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The impact of financial literacy and transaction costs on bank account uptake and use

A Randomized Controlled Trial in Ethiopia

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Abstract

Expanding financial access and increasing savings among the poor have been propagated as means of attaining sustainable development outcomes. In line with this, methods of increasing supply as well as encouraging demand for formal financial services, and consequently savings, have been prevalent in academia as well as global development policy debate. Set in Ethiopia on one of the world's largest rose farms, with more than 8,000 employees who are largely unbanked, our study aims to investigate the impact of information initiatives and transaction costs in increasing demand for and use of bank accounts. More specifically, we conduct a randomized controlled trial to examine the impact of (i) a short, context-specific financial literacy training, (ii) a marketing/information session and (iii) reducing transaction costs to near zero, on bank account uptake and use. We find that our financial literacy training and information session had no effect on bank account uptake and use. Reducing transaction costs had an effect on bank account uptake and use. We conclude that, in the short time frame and specific context of our study, a reduction of transaction costs does indeed have an effect in encouraging financial inclusion and savings among the poor.

Keywords: Financial inclusion, saving, development, bank account, financial literacy, transaction cost

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Contents

1. Introduction

In many cases savings are more than just a buffer for emergencies, retirement, job loss or sickness, they are a means to an end, a certain goal, a dream or a way of life. In central Ethiopia, on one of the largest rose farms in the world, people save for various different reasons. They save to purchase a bicycle, ox, horse or motorbike or they save up for more large-scale investments such as higher education, future for their children or opening a new business – a clothes shop, chicken farm or fruit stand. People save to help their parents or children in case of emergency or to create a brighter future for themselves and their spouse. Given limited funds, the process is often painstaking and cumbersome, requiring sacrifice and determination. It involves cutting the expenses exceeding those for basic requirements such as food, shelter and urgent matters, for instance, by refraining from basic indulgence in new clothes, excess commodities such as oranges, coffee, oil or the occasional visit to a food stand or restaurant. Despite this, there is an element of hope in the equation and many mention that they save in order to create a change, they save for a better life.[1]

Against this backdrop, we study what factors could have an impact in influencing these individuals to save within the formal banking sector, that offers benefits such as interest, safety, and control. More specifically we study the effect of financial literacy and transaction costs on bank account uptake and bank account use through a randomized controlled trial in central Ethiopia. Our experiment was conducted at a company with over 8,000 employees, few of whom are connected to the formal banking system.

It has by now been established that low-income households do have the willingness and ability to save. Despite this many are excluded from taking advantage of the benefits associated with formal financial services, such as a simple savings account. It has been highlighted that, "*poor households have many of the same financial needs as wealthier households, and they gain similar benefits from having access to quality, affordable financial services within a reasonable distance*." (McKinsey&Company, 2010a, p.7) Furthermore, identified as an issue on the global agenda, a key point during the World Economic Forum 2011 acknowledged, "*Saving money and processing remittances are among the biggest needs for financial services with underserved populations.*" (WEF, 2011)

Yet, more than half the global working-age population does not have quality, affordable financial services, the great majority of whom live in Asia, Latin America, the Middle East and Africa. The most acute lack is found in Sub-Saharan Africa, where on average 80 percent of the adult population does not use formal or semi-formal financial services (McKinsey&Company, 2010a). Despite this, Demirgüç-Kunt & Klapper (2012) show that 40 percent of adults in Sub-Saharan Africa report having saved in the past 12 months. They compare this to the overall global average of 36 percent. This can be seen as testament to the fact that there is a substantial financially underserved population in the region.

There are however encouraging changes occurring in this regard. In a speech at the Global Savings Forum 2010 in Seattle focused on the role of savings in developing countries, co-chair of

[1] This section is based on initial interviews with employees at the rose farm. See transcription in Appendix D2.

the Bill and Melinda Gates Foundation, Melinda Gates, recognized a historic moment that will aid in bringing financial services, especially savings accounts, to hundreds of millions of people living on less than 2 USD a day. Granting 500 million USD from the foundation to expand savings, she urged stakeholders from banking, government and development to build a new financial infrastructure to offer savings to the poor (Bill & Melinda Gates foundation, 2010). Indeed, changes are occurring in the infrastructure and development of financial services, where for instance, innovations in correspondent banking and mobile financial services can significantly cut the costs of serving customers and thereby expanding access (McKinsey&Company, 2010a). Encouraging examples can be found from Brazil, Mexico and Kenya (McKinsey&Company, 2010b).

Expanding access alone however may prove to be insufficient as many factors have been identified as significant in the decision to use financial services or simple savings accounts. For instance, in a report to the World Bank, Allen et al. (2012) use data from 123 countries and 124, 000 individuals to distinguish factors that determine bank account ownership and the use of accounts to save. A survey asked 65,000 adults: why do you not have a formal bank account? The most common answer was not having enough money to save (the authors identify these individals as likely to be "voluntarily" self-excluded due to low funds or for cultural or religious reasons), followed by: banks are too expensive, banks are too far away, lack of necessary documentation, lack of trust in banks (these were labeled as "involuntary" excluding factors). Furthermore, Demirgüç-Kunt & Klapper (2013) conduct a study spanning 148 countries around the world and document that significant barriers to account use are cost, distance and document requirements. Similar results have been found in studies examining only Africa, adding that, informal means of saving such as Rotating Savings and Credit Associations (ROSCAs) are common in the region (Demirgüç-Kunt & Klapper, 2012).

Although transaction costs seem to offer some explanation, they are not exhaustive in clarifying low savings account uptake rates among the poor. Other factors such as self-control problems, low household bargaining power or financial literacy have been discussed in the literature as having an impact upon the uptake and use of financial services (see section 2 below). In particular, the effect of information and knowledge in this regard has been highlighted. Notably, in a recent article to the New York Times, prominent professor Richard Thaler urged: "*The financial services industry — either on its own or as required by government regulators — needs to find ways to make it easier for people to make sound decisions.*" (New York Times, 2013)

1.1. Purpose and research questions

We aim to investigate what drives demand for savings accounts among the most unbanked populations in the world. In particular, our purpose is to examine the influence of financial literacy, information and transaction costs as factors driving demand for and use of savings accounts among low income individuals in a developing country setting.

We aim to draw insights on what methods are, or are not, effective in promoting demand for savings account services and thereby encouraging financial inclusion among the poor. More specifically, we formulate the following research questions:

1) Does a short, simple, context-specific financial literacy training have an effect on bank account uptake and use?
2) Does informing individuals of specific formal savings options have an effect on bank account uptake and use?
3) Does reducing transaction costs of opening a bank account to almost zero have an effect on bank account uptake and use?

This paper is structured to first delineate current literature on the topic and identify the research gap which our study aims to fill (section 2). Secondly, we discuss the background, experimental design and sample characteristics of our study (section 3). We present our results (section 4) and end with a discussion (section 5) and conclusion (section 6) of our findings.

2. Literature review

2.1. The benefits of financial access and savings

The proposition that financial deepening has substantial importance for growth of GDP per capita, productivity growth and poverty reduction has found wide support in the literature (Beck, Demirgüç-Kunt &Peria, 2007; Beck, Demirgüç-Kunt & Levine, 2007; Demirgüç-Kunt, Beck & Honohan, 2008, Honohan, 2008; Burgess & Pande, 2005). Indeed, a growing body of research has established that expanding financial services to incorporate the poor can encourage savings among many groups of low income households (Aportela, 1999 in Mexico; Burgess & Pande, 2005 in India; Dupas & Robinson, 2009 in Kenya; Prina, 2011 in Nepal).

In turn, various studies have found significant benefits of savings within the developing country context such as female empowerment (Ashraf et al., 2010; Duflo, 2011), increase in productive investments, income level accession (Dupas & Robinson, 2013) and insurance against shocks (Deaton, 1997). On a wider level, Browning and Lusardi (1996) identify nine benefits of saving to the individual that also constitute potent motives to save: precautionary, life cycle, intertemporal substitution, improvement, independence, enterprise, bequest, avarice and downpayment.

2.2. Financial access and savings among the poor

Key to the issue of expanding financial inclusion and sustainable savings practices is the question: Do the poor actually have the means to save? Rutherford (1998) notes that: "*Poor people can save and want to save, and when they do not save it is because of a lack of opportunity rather than lack of capacity*." It has been established in various locations and settings that the poor do have the willingness and ability to save, albeit often through informal means (Rutherford, 2000; Collins, Morduch, Rutherford & Ruthven, 2009; Kendall, 2010; Banerjee & Duflo, 2007). This is evidenced by the various means of informal savings mechanisms adopted by low-income individuals such as investments in durable assets, use of deposit collectors, partaking in ROSCAs or simply keeping the money at home (Brune et al., 2013). These mechanisms, however, often entail greater risk and/or higher costs (Collins, Morduch, Rutherford & Ruthven, 2009).

Overall, savings still remain low among the poor. Banjerjee & Duflo (2007) maintain that the poor have difficulty resisting spending money they have at hand. Similarly, Ashraf et al. propose

that, "*low savings might be a consequence merely of poor access to safe, flexible, convenient and affordable savings products*" (2003, p.8). Further, in this regard, Seira (2010) maintains that, "*lack of savings is likely both due to poor access to low-cost and secure formal savings institutions and limited demand for savings accounts*"(2010, p.6). Indeed, in terms of financial services, better savings mechanisms, have been propagated as either a complementary or substitute solution to microcredit to ease the financial constraints of the poor (Adams & von Pischke, 1992; Rutherford, 1998; Johnston & Morduch, 2007). In this regard, many formal savings tools have been advanced as beneficial to the poor, often incorporating various different features, including: commitment devices (Ashraf, Karlan & Yin, 2006a, 2010; Dupas & Robinson, 2013; Brune et al., 2013), reminders (Atkinson et al., 2010; Karlan et al., 2012), deposit collection services (Kast, Meier & Pomeranz, 2011; Ashraf, Karlan & Yin, 2006), ATM cards (Schaner, 2013) or mobile technology (Jack and Suri, 2009).

In reality, access to banking services remains restricted in many parts of the world, particularly so in Sub-Saharan Africa. Kendall et al. (2010) conduct a comprehensive study of deposit account ownership and find that, out of the seven countries with less than 100 accounts per 1000 individuals, five are in this region – Congo D.R., Madagascar, Mauritania, Burundi and Ethiopia. To our knowledge no randomized evaluation or study has been conducted examining factors that drive demand for financial services, or more specifically savings accounts, in any of these countries. Our study is therefore the first randomized controlled trial studying the uptake of bank accounts among the countries in the Sub-Saharan African region with the least savings account penetration.

On a general level, despite having the willingness and ability to save, low-income individuals are often excluded from the formal financial sector and have a difficulty to save with formal means (Brune et al., 2013).

2.3. On the benefits of a simple bank account

Dupas and Robinson (2013a) have highlighted the potency of simple bank accounts in increasing savings and investments. Further, Kast, Meier & Pomeranz (2012) have found that access to free savings accounts has a substantial effect on decreasing the propensity of individuals to take short-term loans. Dupas and Robinson (2013b) outline two primary benefits of safe savings devices: storage and mental accounting. The first entails allowing people to "*keep some physical distance between themselves and their money*" thereby resisting temptations to spend or demands from family, friends or a spouse to borrow or take the money. As formulated by Kast & Pomeranz (2013): "*A formal savings account located away from the home potentially reduces both self-control and other-control problems*" (2013, p.3). The second entails an element of labeling where individuals use the savings technology to save towards a specific goal, thus making the money seem non-fungible with other means of obtaining cash. In addition to these benefits, Cole, Sampson & Zia (2011) see the simple bank savings account as a secure means to protect money from theft and receive interest as well as a way of building a relationship with the bank, thereby facilitating future transactions with the institution. Indeed, there has been a growing body of literature examining the impact of formal bank accounts on the poor in developing country settings (Prina, 2013; Cole, Sampson & Zia, 2011; Dupas & Robinson, 2013a) often with favorable conclusions as to its practicality in encouraging savings. Our study is related to and adds to this literature.

2.4. Savings constraints

Several reasons have been forwarded as potential causes for low levels of formal savings among the poor in developing countries. Seeking to explain this, Dev maintains that greater financial inclusion will be dependent upon "*a holistic approach addressing both supply and demand side aspects*" (2006, p.4311) Supply side factors that have been advanced in the literature as having an impact on formal savings include transaction costs such as distance to bank branches (Aportela, 1999; Ashraf, Karlan & Yin, 2006) or savings account opening fees (Dupas & Robinson, 2013a; Prina, 2013; Cole, Sampson & Zia, 2011). Some barriers to saving have been identified as more constraining than others, such as, minimum balances for checking accounts, annual fees, document requirements for accounts (Beck, Demirgüç-Kunt & Peria, 2007). Finally regulatory issues have been propagated as a potential factor explaining low savings among the poor. For instance, due diligence requirements on small-balance savings accounts has hindered the proliferation of these in various settings (Jentzsch, 2009).

Other potential causes are focused on demand side issues, such as, low financial literacy (Brune et al., 2013; Cole, Sampson & Zia, 2011; Lusardi &Mitchell, 2007; Carpena et al., 2011), issues of individual self-control and impatience (Ashraf, Karlan & Yin, 2006; Gugerty, 2011; Duflo, Kremer & Robinson, 2011; Thaler, 1990) or limited attention spans (Kast, Meier & Pomeranz, 2012; Karlan et al., 2012). Alternatively, low demand for savings products has been suggested to be less associated with the time inconsistent preferences of individuals but rather as a consequence of the substantial demands put on the poor to share their money with family and friends (Anderson & Baland, 2002; Dupas & Robinson, 2013b; Brune et al., 2013). Another reason discussed in the literature is low household bargaining power to dispose over funds, which often leaves women in an inferior position and effectively diminishes their ability to save (Schaner, 2013; Ashraf, Karlan & Yin, 2006; 2010). Finally, issues of trust have been discussed as a potential cause for a low uptake of bank accounts and in extension formal savings (Dupas et al., 2012). There have however, to our knowledge, not been any randomized controlled trials specifically studying this factor in a developing country context.

Karlan, Ratan & Zinman (2013) summarize these constraints to savings faced by the poor into five broad categories: transaction costs, lack of trust and regulatory barriers, information and knowledge gaps, social constraints and behavioral biases.

2.5. Alleviating savings constraints

There have been a multitude of studies that have sought to address the above discussed savings constraints often proposing various solutions to targeting the financial barriers faced by the poor. Recognizing the importance of all the five constraints discussed by Karlan, Ratan & Zinman (2013), our study will stem from the two factors emphasized by Cole, Sampson & Zia (2011, p.1933):

> Two leading views may explain limited demand for formal financial services. First, because these services involve high fixed costs and hence are expensive to provide, it may be the case that low income individuals do not demand formal financial services at market prices. Indeed, there is evidence that informal savings, credit, and

> insurance markets function reasonably well in emerging markets, with the benefits of formal financial market participation simply not exceeding the relatively large fixed transactions costs associated with such products (Beck, Demirgüç-Kunt, and Peria (2007)). An alternative view argues that limited financial literacy serves as an important barrier to demand for services—if individuals are not familiar or comfortable with certain products, they will not demand them.

Below we explore the studies that have addressed financial literacy and transactions costs as constraints to the uptake of formal banking services and savings in greater depth.

2.5.1. Targeting financial literacy

A substantial body of literature has examined the impact of financial literacy on savings. Financial literacy, in a broad sense, has been described as "*peoples' ability to process economic information and make informed decisions about financial planning, wealth accumulation, pensions, and debt*" (Lusardi & Mitchell, 2013, p.2). Karlan, Ratan & Zinman (2013) summarize three key assumptions on which efforts that have tried to establish a causal link between increasing financial literacy and an increase in saving are built upon:

1) Knowledge is low – there has been substantial evidence to support this proposition (Cole, Sampson & Zia, 2011; Lusardi & Mitchell, 2007)
2) Low knowledge causes undersaving – this link has been difficult to establish empirically. Despite evidence of strong correlation between the two variables, data samples could be seen to suffer from omitted variables or even reverse causality (Karlan, Rastan & Zinman, 2013; Fernandes, Lynch & Netemeyer, 2013)
3) Interventions have the potential to increase financial literacy, cost-effectively – there has been scant evidence supporting this proposition. Often studies find little, if any, effect of financial literacy interventions (Fernandes, Lynch & Netemeyer, 2013; Carpena et al., 2011).

Indeed the link between financial literacy interventions and overall savings has proved to be weak. Cole, Sampson & Zia (2011) study the effect of a two hour financial literacy training on the opening of bank accounts and savings in Indonesia. Roughly half the households participating in the study are living in a rural setting, half are female headed, respondents are on average in their early 40s, a majority are married, have some schooling and around 70 percent are employed. Out of the 736 households, 564 chose to attend the financial literacy training. The study finds that there are no effects of a financial literacy training on bank account take-up in the general sample and only modest increases in take-up among the people with low initial levels of financial literacy or education. In contrast, small subsidies were found to have a significant impact on the take-up rate of bank accounts.

