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Barriers to “last mile” financial inclusion: cases from northern Kenya

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ABSTRACT

Financial products and services empower women to grow businesses, survive shocks, accumulate wealth, and take more control over their finances. The BOMA Project supports ultra-poor women in northern Kenya through business and savings groups and a digital financial product. Participants substantially increased income and savings, leading to increased household decision-making power, and education and nutrition expenditure. However, BOMA also observed that illiteracy, innumeracy, and unfamiliarity with technology were barriers to full uptake of the digital product. BOMA’s experience highlights the need for simpler tools designed thoughtfully for the target population, and time for participants to learn to use them.

KEYWORDS:

Environment (built and natural) - Climate change, Food security

Gender and diversity

Introduction

Northern Kenya suffers from poverty rates as high as 70%, well above the national average of 45% (World Bank, [2018](#)). In the region, 90% of residents rely on livestock raising as the source of both food and income, but the increased severity of droughts and decreased dependability of weather patterns in recent years have contributed to the instability of the pastoral lifestyle. A major drought in 2011, for instance, triggered a hunger crisis throughout the region that affected more than 13 million people in East Africa and left up to 100,000 people dead.

In pastoral communities like those of northern Kenya, women and children are especially vulnerable to changes in climate and weather patterns, and resultant cycles of drought and famine. Traditional gender roles dictate the lives and decisions of couples and families. Herding is traditionally a male activity, and as water scarcity takes men and their herds further from home in search of water and grazing land, men spend more time in satellite camps, away from their homes and their families. These same gender norms have created a system under which men have greater authority in household decision-making, ownership of assets, and control over financial resources. Most women must consult with their husbands on spending decisions, including for medical care and education. This can leave women without financial resources for months at a time while their husbands are away, forcing them to survive by subsisting on food aid, begging for credit from shopkeepers or performing menial labour. For the few women who have been able to cultivate a source of income, lack of access to financial institutions makes it difficult to keep, transfer, and save money. Geographic, political, economic, and financial isolation have conspired with climate change and lack of independence driven by gender norms to further marginalise and disempower women in northern Kenya's pastoralist communities.

Financial products and services, including digital platforms, have the potential to empower women to sustain and grow their business activities, buffer against shocks, accumulate wealth, and take more control over their financial choices and future. In patriarchal societies, women have traditionally relied on men for decisions related to households and their own lives. Financial inclusion allows women to manage their own

resources, have more say in decisions regarding household and personal expenditures, and build resilience to respond to emergencies.

The BOMA Project (BOMA) supports women at the “last mile” of financial inclusion – those living in remote, rural areas, for whom delivery of financial services is complex and costly. BOMA’s Rural Entrepreneur Access Project (REAP) seeks to empower ultra-poor women through a graduation programme that develops their livelihoods and life skills, including the ability to earn income, accumulate savings, and access sustainable pathways out of extreme poverty. Qualitative and quantitative analysis of BOMA’s 2016 cohort suggests that women involved in REAP expanded their savings and expenditures, improved food security for themselves and their children, and increased their decision-making power around family and personal income and expenditure. However, BOMA’s experience implementing M-Chama, a digital finance platform through Kenya Commercial Bank (KCB), illustrates that low levels of literacy, numeracy, and familiarity with mobile technology are binding constraints that limit women’s ability to most effectively use digital financial products. Evaluation of mobile banking practices among the REAP cohort revealed low usage and high dependence on others for support. Until and unless basic skills are developed, and products take into account both abilities and preferences of their targeted users, women will struggle to use digital and other financial products and services, reap their benefits, and exercise full control over their spending and livelihoods.

The promise of financial inclusion

Research suggests that households with access to financial institutions, services, and products are better able to manage their incomes and make decisions around expenditures, and they are also more likely to hold and invest savings, so that they become more resilient to economic shocks (Ruiz [2013](#); Schaner [2016](#)). This has particular implications for specific groups, including pastoral and agricultural communities and women, whose characteristics compound the effects of financial exclusion. For households that rely on farming or herding, climate shocks can severely affect well-being. Drought and other changes in weather patterns can trigger sudden income and food shortages when crops fail and livestock die. This is exacerbated by the fact that savings in these settings are often not monetary but in the form of the

maintain consumption levels. Their ability to respond to such shocks and survive lean periods could be greatly enhanced by access to financial tools (Anderson and Ahmed [2016](#)).

