism among prior REAP participants is cash within the household (47%). At endline, the main mechanisms for savings were with a woman's business, the BOMA savings group (SG), and cash in the household. At follow-up, there was a 66% increase in the amount saved in the business and a 91% increase in the amount saved in cash in the household. Much fewer women report saving in their business at follow-up than at endline, declining from 93% to 17%, but among those who do have savings in their business, the amount of savings increased by 63% from KES 6,931 to KES 11,317. Taking both perception and savings into consideration (both cash and livestock), these respondents have a better chance of being prepared for future shocks than at entry into REAP 3-5 years past. But, while many participants are fully able to provide various necessities for their family, many are not. Over half is worried about providing for their families in the future. Less than half are fully able to deal with immediate drought threats, and one-third cannot access food during a drought. Droughts and natural disasters are an ongoing threat in East Africa.

From participants' perception of shock preparedness, there was no data collected on these indicators at the baseline and endline for comparison. At follow-up, households seem to have a medium or a 'somewhat able' level of confidence to deal with shocks overall. Considering this type of self-assessment is subjective, they are not ill-prepared, yet not particularly well-prepared, either. Qualitative findings show that women's businesses and BOMA savings groups help them to endure droughts. They can also rely on the stock of food in their businesses to feed their families. The majority felt they were fully able to provide food (79%) for their family and clothing for children (72%). About two-thirds (64%) thought they could access food during a drought, and only a small percentage (7%) took children out of school to herd in the past year during a drought. This is an indication that income, savings and livestock ownership as a result of participation in REAP has enabled a better understanding of markets and this continues over time to provide

preparedness and resilience to shocks through continued diversified income generation and savings. BOMA's learning question in this area could be:

- *How can BOMA better address shock preparedness within the REAP framework?*

Food security (food consumption by former participant's household and their children)

The average number of times her children ate increased by 6% from 2.10 at endline to 2.23 at follow-up. Participants shared during FGDs that before BOMA, their children were often starving, malnourished and they could not provide for them; now, they are eating more. Furthermore, they have more dietary diversity. With income from their business, it means that food is always available for the children and other family members.

The food security results show a clear improvement for children over time. The children of these past participants are eating more meals overall, although the participants themselves do not report as such. Relief efforts are reaching more people as reports of food aid have increased during drought periods. HSNP cash transfer payments may also play a role in the ability to purchase food. These findings are encouraging in terms of long-term development efforts across actors. The Learning question for BOMA is:

- *Can nutritional counseling or micro trainings be useful for increasing quality of food children eat to include foods (leafy vegetable, fruit, protein) essential for early childhood brain development?*

Household expenditures (food, school fees and medical expenses)

Two areas where it is possible to see a significant change is for both school and medical expenses. Food expenditures have decreased, but this change could be explained by the decrease in food prices and overall consumer price index from September 2017 through 2018, or the increase in food aid, especially since food security for children has improved. In addition, if women are running a small shop selling food, the women are likely taking food out of the business (either as credit or income) to feed their families and this would not be reflected as an expense in the survey. Even if data collection methods have changed over time, the degree of the increase suggests that there has been an actual increase, and that households have more money to put towards these expenses. Money sent by other adults outside of the household (such as migrants) could play a role in the ability to increase these expenditures as well. Thirty Day recall can also be flawed, as participants do not keep income/expense diaries or other instruments to track expenditure other than memory.

As mentioned earlier, total expenditures reported for the prior 30 days exceed income, supporting the reported use of credit as well as the underreporting of income. Judging whether the estimated amount of credit is high, average or low is challenging without having more specific data on loans and other typical debt in the context. Kenya has a credit culture, and debt is used for a variety of reasons from business and livestock investments to school fees to emergency medical and funeral expenses. The debt to income, and use of credit, questions are worth

exploring. BOMA has some information on loan amounts and uses at endline, this type of question would have been of use to better understand why and if credit is high.

Asset ownership (livestock, savings)

Livestock is a traditional form of asset ownership, savings and business. The 51% increase from 8.2 to 12.4 TLU for the household from endline to follow-up proved to be statistically significant. The significant increase in household livestock ownership as measured by TLU suggests that households have an improved level of wealth. This is certainly one of the more important findings of the study.

Women's control and livestock ownership has decreased significantly, mainly in regard to cattle, which is a discouraging finding. The 49% decrease for women from 7.2 to 3.7 TLU proved to be statistically significant at the 1% level. More information on how this has occurred is needed as to whether this is a risk reduction strategy during drought, or if diversified income sources and savings relies less on livestock, or other associated reasons.