In another study, Carpena et al. (2011) examine the impact of a video-based financial literacy training given for two to three hours once a week, for the duration of five weeks, to 1,200 urban households living in the slums of Ahmedabad, Western India. As an extra incentive, the researchers added a treatment that would give the participants monetary rewards for enhanced performance. They test the impact of this training on numeracy skills, basic financial awareness

and attitudes towards financial decisions. Although only finding modest effects on numeracy, they find significant effects on financial awareness and attitudes.

Based on a meta-survey featuring 168 studies examining the impact of financial literacy trainings, Fernandes, Lynch, and Netemeyer (2013) conclude that financial trainings, as typically conducted, have not led to any significant behavioral change among their participants. This begs the question: are there different ways of administering financial education that would make it more effective?

Drexler, Fischer & Schoar (2013) study the difference between two distinct programs comparing the impact of a standard accounting training versus a more simple, "rule-of-thumb" training including only basic financial heuristics on firms' financial practices, reporting and revenues. The sample consisted of 1,193 existing business or loan clients at a national savings and credit bank in the Dominican Republic. The average person in the sample was 40 years old, had three children and held a considerable loan size with the bank. The study finds that only the rule-of-thumb training had a significant impact on existing financial practices and concludes that, in some contexts, considerable benefits could be derived from simplifying trainings and emphasizing easy and practical rules-of-thumb.
In another study, Seshan & Yang (2013) research the impact of savings-focused financial literacy training on the financial choices made by Indian migrants in Qatar and their spouses, who were still living in India. A three-hour financial literacy workshop was given followed by a two hour dinner to 232 married, migrant workers living in Qatar. The study finds evidence to support that the financial literacy training did have an impact on household financial decisions in particular with regards to influencing participants to jointly make financial decisions with their wives.

Further shortening the amount of information given during treatments, several studies have examined the effect of simple marketing interventions, informing individuals of certain formal financial options.

Bertrand, Mullainathan & Shafir (2006) propose that low-income individuals exhibit similar behavioral biases as high-income individuals but are burdened with institutional, social and psychological factors that make their choices and economic behavior more prone to mistakes. They highlight marketing as playing an important role in this context, thereby elevating the benefits of marketing in propagating positive options such as union banks and prime-rate lenders. They maintain that "*there are likely to be simple and insightful marketing manipulations that can make a difference in socially desirable ways*" (2006, p.4). In light of this, they discuss simple methods of structuring marketing initiatives to, for instance, encourage uptake and use of bank accounts. They discuss the importance of simple information processing interventions that recognize the fact that the poor do not operate within a full-information context. Against this backdrop, the authors suggest that the poor might respond more to incentives if these incentives were more transparent.

Dupas et al. (2012) conduct a field experiment in Western Kenya assigning 989 individuals to one of two treatments. The first treatment is outlined in section 2.5.2.2. The second treatment involved a personal information session that gave individuals insights into available credit options

and described the rules and procedures for obtaining a loan. No further assistance was given in terms of taking up a loan. Administering a survey directly after the intervention they find that a majority of people were interested in taking up a loan with one of the local banks. The authors conclude that, as many people lack basic information about banking options, primarily due to little experience, better marketing from banks could be seen as beneficial.

Considering the potential benefits of such marketing/information initiatives, several studies have examined methods for their efficient design. Bertrand et al. (2010) conduct a field experiment in South Africa varying advertising content in promoting credit options offered by a consumer lender among 53,000 former clients of the institution. They find that showing fewer examples of loans, refraining from particular suggestions as to how the loans should be used or including a photo of an attractive woman has a substantial positive impact on loan demand. Further, Karlan & Zinman (2013), conducting 10,000 door-to-door solicitations of a new commitment savings product in the Philippines find strong demand sensitivities to who the marketer is and when the marketing takes place.

Further, Karlan, Rastan & Zinman (2013) draw some "glimmers of hope" as to interventions that exhibit potential to have an impact on behavior and are therefore possible paths for future research within financial education. These include:

1) Disentangling the treatments themselves from the often low take-up of the treatments
2) Adapting the content specifically to the participants of the financial trainings
3) Increasing the focus on the youth
4) Exploring the effect of shorter and simpler financial trainings (see Drexler, Fischer and Schoar (2013) above)
5) Exploring "just in time" information interventions that are linked with financial product take-up or other lucrative moments. Interventions of this kind are conducted just prior to a certain behavior change, that is, financial education should not be given years before the behavior it is intended to change (Fernandes, Lynch, Netemeyer, 2013).
6) Interventions that are not programmatic and instead emphasize timing, specificity and framing

In light of this evidence we design two interventions aimed at exploring the effect of specific financial literacy addressing the above-mentioned six factors as well as, more generally, information/marketing initiatives. A set of testable hypotheses associated with these treatments are outlined in section 3 below.

2.5.2. Targeting transaction costs

Many low-income individuals in developing countries face significant transaction costs in opening a simple bank account or participating in the formal financial sector. These transaction costs can be divided into pecuniary and non-pecuniary costs (Karlan, Ratan & Zinman, 2013).

2.5.2.1. Non-pecuniary costs

Non-pecuniary costs are associated with travel costs, opportunity costs with respect to time and foregone wages and administrative hassle (Karlan, Ratan & Zinman, 2013) or information gathering costs. Below we examine the effect of reducing these costs in several settings.

On a general level, Aportela (1999) and Burgess and Pande (2005) both take advantage of exogenous expansions of bank branches in Mexico and India, respectively, and find that bringing the bank closer to unbanked individuals leads to lower levels of poverty.

Looking closer at the issue, two studies experiment with varying the travel costs associated with opening and using a bank account. One of the early studies on the topic was conducted by Ashraf, Karlan & Yin (2006) in the Philippines. Randomly offering a deposit collection service to the clients of a rural bank increased overall savings up to 40 percent in comparison to neighborhoods that were not offered the service. The service has a small cost of about 0.10 USD and whether clients chose to use the service was strongly correlated with distance to the closest bank branch.

In another study, Flory (2011) examines the impact of a "bank on wheels" that could be seen to bring banking service geographically closer to populations in Malawi living in more remote regions. Using a panel data set of 2,006 households they find that the take-up rates for bank accounts were relatively low. Overall results for all treated areas show that the take-up rate rose from 9.3 percent to 12.4 percent.

Looking beyond geographic distance, Kast & Pomeranz (2013) discuss the importance of mental transaction costs. Focus group meetings among the participants prior to a randomized evaluation in Chile[2] revealed that, in addition to financial costs, mental transaction costs such as going into the bank or not knowing the requirements of opening a bank account, seemed to contribute to the savings constraints. This yields to the proposition that simple information gathering costs could constitute a significant barrier to opening and using a bank account.

In addition, Bertrand, Mullainathan & Shafir (2004, p.420) suggest that:

> "small situational barriers often play a decisive role in preventing the opening of a bank account despite huge benefits. These barriers might be a testy bus ride, challenging hours, or the reluctance to face a contemptuous bank teller. Such barriers are not unlike the embarrassment and anxiety that impede many people, including medical doctors, from administering medical self-exams which they know to be highly valuable."

[2] For a more detailed description of the study see the section on pecuniary transaction costs below.

Overall the impact of non-pecuniary transaction costs remains largely unexplored. For instance, what is the effect of reducing the other transactions costs mentioned above, such as time and opportunity costs?

2.5.2.2. Pecuniary transaction costs

Among the pecuniary costs, studies have examined the impact of varying the different features of a specific bank account, such as, minimum deposit requirements, withdrawal fees, opening fees, administrative requirements.

Dupas & Robinson (2013a) and Dupas et al. (2012) examine the effect of eliminating opening fees and minimum deposit requirements. Dupas & Robinson (2013a) conduct a field experiment in rural Kenya giving the 156 self-employed individuals in their sample access to a zero interest bank account with considerable withdrawal fees. This gives participants a de facto negative interest account. They find that both the uptake and use of the accounts was high, particularly so amongst the female market vendors. There was also a positive impact on overall savings for these women. Furthermore, the study shows that bank account access had a considerable positive effect on levels of productive investments among the women, conservative estimates indicate a 45 percent increase, and the study indicates higher income levels within six months of the intervention (27-40 percent higher than female vendors in the control group).

In a similar study, Dupas et al. (2012) offer 989 unbanked households a voucher for a free savings account, effectively wavering opening fees and minimum balance requirements. The vouchers were given to the participants in their homes at which time the fieldworkers gave them useful information regarding how the bank and account worked as well as how they could use their voucher. Withdrawal fees still remained. Although the overall take-up was relatively high (62 percent), the study shows that in the 12 months subsequent to take-up, only 28 percent made two or more deposits. Qualitative surveys indicated that participants' worries, with regards to available savings devices, included risk of embezzlement, unreliable services and transaction fees. The authors highlight trust in banks as the first reason for why people did not start to save in their accounts, followed by a perception that services were unreliable and that withdrawal fees were alarmingly high. These results suggest that the low usage rates are a consequence of more than just entry costs such as information gathering, administrative trouble or opening fees.

Taking a different approach, Karlan & Zinman (2013) and Schaner (2013) study the effect of varying account yields and ownership on uptake and usage of bank accounts. Karlan & Zinman (2013) conduct almost 10,000 door-to-door solicitations in the Philippines randomizing the yield and account ownership requirements (individual account, joint account or a choice between the two). They find surprisingly small demand sensitivities for both factors.

Schaner (2013) conducts a similar study in Western Kenya offering 748 rural, married couples the opportunity to open joint, individual for the husband and/or individual for the wife bank accounts. The couples were randomly assigned an interest rate that varied between 0-10 percent. Further, withdrawal fees remained and the accounts were only accessible during working hours. A subset of couples was offered ATM cards which reduced the withdrawal fee by half and allowed the owners to withdraw outside bank hours. In total 1,121 bank accounts were opened

and after 12 months, 27 percent of couples saved in at least one of their accounts. Providing an ATM card had a significant impact on account use and increased saving rates by 28 percent. The researchers however find substantial heterogeneous treatment effects where the usage for the joint and men's accounts increased considerably. For women's accounts, it resulted in lower usage, not significantly different from zero. The researchers hypothesize that this is due to low female bargaining power and suggest that such internal and external constraints limit the benefits of reduced fees and transaction costs.

Overall there seems to be evidence to support that although reducing transaction costs of access to bank accounts does have an impact on uptake and use, external factors can play a non-trivial influence on the use of these services.

Taking further steps in reducing transaction costs, Prina (2013) uses a public lottery at local bank branches in 19 slums in Nepal to randomly offer savings accounts with no inherent fees to 567 female household heads. She finds that 80 percent of the participants offered an account chose to sign up and use it actively, saving about 8 percent of their weekly income. Results show a positive impact of the savings accounts, increasing monetary and total assets without crowding out other kind of assets and increasing household investments in health and education.

In another study, Kast & Pomeranz (2013) investigate the impact of offering free and liquid savings accounts to a group of low income, primarily female, urban population in Chile on reducing participants' outstanding debt. Accounts included no maintenance fees or minimum balance requirements and minimum opening deposits were low (about 2 USD). Referring to a study conducted by Kast, Meier & Pomeranz (2012) that found a peer group treatment has a positive effect on account use and overall savings, Kast & Pomeranz (2013) add a subgroup examining peer group effects. Participants were given the chance to open an account along with their peers and were informed which documents were required to open an account in advance. In total, 53 percent of the participants offered an account chose to take up the account and 39 percent chose to deposit money in the account. Furthermore, results show a significant effect in the reduction of debt with family and friends and a decrease in consumption cutbacks. The peer group treatment did not seem to have any additional impact on the key variables of the study.

The studies discussed above differ in the magnitude of impact they find as an effect of reducing transaction costs. A possible explanation to this may be the differing degrees to which the studies reduce the transaction costs. This begs the question: is it enough to only reduce some transaction costs or is there an additional benefit in reducing all transaction costs, both pecuniary and non-pecuniary, to near zero? Or are there other factors such as low household bargaining power, design and timing of solicitations or overall trust issues that exert a powerful influence and to some extent undermine the effects of decreasing visible transaction costs. To test this we have formulated a set of hypotheses that are outlined in section 3 below.

3. Hypotheses formulation

In reference to the literature outlined above with regards to financial literacy, our study serves in bridging all of the six research gaps identified in the meta-analysis conducted by Karlan, Rastan & Zinman (2013). More specifically, our financial literacy training was (1) mandatory for the workers at the rose farm and was held during working hours (2) adapted specifically to the circumstances of the workers at the farm and based on interviews with workers prior to design (3) targeted at a group of relatively young people as the mean age of the workers was 22 years old (4) short and simple, presenting a few "rules-of-thumb" to saving, (5) our financial trainings were just prior to the expected behavioral change i.e. for the workers to open and use the bank accounts (6) not programmatic and specifically tailored to the circumstances of the employees at the rose farm.

Consequently, with our randomized controlled trial, we aim to find out if a mandatory, short, simple, and context-specific financial training can make a significant difference on bank account uptake and use. In addition to this, we test whether the low current uptake might simply be related to asymmetric information, by offering an informative marketing speech, in order to inform the individuals of the specifics of our partner bank and its related bank account.

Further, in reference to the literature outlined above with regards to transaction costs, we explicitly reduce all transaction costs in our second intervention that can be influenced directly to near zero, including: distance, opportunity costs, time, "discomfort" in dealing with a bank through peer group sign-up, information gathering, administrative hassle and all monetary costs of opening a bank account.

We aim to find out if this reduction of pecuniary and non-pecuniary transaction costs to near zero has a significant effect on bank account uptake and use.

We thus formulate the hypothesis:

$H_1(a)$: Short, simple and context-specific financial training increases bank account uptake.

$H_1(b)$: Short, simple and context-specific financial training increases bank account use.

$H_2(a)$: Short marketing speech highlighting specific formal savings options increases bank account uptake.

$H_2(b)$: Short marketing speech highlighting specific formal savings options increases bank account use.

$H_3(a)$: Reducing transaction costs of opening a bank account to near zero increases bank account uptake.

$H_3(b)$: Reducing transaction costs of opening a bank account to near zero increases bank account use.

4. Experimental design and background

4.1. Background

This section outlines the background of our experiment in terms of country characteristics, project environment and setting as well as features of the partner bank and its savings account.

4.1.1. Ethiopia

Ethiopia has experienced considerable and broad-based growth in recent years averaging about 11 percent annually during the period between 2004/05 – 2011/12. The average for the region was 5.4 percent. Economic growth has further been reflected in several development indicators. In terms of poverty reduction, the percentage of Ethiopians living in extreme poverty (less than 0.6 USD per day) has decreased from 38.7 percent in 2004-2005 to 29.6 in 2009-2010 (World Bank, 2013a). Yet, considerable challenges remain. Ethiopia is still one of the world's poorest countries, with a per capita income of 410 USD, significantly lower than the regional average (World Bank, 2013a), and is still dependent upon large scale support to finance the necessary spending to meet domestic challenges (World Bank, 2013a). Further, broad indicators testify to the social problems that still remain: 17.5 percent (2012) of the urban population is unemployed and 78 percent is literate (2011), only 39.5 percent of the rural population is literate (2011), 25 percent of households are headed by women (UNDP, 2012).

High inflation has pestered the country during the last two years with double digit increases of up to 33.2 percent in 2011 and 22.8 percent in 2012 (World Bank). Substantial improvements in this regard have been registered during the last year with inflation falling to 7 percent in June 2013 (Zemen Bank Annual Report, 2013). This lends to a more conducive environment for saving.

From a financial perspective, the UNDP (2013) describes Ethiopia as follows:

> Ethiopia's financial sector has been broadly growing …The number of commercial banks, insurance companies and microfinance institutions have been growing steadily and reaching out to an increasing number of citizens in the various regions and localities. Ethiopia, however, remains one of the most under-banked countries in SSA [Sub-Saharan Africa]…The majority of the rural population do not have limited access to formal financial products, services and a modern payment system. In addition, financial institutions are not vibrant enough to deliver financial products and services to the low income segments of society at an affordable cost and in fair and transparent manner...Lack of financial education and literacy is also contributing to the slow growth and expansion of financial products…Due to absence of a robust financial inclusive strategy, the domestic saving rate in rural Ethiopia has been too low to sustain the intended capital accumulation and economic growth in the country. As a result, the country is faced with a wide domestic saving and investment gap which is covered by external sources.

4.1.2. Sher Ethiopia flower farm

Our study was set on the Sher Ethiopia flower farm located in Ziway, a town in central Ethiopia situated around 180 kilometers south of the capital Addis Ababa. Sher Ethiopia is a Dutch family-owned enterprise that "*cultivates, produces and sells sustainably grown roses according to Fairtrade principles.*" (Sher Ethiopia, 2013)

The company owns two major compounds in central Ethiopia where the larger of the two, employs around 8,000 general workers. Workers at the farm take benefit from a collective labor agreement including free education and medical care at facilities close to the compound, pension, employee disability insurance, travel cost reimbursement, overtime arrangements, annual salary indication, bonus opportunities, vacation days, sickness arrangements, as well as pregnancy and parental leave. Employees are paid a salary comparable to the Gross National Income per capita measurement for the country (as calculated by the World Bank).