Financial inclusion may also be a driver of reduced gender inequalities. Formal banking services and other institutions enable women to invest in the growth and development of their businesses and to manage their earnings and savings. As their personal store of funds grows, women can become less dependent on their husbands' earnings and less subject to their control, able to make decisions for themselves about where and how to spend their money. This autonomy can extend to decision-making beyond finances to other domains such as marriage, leisure time, and contraceptive use (Aker et al. [2016](#); Bandiera et al. [2013](#); de Brauw et al. [2014](#); Field, Pande, et al. [2016](#); Holloway, Niazi, and Rouse [2017](#); Pitt, Khandker, and Cartwright [2006](#); Schuler and Hashemi [1994](#); Suri and Jack [2016](#)).

Yet despite increased recognition of the benefits of financial inclusion, these services and products still fail to reach some of the world's most vulnerable groups, who may stand to gain the most from them. According to the World Bank's 2017 Global Financial Inclusion data, 72% of men but only 65% of women have a bank account, and that gap widens in poorer countries. In Kenya, two-thirds of unbanked adults are women (Demirgüç-Kunt et al. [2018](#)). Women are frequently unable to access banks and other services as a result of restrictive gender norms, laws, and policies, as well as a lack of personal resources, limited mobility, low literacy and education levels, and information asymmetries (Gammage et al. [2017](#)). Poor women and those engaged in informal or subsistence employment face additional barriers in trying to access financial services, including erratic or irregular earnings from their economic activities, pressing family needs, and high-risk exposure to shocks that can prove devastating to their livelihoods (Anderson and Ahmed [2016](#)).

Digital technology presents a potential solution for many of the challenges to closing the financial inclusion gap and reaching last mile communities. Mobile banking systems employ mobile phones and agents to deliver financial services, without the high costs of construction and bank staff that underlie traditional brick-and-mortar banking institutions, improving accessibility to existing customers and building bridges to new ones (Kumar, McKay, and Rotman [2010](#)). Digitising services also reduces the transaction costs associated with traditional financial institutions that are borne by the

transparency issues associated with traditional financial services and have the potential to expand privacy and autonomy over transactions and payments (Aker et al. [2016](#); Holloway, Niazi, and Rouse [2017](#)). M-Pesa, in Kenya a near-ubiquitous mobile finance platform, has been widely praised for its reach – a decade after its inception, it had been adopted by at least one member of 96% of Kenyan households – and for its success in driving economic growth among users. M-Pesa has increased households' ability to save and protect themselves against shocks, and by providing users an easy way to make and receive payments, it has also expanded their social networks, giving them access to broader systems of support in times of crisis. Research suggests that M-Pesa and similar innovative tools have the potential to close the financial inclusion gap and spread the benefits of financial services to the last mile (Suri and Jack [2016](#)).

Yet digital financial services may also present several challenges in financial inclusion. Kendall, Wright, and Almazan ([2011](#)) argue that for low-income clients, high-touch engagement at point-of-sale is still essential, and digital financial services can fail if such provisions are not made. Client trust in a brand is an important factor in ensuring uptake and continued use of mobile bank accounts and can be sensitive at the inception of adoption. If clients make mistakes in mobile money transfers – for instance, misspelling an intended recipient's name – and are not able to recover the money promptly, they are likely to mistrust the mobile money system (Kendall, Wright, and Almazan [2011](#)). Other factors like transaction costs and difficulty in fulfilling know-your-customer (KYC) requirements can also create barriers to digital financial inclusion (Karlán et al. [2016](#)). Women are often disproportionately affected by these and other barriers to adoption. Lower levels of employment, income, and education negatively impact women's use of digital technology (Hilbert [2011](#)). Incomplete property rights including ownership and control of a phone, limited decision-making power, and pressure from relatives to access money also affect women's ability to use mobile money (Schaner [2016](#)). Digital financial services that address customer trust, KYC requirements, transaction costs, digital literacy, and privacy have seen the most success in increasing women's access to and use of digital financial services (Gammage et al. [2017](#)).

