FINAL REPORT

Linking Farmer Attributes to Capacity and Motive to Save Digitally with Formal Banking Products: The Mount Elgon Region, Uganda

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Executive Summary

Project Background

The Coffee Gardens (TCG) works with smallholder coffee farmers in the Mount Elgon region of Uganda to export high quality coffee for international markets. As a social enterprise (SE), TCG transcends economic viability and strives to provide farmers with a sustainable living income (The Coffee Gardens, n.d.). To support farmers in becoming financially included, TCG is actively pursuing a strategy to scale up digital payments and savings. Within this context, our London School of Economics (LSE) consultancy team has researched attributes which influence farmers' capacity and motive to save digitally. Using the TCG farmer database, we analyse farmers participating in digital savings with TCG. We discuss where motives to save digitally with TCG (or formal banking institutions) could align with those to save via other methods where bottlenecks are addressed. Other methods include community savings groups, investing in livestock and other capital, and keeping cash at home.

Capacity to Save Digitally with Formal Institutions

Evidence from literature suggests that farmers' savings can be determined by many motivational and demographic factors (see 1.2). However, those factors identifiable from the TCG database are i) age group (with older working farmers having a higher income to consumption ratio), ii) gender, iii) size of crop (size of land ownership and related crop income), and iv) partnership duration (used as a proxy for trust in institution). An additional factor when TCG is the savings institution in question is v) the quality of coffee production. Due to TCG's high market standards, the quality of a farmer's coffee determines the quantity sellable to TCG and thus, the capacity to save with them. Savings with TCG can be defined as the choice by a farmer for TCG to withhold payments owed. Accepting the limitations of the comparison, we use TCG as a proxy for formal banking institution. Our analysis finds that 28 out of 601 active farmers have contracted loans and saved with TCG at least once in the last two years. We consider farmers taking loans with TCG

as ‘savers’ because they are interacting with TCG as a formal financial institution more elaborately. Based on quality and consistency of savings, we devise four savings commitment criteria (see 2.2) which classify these 28 farmers into four saving archetypes: ‘most committed’, ‘quite committed’, ‘less committed’ and ‘least committed’ savers. The findings show that for the ‘most committed’ savers, average age (38) is higher than that of the ‘least committed’ savers (32.5) and the ‘quite committed’ savers (37) but interestingly the highest average age was for the ‘less committed’ saver (48.3). Ratios of women to men varied with 2 archetypes consisting entirely of men (‘most committed’ and ‘less committed’) and an overall ratio of 14.3% women to 85.7% men amongst farmers saving with TCG. Largest volume of coffee cherries sold to TCG correlates positively with the commitment of savings with TCG, as well as the amount of coffee cherries sold to TCG as a proportion of overall production.

Research Base for Further Exploration

Other demographic and socio-economic savings determinants are discussed: education level of household head, size of household and degree of rurality. Some savings motivates are also identified through literature which cannot be analysed from the database. There is potential for uptake of formal digital banking products, if products are a) practical and accessible, and b) have a perceived benefit (i.e. interest rate; targeted use) which is higher than the perceived benefit of other methods (e.g. physical capital's lack of sensitivity to inflation or security). These are significant bottlenecks in for digital banking products in rural African farming landscapes, where seasonal nuances are at play. Throughout the research process, the LSE team consulted a variety of experts. We spoke to researchers in the International Development Department at LSE who specialise in rural African livelihoods and agriculture and digitalisation in African development to guide our research avenues appropriately. We also sought academic insight from experts at the London School of Hygiene and Tropical Medicine (LSHTM) and the Consultative Group to Assist the Poor (CGAP) on what to consider when developing a financial diary study for rural African contexts. Insights from the National Social Security Fund (NSSF) allowed us a deeper understanding of the unique rural context that Mount Elgon farmers are in and why this is important to elaborate on for expanded financial inclusion. An interview with a ‘living incomes’ researcher in Uganda drew our attention to the importance of incentives as an avenue of interest when developing research tools for sensitive information collection. These conversations all touched on the importance of practicality in research and the related lack of understanding around financial dynamics of rural farming communities. Based on our research, we provide a basis for future research, through a process of pictorial financial diaries coupled with qualitative

investigation, which considered digital interventions. This research is designed to explore farmer attributes as they link to individual capacity and motivation to save via different methods in the Mount Elgon region.