On the larger compound there are 12 greenhouses belonging to Sher Ethiopia with an average of 650 workers per greenhouse. These workers are split into several major functions: flower processing, harvesting, packaging and cold room. Each worker has a company ID number and registers working hours at the beginning, end, as well as before and after lunch of each working day, at a fingerscan machine located at one or two entries of each greenhouse. Fingers-scan machines are connected to a central operating system including various employee descriptive statistics.

In terms of our study, the Sher Ethiopia flower compound in Ziway offered an ideal setting as:

- Elaborate communication structures at the company allowed for quick dispersion of news reaching a large number of people.
- Fingerscan machines at greenhouse entries allowed for efficient and convenient individual randomization upon entry to the greenhouse.
- Company database and fingerscan registry allowed access to elaborate baseline information and attendance statistics.
- Management at the company was competent and highly educated, thus facilitating communication and processes during practical implementation of the study.
- The company fully supported the research efforts in order to improve the livelihood of its employees, and offered company time and (human) resources to facilitate the study.

4.1.3. The bank and savings account

The choice of banks in Ziway is far from limited and there are numerous bank branches located around the town. Two of the nation-wide largest banks have offices in Ziway – Commercial Bank of Ethiopia (CBE) and Dashen Bank – offering savings, credit and transfer services. The Commercial Bank of Ethiopia, in particular, is undertaking rapid expansion to reach populations hitherto unbanked. During January 2012, CBE conducted short marketing speeches promoting the bank at each of the greenhouses on the company compound, administered help in opening bank accounts, offered "bank books" and deposit collection services.

Our study was implemented in cooperation with Zemen Bank, a smaller bank that is mainly based in Addis Ababa but has a small office on the Sher Ethiopia compound in Ziway. Zemen Bank is largely perceived as a bank for wealthier agents due to its ordinarily high minimum deposit requirements and portfolio of large corporate customers and famous clientele.

In terms of our study, however, Zemen Bank offered several benefits:

- The bank was located at the Sher Ethiopia compound main gate and was therefore passed by a vast majority of employees on the way to and from work. It was further located in the same building as the Sher Ethiopia administration offices where many employees have to visit to, for instance, register for work the first time at the company.
- The bank has an agreement with Sher Ethiopia offering employees at the company benefits. In particular, the bank has agreed to waver the otherwise obligatory 25,000 Ethiopian Birr (~1,250 USD) minimum initial deposit requirement.
- The bank offers a savings account with many benefits, including:
    - a five percent interest compounded on a daily basis (CBE and Dashen Bank do not offer a daily compounded interest, although CBE offers a five percent interest)
    - no minimum deposit requirements (both CBE and Dashen Bank ask for a minimum deposit of 25 birr or 1.3 USD)
    - less documentation requirements (photographs were taken digitally at the office instead of necessitating customers to bring two physical copies on their own, as is the case at Dashen Bank and CBE)
    - more security as accounts were maintained digitally and therefore did not necessitate the use of "bank books". Upon balance inquiry customers are given a printed receipt. CBE and Dashen bank give customers a bank book with account information which runs the risk of theft and makes it easier for others to see the final outstanding balance of the account.
    - Personal service during working hours between 08.00-13.00 and 14.30-17.00 each working day from Monday to Friday and between 08.00-12.30 on Saturdays.
    - A fully liquid account.

Despite this, few people at the compound knew about Zemen Bank and even less had registered an account with the bank, with the exception of mostly managerial or administrative staff. The bank had made no effort to reach the general workers at the compound prior to our study.

4.2. Sample characteristics

This section outlines the general characteristics of our sample in terms of professional status, demographics and financial inclusion. It is largely based on observation rather than formal analysis. For more specific statistics with regards to sample composition please see section 4.1 below.

Our study comprised and was targeted at the Sher Ethiopia general workers. This group includes the employees that are located and work in the greenhouses at the company compound in Ziway and largely features workers assigned to relatively unskilled tasks at the farm. The sample is also largely divided into specific greenhouses, that is, general workers are distributed randomly to a

particular greenhouse and are for most functions not required to work outside this one greenhouse. Further, professional responsibilities of this group include harvesting, irrigation, packaging and processing flowers. Out of the entire body of staff at Sher Ethiopia, employees in managerial, administrative, maintenance, engineering, security, and support function (hospital and school staff) positions were excluded due to practical reasons[3]. This divide also allows us to study a relatively homogenous group in terms of education, income background, and low financial inclusion i.e. the group that has traditionally been the most under-banked.

The demographic background of the employees is largely varied. Many workers are based in Ziway. However, as Sher Ethiopia is one of the main employers in the region, there is considerable migration to Ziway, predominantly from the southern regions of the country. Consequently, employees have varied ethnical backgrounds. The three main ethnical groups represented at the farm originate from the local Oromo, the southern Welayta and the central Amhara[4]. The official working language at the farm is Amharic, the national and school-taught standard. However, some employees only speak very basic Amharic, if at all, and are therefore instructed in their local language, Oromifa or Welayta. The main religions at the farm are Ethiopian Ortodox, Muslim and Protestant, as is the case in the rest of Ethiopia. The employees are completely mixed across all greenhouses and therefore there are no clusters of ethnical or religious groups, to the best of our knowledge.

There is further large heterogeneity in terms of family background. Some employees come from urban families that run small businesses, while other's come from families that perform subsistence farming. The above factors reflect, to some extent, the variations in population background and demographics found on a national level in Ethiopia and therefore can enable us to draw conclusions beyond the micro-environment at the farm.

Further, most general workers at the farm, working in the greenhouses, are female. Distribution of tasks on the farm is generally gender specific and the most labor intensive tasks, grading and harvesting, are mostly assigned to women. The workers at the farm are very young, many have just passed the 18-year minimum age requirement for employment.

Employee turnover at the company is very high. Further, ex-employees are never rehired, unless the general director grants approval due to compelling reasons. Therefore, most individuals in our sample are first-time Sher Ethiopia employees. With consideration of the above demographic factors we can suggest two plausible explanations for the high employee turnover. Firstly, because many employees are very young, during the start of the educational year numerous workers resign, indicating that many start to study (again). Secondly, because of high migration to Ziway for employment purposes it can be assumed that many individuals resign in order to reunite or return to their families (see for instance Banerjee & Duflo (2007) discussing temporary migration to work among the poor).

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[3] A large portion of these employees already had a bank account. Further, many were not tied to a single greenhouse and would have been difficult to reach with a single information session.
[4] The two largest ethnical groups in Ethiopia are the Oromo and the Amhara.

Finally, very few people on the farm have a bank account. Of those that do, most have worked at the company for a longer duration and were present during the CBE marketing initiative administered around a year and a half prior to our treatment (see section 4.1. for more specific statistics with regards to CBE bank account uptake among our sample). The relatively saturated market for financial services contrasted to the very low bank account ownership among the workers at the farm, yields to a favorable environment to study demand side issues regarding the uptake of savings accounts.

4.3. Experimental design and data

Our study was set up to initially test the impact of a financial literacy treatment. Subsequent to this initial intervention, we included a second intervention, reducing the transaction costs of opening a savings account to near zero.[5] Below, the two interventions are detailed. For a timeline of the two interventions see Appendix D4.

4.3.1. Intervention 1: Awareness and financial literacy treatment

All employees of the company can make use of free bank accounts offered by the company's partner bank, Zemen Bank. Before our intervention, general workers did not make use of these services. We planned an experiment to test whether this lack of interest was due to a simple information asymmetry, i.e. the employees did not know about the free offered services, or part of a larger lack of financial literacy.

We designed two treatments. First, a financial literacy intervention comprising a financial literacy training including short, key take-aways with regards to saving and budgeting as well as an awareness speech. Second, only the awareness intervention - consisting of a short marketing talk informing employees about Zemen Bank, its location on the compound, the possibility to open a free bank account, the details of the savings account and the necessary documents required to register - was organized to test for simple information asymmetry among the workers. Detailed transcripts of these interventions are included in Appendix D1. In addition to these two interventions a control group received no specific training or information.

4.3.1.1. Randomization and design

The awareness and financial literacy treatments were administered at the 12 greenhouse clusters, each targeted in turn on a specific day. The intervention took a total of 12 days with short intermissions due to national holidays. The information sessions were mandatory although attendance for individual employees was not specifically checked. Employees that were not

[5] Organizing the information sessions we noticed that transaction costs, non-pecuniary in particular, could constitute a substantial barrier for the workers to open a savings account. Getting further support for this from the literature (see section 2.5.2.) we decided to include an intervention particularly reducing transaction costs.

working during the day of the information session at a specific greenhouse - due to their off-day, annual leave or sick leave - were excluded from the experiment and had no opportunity to visit another session. Locating the sessions at the greenhouses entailed a very short commute for attending employees.

The study was randomized on the individual level. Employees were divided into treatments based on the last digit of their company ID number. This number was assigned to them randomly at the first day of employment in ascending order. Employees with company ID numbers ending with a zero, one, two or three were assigned to the control group. These employees were only required to fill in a baseline survey with the help of their supervisor and were excluded from both information sessions. Employees with company ID numbers ending in four, five or six were required to fill in the baseline questionnaire with their supervisors and to attend the bank awareness session. Finally, employees with company ID numbers ending in seven, eight or nine were required to fill in the questionnaire with their supervisors and to attend a session including both financial literacy and awareness information.

The company ID cards were checked at the fingerscan machine when employees were signing in for work in the morning. Workers were then assigned into a group through a small colored mark (green, red or black) on the back of their right hand. This allowed for a speedy and correct organization preceding the sessions later that day. Later in the morning, employees were informed by their supervisors of their required attendance at a specific session according to their assigned color and location of the specific training. At this point, all employees were asked to fill in the baseline survey (see appendix D3), aided by their supervisor. The control group surveys were immediately collected, while treatment participants were asked to hand in the completed survey prior to entering their assigned information session. The greenhouse-specific human resource managers were tasked to retrieve all employees from the greenhouse and ensure their attendance at the correct training location.

4.3.1.2. Treatment details

The financial literacy session consisted of a short lesson on savings and budgeting (see appendix D1 for transcript, "savings" and "budgeting"), a Q&A session, and the awareness speech. The training was personalized to the individuals at the farm with examples based on qualitative interviews with the workers at the farm prior to design. Key features of the training included examples of real dilemmas or goals faced by people on the farm, how to set aside a little money for the future during the next salary day and comparisons between saving formally and informally, for instance saving in a bank versus saving at home or in a ROSCA. The lesson on savings and budgeting was held by an employee at the Sher Ethiopia finance department, who possessed previous banking and teaching experience. Directly following the financial literacy session was the Zemen Bank awareness session, which was equal in both treatments. In total the financial literacy training lasted 40 minutes.

The awareness session was held by representatives from Zemen Bank, and covered all the salient characteristics of the offered services. The talk was predominantly held by the bank branch manager, although, due to time constraints he delegated this task to one of two bank employees on three occasions. All representatives of the bank followed the same script (see appendix D1,

"information/marketing speech") which we developed in cooperation with the bank prior to presentation. The session was held in Amharic and lasted for 10 minutes with a short Q&A session at the end.

Both sessions were held during working hours although the financial literacy spilled over with 10 minutes into employee lunch time. Employee attendance was checked by collecting the questionnaires at the entry point to where each session was held. The average group size of the trainings was approximately 70 people.

Figure 1. Overview of the Initial Treatments

	Questionnaire	Awareness Speech	Savings and Budgeting Lesson	Total Meeting Time
Awareness Treatment	Yes	Yes	No	10 min
Financial Literacy Treatment	Yes	Yes	Yes	40 min
Control Group	Yes	No	No	0 min

4.3.2. Intervention 2: Reduction of transaction costs

To investigate if transaction costs constitute a significant barrier to bank account uptake, we have performed a second intervention that effectively diminished transaction costs to near zero.

This intervention consists of only one treatment: a bank account sign-up service. The treatment was randomly allocated to 6 out of the 12 greenhouse clusters[6], and treatment status was allocated based on the attendance log of that day.

Several weeks after the initial intervention, half of the greenhouses were revisited and all the employees in those greenhouses (regardless of treatment in intervention 1), were given the opportunity to open a bank account at the greenhouse, during working hours. During the day of the intervention, a member of the company's administrative support staff, accompanied by the greenhouse Human Resource Manager, visited all employees holding short, spontaneous meetings in their working environment. The short 10-minute meetings for about 30 people at a time simply reiterated the basic characteristics of the savings account (see appendix D1) and informed workers that staff would be available after their lunch to help them with all aspects of opening a savings account. It was mentioned that sign-up was completely voluntary. In the

[6] Randomizing at the individual level during this intervention would have been difficult to implement practically. We see this as having entailed a large–scale lottery at each greenhouse giving some workers the access to the bank account opening service. This procedure would have been time consuming; could have created feelings of resentment among those not chosen for the service; and could further be subject to treatment bias effects as the people chosen might open just because they feel that they were granted a privilege that their peer were not.

afternoon, supervisors were asked in turns to send their workers who did want to sign up for an account in groups of ten to the greenhouse Human Resource office. There a team of company support staff was available to fill in the forms, copy the ID cards, and take digital pictures. An inkpad was available, so that the forms could be signed with a fingerprint, for those illiterate and unable to write a signature. This set-up could be seen to reduce transaction costs associated with:

- Distance, by locating the account opening service at the greenhouse Human Resource office
- Opportunity cost, by allowing workers to open during working time.
- Time, by enforcing a streamlined process where workers got their picture taken, company staff filled in the form and copied the company ID for them.
- Feelings of reluctance or "discomfort" in dealing with the bank, by letting workers go to the HR office in small groups with their colleagues.
- Information gathering costs, by having short marketing speeches similar to the short bank information session followed by the specifics on where and when the account opening service would be available.
- All monetary costs, by offering completely free, fully liquid bank accounts.

Overall, our sample was split into one of six groups with regards to participation in the two interventions. These are outlined in figure 2 below.

Figure 2. Overview of interventions and treatment groups

Awareness Sign-up service	Financial Literacy Sign-up service	Control Group Sign-up service
Awareness *No sign-up service*	Financial Literacy *No sign-up service*	Control Group *No sign-up service*

4.3.3.Data gathering and descriptive variables:

The dependent variables, to measure the effectiveness of the treatments, are the uptake and use of bank accounts at the Zemen Bank company branch. Information regarding the company ID of the employees that opened a bank account and the associated binary outcome of whether the person had deposited or not, would be attained from the Zemen Bank staff. Information regarding these two variables was subject to a contractual agreement between Sher Ethiopia and Zemen Bank. Bank accounts that were opened in relation to the second intervention were registered immediately.

Baseline information was collected from four sources: Sher Finance Department, Sher Human Resource Department, the fingerscan database and the baseline survey distributed in relation to the first intervention. The baseline survey consisted of some basic questions, namely, the employee's company ID number, age, marital status and highest completed education. In addition to this, the employee was asked if she attended the training on savings by the Commercial Bank of Ethiopia last year, whether she currently had a bank account, and if so, at which bank (see survey in appendix D3). Other baseline characteristics, namely gender, salary level, months of employment and attendance during second intervention were collected from the company's back-office.

5. Results

5.1. Descriptive statistics

5.1.1. Sample size

In total 3,578 questionnaires were collected. Based on the ID number of the employee, the collected baseline surveys were matched with the company's back-office data. Out of the total, 60 ID numbers appeared on a questionnaire twice. Out of these 60, 15 questionnaires were seemingly submitted twice, as the answers were identical on both surveys. One of these questionnaires was deemed valid, and the duplicate removed. The other 45 double questionnaires were not identical in their answers, and were therefore completely removed from the analysis. A total of 105 surveys were therefore removed, resulting in a total sample size of 3,473 individuals.

In order to get the salary, gender, and months of employment data, we matched the unique employer ID of the questionnaires to the company's back-office database. Out of the total, 31 people did not fill in their ID number and could therefore not be matched. Another 710 individuals could not be matched with back-office data. This could be due to three reasons: (1) the back-office data is incomplete, or (2) the employee filled in the wrong ID number[7], or (3) the ID number was incorrectly copied during the data entry. A further 48 surveys did not include the answer to one or multiple questions. Therefore, there are 2,684 employees out of the full sample of 3,473 for whom we have complete data. This is the sample that will be used throughout the analysis.[8]

5.1.2. Baseline characteristics

The baseline characteristics comprise of the data collected from the baseline surveys (age, marriage, education level, cbe-status, account-status, see appendix D3 for the survey) and the company's back-office data (gender, employment history, salary). The summary statistics of our sample of 2,684 employees are shown in table 1 below.

[7] 51 ID numbers were in a non-existent format, most of them resembling the format of the Ethiopian National ID number.

[8] For those individuals with missing or unmatchable ID numbers the treatment status for the second intervention is also unknown, as this is based on matching their ID with the attendance log. We therefore chose to only use the sample with full data for our analysis. When possible, we will provide comparison statistics with a more complete sample in the appendix.