Project description

BOMA is a US non-profit and Kenyan NGO with a transformative approach to alleviating poverty and building resilience. BOMA's cornerstone programme, REAP, launched in 2008 and is a rolling two-year gender-focused poverty graduation programme that seeks to transform the situation of vulnerable women by providing them with the tools, training and resources necessary to start and maintain small businesses, establish sustainable incomes, and move out of poverty. REAP engages ultra-poor women, defined as those who are living at less than half the US\$1.25-a-day poverty line, and those who eat below 80% of their energy requirements despite spending at least 80% of their income on food (BRAC [2013](#)). BOMA has tailored a traditional graduation approach to the unique challenges faced by women in the sparsely populated, highly food insecure, and resource-poor drylands of Africa. Women enrolled in the programme receive seed capital and business and life-skills training, join savings groups, and are mentored throughout the programme's lifespan. At the time of writing, BOMA had reached more than 170,000 women and children through REAP across six counties in northern Kenya and the Karamoja region of Uganda. Graduation from extreme poverty is evaluated at the end of the two-year cycle, based on criteria within four key areas: food security, sustainable livelihoods, shock preparedness, and human capital investment. These criteria are outlined in [Figure 1](#).

[Figure 1](#). BOMA's poverty graduation criteria.

<p>1. Food security</p> <ul style="list-style-type: none">1.1. No child going to bed without an evening meal in the past week1.2. Household members eat at least two meals a day in the past week <p>2. Sustainable livelihoods</p> <ul style="list-style-type: none">2.1. The value of the BOMA business is 25% higher than the total conditional cash transfer2.2. Participant can access more than one source of income <p>3. Shock preparedness</p> <ul style="list-style-type: none">3.1. Participant is a member of a savings group, has access to credit, and has a minimum of KES 8,000 in savings <p>4. Human capital investment</p> <ul style="list-style-type: none">4.1. All eligible primary school-age girls are enrolled in primary school4.2. Participant has an increased role in household decision-making

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Business groups

REAP supports women to both develop businesses and accumulate savings, believing

business groups, supported by REAP-provided seed capital, expand women's access to economic activity independent of their husbands' earnings. Participants self-select into business groups and determine the type of business they will run, including general shops and kiosks, livestock businesses, butcheries, grocers, and shops selling clothes, petrol, beads, and crafts. Businesses generate profits that their female owners can control, increasing both the total household income available for daily spending and women's autonomous decision-making power at home. More diversified disposable income that can be used without husbands' consent allows for higher levels of consumption and improved household nutrition and education.

Savings groups

After six months in business groups, REAP participants are also enrolled in savings groups, by which participants are encouraged to save at least KES 400 (US\$4) per month. Savings pools are accessible to members as loans for business expansion or personal use. As these savings accumulate, their holders build resilience to climate and economic shocks and allow women and their families to plan for future large expenditures. The groups are also registered with County Social Services, which facilitates members' ability to open formal bank accounts and access other formal services.

Mentorship

In addition to business and savings groups, women are supported by BOMA village mentors, who are tasked to provide extensive mentoring and coaching in investments, savings, and business decisions. All mentors are full-time paid BOMA staff and are respected local residents from villages where BOMA participants live and work. Mentors are carefully selected, trained, and supported by regional BOMA field officers. They work with participants throughout the intervention period to provide business and life-skills training, facilitate formation of business and savings groups, and regularly monitor those groups to ensure participants remain on track to meet BOMA's graduation criteria. Business training sessions cover topics such as savings, credit, supply and demand, profit and pricing, budgeting, marketing, business expansion, and sustainability. Life-skills training includes women's rights, family planning, the importance of education for all children, prevention of gender-based violence, and household decision-making.