On the other hand, anecdotal evidence from BOMA field staff suggests that women have different niches in the livestock value chain. Some buy goats instead of cattle, they aggregate animals and sell them quickly at markets rather than hold for the long term. Women are engaged in more butchery businesses, where not as many animals are needed to serve clients, and selling milk is increasing.

Although household livestock ownership has increased significantly, it is important to understand why ownership has decreased for women. This finding is surprising considering the increase in livestock market locations along with recent observations by BOMA staff of current REAP participants engaging directly in these markets, a new development that may affect livestock ownership length and patterns of business. BOMA has never been intentional about advising women in livestock enterprises, nor have they discouraged it. It's rise in importance as a business and saving activity among REAP participants past and present poses two distinct questions for BOMA to explore:

- *In subsequent evaluations it would be useful to know if there are changes in related indicators to better understand the decline in women's control and ownership, such as whether more women are trading directly in the markets, and how women perceive ownership of livestock that they purchase (whether it belongs to them or the household)?*
- *Can livestock businesses and savings be "climate proofed" through partnerships with county, government, local and international NGOs to improve livestock outcomes in animal health, breed selection, fodder quality, rangeland management and improvement and water storage?*
- *Are there new market engagement opportunities within the livestock value chain that women using their social capital and assets can develop that are viable for income generation that reduces risk of livestock ownership? (fodder production, para-Vet, diary, butchery, water. Etc.*

What percentage of REAP participants are still operating a business of some form?

At three to five years after REAP graduation 81% of the 393 respondents have at least one business. While this is a statistically significant decline from the endline value of 89%; the total business income at follow-up is KES 2,904, 20% greater than the total business income at endline of KES 2,421, This is despite drought cycles and economic impacts during that period, signifying durability to shocks. In particular, 95% reported that hard work very much contributed to the success of the business.

BOMA mentorship and trainings, and the skills and knowledge acquired, still apply to business success. Most people who own a business reported having only one business (87%) and this was not necessarily the business they started with REAP. The most common type of business is a kiosk/duka, which 81% of reporting participants have, followed by livestock, for 20% of participants. Kiosk/dukas have historically been the business REAP participants begin at the start of REAP, but the study has seen greater diversification into other businesses, like butchery, dairy and fish selling. Still, the high dependence on one business type runs the risk of oversaturation of those types of business in the areas**.**

When asked about challenges to maintaining a business, the most common response was credit. Aside from credit, other common challenges include debt, drought, financial management, group dynamics, record keeping, and the cost or logistics of transporting goods**.** Less common challenges mentioned include fluctuating prices, low profit, low savings or funds (to support business), and lack of training or mentorship. Field officer observations and conversations with participants show that unrepaid loans, distance between business partners, literacy, numeracy, and ability to speak Swahili are major challenges to sustaining a business. This poses three learning questions for The BOMA Project:

- *What are the opportunities for diversified business development in the ASAL region?*
- *Within the REAP cycle how can BOMA identify alternative livelihood options and the technical skills required to increase business diversification?*
- *Are there new market engagement opportunities for REAP participants with the development of new market infrastructure and linkages in the region?*

The business activity and income data show that there is evidence of a sustainable livelihood for these REAP-exited participants. Spillover effects could be occurring as well. Field staff have noted that other people in the communities “copy” the BOMA business style and start their own business.

Learning agenda for barrier to growing business-what is needed overtime

- *Address literacy and numeracy. Given low levels of literacy and numeracy, it is a barrier in growing business and engaging with formal banking systems. There is a need to work with local adult education agents and service providers to create financial services that are accessible and user-friendly to women living in extreme poverty in the ASALs of Kenya.*
- *Conduct case studies of exited BOMA participants who are aggregating their resources and engaging in market engagement activities in new ways. Examples of this include an aggregated distributorship business selling to local BOMA businesses in the Nemeray region, a dairy cooperative in Karare and a cooperative of women who engage in five different income generating activities in Merrille*.

3) How do measures of empowerment compare between women who graduated REAP in 2013-15 and those women entering REAP in early 2017? Specific empowerment measures of interest include:

Household decision-making

Compared to estimates from women entering REAP in early 2017, assuming the cohorts are comparable, women who graduated REAP in 2013-15 are faring relatively well in terms of household decision-making power. Across five of the six indicators, exited women enjoy more decision-making power than entering women. For the sixth indicator, making decisions on purchasing household items, the majority of women in both cohorts enjoy full decision-making power.

The question, "Do you have an equal opportunity as your husband in making decisions," show mixed perceptions amongst the sample. Fifty-four percent of the women say they do not have equal decision-making opportunity as their husbands, while 33% say they do, and 13% report they are not sure. Unfortunately, there is no data from 2017 to compare. There is comparable data for decision-making power for specific types of decisions.