Table 1. Summary statistics of entire sample (n=2,684)

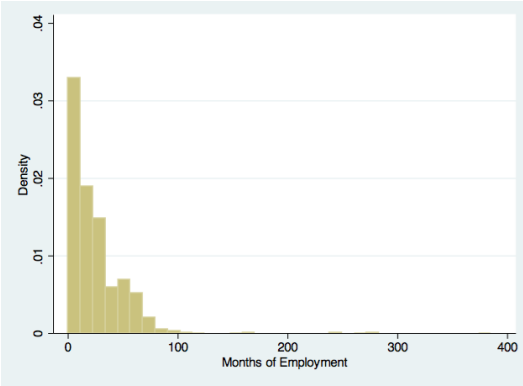
Variable	Mean	SD	Description
age	22.753	4.846	Age of employee
gender	0.117	0.321	Fraction males (0=female; 1=male)
mar	0.609	0.488	Fraction not married (0=married; 1=not married)
edu0	0.058	0.233	Fraction highest education: none (0 yrs)
edu1	0.148	0.355	Fraction highest education: primary school (4 yrs)
edu2	0.421	0.494	Fraction highest education: middle school (8 yrs)
edu3	0.281	0.449	Fraction highest education: high school (10 yrs)
edu4	0.037	0.188	Fraction highest education: preparatory school (12 yrs)
edu5	0.050	0.219	Fraction highest education: college (14 yrs)
edu6	0.006	0.077	Fraction highest education: university (16 yrs)
emp	23.907	24.251	Months of employment
salary	681.059	207.882	Base salary in Ethiopian Birr
cbe	0.282	0.450	Fraction previously attended the Commercial Bank of Ethiopia training
account	0.152	0.359	Fraction has a bank account pre-intervention

Note: gender, mar, edu0, edu1, edu2, edu3, edu4, edu5, edu6, cbe and account are dummy variables taking either a 0 or 1 value.

The age ranged from 18 to 75 years old[9]. The mean reported age was 22.8 years old, with a standard deviation of 4.8. The sample therefore holds many young employees in around their early 20s (see figure 3), not surprising taking into account the general young age of the Ethiopian population, with 64.3 percent younger than 24 years old (CIA world factbook, 2013). Most of the sample, 88.3 percent of the respondents, is female. A majority of the respondents, 60.9 percent, are not married, which is linked with the young age of the respondents. Up to the age of 23, more than half of the employees are not married, while from 24 onwards the majority of the employees are married. The highest obtained education level ranges from uneducated to university level: 5.8 percent are uneducated, 14.8 percent completed primary school (4 years), 42.1 percent completed middle school (8 years), 28.1 percent completed high school (10 years), 3.7 percent completed preparatory school (12 years), 5.0 percent completed college (14 years), and 0.6 percent completed university (16 years). The sample is therefore relatively less educated, with over 60 percent of the employees having completed at most 8 years of education. Furthermore, the average time of employment at the farm of our sample was 23.9 months[10], indicating that many employees leave the farm after only a few years of employment (see figure 4).

[9] The entered age might not be correct in all cases, as the illiterate employees often do not know their own age, and therefore make an estimate.

[10] Some employees have been employed longer than the existence of the current farm. These employees were previously employed by the government farm at the same location.



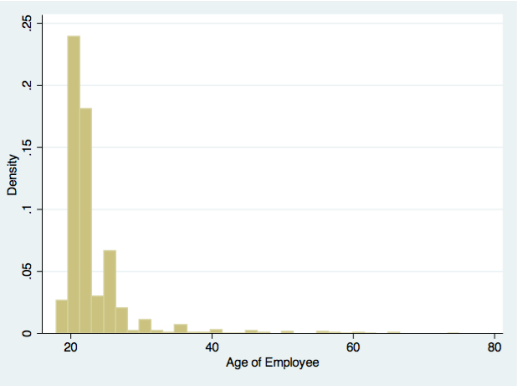
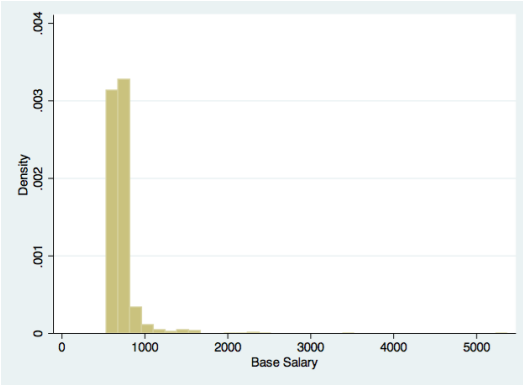


Figure 3. Distribution of age

Figure 4. Distribution of months of employment

The base salary level (without bonus, holiday allowance, etc.) ranged from 536 Birr to 5373 Birr.[11] The mean salary was 681 Birr, with a standard deviation of 208 Birr. Most of the sample therefore received less than 1,000 Birr, as can be seen from figure 5. The respondents in the higher salary range are most likely working on the management level or have been employed for a longer period of time. The employees get a yearly salary increase, which is partly performance related. The correlation between salary and months of employment is 0.51 (see figure 6).



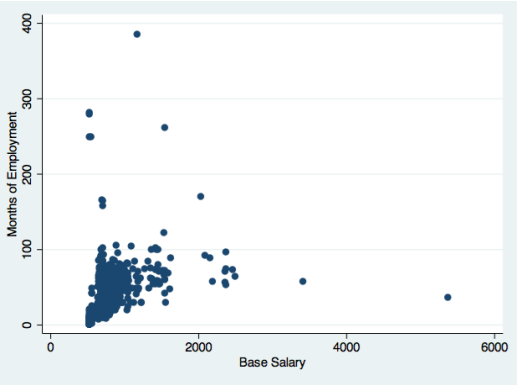


Figure 5. Distribution of salary

Figure 6. Salary and months of employment

At the baseline, before we executed any of our interventions, 15.2 percent held a bank account, of which 84.3 percent at the Commercial Bank of Ethiopia (CBE), 10.3 percent at Dashen Bank, 2.0 percent at Awash Bank, 1.2 percent at the Construction and Business Bank. Only 2 respondents, 0.5 percent, of those with a bank account held one at our partner bank, Zemen Bank, while 1.7 percent indicated to hold an account at another bank, not included in our survey. The high involvement with CBE can be partly attributed to CBE being the largest and most widely used bank in Ethiopia in general, as well as due to the marketing speech, held

[11] 1 US Dollar = 19.08 Ethiopian Birr (XE.com, retrieved: 7 December 2013)

approximately 1.5 years prior to our intervention. A total of 28.2 percent of our sample attended this training. Out of those who attended the CBE training, 40.9 percent hold a bank account, out of those who did not attend the CBE training, only 5.1 percent holds a bank account. In the general Ethiopian population less than 10 percent hold a bank account (Kendall et al., 2010). Due to selection bias, we cannot conclude the exact effectiveness of the CBE training, but the training seemed to have a large effect.

If we use the full sample for our summary statistics, including those with missing data, the summary statistics alter only slightly (see appendix A1 for full comparison). Most notably, the full sample comprises of slightly more males (13.1 percent versus 11.7 percent), and the average employment time is one month longer (24.9 months versus 23.9 months). All in all, we conclude that excluding the cases with missing values has not largely impacted our summary statistics.

5.1.3. Predicting pre-intervention bank account uptake

Our baseline data allows us to predict bank account uptake before our intervention by regressing the baseline characteristics on bank account ownership[12] (see appendix A2). Based on these baseline data, those who have completed high school ($p<0.01$), preparatory school ($P<0.01$) and college ($p<0.01$) were more likely to have a bank account. Primary school, middle school and university did not have an extra effect on the bank account rate at the 5 percent significance level, while having completed college had the largest effect, being 16.7 percent more likely to have a bank account at baseline. Other factors that significantly predicted bank account uptake at the baseline are age, with 0.5 percent per year ($p<0.01$), the CBE training, with 30.2 percent ($p<0.01$), salary, with 2.5 percent per 100 Birr increase ($p<0.01$), all positively affecting bank account uptake. Lastly, females are 0.5 percent more likely to hold a bank account at baseline ($p<0.05$). We observe that employees from several greenhouses are significantly more likely to have a bank account at baseline. These differences might stem from the methodology of the CBE training, which is unfortunately unknown to us. In total we are able to predict a substantial part of the variation in pre-intervention bank account ownership based on our background variables, namely 27.1 percent.

5.1.4. Model specification and robustness check

Throughout the analysis, as we have a binary dependent variable, we use a linear probability model (LPM) as our main model, based on OLS estimates. This implies that our model contains heteroskedasticity, which affects our standard errors (Wooldridge, 2006, p.250). In order to tackle this problem, we use robust standard errors in our regressions, as is done by Angrist et al (2006) and others. Another potential problem with a linear probability model, is that the predicted values can lie outside the unit interval. When predicting pre-intervention bank account uptake,

[12] We do not cluster our regression at the greenhouse level, as we have too few clusters for accurate inference of the estimates (minimum cluster amount should be ~50, see Kezdi (2004)).

our model predicts 505 estimates outside the 0-1 range.[13] Therefore, we decide to add a probit regression model, which can only predict values between 0 and 1, as a robustness check. The results can be found in the second regression in appendix A2. We find similar results as in section 4.1.3., although gender is no longer significant at the 5 percent level, while months of employment is ($p<0.05$). The estimates change slightly, as the marginal effect is calculated at the averages of the variables. During the remainder of the paper, we will present the probit model as a robustness check for our LPM.

5.2. Intervention analysis

Having discussed the descriptive statistics, we now move on to the analysis of our treatments. We will first verify the randomization of the employees into the different treatments (section 4.2.1.). Secondly, we will test our hypotheses to find the effect of our interventions (section 4.2.2.).

5.2.1. Randomization

In order to imply causal relationships from our treatments, it is important that our randomization did not create any biases in the baseline variables towards any of the treatments. We will therefore compare the means of the different variables across all treatments.

5.2.1.1. Randomization of the initial intervention

Our initial intervention took place at each of the 12 greenhouse clusters, and the treatment group was assigned based on the last digit of the company ID number. The employees were divided across the different treatments as given in table 2 below[14].

Table 2. Initial Treatment Group Sizes per Greenhouse Cluster (column percentage in brackets)

	1	2	3	4	5	6	7	8	9	10	11	12	Sum
Control	102 (41)	112 (40)	77 (34)	75 (38)	119 (46)	52 (37)	68 (34)	114 (34)	119 (37)	64 (37)	57 (39)	55 (36)	1014 (38)
Aware	62 (25)	74 (26)	52 (23)	48 (24)	76 (29)	47 (34)	65 (32)	104 (31)	107 (33)	38 (22)	32 (22)	58 (38)	763 (28)
Fin Lit	84 (34)	97 (34)	95 (42)	75 (38)	64 (25)	40 (29)	68 (34)	116 (35)	98 (30)	73 (42)	58 (39)	39 (26)	907 (34)
Sum	248	283	224	198	259	139	201	334	324	175	147	152	2684

[13] Our linear probability models in the intervention analysis observe a similar issue.
[14] See appendix B1 for the full sample division.

As randomization was based on the last digit of the ID number (see section 3.3.1.1), we expect 40 percent of the employees to be in the control group, 30 percent to be in the awareness treatment and 30 percent to be in the financial literacy treatment. In reality, 37.8 percent was in the control group, 28.4 percent was in de awareness treatment and 33.8 percent was in the financial literacy treatment. A chi-square goodness-of-fit test, shows that this is significantly different from our target distribution ($p<0.01$). We also observe from table 2 large differences between greenhouses, indicating the potential relevance of the greenhouse-specific Human Resource manager, who organized the workers into their respective awareness and financial literacy trainings.

As the randomization was based on the arbitrarily assigned company ID number, the groups are expected to be equal in their baseline characteristics. The means of the different treatment groups of the initial intervention are given in appendix B2. We compare the means of the treatment groups with those of the control group to see effect of the randomization. For binary variables, a chi-squared test is used, while for continuous variables a t-test is used to determine whether there is a difference between the means of the treatment groups compared to the control group. We find the different treatment groups are balanced with respect to most of the baseline characteristics. However, both the awareness and financial literacy treatment have significantly less attendees of the CBE training ($p<0.01$) than the control group. The difference might be due to self-selection, as for the treatment groups only the surveys of the employees who actually attended the training were collected. Although the training was mandatory, there was no attendance roll, and some people might have slipped away. It seems reasonable that those who had previously attended the CBE training had some incentive to skip the training. Moreover, we observe that the financial literacy treatment has significantly more married individuals ($p<0.01$). We cannot offer any explanation for this, other than chance.[15]

As a robustness check we also regress the baseline characteristics on the treatment variables (appendix B4) and we find that the control group indeed has significantly more individuals who have attended the CBE training. Furthermore, the financial literacy treatment marriage dummy loses its significance at the 5 percent level (as it is now compared to both the control and awareness group). Moreover, we find that the individuals in the control group have worked significantly less long at the company than those in the treatment groups ($p<0.01$). This might also be due to a selection bias, as individuals who have been employed longer might already have attended more meetings in the past and therefore could be more likely to skip occasionally. Chance could offer an alternative explanation. If we look at the greenhouse dummies, we find that several are significant at the 5 percent level. As the convening of the treatment meeting was in the hands of the greenhouse-specific human resource manager, it is possible that some greenhouse managers did a better job at mobilizing all workers than others. This explanation is supported by the fact that the control group, which did not have to be mobilized, shows no significance for the greenhouse dummies.

We conclude that the randomization did not follow the exact target distribution, but still caused fairly balanced treatment groups. The most evident issue was the CBE training attendance.

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[15] A similar analysis, but including the full sample is given in appendix B3, and yields similar results.

5.2.1.2. Randomization second intervention

Our second intervention, incorporating a short informative talk and reduced transaction costs was randomized at the greenhouse level. Out of the 12 greenhouse clusters, 6 were randomly chosen. In total 1,023 people were part of the extra treatment, while 1,661 people were in the control group, as can be seen from table 3[16]. We observe that our control group is more than 60 percent larger than our treatment group, which is due to the fact that some employees were not present at the greenhouse during the second intervention, causing not all employees of that greenhouse to receive the treatment[17].

Table 3. Second Treatment Group Sizes per Greenhouse Cluster (column percentage in brackets)

	1	2	3	4	5	6	7	8	9	10	11	12	Sum
Control	64 (26)	283 (100)	23 (10)	198 (100)	49 (19)	10 (7)	30 (15)	334 (100)	324 (100)	175 (100)	147 (100)	24 (16)	1661 (62)
Extra	184 (74)	0 (0)	201 (90)	0 (0)	210 (81)	129 (93)	171 (85)	0 (0)	0 (0)	0 (0)	0 (0)	128 (84)	1023 (38)
Sum	248	283	224	198	259	139	201	334	324	175	147	152	2684

Although the randomization is at the greenhouse level, we expect to have a balanced control and treatment group. The means of the control and treatment groups can be found in appendix B6. Again, to compare the means, we use a chi-squared test for binary variables and a t-test for continues variables. We find that the extra treatment group has significantly more males ($p<0.05$), as well as individuals who have completed preparatory school as highest degree ($p<0.01$). Furthermore, the treatment group has significantly more CBE training attendees, namely 32.8 percent versus 25.3 percent ($p<0.01$). This imbalance could be due to our small randomization scale, based on only 12 greenhouse clusters.[18]

As a robustness check we also regress the baseline characteristics on the treatment variables (appendix B8), which should yield similar results. We indeed find similar results, except for those who completed university, who are now, with robust standard errors, significantly underrepresented in the extra treatment group ($p<0.05$).

All in all, the extra treatment and the control group differ on some baseline characteristics. We mainly attribute this to the small scale of our randomization, as we had only 12 greenhouse clusters to randomize.

[16] For the full sample divison see appendix B5

[17] There could be several reasons for absence, e.g. annual leave, sick leave, off-day, transfer of department, etc.

[18] See appendix B7 for the comparison of means for the full sample

5.2.2. Treatment effects

5.2.2.1. Treatment effects: uptake

Having verified the randomization, we now move on to analyzing the impact of our trainings. After our interventions, a total of 276 people opened a bank account. Three bank accounts were opened at the bank office[19], while 273 bank accounts were opened during our sign-up service of the extra treatment. Out of the 276 opened bank accounts, 170 could be linked to an ID number from our baseline surveys. One bank account was opened with an invalid ID, while 105 ID numbers could not be matched to baseline surveys. This could result from applicants not attending the initial treatment, or because they misspecified their ID number on the baseline survey. Non-attendance could be explained as a consequence of illness, an off-day, refusal to participate, or because the employee had just commenced employment at the company[20]. Because we have no baseline survey, nor do we know the initial treatment status, they are excluded from the analysis. We are therefore left with 170 opened bank accounts in the full sample. Further, after removing the individuals who have missing values in their questionnaires from the analysis, we are left with 139 opened bank accounts out of 2,684 individuals.[21] This amounts to a 5.2 percent uptake rate.

The uptake was divided among the different samples as follows[22].