In May 2016, BOMA identified 750 ultra-poor women in 14 locations in Marsabit and Samburu counties in northern Kenya to be enrolled in REAP, with funding from the Bill and Melinda Gates Foundation's Women and Girls at the Center of Development Grand Challenge. These women - referred to as the Gates cohort - received cash grants of KES 20,000 (US\$200) to form 250 business groups. Common businesses included small shops (176 business groups), livestock sales (58), sale of khat (13), and groceries (two). After six months, a second, performance-based progress grant of KES 10,000 (US\$100) was awarded to business groups following a progress report conducted by the mentors: 249 out of the 250 original business groups received these conditional grants - one group was dissolved early in the programme.

Mobile money

In 2016, BOMA also introduced mobile banking into the programme to harness mobile technology for additional impact. In addition to engagement with REAP's other activities, the Gates cohort received feature phones and SIM cards registered with mobile money accounts. Designed by KCB, M-Chama is a platform that connects to mobile money accounts like M-Pesa to allow members of savings groups to contribute to and withdraw from both personal and group-based digital accounts. The group was expected, by the end of the programme, to be able to open bank accounts, purchase goods, receive money, and access loans from any location. An initial pilot was conducted in partnership with KCB among 27 women from two BOMA savings groups, then scaled up to reach 676 women.

Sustainability

The results of recent impact studies of poverty graduation programmes have provided strong and positive proof of the effectiveness of such programmes and generated positive momentum for scaling up and adapting the poverty graduation approach worldwide, including among government and multilateral funders, as well as the private sector, as a credible approach to addressing the challenge of extreme poverty. While the private sector can play a supportive role, the path to scale and sustainability rests on government adoption and imbedding of poverty graduation programmes as part of government social protection strategies at the national and local levels. A number of countries are currently conducting pilots of poverty graduation programmes in partnership with financial service providers, NGOs, and government safety net

adopting a poverty graduation approach locally or nationally. BOMA is working with the Government of Kenya to advance the adoption of a poverty graduation approach there.

Methods

Evaluation of the Gates cohort sought to understand whether participants reached BOMA's graduation criteria, the effect of REAP on household decision-making power, and participants' experience with the new mobile banking component. Performance on graduation criteria was evaluated using a pre-post comparison between baseline and endline results from BOMA's Standard of Living Index survey (SOLI). The SOLI measures outcomes aligning with graduation criteria as presented in [Figure 1](#), as well as mobile phone and mobile money use, household expenditure, asset ownership, household decision-making power, healthcare-seeking behaviour and family planning practices. Baseline surveys were administered to the 750 women selected for participation in REAP one month before enrolment, and endline surveys were administered to 92% of participants between April and May 2018. Both periods of data collection were conducted in participants' homes by three teams of trained, independent enumerators, university students or graduates from Marsabit or Samburu counties with high numeracy, literacy, and familiarity with the local language and context. Both baseline and endline data collection was preceded by a four-day enumerator training facilitated by BOMA's Project Data Analyst and Regional Monitoring and Evaluation Officer. Training included instructions on using TaroWorks and tablets, a discussion of the roles of enumerators, survey methodology and survey questionnaire, role playing and translation exercises, a field test of enumerator competency and a field test. Data were recorded using tablets equipped with TaroWorks.

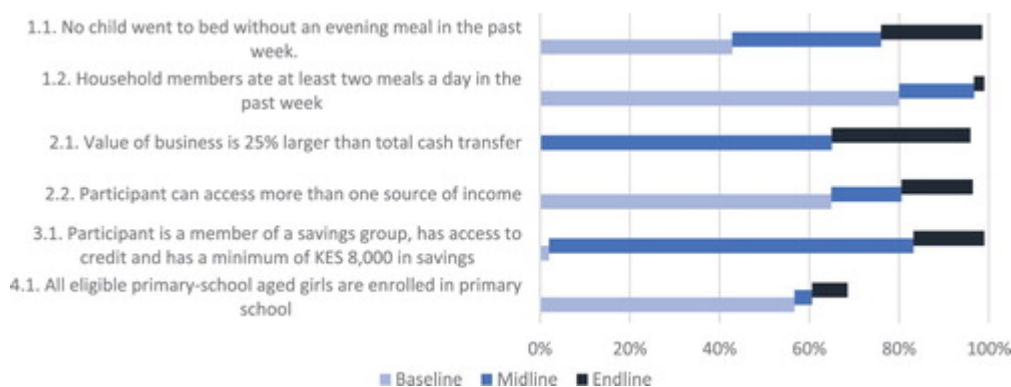
Quantitative data were analysed using Stata software and analysis involved both descriptive statistics and statistical tests. Descriptive statistics included proportions and frequency counts for categorical variables and means for continuous variables. Two-sample t-tests were conducted, following normality checks, to compare differences in means for continuous variables at a 5% level of significance. Significance tests on categorical variables were performed using z-tests for binary outcomes and Chi-square tests for polychotomous outcomes, which were also evaluated at a 5% level of significance.