Implications and Recommendations

In discussing our findings, we highlight limitations such as sample size, factors used as proxies (e.g. partnership with TCG and trust in institution) and assumptions (e.g. gender of registered farmer as the head of household). We also discuss implications of our findings for TCG, such as a need to promote TCG savings products, where farmers may not perceive a comparative benefit of savings with TCG. Moreover, 'most committed' savers are often found not to consider TCG as a mechanism to save, leaving room for promotional design as a savings institution. We also consider the exclusion of the poorest groups in the coffee cooperative, who may be prevented from engaging in financial products with TCG by not filling the capacity criteria we identify. We suggest deeper investigation of motives to save via different methods in the Mount Elgon region, addressing our research question: What savings behaviours, motives and characteristics amongst rural East Ugandan coffee farmers might influence the potential for digital banking products? A framework for farmer savings and further research in the Mount Elgon region.

Abbreviations

CGAP	Consultative Group to Assist the Poor
LCH	Life Cycle Hypothesis
LSHTM	London School of Hygiene and Tropical Medicine
NSSF	National Social Security Fund
PS	Precautionary Savings
PURE	Prospective Urban Rural Epidemiology
SACCOs	Savings and Credit Co-operatives
SE	Social Enterprise
TCG	The Coffee Gardens
UGX	Ugandan Shilling
VSLAs	Village Savings and Loan Associations

Introduction

TCG is a Ugandan based SE, founded in 2017 by Shakeel Padamsey, Michael Buteera Mugisha and Dana Siedem. TCG works together with smallholder coffee farmers in the eastern Mount Elgon region to produce high quality Arabica coffee for international markets (The Coffee Gardens, n.d.). Coffee is the oldest commercialised agricultural commodity in Uganda, which mainly produces Robusta coffee, but also Arabica coffee to a lesser extent, depending on the region. The coffee industry is an essential pillar of the Ugandan economy, consisting of around 1.7 million households with an average plot of land under one acre in size (ICO, 2019) and making up 22% of commodity export earnings in 2022 (UCDA, 2024). TCG operates using a triple bottom line that takes social, economic, and environmental impacts into account. Beyond buying coffee beans from farmers, the social enterprise provides training and development projects and incorporates farmers' feedback (TCG, 2023a). Through its off-season programmes, TCG seeks to ensure that farmers earn a living income (Padamsey, Siedem and Buteera Mugisha, 2021). A previous report conducted by LSE students found that TCG's social programs add value to the community, empower and establish trust with farmers, and that the SE provided farmers with an alternative buyer to the large multinational corporations offering low prices (Asselin et al., 2022). During the coffee season 2022 - 2023, TCG worked with 564 active farmers that earned $437 and delivered 666 kg of coffee cherries on average. The 94 larger smallholder farmers earned $1,700 on average and the 250 farmers with very small land areas only made $55 each on average (TCG, 2023a). This is also reflected more widely in the country as only 26% smallholder households are financially included, meaning "they have a full-service bank, mobile money, or NBFI account in their name" (Anderson, Learch and Gardner, 2016, p.65). Mobile phones play an essential role here as they can be used as enablers of financial transactions with the potential to financially include rural households that were previously excluded from formal banking institutions.

There has been a significant expansion of mobile technology across most African countries, including in Uganda, and the transactional value of digital payments in the country is only

forecasted to rise with an annual growth rate of 20% in the next four years (Statista, 2024). Although the dependence on cash transactions has already been greatly decreased in the past years, Mayanja (2022) highlights the enormous scope for furthering electronic payments that exists in Uganda. 73% of smallholder farmers in Uganda have used a mobile phone before and most acknowledge them to be very important to household (79%) and agricultural (72%) activities. Even though nearly all (94%) smallholders who know about mobile money agree there to be associated benefits, only 15% know that it can be used for business transactions. Indeed, 79% of smallholders do not have a registered mobile money account (Anderson, Learch and Gardner, 2016), highlighting the limited uptake despite significant penetration of mobile money and the potential to save digitally into Uganda and Africa more generally.