Table 4. Take-up of bank accounts among treatment and control groups (percentage in brackets)

	No Extra	Extra	Total
Control	0 out of 616 (0%)	48 out of 398 (12.1%)	59 (1014) (5.8%)
Awareness	0 out of 472 (0%)	44 out of 291 (15.1%)	53 (763) (6.9%)
FinLit	0 out of 573 (0%)	47 out of 334 (14.1%)	58 (907) (6.4%)
Total	0 out of 1661 (0%)	139 out of 1023 (13.6%)	139 (2684) (5.2%)

We observe that all the take-up of bank accounts is taking place in the extra treatment and is divided among the different initial treatments. Out of the 1,023 individuals in the extra treatment, 139 opened an account, resulting in an uptake of 13.6 percent.

[19] We can however not match the company IDs of these people to our baseline data. Sequentially, they are excluded from the following analysis.

[20] Although only 15 employees who opened an account and could not be matched have worked less than 1 month for the company, according to the company back-office records.

[21] A large part of our dependent variable variation is excluded, as there are no baseline surveys for these bank account applications. These individuals have either not attended the initial treatment, or wrote down the wrong ID number on their survey. As we do not know the underlying cause, we exclude them from the analysis. See section 4.1.1. on sample size.

[22] See appendix B9 for the uptake in the full sample

We will now turn to formally testing our three hypotheses regarding bank account uptake. We will test for the actual use in section 4.2.2.2. We recall our hypotheses regarding bank account uptake:

$H_1(a)$: Short, simple and context-specific financial training increases bank account uptake.

$H_2(a)$: Short marketing speech specifically highlighting formal savings options increases bank account uptake.

$H_3(a)$: Reducing transaction costs of opening a bank account to near zero increases bank account uptake.

We will perform a robust regression with the treatment dummies and control variables. If the treatment variables are significant, we can conclude that the treatment had an effect on bank account uptake. If the treatment variables are insignificant, we can reject the respective hypotheses. Furthermore, we will verify the robustness of our results performing a probit regression.

Our main results are shown in table 5. The first regression, without any controls, indicates no effect of the awareness or financial literacy treatment, but finds a significant effect of 13.6 percent increase in the likelihood of opening an account due to the extra treatment ($p<0.01$). If we add control variables, our main result does not change: the awareness and financial literacy treatments have no effect, while the extra treatment remains significant and of similar size ($p<0.01$). Out of the control variables, gender and salary are significant at the 5 percent level. Males are less likely to open a bank account, while a higher salary has a positive effect on bank account uptake. If we add the greenhouse dummies, we observe no changes in significance levels, and only minor changes in effect sizes. The extra treatment now increases the likelihood of opening a bank account by 13.8 percent. One of the control greenhouses is significant at the 5 percent level. The employees age, marital status, education level, months of employment, CBE training or whether they possess a bank account at baseline do not significantly influence bank account uptake at the 5 percent level.

As all bank account openings occurred in the extra treatment, all significant variables are interacting with the extra treatment. We know that, as gender and salary are significant ($p<0.05$), they interact with the extra treatment. Males are less likely to open a bank account, while a higher salary has a positive effect on bank account uptake, conditional on the individual participating in the extra treatment. We formally test for an interaction effect between the treatment variables (aware*extra, finlit*extra), in order to test for any indirect treatment effects. From the results in appendix C5, we conclude that the awareness treatment and financial literacy treatment do not interact with the extra treatment, and they do not influence bank account uptake directly or indirectly.

Looking at the effect sizes, we observe that, including all control variables, the extra treatment had an effect of 13.8 percent[23]. The interaction effects have relative to this, only a small effect. Being male reduces the likelihood of opening an account by 2.9 percent, while earning 100 Birr more (recall that the average salary is 682 Birr, with a standard deviation of 208 Birr) increases the likelihood of opening an account by 0.9 percent. These effects are therefore small, compared to the main treatment effect. Being in greenhouse 12 however, has a 12.0 percent negative impact on the likelihood of opening a bank account, indicating a potential problem in this greenhouse. Greenhouse 12 has, without apparent reason, opened significantly less bank accounts than other extra-treatment greenhouses. This could perhaps be an indication of peer effects, something we will elaborate on later in the discussion section.

We will test for the robustness of our results through a probit regression, as found in appendix C2. As not being in the extra treatment will predict not opening a bank account with certainty, the extra variable is omitted from the equation, as is university education and some greenhouse dummies. We then observe that in our probit regressions gender is significant at the 5 percent level, while salary is at the 1 percent level. Our robustness check confirms our earlier results that gender and salary are significant factors influencing bank account uptake.

We conclude that we can reject hypothesis $H_1(a)$ and $H_2(a)$, as the awareness and the financial literacy treatment, do not have a significant effect on bank account uptake. Moreover, we cannot reject $H_3(a)$, as the extra treatment causes a significant increase in bank account uptake, interacting with gender and salary. Clearly, reducing transaction costs of opening a new bank account to near zero increases bank account uptake.

[23] Although we only find a take-up of 13.6 percent in our entire extra treatment group, the true effect of the treatment might be 13.8 percent, biased downwards due to a greenhouse 12 fixed-effect.

Table 5. **Results of First Intervention: Impact on bank account uptake (Linear Probability Model)**

	(1)		(2)		(3)	
Dependent Variable	Open		Open		Open	
aware	0.0118	(0.0101)	0.0137	(0.0102)	0.0150	(0.0102)
finlit	0.00778	(0.00967)	0.00876	(0.00958)	0.00767	(0.00946)
extra	0.136***	(0.00841)	0.135***	(0.0107)	0.138***	(0.0122)
age			-0.000421	(0.000862)	-0.000529	(0.000855)
gender			-0.0307**	(0.0126)	-0.0291**	(0.0127)
mar			-0.0103	(0.00942)	-0.00791	(0.00930)
edu1			0.0147	(0.0186)	0.0128	(0.0185)
edu2			0.0140	(0.0169)	0.0124	(0.0169)
edu3			0.0190	(0.0177)	0.0169	(0.0176)
edu4			0.0144	(0.0296)	0.00863	(0.0296)
edu5			-0.00815	(0.0229)	-0.0117	(0.0227)
edu6			-0.0684*	(0.0398)	-0.0622	(0.0386)
emp			4.17e-05	(0.000211)	3.23e-05	(0.000204)
salary			9.06e-05**	(4.04e-05)	8.99e-05**	(3.94e-05)
cbe			0.0102	(0.0116)	0.00266	(0.0121)
account			0.0189	(0.0151)	0.0235	(0.0150)
gh1					0.000129	(0.0391)
gh2					-0.0463	(0.0317)
gh3					-0.0485	(0.0380)
gh4					-0.0506	(0.0318)
gh5					-0.0662*	(0.0362)
gh7					-0.0575	(0.0378)
gh8					-0.0472	(0.0318)
gh9					-0.0427	(0.0317)
gh10					-0.0424	(0.0316)
gh11					-0.0456	(0.0318)
gh12					-0.120***	(0.0354)
Observations	2,684		2,684		2,684	
R-squared	0.089		0.102		0.116	

Robust standard errors are in parentheses
Stars indicate significance: *** p<0.01, ** p<0.05, * p<0.1
An explanation of the variables can be found in appendix D6
Linear Probability Model (dependent variable: 1=opened, 0=did not open)

5.2.2.2. Treatment effects: use

Out of the 139 opened bank accounts, 28 made a deposit, two weeks after the opening of the bank accounts. After six weeks, no new individuals made a deposit, but four individuals made a second deposit. Table 6 gives an overview[24].

Table 6. Opened bank accounts and deposits per greenhouse

	1	2	3	4	5	6	7	8	9	10	11	12	Sum
Opened	38	0	27	0	24	24	20	0	0	0	0	6	139
Deposited	1	0	19	0	6	1	1	0	0	0	0	0	28
Deposited twice	0	0	3	0	1	0	0	0	0	0	0	0	4

Out of the 1,023 individuals in the extra treatment, 28 of those who opened also deposited, resulting in an effective rate of only 2.7 percent with regards to actual deposits. Out of the 139 individuals who opened, 28 actually deposited at least once, resulting in a 20.1 percent deposit rate among those who opened.

We regress our treatment variables and controls on the deposit-dummy[25] in order to test the following hypotheses:

$H_1(b)$: Short, simple and context-specific financial training increases bank account use.

$H_2(b)$: Short marketing speech specifically highlighting formal savings options increases bank account use.

$H_3(b)$: Reducing transaction costs of opening a bank account to near zero increases bank account use.

If our financial literacy treatment dummy is significant, we cannot reject $H_1(b)$. If our awareness treatment dummy is significant, we cannot reject $H_2(b)$ and if our extra treatment dummy is significant we cannot reject $H_3(b)$.

The results are given in table 7. We observe that if we look at those individuals that actually deposited, instead of those that opened an account, salary is no longer significant. Moreover, as logically expected, the awareness and financial literacy training are still insignificant at the 5 percent level. The extra treatment remains significant ($p<0.01$), although the effect size has become smaller (evidently, as there are less people who deposited than who opened), and is consistent with our previously calculated 2.7 percent effect. Including the greenhouse fixed effect, the treatment effect size is reduced to 2.2 percent. This is an indication that the observed

[24] The overview for the full sample, see appendix C3

[25] The deposit dummy holds the value of 1 if an individual deposited, and holds the value of 0 otherwise

2.7 percent might be biased upwards due to the results from greenhouse 3. Evident from table 6, many individuals from this greenhouse chose to deposit.

Gender is still significant ($p<0.01$) and by definition an interaction effect with the extra treatment.[26] The effect size of the gender dummy is almost as large as the extra treatment effect (and in the opposite direction), which can be explained by the fact that only women deposited. Moreover the dummy for greenhouse 3 becomes significant: not surprising given that the majority (69 percent) of the deposits happened in this greenhouse. This greenhouse fixed effect might indicate a peer-pressure effect, something we further address in the discussion.

The formal test for interaction effects between treatments (given in appendix C6) indicates no significant indirect effect of the awareness or financial literacy treatment on bank account use, as was the case for bank account uptake.

Our probit robustness check in appendix C4, does not include gender, as all deposits were made by women, and being male would therefore predicts an automatic 0 probability. Our robustness check can therefore only confirm that greenhouse 3 is significant, while all other variables are not.

We conclude that we reject hypothesis $H_1(b)$ and $H_2(b)$ as the awareness and the financial literacy treatment do not have a significant effect on bank account use. Moreover, we conclude that we cannot reject $H_3(b)$, as the extra treatment causes a significant increase in bank account use, interacting with gender.

The results show that reducing transaction costs of opening a bank account to near zero increases bank account uptake and use.

[26] Because all the individuals who deposited were in the extra treatment, any significant effect is conditional on being in the extra treatment, and therefore an interaction effect.

Table 7. Results of Second Intervention: Impact on bank account use (Linear Probability Model)

Dependent Variable	(1) Deposit		(2) Deposit		(3) Deposit	
Aware	0.00322	(0.00486)	0.00315	(0.00491)	0.00418	(0.00484)
Finlit	0.00281	(0.00453)	0.00331	(0.00461)	0.00129	(0.00436)
Extra	0.0274***	(0.00511)	0.0274***	(0.00513)	0.0219***	(0.00479)
Age			-0.000355	(0.000250)	-0.000225	(0.000245)
Gender			-0.0147***	(0.00353)	-0.0177***	(0.00416)
Mar			0.00227	(0.00417)	0.00322	(0.00409)
edu1			-0.00295	(0.00801)	-0.00372	(0.00798)
edu2			0.00389	(0.00764)	0.00348	(0.00755)
edu3			-2.20e-05	(0.00754)	0.00185	(0.00750)
edu4			0.000875	(0.0124)	-0.000601	(0.0123)
edu5			0.00709	(0.0117)	0.00816	(0.0118)
edu6			0.000194	(0.00946)	0.00521	(0.00935)
Emp			9.61e-05	(8.99e-05)	7.47e-05	(8.80e-05)
Salary			6.21e-06	(8.12e-06)	5.84e-06	(8.09e-06)
Cbe			0.00349	(0.00547)	0.00293	(0.00556)
Account			-0.00296	(0.00586)	-0.00253	(0.00597)
gh1					0.000600	(0.00879)
gh2					0.0131	(0.00826)
gh3					0.0794***	(0.0201)
gh4					0.0123	(0.00870)
gh5					0.0183	(0.0125)
gh7					-0.000335	(0.00877)
gh8					0.0128	(0.00824)
gh9					0.0134	(0.00820)
gh10					0.0138*	(0.00804)
gh11					0.0136	(0.00830)
gh12					-0.00490	(0.00752)
Observations	2,684		2,684		2,684	
R-squared	0.017		0.021		0.061	

Robust standard errors are in parentheses
Stars indicate significance: *** p<0.01, ** p<0.05, * p<0.1
An explanation of the variables can be found in appendix D6
Linear Probability Model (dependent variable: 1=deposited, 0=not deposited)

6. Discussion

Our study intends to answer three questions relating to factors we hypothesized would have an effect on bank account uptake and use. In this section we discuss each of the three questions in turn. In each case we consider the relevant factors that could exert an influence on the decision to register and use a bank account.

6.1. Does a short, simple, context-specific financial literacy training increase bank account uptake and use?

We find no effect on bank account uptake and use of the financial literacy training, neither direct nor as an interaction with a reduction of transaction costs. We thereby reject our first hypothesis. Our study compares to the findings of Sampson, Cole and Zia (2011) in its low effect size and, on a more general level, to the conclusions drawn in the meta-analysis of Fernandes, Lynch & Netemeyer (2013) who state the inefficiency of financial literacy trainings in encouraging bank account uptake. Novel about our study in this regard was however the specific design, following the six steps outlined in Karlan, Rastan & Zinman (2013), and the sample of employed individuals residing in one of the most unbanked countries in the world. Against this backdrop, it is further necessary to see our results in light of the specific context of our study.

Karlan, Rastan & Zinman (2013) outlined six factors that had potential in increasing the impact of financial education initiatives (see section 2.5.1.). Relating to these factors, our trainings featured a high attendance rate among a young group, specifically designed content, were short and simple and linked to a direct opportunity to open a bank account, were specific and framed within the context of the workers at the farm. Although design-specific factors could be seen to exert some influence, we believe that other, more context-specific factors are at play dampening the effect of this treatment. This is, on the one hand, in light of the large body of literature that has examined alternatives to all the above six factors concluding poor impact of financial education initiatives in general. On the other hand, numerous studies have examined the impact of more attitudinal factors that might be at play and exert an influence on the decision to use a bank account rather than financial literacy. In our study, context-specific factors that could have had a substantial influence on the low take-up rate include large non-pecuniary transaction costs, demographic factors specific to our sample, issues related to specific characteristics of our partner bank and, on a broader level, issues of trust. We discuss each in turn below.

Although the savings account that was offered and presented at the end of the financial literacy training was advantageous - zero minimum balance requirements, zero initial deposit requirement, high interest compounded on a daily basis, full liquidity and low administrative hassle where even necessary photographs could be taken at the bank - several non-pecuniary transaction costs remained. For instance, bank working hours largely coincided with those of the general workers, leaving a short time frame, for most workers, to visit the bank during lunch or an hour immediately after work. This might have necessitated some employees to take time off from work, entailing substantial opportunity costs in terms of foregone wages for the workers or failure to comply with daily flower production quotas for managers at the greenhouse. If this was the case, the possibility that some workers did want to open a bank account but were hindered due to time constraints could seem plausible. Further, feelings of unease or discomfort in dealing

with a bank have to be considered. Many workers had never stepped into a bank office before and perhaps experienced a sense of general unfamiliarity with the institution as well as specific fear of minor administrative requirements such as filling in a form (see for instance Bertrand, Mullainathan, Shafir, 2004). This sentiment could have been accentuated by the fact that many were illiterate or did not have enough knowledge of the national language, Amharic.

Our study and results have to further be seen in light of the specific context of our sample. In terms of language, some might have had difficulty understanding the national language, Amharic. In terms of religion, initial interviews revealed that parts of the Muslim community on the company compound, ceded the right to interest on their money, due to religious reasons. They would therefore not have the same incentives to save in a formal institution. In terms of gender, several papers have highlighted the importance of low female bargaining power in household financial decisions (Schaner, 2013; Ashraf, Karlan & Yin, 2006; 2010). Given our predominantly female sample, some workers might not have had the power to make decisions on how to dispose over their monthly salaries. Although this could be seen to have some impact, particularly among certain groups of our sample, such as those with a more rural background, it is noteworthy that women often do have non-negligible bargaining power in household financial decision-making in Ethiopia. A problem with regards to household bargaining power might however arise given the young age of our sample as these workers would have less influence on any household financial decisions and choices of money allocation.