BOMA was also interested in measuring REAP's effect on household decision-making. A qualitative assessment included eight focus group discussions (FGDs), facilitated by a discussion guide. Each FGD included between five and eight participants. FGDs were conducted with REAP participants and their spouses from five locations in Marsabit and Samburu counties. Locations and participants were selected by BOMA with support from the International Center for Research on Women. FGD activities sought to discover how couples make decisions, identify and explain any changes in decision-making behaviour, and understand whether those shifts were related to participation REAP. An additional six-month internal review and subsequent external evaluation of the mobile project component was carried out by Bankable Frontier Associates (BFA) in 2016. Interviews were conducted with BOMA staff, beneficiaries, and representatives from KCB and mobile banking agents.

Impact¹

BOMA anticipated that by the end of the two-year project, women enrolled in REAP would hold both financial and social capital and assets and be able to make spending decisions around the nutrition, education, and health of their families. To understand and measure any change occurring as a result of the programme, evaluators looked for change in household income, savings, household decision-making power, livestock ownership, enrolment of children in school, food security, healthcare use, and expenditures. Comparison between baseline and endline data suggests substantial growth across all BOMA criteria for poverty graduation, as described in [Figure 2](#).

Figure 2. Percentage of respondents fulfilling graduation criteria.



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Economic empowerment

Overall, women enrolled in REAP were found to be better able to feed their families, pay for school fees and medical care, accumulate savings, sustain themselves during drought and other emergencies, respond to economic shocks, and adapt to change in climate.

Income

By endline, all but one of the 250 BOMA businesses were still in operation, of which 94% (234 out of 249) were valued at 125% or more of the initial grant size. The greatest increases in business value were observed within the first three months of the programme, with more gradual increases observed over the next two years. The viability and success of these businesses allowed for the increase and diversification of household income. The percentage of households with more than one income increased from 65% to 96%, and average total household income rose by 78.8%. BOMA businesses contributed an average of KES 1,025 (US\$100) per month to household income.

Savings

A key component of REAP's model is the establishment of savings groups, to encourage and enable women to set aside financial assets for the future. Participants are encouraged to cultivate savings accounts as a safeguard against such shocks as drought and unplanned medical expenses. BOMA's endline analysis revealed that almost 100% of participants had some form of savings, compared to just a third at baseline. These savings were primarily held within BOMA savings groups (100%) and businesses (87.8%), as well as in personal household cash and livestock savings. Average total savings increased from KES 785 to KES 14,510 - a 1,748% increase over the course of the two-year programme.

Shocks and loans

Access to financial services like savings and loans can act as a financial safeguard for a household and protect against unforeseen shocks, revealed as a major concern during midline analysis due to widespread drought across the region (Karlan et al. [2016](#)). By endline, 44% of the Gates cohort reported ever taking out a loan, increasing from 22%

expenditures like food (47%), school fees (22%) and medical expenses (10%), and for business expenses (9%). Evaluation based on membership in savings groups, access to credit and accumulation of savings suggested that 99% of participants were prepared to respond to drought, flooding and other emergencies.