That decisions are more likely to be made jointly, mostly, or fully for participants who graduated 5 years ago versus 3 years ago suggests that empowerment outcomes may improve over time for REAP participants. The total percent reporting that they make decisions jointly, mostly, or fully is higher in the 2011 than in the 2013 cohort for decisions about purchasing food, paying school fees, purchasing livestock for yourself, and deciding which child to send to school, and it was the same for decisions about purchasing household items.

Attending public meetings and Comfort speaking at public meetings

Fifty-seven percent report attending public meetings, and 68% are either completely or somewhat comfortable with speaking up at public meetings. The second area of quantitative analysis for women's empowerment in the study is engagement in the community. Results from the community engagement indicators, only collected at the 2018 follow-up, show a fairly

engaged group of women. Almost half (46%) feel somewhat comfortable speaking up at public meetings, 33% feel not at all comfortable, and 22% feel completely comfortable. Overall, the outcome from this indicator, and the prior one, reflect a moderate level of community engagement with public meetings. There is no comparable data for the 2017 cohort.

Leadership positions in the community and beyond

Of the 8% of the women who hold leadership positions, the 54 women who are members of committees as of the follow-up, allowing for multiple membership, the highest number are in school committees (22); then relief (12); water (11); health and other (8 each), and lastly, environmental (2).

Most (89%) donate to fundraisers in the community, with almost half (47%) donating either a few times a year or every month. Fifty-four percent only donate once a year, with the same percentage claiming they have not been able to contribute at some point due to lack of money.

Participants also described themselves as respected mentors in the community who are frequently consulted for business advice. Participants openly share business advice so that others can benefit from this knowledge. Finally, participants expressed that there is evidence their status has changed in the community because now they are always asked to buy goods and support community fundraising efforts.

The main reasons provided for the improvement in social standing included ownership of business, diversification of sources of livelihoods, ownership of livestock, ability to provide for children, acquisition of household assets, improved access to credit, ability to save, ability to pay school fees and take children to school, and ability to provide good clothing and food for household members. Among these factors, ownership of livestock, availability of savings, access to credit, and ability to take children to school stood out prominently in all locations. In summary there is a much greater respect from the community following participation in REAP. Women are seen as business leaders in the community, and as mentors. Working in a three-person business, and participation in savings groups is an entry into collective action, where working together businesses and savings are grown. There is initial evidence that women are using this social capital to find market engagement opportunities to increase their productive resources. Women have gained agency in decision-making in the home, although the potential improvements in household decision-making outcomes are encouraging, BOMA has the opportunity to explore further improvements in programming to enhance building women and girls' empowerment in the REAP program:

- *How can BOMA design REAP with specific gender intentional outcomes? What targeted programming efforts could affect other areas?*
- *Should building social capital be further mainstreamed into the BOMA approach and outcomes?*

4) How long do BOMA savings groups build sustain themselves after participants graduate from REAP?

Seventy-three percent of the exited respondents reported that their BOMA SG was still active. A little less than that (71%) are still members of a BOMA SG. Some of the main reasons for SGs no longer being active are unrepaid loans and distance between participants. The loss of mentor support for savings groups had a greater impact as women without literacy and numeracy skills who had challenges keeping accounts.

Savings group survival rate, and quality of savings groups that survive, is an issue to explore further. Field reports suggest that groups struggle to manage the SG record book due to lack of literacy and numeracy skills. Often, mentors are hired to assist them, but the spirit behind the methodology is that groups can manage themselves after initial introduction. Additionally, only 14% of respondents report sharing-out after graduation., Although regular share-outs are a feature of many savings groups across Africa (Allen and Panetta, 2010) it is not part of the BOMA methodology.

It is important to note that after share-outs, groups usually start saving together again; a share-out is not necessarily an indicator that the group has dissolved, as shown in that over half of those whose groups had a share-out started over again, sometimes with new members. Members can benefit greatly from receiving a lump-sum of their savings, since savings accumulation is difficult without a formal financial service. Lump sums can be used to invest in assets and pay large expenses such as school fees, medical expenses, home repairs, etc. BOMA is currently testing the share-out methodology for BOMA savings groups.

Given low levels of literacy and numeracy, there is a need to work with service providers to create financial services that are accessible and user-friendly to women living in extreme poverty in the ASALs of Kenya. In addition:

- *How can SG's better support themselves once they are not receiving support from a Mentor?*
- *How to best utilize REAP participation and savings groups to build social capital that enables greater business and community relationships with an increase in market engagement opportunities?* Examples of this include an aggregated distributorship business selling to local BOMA businesses in the Nemeray region, a dairy cooperative in Karare and a cooperative of women who engage in five different income generating activities in Merrille.
- *The debt to income ratios, and use of credit, questions are worth exploring. Data on loan amounts and uses would be of use to better understand why and if credit is high.*

5) What are challenges faced by graduated participants that could be addressed with subsequent programming?