Our study was conducted in cooperation with Zemen Bank. This bank, among the few that knew about it, has a reputation of serving affluent customers and of imposing high minimum deposit requirements. Many general workers might have had difficulty relating to this bank. This sentiment could have resulted in two scenarios - workers chose to not open an account at all or they chose to open an account with a bank that they could relate to more. For instance, CBE was popular among the minority of workers that already had a bank account. The second scenario is even more likely in light of the assumption that many workers migrate after a short period on the farm and CBE offices are well dispersed throughout the country, far more so than Zemen Bank offices. We could however not measure any activity associated with our trainings at any of the other banks. Further, Zemen Bank is a very modern bank. Elements that are familiar to the workers, such as the physical bank book, are not offered as they are seen as outdated. The fully digitalized services of the bank might be seen as intimidating to the workers at the farm and could constitute a compelling reason not to register for an account at Zemen Bank in particular, even if this bank was highlighted as very advantageous during the financial education session.

Finally, a wider element of trust could exert an influence on the decision to take up a bank account. Ethiopia is one of the seven most unbanked countries in the world (Kendall et al., 2010) and trust in financial institutions would logically need to be built gradually. Repeatedly asked questions, following both information sessions, included: What will happen to my bank account if I pass away? What will happen to my money if I am sick and cannot withdraw myself? Why do we not receive a bank book? How do we know about our money? These questions all indicate a worry with regards to how banks will handle the money they deposit and how the workers will have access to the accounts. In a sense, it is an indication of a lack of trust that workers will maintain full control of their money after having it deposited in an account. This factor might have had a large impact influencing the low uptake and deposit rates. In this context, it is relevant

to mention that the financial literacy training might have had an effect in simply increasing familiarity with the mechanisms of savings and banks. This would be in line with the findings by Carpena et al. (2011) who find that financial literacy trainings significantly increased financial awareness and attitudes.

Our study does not allow for disentangling the influence of each of these factors on the decision to open and use a bank account. This could potentially have been done with a follow up survey after both interventions. However, low literacy rates among the workers and significant time constraints made this difficult to implement practically. Instead, we point to these factors as potential areas for future research, for instance, examining the impact of opportunity costs or trust in bank account uptake. Further, in light of the six points brought up in Karlan, Rastan, Zinman (2013), we believe that further examining the potential of these factors in relation to financial literacy initiatives is warranted as other, recent studies have indeed found encouraging evidence as to their efficiency (see Drexler, Fischer & Schoar, 2013; Seshan & Yang, 2013).

6.2. Does informing individuals of specific formal savings options have an effect on bank account uptake and use?

We find no effect on bank account uptake and use of the awareness session, neither direct nor as an interaction with a reduction of transaction costs. We find that a short awareness speech by representatives of Zemen Bank, promoting only a single savings option has no impact on bank account uptake and use. Reasons similar to those discussed in section 5.1. can be seen to also be valid for the information speech. In particular, Dupas et al. (2012), following short information sessions describing how a certain bank and associated account worked noted that lack of trust and familiarity with the bank were important factors to why people did not use bank services in their sample. We hypothesize that a similar effect might have been at play in our sample.

With regards to the design of this intervention, it is noteworthy to make the distinction that the information session included only basic facts about the bank, the savings account and necessary opening procedures. It was not designed to aggressively target the participants urging them to open an account, an approach that has been discussed in Bertrand, Mullainathan, Shafir (2006). Several distinctions in the design of such marketing initiatives could thus prove beneficial. CBE, for instance, offered an account registration service immediately after their short marketing speech. The following day, a deposit collection service was offered. The short baseline survey conducted prior to our intervention gives an indication that this more aggressive approach could have been relatively successful.

6.3. Does reducing transaction costs of opening a bank account to almost zero have an effect on bank account uptake and use?

In the second intervention we reduced the transaction costs of opening a bank account to almost zero. Although this treatment did have a significant effect on the uptake of bank accounts (13.6 percent) it had a minor effect on actual deposits made (2.7 percent). We therefore find some support confirming our third hypothesis. The findings relate to the results presented in Dupas et al. (2012) who also find that reducing (some) transaction costs has a moderate impact on bank account take-up and low impact on use.

We further observe that the treatment seems to work significantly better for women, as well as those with a higher salary. It seems logical that the workers with a higher salary might find it more beneficial to open a bank account. We can only hypothesize as to why the treatment has a higher effect on women. We see two likely explanations. Firstly, similar to the logic in 5.1., it also seems plausible that low household bargaining power could incentivize women further to put away their money in a safe place where only they would have control of the money. Secondly, tasks at the greenhouses distributed to women are usually performed in groups, making it likely that certain peer effects could have exerted an influence on the decision.

To some extent, these results could be seen as evidence of the importance of transaction costs, in particular non-pecuniary costs, on financial decisions. Help was only offered in relation to opening the accounts, not in depositing any money. This difference could be seen as an explanatory factor to the discrepancy in effect on the two dependent variables. However, given the elimination of almost all transaction costs, the question remains: why was the effect not larger for both outcome variables? In this context it is necessary to highlight the short time frame of the study, initial results were collected less than a month after the intervention and the number of workers at the farm depositing money is still growing.[27]

Looking at our results, we find that the intervention resulted in a 13.6 percent take-up. These results compare most to the findings of Brune et al. (2013) who found an 18 percent take-up of ordinary savings accounts in Malawi. Factors similar to those discussed in section 5.1. seem to be influential in this context too. However, workers did not have to make any decision with regards to depositing money in the bank account during the intervention, which only offered account registration services. It therefore seems logical that factors deriving from low-household bargaining power would not be as relevant in this part of the process. Naturally, a certain portion of the workers would not find the bank offer attractive and would not sign up for these reasons. This does however not seem to offer a full explanation of the relatively low take-up rates. Finding few other explanations in the literature, we believe that a general lack of trust or familiarity in financial institutions has a substantial impact on the low take-up rates. With this in mind, we believe that increasing exposure to banks and financial institutions could exert a positive impact on bank account uptake and could be an interesting area for future research.

[27] Other similar studies report results after a time frame of several months or a year.

With regards to bank account use, we found a very minor effect of the intervention on the number of deposits made by people that had opened bank accounts. The use of bank accounts is also in the literature usually lower than take-up (see for instance Dupas & Robinson, 2013a; Schaner, 2013). Still, use of bank accounts in our sample was substantially lower than most other studies. Factors discussed in section 5.1. above, such as, demographic characteristics of the sample in terms of age, gender, religion, features of the partner bank or trust issues could all have contributed to the relatively low deposit rate. In particular, issues of trust have been highlighted in previous literature in this regard where, for instance, Dupas et al. (2012) highlight that lack of trust in a bank as the first reason for why people do not start saving in their bank accounts despite a reduction of transaction costs. Some evidence for this is given by the seeming prevalence of peer effect in one of the greenhouses that seemed to deposit more money than the others. Trust issues could have been alleviated when employees saw their colleagues entrust their money to the bank. Further, an often-heard argument is that people do not have the money to save. Based on this anecdotal evidence, it might be suggested that a lack of money is one barrier preventing employees from saving. However, the argument seems unfit for our particular sample, as we observed the regular occurrence of informal saving, especially through Rotating Savings and Credit Associations (ROSCAs). Moreover, our sample ought to be specifically suitable in this regard, as workers have a regular and stable income. With this in mind, we acknowledge the fact that some workers might be extra credit constrained and indeed find it very difficult to even put away a small sum of money. Some indication of this is derived from the fact that individuals with higher salaries were more prone to open a bank account.

Finally, it is noteworthy to consider that workers might have opened an account simply because the transaction costs were reduced to almost zero, making the desirability of the opened bank accounts questionable. It is possible that people decided to open the account simply because the transaction costs were very low and they felt compelled to take advantage of a rare opportunity. In this case it is doubtful if the accounts will actually be used and have a positive effect on formal savings. Evidence to this proposition is that only 20.1 percent of those who opened a bank account, actually deposited. Moreover, account deposits were mostly confined to the employees of one specific greenhouse cluster, indicating that peer-pressure might play an important role.

One greenhouse was underrepresented in the uptake of bank accounts, and one greenhouse was overrepresented in the use of bank accounts. This might indicate a greenhouse specific fixed effect of which we are not aware, although it could also indicate a peer-effect. As the employees are working closely together on a daily basis, we can assume that they have built a strong peer relationship. When dealing with unfamiliar business, such as formal financial institutions, their peers' behavior could exert considerable influence. Given the possible indication of peer effects in our research, as well as the mixed results of previous peer-effect studies by Kast & Pomeranz (2013) and Kast, Meier & Pomeranz (2012), we suggest that future research to incorporates measures for such peer-effects in its design, as to assert its true role in financial decision making.

Considering the relatively low take-up rate and deposit rate, along with the potentially high costs it would entail to eliminate most transaction costs on a larger scale, can this intervention be efficient? Implementing a sign-up service is costly, given salary costs for the employees enabling its execution and the costs of servicing all the opened bank accounts. However, this intervention has to be viewed in its specific context. We specifically targeted workers that are tied to the

structures and processes of a company. With elaborate communication structures and administrative offices and staff, many transaction costs of workers can be reduced cost effectively by, for instance, integrating bank account offers into the company contract or offering sign-up services in association with employment. Many low-income individuals in developing countries migrate for work (Kendall, Mylenko & Ponce, 2010), and as can be derived from our setting, many are unbanked. Along with bank branch expansion (which is currently under way in Ethiopia), even individuals living in more remote areas can take advantage of these bank services once offered initial exposure to the institution during, for instance, a short work placement. With growth of the corporate sector in developing countries, locating initiatives that encourage bank account uptake in the corporate environment could be seen as beneficial. Further research should therefore be undertaken to evaluate such policies and the benefits of locating account sign-up services at the work place.

6.4. Limitations

The above results and discussion have to be considered in light of several limitations. Firstly, the time frame of the study is very short. People are still depositing money in the opened accounts. A follow-up of the findings in half a year might give slightly different results.

Secondly, there were several factors that we would like to have measured but could not due to practical reasons. Among these are, the amount of savings deposited. Zemen Bank is prohibited from sharing personal balance information. Further, a follow-up survey could have clarified some of the influential underlying factors with regards to the choice of opening an account and depositing money.

Thirdly, several methodological choices could have had a slight influence on our results. For instance, randomization on the greenhouse level in the second intervention could have resulted in a minor bias. We observed that CBE training attendees were underrepresented in the treatment groups of our first intervention and overrepresented in the treatment group of our second intervention. If the CBE training had been randomized this would not have been a problem as there would have been no systematic difference between those who attended, and those who did not. On the other hand, if the CBE training was voluntary, having attended this training could be correlated with other factors, for example, entrepreneurship, assertiveness or general interest in bank accounts. Against this backdrop, we should note that this could create a possible bias and constitute some noise in our results. Another consideration regards possible spill-over effects between the treatments. As the initial treatment was randomized at the individual level, it is possible that the people in the treatment groups talked to those in the control group after the training. Such interactions could have dispersed the information given during the training, especially with the awareness treatment, as it was only 10 minutes short, and therefore easily passed on. In essence, this could further contribute to some noise in the data. Further, as attendance to the information sessions was not checked formally, there could have been attrition among a specific subset of our sample, for instance, the workers that had recently arrived at the company or had lower education levels. Checking attendance would have however been very difficult to implement practically during the limited working time we were given from the company to conduct the sessions. Although we believe that the general results maintain their validity, findings with regards to heterogeneous treatment effects should be viewed in light of these possible biases.

Fourthly, a substantial part of our initial observations could not be matched to questionnaires or back-office data, thereby reducing the size of our sample substantially. However, eliminating these observations gives us more accurate estimates as we have greater clarity about all the baseline variables and assigned treatments. Further, given a relatively large initial sample, we still maintain considerable power.

Finally, an underlying assumption throughout our study has been that depositing money in a bank is a superior method for saving. Although there is evidence to support this, there are also compelling arguments propagating the benefits of saving within a ROSCA. However, the two are not mutually exclusive. Any money attained as a lump sum from a ROSCA could be stowed away in a savings account if it is not put towards an immediate purpose.

6.5. Validity of result and policy recommendations

Above, the specific context of this study has been emphasized. In this section we examine to what extent the discussion and findings could be applied to a wider group of unbanked individuals. In terms of income, education, gender, age we study a rather homogenous group that has traditionally been among the most unbanked. Reaching out to this subset of individuals could therefore be argued as of elevated importance in increasing financial inclusion on a broader scale.

In the context of our study it is important to highlight the professional background of our sample that has a steady, monthly income during their time at the company. They could therefore be seen to have the ability to put away small sums of money each month. They are also relatively connected to a formal institution already. This makes them easier to reach in terms of both information and distance. In this way the cost of reaching these workers is substantially reduced, therefore, many financial inclusion initiatives may be seen as cost-effective even with lower take-up and deposit rates. The above findings could therefore most advantageously be applied and scaled up within formal institutional settings.

From a policy point of view, we see that targeting unbanked individuals that are employed and associated with a particular institution could have an advantageous effect in financial expansion among low income individuals. Practically, this could also entail reaching people in the countryside as employed individuals could return to their homes and spread the information to more remote areas. In the context of our study we found some evidence in favor of reducing transaction costs. However, given the relatively high effort of eliminating almost all transaction costs combined with the low take-up rate in this study, it seems that our design in the second intervention, although exhibiting some potential, should be modified or reevaluated in favor of other initiatives before being considered on a larger scale. It did not seem to significantly increase savings among the poor. Further research has to be undertaken in this regard, examining the impact of such initiatives in corporate/institutional settings and perhaps with other methods of reaching out.

7. Conclusion

The purpose of our study was to examine the influence of financial literacy trainings, information and transactions costs as factors driving demand for and use of savings accounts among low-income individuals. In line with this we formulated three questions. Firstly, does a short, simple, context-specific financial literacy training have an effect on bank account uptake and use? Secondly, does informing individuals of specific formal savings options have an effect on bank account uptake and use? Thirdly, does reducing transaction costs of opening a bank account to almost zero have an effect on bank account uptake and use? Through a randomized controlled trial in one of the most unbanked countries in the world, Ethiopia, we have examined these questions. In line with previous research on financial literacy, we find no significant effect of short, simple, context-specific financial literacy training on bank account uptake and use. Furthermore, a short marketing speech highlighting formal savings options is not found to significantly increase bank account uptake and use. We do find that a reduction in pecuniary and non-pecuniary transaction costs to near zero increases bank account uptake and use. A treatment designed specifically to reduce transaction costs to near zero led to a 13.6 percent uptake in bank accounts. Most of the opened bank accounts were not used actively two months after the intervention. Although future monitoring might alter these results, 20.1 percent of the bank accounts are holding deposits six weeks after our intervention.

We therefore conclude that it is relevant to look further into methods of reducing bank account transaction costs for both uptake and use. These initiatives should especially be considered in the corporate setting where individuals are already tied to a formal institution and initiatives could potentially be conducted more time and cost effectively. Conducted properly, this has the prospect of expanding financial access among the poor.

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9.