Expenditure

This increase in household income corresponded to an increase in household expenditure on education, medical care, and nutrition. Annual school expenditure increased by 154% during the programme and annual medical expenditure rose by 85%. Increases in education expenditure also translated into an increase in girls' school enrolment. At baseline, 56.7% of participants reported that all daughters ages six to 14 years were enrolled in school. Further investigation revealed that herding livestock and household chores were key barriers to girls' schooling, and in response, BOMA, in consultation with the International Center for Research on Women, developed a campaign to address this which was implemented in all 14 Gates cohort locations between November 2017 and February 2018. Activities included community meetings with participants and stakeholders, advocacy for the importance of girls' education, and identification of girls' education champions, as well as follow-up with REAP participants and their husbands who had failed to enrol their daughters in school. By endline, 68.5% reported having all daughters in primary school.

The same increase in household income also contributed to observed decreases in food insecurity among REAP participants and their families. Between baseline and endline, the percentage of participants reporting eating at least two meals per day rose from 79.9% to 99%. Similarly, while at the beginning of the programme 53.2% of respondents reported that their children had ever gone to sleep without an evening meal, by endline that number had dropped to 1.5%.²

Decision-making power

Women's ability to earn and control income and financial assets are strongly linked to their greater buy-in in household decision-making (Agarwal [1997](#); Sultana [2011](#)). BOMA expected that participation in REAP, subsequent increases in household income and savings, and access to credit would increase women's power over household spending decisions. Traditionally, men were responsible for all financial assets and women reported needing their husband's approval to spend money, but overall, the results of

Female respondents reported that having their own income and assets increased their bargaining power in their relationships, changed the way their husbands perceived them and increased their own confidence and self-worth, all of which inspired increases in their decision-making power.

Changes in decision-making power were particularly pronounced in a few key decision-making realms, including family nutrition, livestock for their own businesses, household items, clothing, and personal items. Women were most likely to report being the final decision-maker around those expenses. This was particularly important for women whose husbands spent time at satellite camps or were otherwise away from home for long periods of time. Before engagement with REAP, if a man were not at home when a need arose, his wife would need to send a message to him to ask for money or wait for him to return. As women developed the means to earn money on their own through REAP, this level of dependence decreased, and they were able to make necessary purchases more efficiently. Similarly, the level of intra-couple consultation appears to have improved. In cases where men had been the sole decision-maker, wives who had participated in REAP became more involved in the decisions. Even when men are still the ultimate decision-maker, as is generally the case for larger family expenditures, women may be more involved in the discussion and decision-making process. Thus, participation in REAP gave women the power to make decisions around small, everyday household expenses, and to be included in discussions around larger purchases, even if the ultimate power over those still lies with their husbands. BOMA anticipates that these attitudes will continue to shift to empower women as businesses continue to grow and men adapt to and accept their partners' changing role.

Social cohesion

It is likely that REAP's group setting model is, at least in part, behind the strong impact BOMA observed in both economic and social empowerment. Studies by Johnson ([2004](#)) and Dupas and Robinson ([2013](#)) determined that group settings help women save and comply with savings requirements through peer encouragement and intra-group monitoring, thereby increasing savings volume and the likelihood that group members will reach their targets. Social networks encourage more ambitious goal setting and can be critical for success in entrepreneurial endeavours, especially for women who have traditionally faced restrictive social barriers (Field, Jayachandran, et al. [2016](#)). These groups can also serve as sources of information and learning beyond their particular

their savings groups to discuss business challenges and financial challenges (Kumar, McKay, and Rotman [2010](#)) and accessed bank financing by leveraging social capital derived from group settings (Kuada [2009](#)). BOMA's early evidence further suggests that women built on the social capital developed in business and savings groups to identify opportunities for market engagement and expansion, leading to business growth. Women are also able to leverage these social networks in order to access credit when they are otherwise credit constrained, giving them access to a wider range of financial services (Johnson [2004](#); Kuada [2009](#)).

By establishing both business and savings groups and encouraging participants to work together to achieve their goals, REAP also built and strengthened social relationships outside of the household. These relationships supported REAP's economic and decision-making impacts, encouraging greater financial savings and bolstering women's influence within their households. Women in savings groups are more likely to participate in social and civic activities, which can in turn expand their autonomy and decision-making power, by breaking down traditional barriers to collective action (Desai and Joshi [2013](#)). Membership in organisations or groups similar to those established through REAP has been associated with increased involvement in both household decisions and in voicing public concerns. Qualitative inquiries with REAP participants found that not only financial empowerment but also social empowerment drove women to feel more confident in themselves and their self-worth and to exercise increased influence over household decisions.