In this context, TCG is working with NSSF to study the conditions that explain why some rural coffee farming households within their clientele are willing to save more than others. TCG seeks to explain why saving behaviour and motives vary between households, despite all being located in the same geographic location of Mount Elgon with similar opportunities and threats. The SE has begun to address this issue by providing farmers with zero interest loans and saving schemes. In this way, TCG allows farmers to save with them and withdraw their payments at a later date rather than obtain cash straight away when delivering their coffee beans. TCG pilot showed that farmers agree to be paid digitally via Stanbic FlexiPay, a digital financial transactions platform, for their coffee and receive digital loans if specific incentives are met (TCG, 2023b).

Our LSE consultancy team was asked to investigate this topic further and examine factors and characteristics determining farmers' disposition to save digitally with TCG (saving with TCG will be used as a proxy for saving with digital banking products throughout the report). This led us to formulate the following research question: *"What savings behaviours, motives and characteristics amongst rural East Ugandan coffee farmers might influence the potential for digital banking products? A framework for farmer savings and further research in the Mount Elgon region."* This research is highly relevant as TCG seeks to support farmers in taking up digital savings so that they can make use of its benefits in rural contexts (Batista and Vincente, 2019; Vukey et al., 2022). Understanding which saving determinants and motives influence the uptake of digitisation can help TCG target these factors specifically to encourage rural farmers to save digitally with them. Currently, there is little research on how smallholder farmers in rural contexts save money, with saving determinants and behaviour being difficult to comprehend (Aidoo-Mensah, 2018). Based on this research basis, we recommend more in-depth follow-up research by TCG (e.g. by

using the proposed financial diary and qualitative research suggestions in this report) as well as the wider academic community to consolidate our findings.

1. Literature Review

1.1. Savings Theory and Implications

Traditional Savings Theory

In relation to economic growth and development theory, savings are essential because they determine investments - with the underlying economic assumption that all which is saved annually will eventually be invested annually (Foster, 1990). A rise in domestic savings translates into more financial capital invested in the economy, leading to economic growth (Pelrine and Katabalya, 2005). A shortage of savings, on the other hand, pushes states to fund investments through foreign borrowing and to transfer future national income abroad in the form of interests and dividends (Pelrine and Katabalya, 2005; Addis, Belete and Bogale, 2019). If low savings are at the root of economic stagnation and indebtedness (Addis, Belete and Bogale, 2019), high savings are essential in lowering the costs of investments and promoting long-term development. At the household level, a shortage in savings forces individuals to borrow externally, using local moneylenders to finance their investments – often at high costs (Inter-American Development Bank, 2016). For the individual, savings can be understood through the lens of several consumption theories. The Keynesian Absolute Income Hypothesis suggests that consumption increases with income but not necessarily at the same rate (Keynes, 1936). Duesenberry's Relative Income Hypothesis states that consumption increases sharply with income increase but is more stable when income decreases (Duesenberry, 1949). Friedman's Permanent Income Hypothesis identifies income as made up of two parts (transitory income and permanent income), where only permanent income has a significant effect on consumption responses (Friedman, 1957). Many of these theories are found not to hold in Sub-Saharan African contexts (Nwala, 2010; Francois, 2022). Thus, for this report we give a more detailed description of two theories which are most researched in rural African contexts: Modigliani's Life-Cycle Hypothesis (LCH) and the theory of Precautionary Savings (PS).