Appendix A: Descriptive Statistics

A1. Comparison of summary statistics of the full sample and the sample used for analysis

	(1) Full sample			(2) Sample used for analysis		
	mean	sd	n	Mean	sd	n
age	22.73	(4.807)	3456	22.75	(4.846)	2684
gender	0.131	(0.337)	2973	0.117	(0.321)	2684
mar	0.615	(0.487)	3444	0.609	(0.488)	2684
edu0	0.0553	(0.229)	3456	0.0577	(0.233)	2684
edu1	0.146	(0.353)	3456	0.148	(0.355)	2684
edu2	0.417	(0.493)	3456	0.421	(0.494)	2684
edu3	0.285	(0.451)	3456	0.281	(0.449)	2684
edu4	0.0405	(0.197)	3456	0.0365	(0.188)	2684
edu5	0.0509	(0.220)	3456	0.0503	(0.219)	2684
edu6	0.00579	(0.0759)	3456	0.00596	(0.0770)	2684
emp	24.91	(25.68)	2852	23.91	(24.25)	2684
salary	683.4	(206.1)	2886	681.1	(207.9)	2684
cbe	0.273	(0.446)	3473	0.282	(0.450)	2684
account	0.146	(0.353)	3465	0.152	(0.359)	2684

An explanation of the variables can be found in appendix D6

A2. Regression of baseline characteristics on pre-intervention bank account ownership

Dependent Variable	(1) LPM Account at Baseline		(3) Probit Account at Baseline	
Age	0.00534***	(0.00167)	0.00384***	(0.00112)
Gender	0.0526**	(0.0232)	0.0376*	(0.0218)
Mar	-0.0157	(0.0136)	-0.0204	(0.0129)
edu1	-0.00666	(0.0266)	-0.0108	(0.0281)
edu2	0.0464*	(0.0247)	0.0494*	(0.0292)
edu3	0.0779***	(0.0263)	0.0913**	(0.0370)
edu4	0.119***	(0.0437)	0.160**	(0.0703)
edu5	0.167***	(0.0419)	0.220***	(0.0725)
edu6	0.0558	(0.0813)	0.131	(0.109)
Emp	0.000583*	(0.000349)	0.000548**	(0.000249)
salary	0.000247***	(5.28e-05)	0.000161***	(4.10e-05)
cbe	0.302***	(0.0190)	0.296***	(0.0199)
gh1	0.0508	(0.0329)	0.0602	(0.0451)
gh2	0.106***	(0.0326)	0.149**	(0.0589)
gh3	0.0425	(0.0312)	0.0410	(0.0427)
gh4	0.124***	(0.0354)	0.148**	(0.0595)
gh5	0.0852**	(0.0336)	0.111**	(0.0527)
gh7	0.0441	(0.0310)	0.0463	(0.0490)
gh8	0.0589**	(0.0287)	0.0627	(0.0444)
gh9	0.0597**	(0.0291)	0.0721	(0.0470)
gh10	0.0275	(0.0321)	0.0392	(0.0478)
gh11	0.0608*	(0.0363)	0.0867	(0.0546)
gh12	0.102***	(0.0346)	0.155**	(0.0680)
Observations	2,684		2,684	
R-squared	0.271			

For the LPM the robust standard errors are in parentheses
For the Probit model, marginal effects are given and the standard errors are in parentheses
Stars indicate significance: *** p<0.01, ** p<0.05, * p<0.1
An explanation of the variables can be found in appendix D6
Dependent variable: 1=account at baseline, 0=no account at baseline

Appendix B: Randomization Verification

B1. Initial treatment groups per greenhouse full sample (column percentage in brackets)

	1	2	3	4	5	6	7	8	9	10	11	12	Sum
Control	131 (42)	139 (38)	92 (36)	105 (41)	137 (45)	105 (34)	104 (36)	139 (35)	145 (36)	98 (42)	75 (40)	61 (37)	1331 (38)
Aware	82 (26)	103 (28)	60 (24)	60 (23)	86 (28)	109 (35)	90 (31)	122 (31)	129 (32)	47 (20)	39 (21)	61 (37)	988 (28)
Fin Lit	97 (31)	128 (35)	102 (40)	94 (36)	80 (26)	97 (31)	93 (32)	130 (33)	125 (31)	91 (39)	73 (39)	44 (27)	1154 (33)
Sum	310	370	254	259	303	311	287	391	399	236	187	166	3473

B2. Means of treatment groups of initial intervention

	(1) Control Group		(2) Awareness Training		(3) Financial Literacy	
age	22.70	(4.712)	22.58	(4.587)	22.96	(5.191)
gender	0.113	(0.317)	0.105	(0.307)	0.131	(0.338)
mar	0.619	(0.486)	0.637	(0.481)	0.574**	(0.495)
edu0	0.0562	(0.230)	0.0537	(0.226)	0.0628	(0.243)
edu1	0.148	(0.355)	0.143	(0.350)	0.152	(0.359)
edu2	0.428	(0.495)	0.422	(0.494)	0.412	(0.493)
edu3	0.283	(0.451)	0.282	(0.450)	0.277	(0.448)
edu4	0.0325	(0.178)	0.0393	(0.194)	0.0386	(0.193)
edu5	0.0473	(0.212)	0.0550	(0.228)	0.0496	(0.217)
edu6	0.00493	(0.0701)	0.00524	(0.0723)	0.00772	(0.0876)
emp	23.08	(22.14)	24.02	(26.68)	24.74	(24.36)
salary	681.8	(201.8)	675.5	(181.0)	684.9	(234.3)
cbe	0.325	(0.469)	0.239***	(0.426)	0.269***	(0.444)
account	0.162	(0.368)	0.139	(0.346)	0.152	(0.359)
Observations	1014		763		907	

The mean coefficients are given with the standard deviation in parentheses
Stars indicate a significant difference from the control group: *** p<0.01, ** p<0.05, * p<0.1
For continuous variables (age, months of employment, base salary) a t-test is used to calculate significance, for the binary variables (gender, marriage, education, cbe training and account), a chi-squared test is used.
An explanation of the variables can be found in appendix D6

B3. Means of treatment groups of initial intervention: full sample

	(1) Control Group		(2) Awareness Training		(3) Financial Literacy	
age	22.71	(4.717)	22.47	(4.286)	22.98	(5.299)
gender	0.117	(0.322)	0.114	(0.318)	0.134	(0.341)
mar	0.629	(0.483)	0.639	(0.481)	0.578***	(0.494)
edu0	0.0530	(0.224)	0.0539	(0.226)	0.0590	(0.236)
edu1	0.148	(0.356)	0.135	(0.342)	0.152	(0.359)
edu2	0.425	(0.494)	0.415	(0.493)	0.410	(0.492)
edu3	0.288	(0.453)	0.291	(0.454)	0.276	(0.447)
edu4	0.0348	(0.183)	0.0417	(0.200)	0.0460	(0.210)
edu5	0.0462	(0.210)	0.0590	(0.236)	0.0495	(0.217)
edu6	0.00530	(0.0726)	0.00407	(0.0637)	0.00781	(0.0881)
emp	23.29	(22.18)	24.30	(26.60)	25.10	(26.11)
salary	684.1	(201.5)	678.4	(180.3)	686.7	(230.4)
cbe	0.325	(0.469)	0.217***	(0.412)	0.261***	(0.439)
account	0.154	(0.362)	0.134	(0.341)	0.148	(0.355)
Observations	1331		988		1154	

The mean coefficients are given with the standard deviation in parentheses
Stars indicate a significant difference from the control group: *** p<0.01, ** p<0.05, * p<0.1
For continuous variables (age, months of employment, base salary) a t-test is used to calculate significance, for the binary variables (gender, marriage, education, cbe training and account), a chi-squared test is used.
An explanation of the variables can be found in appendix D6

B4. Robustness check for randomization initial intervention: regression of baseline variables on treatment dummies.

	(1) Control		(3) Aware		(5) Finlit	
age	0.000287	(0.00221)	-0.000976	(0.00203)	0.000688	(0.00222)
gender	0.00554	(0.0316)	-0.0414	(0.0290)	0.0359	(0.0313)
mar	0.0142	(0.0210)	0.0206	(0.0193)	-0.0348*	(0.0208)
edu1	-0.0103	(0.0470)	-0.00179	(0.0432)	0.0121	(0.0467)
edu2	-0.00407	(0.0437)	0.00714	(0.0402)	-0.00307	(0.0434)
edu3	-0.0119	(0.0454)	0.0131	(0.0416)	-0.00118	(0.0450)
edu4	-0.0474	(0.0638)	0.0362	(0.0608)	0.0112	(0.0643)
edu5	-0.0321	(0.0603)	0.0413	(0.0566)	-0.00912	(0.0590)
edu6	-0.108	(0.127)	0.0223	(0.131)	0.0855	(0.134)
emp	-0.00117***	(0.000438)	0.000832*	(0.000464)	0.000339	(0.000473)
salary	3.72e-05	(5.83e-05)	-2.77e-05	(4.75e-05)	-9.44e-06	(5.62e-05)
cbe	0.0960***	(0.0250)	-0.0562**	(0.0224)	-0.0397*	(0.0237)
account	-0.0122	(0.0309)	0.00635	(0.0280)	0.00589	(0.0294)
gh1	0.0388	(0.0519)	-0.0878*	(0.0488)	0.0490	(0.0494)
gh2	0.0294	(0.0504)	-0.0834*	(0.0479)	0.0539	(0.0485)
gh3	-0.0219	(0.0518)	-0.107**	(0.0493)	0.129**	(0.0512)
gh4	0.00351	(0.0539)	-0.0978*	(0.0507)	0.0943*	(0.0525)
gh5	0.0840	(0.0518)	-0.0464	(0.0492)	-0.0376	(0.0478)
gh7	-0.0320	(0.0532)	-0.0175	(0.0521)	0.0495	(0.0516)
gh8	-0.00916	(0.0490)	-0.0406	(0.0479)	0.0498	(0.0470)
gh9	0.01000	(0.0493)	-0.0196	(0.0481)	0.00961	(0.0469)
gh10	0.00737	(0.0547)	-0.127**	(0.0509)	0.120**	(0.0541)
gh11	0.0143	(0.0573)	-0.120**	(0.0526)	0.106*	(0.0559)
gh12	0.0112	(0.0573)	0.0277	(0.0570)	-0.0390	(0.0531)
Observations	2,684		2,684		2,684	
R-squared	0.013		0.016		0.016	

Robust standard errors are in parentheses
Stars indicate significance: *** p<0.01, ** p<0.05, * p<0.1
An explanation of the variables can be found in appendix D6

B5. Second treatment groups per greenhouse cluster: full sample (column percentage in brackets)

	1	2	3	4	5	6	7	8	9	10	11	12	Sum
Control	111 (36)	370 (100)	51 (20)	259 (100)	86 (28)	75 (24)	99 (34)	391 (100)	399 (100)	236 (100)	187 (100)	35 (21)	2299 (66)
Extra	199 (64)	0 (0)	203 (80)	0 (0)	217 (72)	236 (76)	188 (66)	0 (0)	0 (0)	0 (0)	0 (0)	131 (79)	1174 (34)
Sum	310	370	254	259	303	311	287	391	399	236	187	166	3473

B6. Means of treatment and control groups of second intervention

	(1) Control: No Extra		(2) Extra	
age	22.75	(4.737)	22.76	(5.020)
gender	0.107	(0.309)	0.134**	(0.341)
mar	0.607	(0.488)	0.612	(0.488)
edu0	0.0620	(0.241)	0.0508	(0.220)
edu1	0.143	(0.350)	0.155	(0.362)
edu2	0.420	(0.494)	0.422	(0.494)
edu3	0.291	(0.454)	0.264	(0.441)
edu4	0.0289	(0.168)	0.0489***	(0.216)
edu5	0.0470	(0.212)	0.0557	(0.229)
edu6	0.00783	(0.0881)	0.00293	(0.0541)
emp	23.65	(24.03)	24.33	(24.61)
salary	677.6	(214.4)	686.7	(196.8)
cbe	0.253	(0.435)	0.328***	(0.470)
account	0.151	(0.358)	0.153	(0.361)
Observations	1661		1023	

The mean coefficients are given with the standard deviation in parentheses
Stars indicate a significant difference from the control group: *** p<0.01, ** p<0.05, * p<0.1
For continuous variables (age, months of employment, base salary) a t-test is used to calculate significance, for the binary variables (gender, marriage, education, cbe training and account), a chi-squared test is used.
An explanation of the variables can be found in appendix D6

B7. Means of treatment and control groups of second intervention: full sample

	(1) Control: No Extra		(2) Extra	
age	22.66	(4.648)	22.87	(5.101)
gender	0.113	(0.316)	0.136*	(0.343)
mar	0.620	(0.485)	0.605	(0.489)
edu0	0.0582	(0.234)	0.0496	(0.217)
edu1	0.142	(0.349)	0.154	(0.361)
edu2	0.418	(0.493)	0.416	(0.493)
edu3	0.291	(0.454)	0.272	(0.445)
edu4	0.0354	(0.185)	0.0505**	(0.219)
edu5	0.0490	(0.216)	0.0547	(0.228)
edu6	0.00700	(0.0834)	0.00342	(0.0584)
emp	23.72	(23.91)	24.95	(26.26)
salary	678.5	(213.1)	690.7	(194.7)
cbe	0.244	(0.430)	0.329***	(0.470)
account	0.142	(0.349)	0.155	(0.362)
Observations	2299		1174	

The mean coefficients are given with the standard deviation in parentheses
Stars indicate a significant difference from the control group: *** p<0.01, ** p<0.05, * p<0.1
For continuous variables (age, months of employment, base salary) a t-test is used to calculate significance, for the binary variables (gender, marriage, education, cbe training and account), a chi-squared test is used.
An explanation of the variables can be found in appendix D6

B8. Robustness check for randomization second intervention: regression of baseline variables on treatment dummy

	(1) Extra	
age	-0.000381	(0.00230)
gender	0.0728**	(0.0317)
mar	0.0185	(0.0209)
edu1	0.0519	(0.0466)
edu2	0.0332	(0.0434)
edu3	0.00269	(0.0449)
edu4	0.146**	(0.0650)
edu5	0.0539	(0.0604)
edu6	-0.232**	(0.117)
emp	-0.000328	(0.000459)
salary	3.77e-05	(5.23e-05)
cbe	0.115***	(0.0244)
account	-0.0645**	(0.0303)
Observations	2,684	
R-squared	0.016	

Robust standard errors are in parentheses
Stars indicate significance: *** p<0.01, ** p<0.05, * p<0.1
An explanation of the variables can be found in appendix D6

Appendix C: Treatment Results

C1. Take-up of bank accounts among treatment and control groups (percentage in brackets): full sample

	No Extra	Extra	Total
Control	0 out of 878 (0%)	59 out of 453 (13.0%)	59 out of 1331 (4.4%)
Awareness	0 out of 649 (0%)	53 out of 339 (15.6%)	53 out of 988 (5.4%)
FinLit	0 out of 772 (0%)	58 out of 382 (15.2%)	58 out of 1154 (5.0%)
Total	0 out of 2299 (0%)	170 out of 1174 (14.5%)	170 out of 3473 (4.9%)

C2. Impact on bank account uptake (Probit model)

Dependent Variable	(1) Probit Open		(2)Probit2 Open		(3)Probit3 Open	
aware	0.0316	(0.0281)	0.0385	(0.0280)	0.0409	(0.0281)
finlit	0.0210	(0.0265)	0.0308	(0.0265)	0.0263	(0.0261)
age			-0.00151	(0.00197)	-0.00152	(0.00253)
gender			-0.0795***	(0.0249)	-0.0743***	(0.0248)
mar			-0.0313	(0.0235)	-0.0268	(0.0237)
edu1			0.0441	(0.0660)	0.0462	(0.0676)
edu2			0.0462	(0.0563)	0.0485	(0.0569)
edu3			0.0610	(0.0643)	0.0615	(0.0653)
edu4			0.0491	(0.0895)	0.0472	(0.0872)
edu5			-0.0332	(0.0598)	-0.0318	(0.0623)
emp			-6.00e-05	(0.000478)	-7.66e-05	(0.000560)
salary			0.000237***	(5.88e-05)	0.000225***	(6.85e-05)
cbe			0.0170	(0.0258)	0.00384	(0.0252)
account			0.0543	(0.0364)	0.0612	(0.0382)
gh1					0.200***	(0.0694)
gh3					0.136**	(0.0634)
gh5					0.103*	(0.0605)
gh6					0.210***	(0.0776)
gh7					0.128*	(0.0664)
Observations	1,023		1,020		1,020	

Standard errors are in parentheses
Stars indicate significance: *** p<0.01, ** p<0.05, * p<0.1
An explanation of the variables can be found in appendix D6
Probit Model (dependent variable: 1=opened, 0=did not open)

C3. Opened bank accounts and deposits per greenhouse: full sample

	1	2	3	4	5	6	7	8	9	10	11	12	Sum
Opened	40	0	28	0	26	48	22	0	0	0	0	6	170
Deposited	1	0	20	0	6	1	1	0	0	0	0	0	29
Deposited twice	0	0	3	0	1	0	0	0	0	0	0	0	4

C4. Impact on bank account use (Probit model)

Dependent Variable	(1)Probit1 Deposit		(2)Probit2 Deposit		(3)Probit3 Deposit	
aware	0.135	(0.201)	0.114	(0.206)	0.247	(0.243)
finlit	0.121	(0.195)	0.147	(0.200)	0.0684	(0.233)
age			-0.0264	(0.0214)	-0.0178	(0.0343)
mar			0.0994	(0.189)	0.130	(0.229)
edu1			-0.147	(0.474)	-0.180	(0.561)
edu2			0.162	(0.432)	0.279	(0.504)
edu3			-0.00543	(0.453)	0.162	(0.533)
edu4			0.136	(0.626)	0.127	(0.719)
edu5			0.258	(0.512)	0.672	(0.645)
emp			0.00544	(0.00508)	0.00391	(0.00627)
salary			0.000426	(0.000499)	0.000343	(0.000847)
cbe			0.0969	(0.202)	0.209	(0.242)
account			-0.116	(0.252)	-0.100	(0.322)
gh1					-0.0580	(0.519)
gh3					1.318***	(0.399)
gh5					0.542	(0.423)
gh6					-0.0224	(0.548)
Observations	1,023		885		776	

Robust standard errors are in parentheses
Stars indicate significance: *** p<0.01, ** p<0.05, * p<0.1
An explanation of the variables can be found in appendix D6

Probit Model (dependent variable: 1=deposited, 0=not deposited)

C5. Impact on bank account uptake (Linear Probability Model interaction effects)

Dependent Variable	(1) Interaction Effect Open	
aware	0.00141	(0.00204)
finlit	-0.00141	(0.00212)
extra	0.120***	(0.0169)
awareextra	0.0353	(0.0266)
finlitextra	0.0235	(0.0249)
age	-0.000553	(0.000864)
gender	-0.0291**	(0.0127)
mar	-0.00821	(0.00932)
edu1	0.0125	(0.0184)
edu2	0.0120	(0.0168)
edu3	0.0165	(0.0175)
edu4	0.00798	(0.0296)
edu5	-0.0124	(0.0227)
edu6	-0.0608	(0.0384)
emp	3.07e-05	(0.000204)
salary	9.04e-05**	(3.94e-05)
cbe	0.00206	(0.0121)
account	0.0242	(0.0151)
gh1	0.00171	(0.0392)
gh2	-0.0458	(0.0318)
gh3	-0.0473	(0.0379)
gh4	-0.0500	(0.0319)
gh5	-0.0638*	(0.0363)
gh7	-0.0580	(0.0377)
gh8	-0.0460	(0.0319)
gh9	-0.0416	(0.0318)
gh10	-0.0418	(0.0317)
gh11	-0.0452	(0.0319)
gh12	-0.121***	(0.0355)
Observations	2,684	
R-squared	0.117	

Robust standard errors are in parentheses
Stars indicate significance: *** p<0.01, ** p<0.05, * p<0.1
An explanation of the variables can be found in appendix

D6Linear Probability Model (dependent variable: 1=opened, 0=did not open) including interaction effects (awareextra, finlitextra) between the two interventions.