Challenges and low uptake of digital services

Mobile money offers extensive benefits for reaching populations that have been, for geographic or social reasons, excluded from traditional financial institutions and services. Suri and Jack ([2016](#)) have illustrated that the growth and spread of this technology, including and especially in Kenya, has the potential to lift households out of poverty and drive increases in both consumption and resilience. BOMA's experience, however, illuminates that challenges arise when using digital products to reach last mile communities. Specific characteristics define them which, if they are not addressed by carefully tailored solutions, act as barriers to reaping the full benefits of financial inclusion.

A total of 676 REAP participants were given access to mobile phones and mobile money accounts through M-Chama, a secure platform for women to safely and securely make and receive payments and track savings accruals over time, in both personal accounts and a shared group account. Analysis revealed both understanding and use of the technology to be quite low. Women were reluctant to keep money in their mobile accounts and used the platform only to request and approve loans. Mobile phone ownership at the end of the programme had risen from 40.6% to 92.9%, of which 73.9% were the devices originally provided by BOMA. Use of M-Pesa had also skyrocketed, from 34% to 87% of participants over the two years. The correlation suggests that lack of access to mobile phones is a significant barrier to M-Pesa use in northern Kenya. However, while BOMA observed success in driving participants to use M-Pesa, business-related use was not common among members of the cohort. They were more likely to use it to transfer money to or from friends and family members (47.6%) or purchase air time (24.1%). Only 9.5% used it to save money. Although by midline the percentage of participants using M-Pesa or a similar service had risen from 34.4% to 56.3%, engagement was largely limited and only 5.7% used it to receive money from customers. Further analysis provided a few explanations for this.

Education and familiarity with technology

The great majority (88.9%) of the Gates cohort had no formal education. Only 8% of participants could read and 7% could write in any language. Illiteracy severely limited participants' ability to interact with the M-Chama platform. Participants were able to adapt to the use of a mobile phone, developing workable solutions to the issue of illiteracy, including using recognisable icons instead of names to store contacts. However, M-Chama's menu and group account platform proved too complex for adoption by the target population. M-Chama is even more complicated than M-Pesa because participants must first send money to their personal accounts before directing it to the group account, culminating in a nine-step process, which was unnavigable for the largely illiterate group. By endline, only 17% of participants were able to make transactions without assistance.

Potential added value of digital savings was also lost due to participants' unfamiliarity with and wariness of the platform. Less than half of participants had owned a phone before the start of the programme, and BFA's evaluation revealed rampant misconceptions and a general lack of understanding around the devices themselves

money saved, sent or received through digital banking. Some participants believed that the money would return to the original sender if it was not immediately removed from the receiver's account. Many worried about the security of the account and distrusted the mobile money agents. This is in direct contrast to the idea that digital finance should increase transparency and should be considered a major barrier to the uptake of such tools.

Because of the complexity and misunderstandings surround REAP's digital tool, participants were not able to be truly independent, which is one of the key goals of financial inclusion programming. Though women did gain autonomy from their husbands in terms of decision-making power, they became dependent on mentors to maintain financial records, on mobile money agents to make deposits and, at times, on their children and relatives to confirm that transactions had been made correctly. At endline, most participants still relied heavily on their mentors for all digital financial transactions. In turn, this exacerbated issues of trust and security, as account holders shared their PINs with others. 66% of participants using M-Pesa reported that they had shared their PINs with another person - usually M-Pesa agents (42%) or their children (18%).

Savings and financial preferences

Another major challenge BOMA identified was the general preference of their target community to save in cash and other traditional forms of securing value. In pastoralist settings, savings are traditionally maintained primarily through livestock, which can be easily lost due to disease or drought. Even at the end of the graduation period, as women were making deposits in their savings accounts, they maintained additional savings in cash and livestock. Though participants reported higher levels of formal savings at endline than at baseline, they continued to save in both cash and livestock as well. Indeed, cash savings increased substantially - from 11.1% to 47.2% - during the life of the programme, suggesting that access to new savings avenues did not replace traditional methods, but coexisted alongside them. Familiarity with cash meant that participants felt the need to save cash at home both for personal use and for their businesses, as they were less confident in digital savings methods, but also as a matter of habit.