The LCH implies that motives for savings over a lifetime are to finance consumption and expenditure during retirement (Cagetti, 2003). In other words, consumption is smoothed over time by a balance of borrowing, income production, and savings at different stages of life (Attanasio and Weber, 2010). In application of this, many components need to be considered. These include (but are not limited to) consumer preferences, market access resource producing processes, impatience or time preference, degree of risk aversion, degree of rurality (Attanasio and Weber, 2010; Carroll, 1992; Cagetti, 2003; Song, 1981). The above considerations are also intertwined with demographic factors over a lifetime of consumption and savings. For example, savings are often assumed to be highest when income is highest. Income for a business owner might be highest when they are in their forties, due to several decades of investment spending. Carroll (1992) also finds that when consumer impatience is higher, consumption levels are close to income levels until age reaches well into the forties. This again, leaves less room for savings until post-forty. Other implications of this impatience effect on savings, arise for those who have high labour income uncertainty. This effect is described with the 'buffer stock model': savings are kept to the lowest amount necessary to buffer income shocks (ibid). There have also been developments in the design of the LCH which consider contextual differences in savings and consumption behaviour between rural and urban areas. Song (1981) identifies rural farmers as a unique consumption and savings group when compared to urban workers and urban capitalists. Song suggests that the traditional extended family unit for rural farmers differ from urban families but more importantly, consumption is influenced by farm production activities. Farming production is in turn impacted by times of shock (in market price or weather for example). Precautionary savings (PS) theory is another widely accepted way to save and is a means to protect consumption needs in times of shock (Cagetti, 2003). Precautionary savings behaviours are considered as operating simultaneously, within the LCH.

Savings Theory in Rural Developing Contexts

Generally, in Sub-Saharan Africa, rural farmers' motives for saving can include funding children's education, covering household expenses, affording medications, contributing to family or social events like funerals and investing in their farms (Vukey et al., 2022). Investigating why vegetable farmers save money informally in Cameroon, Bime and Mbanasor (2011) reveal that 44% of farmers do it to obtain an aggregate sum to finance projects, 23% for precautionary motives, 19% for security reasons and 14% to minimise their spending rate. In a study of rural banking in Ghana, Vukey et al. (2022) found that rice farmers considered investing in their lands the most significant

reason for saving, as it could ultimately lead to farm growth. Despite most demographics of age and gender in East Africa following a life-cycle model of savings behaviour, Lotto (2022) finds demographic differences in savings motive: female-headed households in Uganda save most often for business purposes and male-headed households to save most often for medical purposes. Motives to save for rural coffee farmers in Kenya are also found to be influenced by future expectation the most (Njamweah and Kidombo, 2018) but the means of saving in this study were highly dependent on trust in the savings institution, whether that be formal or informal.

However, it is worth highlighting that amongst low-income and particularly vulnerable groups in developing countries, a nuanced set of behaviours might replace PS behaviour. In Africa alternative shock-coping behaviours dominate. This is often because there is simply a lack of excess income which can be accumulated as PS after basic consumption and spending - authors find reduced consumption and spending to be the dominant shock-coping behaviour in South Africa (Knight et al., 2015). However, promotion of PS can be more influential than low-income restrictions. A study by Jones and Gong (2021) for example, shows the vulnerable groups of women in Kenya use extreme coping mechanisms (transactional sex) which are used less after promoting precautionary savings behaviour.

Nonetheless, the literature provides evidence of rural farmers' capacity to save despite "low account balances, seasonal income, remote location, non-cash assets and high transaction operations" (Von Pischke, 1978 in Karlan and Morduch, 2010; Aidoo-Mensah, 2023). In rural Uganda, much of the population save a part of their income to help cover unexpected or unforeseen events (Pelrine and Kabatalya, 2005), in line with the PS behavioural theory. In some African farming contexts, such as in Kenya, savings are found to be used in times of health shocks, along with selling assets, and asking for gifts or loans (Bonfrer and Gustafsson-Wright, 2016). Studies like this suggest that PS behaviours are prevalent in some low-income farming contexts, as shock buffers. This similarly applies in the case of the Mount Elgon farming region, where TCG finds many different savings methods, which could imply a PS motive. However, Bonfrer and Gustafsson (2016) highlight how health shocks in African farming contexts can impact the share of informal savings available for allocation to farm-related income shocks (e.g. weather changes and price drops) which can result in sacrifices such as periods of forgone healthcare. Thus, methods and determinants of savings in rural farming contexts can have significant impact on livelihoods.