A few additional issues arose in the data that indicate potential for subsequent BOMA programming:

Increase efforts for girl-child education

Although the trend in girl-child enrollment rates is upward from endline to follow-up, the 71% primary-school enrollment rate shows room for improvement. BOMA changed criteria in 2015 from boys and girls in school, to all girls in primary school. This has lowered achievement in that graduation criteria and overall graduation rate, but this aligns with BOMA Projects gender-focused program. Research on girls' access to education identifies a range of common barriers to girls attending school that need to be explored further. In 2017, BOMA implemented a pilot girl-child campaign, in coordination with local education officers and local leaders, to build awareness in REAP participants. Its use and effectiveness are being evaluated and will be expanded to more geographic areas to influence additional enrollment. A Key question to explore is:
Which interventions can BOMA scale quickly within the REAP process to increase women's and girls' empowerment and address gender differences in the community? These may include:

- *Identify complementarities (commercial or social services; partnerships)*
- *Trainings for men*
- *Extend program to adolescent girls*

6) Are there any factors that predict success in key outcomes (presence of a sustainable livelihood, shock preparedness, food security, household expenditures, and asset ownership)?

The twelve locations in this study were divided into groups based on distance from the nearest main town. For all the locations, the nearest main town is Marsabit, with the exception of Archers Post, where the nearest main town is Isiolo. It is interesting to note that the further distance from town, the more income the business makes.

Type of village and type of business are significant predictors of business income at the 5% ($p \leq .05$) and 1% level ($p \leq .01$), respectively. Those who live further, 107-184 km away from a main town are almost twice as likely as those who live closer to own a business. It is possible that other characteristics associated with the locations comprising the groups of distances from the main town are influencing this relationship.

Compared to those living in a settled village, participants in a semi-nomadic village are almost 3 times as likely to be a member of a BOMA SG ($p \leq .01$). Participants with a livestock business are over 3 times as likely to be a member of their BOMA SGs than participants with a non-livestock business, such as a duka. ($p \leq .05$). Type of business is a predictor of amount of savings in the BOMA SG ($p \leq .05$). 92% of those owning a livestock business are still members of a BOMA savings group, compared to 80% of those who own a non-livestock business. ($p \leq .01$) The average savings in a BOMA savings group is higher among those owning a livestock business (KES 9,329) than those owning other types of businesses (KES 8,118), and this is significant at the 5% level ($p \leq .05$).

Changes in key outcomes over time were explored. Small differences at follow-up were observed among participants who graduated three versus four versus five years ago, though these differences were not statistically significant. Because the differences between the graduation

dates of these cohorts are only 1-2 years, effects may not be large enough to be significant. Examining differences, or lack thereof, among participants who graduated at times with more spaced intervals (such as five versus ten years ago) may provide a better indication of whether or not outcomes are increased, decreased or sustained over time.

This longevity study has filled a gap in BOMA's body of evidence on the REAP program by answering the question of how prior participants are faring 3-5 years after exiting the program. Overall, the data suggests that they are faring better than at entry to the program. The women have sustainable livelihoods, they are growing and expanding their businesses, diversifying their income sources and earning more income, covering their expenses, spending more on education and medical care, feeding their children more, receiving more assistance from the government, enjoying more decision-making power and feel mostly prepared to provide for their families in the future. They face challenges in terms of accumulating savings, sending more girl children to school, controlling and owning livestock, and preparing for droughts and other shocks and have much more potential for empowerment.

This provides BOMA with an opportunity for a more gender intentional approach and implementation of global best practices to address some of these key areas. Looking through a women and girls' empowerment lens the study has illuminated how BOMA's program has been contributing to its participants' gaining voice, choice and agency within their households and communities. While its entry point has been developing productive resources and assets, these linked to development of knowledge and skills has given BOMA women greater agency in institutional structure, family and community and the market. These in turn have elevated their agency in decision-making and there is initial evidence in leadership and collective action that BOMA can further cultivate through intentional program inputs to develop skills for REAP participants to build these competences.

Overall, participants in this study provide a picture of an improved way of life at the three and five-year follow-up than when they first enrolled in the program. These findings provide BOMA with critical insights into continued challenges faced by REAP participants, and a way forward to deepen its impact while scaling its model to lift 1,000,000 women and children out of extreme poverty by 2022.

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