Participants also continued to give and take loans from friends and family in addition to

Gates cohort did increase their use of formal loan institutions, they did not fully take the place of other means. At endline, 44% of participants reported ever taking a loan of any kind. 33% had borrowed from the BOMA savings group, but 12.1% borrowed from a friend or family member and 2.3% had borrowed from a money lender or another non-BOMA savings group. Only 1% had borrowed from a bank or microfinance institution. This suggests that at least in the short run, formal financial mechanisms complement informal home-based mechanisms rather than replace them. Money saved formally and informally is used interchangeably. This finding is consistent with evidence from other financial inclusion programmes. CARE International's Link Up project team has noted that access to formal banking systems did not immediately take the place of informal savings, suggesting that forces other than access are at play in determining how people save (Sultana [2018](#)). Norms, tradition, and comfort may prevent potential beneficiaries from transitioning fully to new, formal services.

Conclusion

REAP saw improvement of women's businesses, and economic, and social power. Participants increased their disposable household income and consumption on goods like education and nutrition for their families. They were also able to accumulate savings as a way of planning for larger future expenses as well as becoming resilient to shocks. Women also reported higher levels of influence within their households, empowered by both financial autonomy and newly formed social networks to make decisions around daily expenditures and to be involved in discussions of larger purchases. Mentorship proved to be critical to all of BOMA's activities. Training on mobile phones and savings activities, as well as follow-up on girls' schooling and regular monitoring of group targets allowed for the substantial achievements in economic and social empowerment across the Gates cohort.

However, the effect of the digital aspect of the programme was diminished somewhat by certain characteristics of the participants. Low education levels, unfamiliarity with digital technology, and financial preferences prevented participants from taking full advantage of the product. BOMA's target population is characterised by low levels of literacy and numeracy skills, which continue to be significant barriers to growing productive assets, engaging with formal banking systems, and market engagement

Pesa. Even where uptake and usage were high, BOMA noted that participants were highly dependent on others for support. Likewise, participants' savings and financial preferences affected their use of the product.

BOMA's experience points to the need for simpler tools designed in thoughtful ways for the target population. BOMA's participants demonstrated demand for efficient and convenient financial tools. However, tools targeted at the general population, such as M-Charma, may not be applicable to all unbanked people, particularly low-income women with little experience and exposure to technology. Participants' low levels of literacy and numeracy as well as hesitation to trust unfamiliar tools were significant barriers to uptake and usage. Further research is being undertaken by IDEO.org with support from the Bill and Melinda Gates Foundation to gain a deeper understanding of the barriers that women, like those in northern Kenya, face in accessing and using digital financial services. This research is expected to shape solutions to help women overcome those barriers, contributing to a greater body of evidence that will improve access and uptake of digital tools, ultimately supporting economic and social development of women at the last mile.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Jaya Tiwari joined the BOMA Project in 2015 as Director of Strategic Partnerships. She brought to BOMA over 15 years of experience in research, writing, fundraising, advocacy in international development and global health field with focus on Africa. Prior to joining BOMA, Jaya served as the Executive Director of South Africa-Washington International Program in Washington, DC, the Executive Director of Suffolk Partnership for Healthy Community in Suffolk, VA, Director of Global Health Programs at Physicians for Peace in Norfolk, VA, and the Director of Research for Physicians for Social Responsibility in Washington, D.C. In addition to her research management and fundraising expertise, Jaya has extensive experience in congressional outreach and programme, staff and organisational management.

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Additional information

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Notes

1 [Figure 1](#) only addresses BOMA's standard graduation criteria. Results of the evaluation of household decision-making power and of the mobile banking component is addressed below.

2 Food security indicators were measured over a time frame of one week, due to the need for respondents to recall that information. BOMA has found that respondent recall becomes unreliable if asked about longer time frames. Other indicators, including

business value, savings contributions, and child school enrolment, were able to be verified by mentors.

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