C6. Impact on bank account use (Linear Probability Model interaction effects)

Dependent Variable	(1) Interaction Effects Deposit	
aware	-0.000907	(0.000851)
finlit	-0.000302	(0.000954)
extra	0.0167**	(0.00761)
awareextra	0.0132	(0.0126)
finlitextra	0.00402	(0.0114)
age	-0.000223	(0.000241)
gender	-0.0177***	(0.00418)
mar	0.00319	(0.00407)
edu1	-0.00399	(0.00792)
edu2	0.00333	(0.00756)
edu3	0.00167	(0.00754)
edu4	-0.000954	(0.0123)
edu5	0.00798	(0.0119)
edu6	0.00574	(0.00920)
emp	7.24e-05	(8.73e-05)
salary	5.84e-06	(8.09e-06)
cbe	0.00281	(0.00552)
account	-0.00228	(0.00603)
gh1	0.00126	(0.00864)
gh2	0.0133	(0.00824)
gh3	0.0801***	(0.0200)
gh4	0.0124	(0.00867)
gh5	0.0190	(0.0124)
gh7	-0.000469	(0.00875)
gh8	0.0132	(0.00818)
gh9	0.0138*	(0.00813)
gh10	0.0138*	(0.00802)
gh11	0.0136	(0.00828)
gh12	-0.00496	(0.00752)
Observations	2,684	
R-squared	0.061	

Robust standard errors are in parentheses
Stars indicate significance: *** p<0.01, ** p<0.05, * p<0.1
An explanation of the variables can be found in appendix D6
Linear Probability Model (dependent variable: 1=deposited, 0=not deposited) including interaction effects (awareextra, finlitextra) between the two interventions.

Appendix D: Background Information

D1. Outline of Financial Literacy Training/Information Speech/Extra Treatment Speech

Brief introduction: Today we want to discuss savings accounts and the benefits for you and your future. We will first discuss savings and then present the possibility for taking up a bank account at the compound. At the end of the training you can ask any questions you have. We will start now.

(1) Savings (20 min)

- *Go through example*:

Mr XX - is a farmer and owns a little farm that adds income outside the salary that he receives at Sher. One day his farm and land is flooded and he needs money to rebuild his house. As Mr XX has already saved for several months, he can simply go to the bank and make a withdrawal. The alternative is to apply for a loan, which might take a long time to service, or to go to a moneylender, which might ask for a much higher amount in return.

Mrs XX – is a worker at Sher and dreams of one day starting a small business selling clothes. In order to do so she can put a small amount of money aside every month after salary day. By doing this for many months she will have enough to make an initial investment in her shop.

- *Go through the benefits of saving*

As a buffer in case of disease, flood, theft, no longer worker at Sher

For wealth accumulation for university, retirement, wedding and children

- *Go through the benefits of saving in a bank versus saving at home*

Bank:

- The bank offers interest (go through the fact that if you deposit 100 birr, in a year, you will have 105 birr, while, if you deposit 200 birr, in a year, you will have 210 birr i.e. the more money you put in the more you will get at the end of the year)

- The bank is safer i.e. you will not have the money stolen or lost

- In the bank it is easier to save money because you do not have the same incentive to spend it since it is not as readily available. You will not have the same incentive to spend it, in the sense of, sharing with or lending to neighbors and other people close to you.

Home:

- It would be easy to loose the money or have it stolen. It would be readily available and you could spend it on unproductive purposes that would not work to help you in the future.

The bank is a better method for saving!

(2) Budgeting (10 min)

- Definition: method of planning how to spend your income

- Distinguish between two different periods - 'now' and the 'future'.

- Go through what expenses could be made 'now' and what expenses could be made in the 'future'.

'now' - food, accomodation, clothes

'future' - university, retirement, wedding, bike, school uniform etc.

- Take an example of a person that earns 600 birr. How would they divide their income every month? Maybe they can spend 500 birr now and leave 100 birr for the future. Add another example of a person earning 1000 birr. Maybe they can use 800 birr this month and deposit 200 birr for the future. If they have a specific goal in mind, for instance saving for a retirement or a time when they can no longer work at Sher, they could use 600 birr this month and put 400 in a savings account for the future.

(3) Information/Marketing speech (by bank, 10 min)

"Zemen Bank is Ethiopia's most modern bank."

"It offers bank accounts for companies and individuals."

"Zemen Bank would like to serve the people of Ethiopia and help them by offering bank accounts"

"For Sher Ethiopia employees, bank accounts at Zemen Bank are completely free!"

"There is no minimum balance,"

"There is no minimum deposit, you can deposit any amount you want."

"Depositing and withdrawing the money is always free, and can be done as many times as you want"

"Depositing and withdrawing can be done at the Zemen Bank branch during opening hours on the Sher compound"

"The Zemen Bank staff will check your ID and have your picture in the computer, so that your money is very safe, and can only be taken by yourself."

"You remain the owner of the money, and withdraw it for free whenever you want"

"In addition to withdrawing at Zemen Bank, you can apply for a free ATM-card, which will allow you to withdraw money for free at every Dashen bank ATM at any time of the day. Dashen bank has an ATM in Ziway, to be accessed day and night."

"You will get a very good interest rate of 5% per year"

"This means that the money you have on your bank account will automatically increase."

"Every month, the bank will automatically add the money from the interest to your account"

"If you want to know your balance, you can simply go to the bank office, and they will tell you your balance, or give you a printed receipt stating your balance"

"This service is very modern, as everything is digitalized and put into the computers, there is no need for a passbook."

"Because you don't need a passbook, your money is very safe, because you cannot loose your passbook, and it cannot get stolen."

"So, to summarize: Sher workers can easily get a free bank account, with no costs at all."

"All deposits and withdrawals are free, and you will earn interest if you leave the money in the bank account"

"It is very easy to open a free bank account at Zemen Bank"

"It takes only 10 minutes"

"You go to the Zemen Bank office on the Sher compound, next to the main gate"

"You bring your Sher-ID and fill in this form (**show form**)"

"The form asks you for your basic details, such as name and address, as well as a signature"

"The Zemen Bank staff will help you fill in the form, and assist you with any questions"

"You can then make a first small deposit, which can be as little at 10 birr, after which bank account will be opened"

"After opening the account you can simply visit the bank any day to deposit or withdraw money"

"So, to summarize, it is very simple to open a free bank account: You bring your Sher-ID to Zemen Bank, fill in one form and make an initial small deposit"

"The bank office is located at the main gate (**show map**), and is opened Monday to Friday from 8:00 to 17:00, with lunch break from 12:30 to 14:00. On Saturday, the bank office is open from 8:00 until 12:30."

"So it is very simple, to for example, open a bank account from Monday to Friday after you finished your work"

"Zemen Bank welcomes all the Sher employees to come to the bank office to open a bank account during the opening hours, and will assist every Sher employee, and will answer any questions you might have"

"We suggest you open a bank account as soon as possible, as the earlier you open a bank account,

the more money you can save, and the more interest you will get"

"We hope to see you at the Zemen Bank branch soon!"

(4) Q&A

(5) Extra treatment speech

In the extra treatment speech, information similar to the above marketing speech was given. However, the session began by saying: "Today we offer to help Sher employees at Greenhouse X open a free bank account at Zemen Bank. We will be in the Greenhouse Human Resource Office from 13 o'clock and will help with filling in necessary forms and taking the compulsory photograph. Your supervisors will give you time off from work and you can come register for an account in small groups if you have an interest to take up this service."

D2. Transcript of Initial Interviews

Workers were randomly selected from two different greenhouses and asked whether they save or not. If yes, the workers were asked two follow-up questions:

- What do you save for?
- If you would save more, what expenses would you cut?

These are there responses:

Person 1:

a) For emergency, in case my parents should call and need my help. Also, I have a plan and am saving for something special, although I cannot reveal this now.

b) Shoes or present for my husband

Person 2:

a) Saves to open a business. I have an idea to open a chicken farm.

b) I buy no excess things and discuss with my wife every month to put away 500, up to 1000 birr for this business.

Person 3:

a) Saves to open a small boutique or clothes shop in the future.

b) I do not buy new clothes and make sure to eat at home most often.

Person 4:

a) Saves to pursue dream, to open a small business trading fruit. Otherwise she also considers the possibility that her contract at Sher might be terminated and therefore she need to save in order to maintain her way of life, or for retirement.

b) I do not cut expenses per say but make sure to put away any money I get from overtime work. I also make sure to put some money into a ROSCA.

Person 5:

a) Saves to help her family and to some day in the future get an education.

b) She doesn't really feel she can save more than what she does now. There is no money left after reducing expenses for food, oil, shelter and anything urgent.

Person 6:

a) For any emergency

b) I usually give priority to the now instead of the future. Expenses I could cut though could be eating oranges or going out to eat.

Person 7:

a) Saves to create a life with her husband. I can invest first in a motorbike or ox which I can then rent out to get more money. In this way I hope to save up for some land and a house.

b) I cannot save more than what I am already doing. However, what we usually vary at home is the liter usage of oil, some time we can save money on this. The most expensive expense every month is food.

Person 8:

a) Saves to start a farm, to buy an ox and land.

b) I can cut money from excess things such as coffee or other material things.

Person 9:

a) Saves to construct a house for her children and for their future.

b) Doesn't cut anything in particular. Just puts away anything that might be left at the end of the month.

Person 10:

a) Saves for emergency in case of sickness or if her parents need her help.

b) I can't really cut any expenses for the time being.

D3. Questionnaire

1) What is your SHER-ID number? SH-

2) What is your age? _____ years old

3) Are you married?

☐1.Yes ☐2.No ☐3.Divorced or widowed

4) What is the highest education you completed?

☐1.Primary school year 1-4 ☐2.Primary school year 5-8 ☐3.Secondary school 9-10

☐4.Preparatory school 11-12 ☐5.College ☐6.University ☐7.No education

5) Did you attend the training about savings by the Commercial Bank of Ethiopia last year?

☐1.Yes ☐2.No

6)Do they currently have a bank account?

☐1.Yes ☐2.No

7) If so, at which bank?

☐1.No bank account ☐2.Zemen Bank ☐3.Dashen Bank ☐4.Commercial Bank of Ethiopia

☐5.Construction and Business Bank ☐6.Awash Bank ☐7.Other bank, namely _____

1) የሼር ኢትዮጵያ የመታወቂያ ቁጥርም ስንት ነው? SH-

2) ድሜም ስንት ነው? _____ አመቱ ነው

3) አግብተዋል?
☐1.አግብቻለሁ ☐2.አላገባሁም ☐3.ተፋትቻለሁ

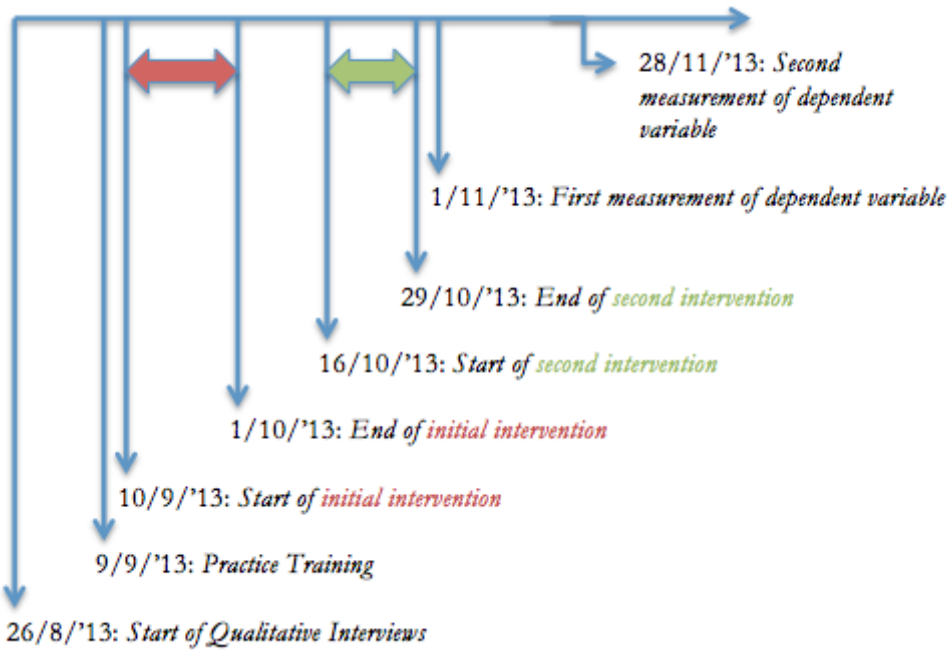
4) የትምህርት ደረጃ?
☐1.አንደኛ ደረጃ 1-4 ☐2.አንደኛ ደረጃ 5-8 ☐3.ሁለተኛ ደረጃ 9-10
☐4.ሁለተኛ ደረጃ 11-12 ☐5.ኮሌጅ ☐6.ዩንቨርስቲ ☐7.አልተማርኩም

5) ባለፈው ዓመት ስለ ቁጠባ የኢትዮጵያ ንግድ ባንክ የሰጠውን ስልጠና ወስደዋል?
☐1. ወስጃለሁ ☐2.አልወሰድኩም

6) በአሁኑ ሰዓት የባንክ ተጠቃሚ ነዎት
☐1.አዎ☐2.አይደለሁም

7) ተጠቃሚ ከሆኑ የትኛው ባንክ ተጠቃሚ ነዎት
☐1.የባንክ አካውንት የለኝም ☐2.ዘመን ባንክ ☐3.ዳሽን ባንክ ☐4.የኢትዮጵያ ንግድ ባንክ
☐5.የኮንስትራክሽንና ቢዝነስ ባንክ ☐6.አዋሽ ባንክ ☐7.በሌላ ባንክ _____

D4. Timeline



D5. List of Abbreviations

ROSCAs	Rotating Savings and Credit Associations
GDP	Gross Domestic Product
ATM	Automated Teller Machine
USD	United States Dollar
UNDP	United Nations Development Programme
SSA	Sub-Saharan Africa
ID	Identity Document
CBE	Commercial Bank of Ethiopia
Q&A	Question and Answer
LPM	Linear Probability Model
OLS	Ordinary Least Squares

D6. List of variables

Variable	Description
age	Age of employee
gender	Gender of employee (0=female; 1=male)
mar	Marital status of employee (0=married; 1=not married)
edu0	Highest attained education: none (0=no) (1=yes)
edu1	Highest attained education: primary school (0=no) (1=yes)
edu2	Highest attained education: middle school (0=no) (1=yes)
edu3	Highest attained education: high school (0=no) (1=yes)
edu4	Highest attained education: preparatory school (0=no) (1=yes)
edu5	Highest attained education: college (0=no) (1=yes)
edu6	Highest attained education: university (0=no) (1=yes)
emp	Months of employment at Sher Ethiopia
salary	Base salary in Ethiopian Birr
cbe	Previously attended the Commercial Bank of Ethiopia training (0=no) (1=yes)
account	Employee has a bank account pre-intervention (0=no) (1=yes)
aware	Employee was in the awareness treatment group (0=no) (1=yes)
finlit	Employee was in the financial literacy treatment group (0=no) (1=yes)
extra	Employee was in the extra (sign-up service) treatment group (0=no) (1=yes)
awareextra	Interaction effect of aware and extra (1=being in aware and extra treatment)
finlitextra	Interaction effect of finlit and extra (1=being in finlit and extra treatment)
gh1	Employee works in greenhouse #1 (0=no) (1=yes)
gh2	Employee works in greenhouse #2 (0=no) (1=yes)
gh3	Employee works in greenhouse #3 (0=no) (1=yes)
gh4	Employee works in greenhouse #4 (0=no) (1=yes)
gh5	Employee works in greenhouse #5 (0=no) (1=yes)

gh6	Employee works in greenhouse #6 (0=no) (1=yes)
gh7	Employee works in greenhouse #7 (0=no) (1=yes)
gh8	Employee works in greenhouse #8 (0=no) (1=yes)
gh9	Employee works in greenhouse #9 (0=no) (1=yes)
gh10	Employee works in greenhouse #10 (0=no) (1=yes)
gh11	Employee works in greenhouse #11 (0=no) (1=yes)
gh12	Employee works in greenhouse #12 (0=no) (1=yes)