1.2. Savings for Rural Farmers – Determinants and Influences

Savings Definitions and Methods

The definition of savings varies in breadth between authors. Some keep a monetary definition of savings (Bonfrer and Gustafsson-Wright, 2016; Von Pischke, 1978 in Karlan and Morduch, 2010), whilst others include physical assets (Kiiza and Pederson 2002; Song and Mann, 2013). Thus, the remit for the definition of savings is wide and different methods carry varying financial consequence depending on country and context – even between East African countries. For example, Kiiza and Pederson (2002) highlight that physical assets are often preferred in Uganda as they have reduced sensitivity to the negative effects of inflation (through real rates of return) and have a lower transactional cost than formal financial assets. Pelrine and Katabalya (2005) also show a preference for informal savings, with 80% of rural households in their Ugandan study saving in the form of cash or kind (buying properties). From discussions with TCG team, and some of their preliminary data collection, there appears to be a variety of saving techniques present in the Mount Elgon region. Here, the definition of savings can include cash savings in the home; investing in physical capital such as animals, land, and farm equipment (with a plan to sell later); investing in savings groups and circles like VSLAs or SACCOs (all with varying membership fees and arrangements); through mobile money; and/or with banks (though extremely rarely). For TCG, formal savings is defined as voluntary withholding of payment for coffee cherries during harvesting season. This allows for larger funds to be extracted at a later date, creating smaller withdrawal fees. Due to the quality standards of TCG coffee processing, the organisation is able to pay comparatively high remuneration to farmers who deliver this quality standard. In theory, this allows for a larger capacity to save during the coffee season, if savings are assumed to be highest when income is highest (Pelrine and Katabalya, 2005).

Though some authors find that farmers are more likely to save informally due to long distances between rural communities and bank agencies (Bime and Mbanasor, 2011); accessing and saving funds through formal banking institutions can offer farmers greater benefits compared to relying on informal methods (Batista and Vincente, 2019; Vukey et al., 2022). Formal institutions can provide farmers with a comparably secure means of saving their money (this was listed as a benefit by 42% of smallholder farmers in Uganda to having a bank account (Anderson, Learch and Gardner, 2016), offering accounts that safeguard their income, thus reduces the risk of theft or loss compared to keeping cash at home. Additionally, maintaining a bank account often grants access to a range of financial inclusion services, facilitating the initial step in capital formation for

future investments that could significantly enhance livelihoods (Vukey et al., 2022). But in rural areas of developing countries, lower-income households have limited access to adequate financial instruments to save (only 10% of Ugandan smallholders have a bank account – see Anderson, Learch and Gardner, 2016), either due to high services costs, lack of trust in formal banks (Inter-American Development Bank, 2016) and/or practicality concerns (Donkor and Anane, 2016; Kibet et al., 2009; Parlasca, Johnen and Qaim, 2022). These factors interplay with demographic and socio-economic determinants of savings, seasonality constraints, and related spending and consumption patterns. These bottlenecks mean saving through informal instruments is predominant in rural African farming areas (Njamweah and Kidombo, 2018). Indeed, Anderson, Learch and Gardner (2016) found that smallholders in Uganda predominantly save informally: whilst 36% saved with friends and family and 28% in savings and credit groups, only 9% had saved in a bank within 12 months. If savings with TCG are defined as a proxy for saving with formal banking products, a number of bottlenecks to (and motives for) formal savings can be explored in more depth.

Savings Motives and Determinants

Demographic and Socio-Economic Determinants

Farmers in rural areas have various motives for saving, which fluctuate based on the economic, social, and cultural contexts in which they reside. Factors such as education, proximity, gender, and age play pivotal roles in shaping spending and savings patterns.

Studies have revealed a direct correlation between the head of the household's years of schooling and their propensity to save. Greater educational attainment increases the likelihood of establishing a regular saving habit (Addis, Belete and Bogale 2019; Asfaw et al., 2023; Sisay, 2023). Additionally, knowledge about financial products and banking positively influences saving behaviour (Donkor and Anane, 2016; Asfaw et al., 2023).

Distance from financial institutions also impacts rural farmers' decisions regarding formal savings. Donkor and Anane (2016) found that in Uganda, the likelihood of having a savings account in a bank is linked to the proximity of financial institutions to the population. Sisay (2023) delves further into this, revealing a negative correlation between the intensity of saving and the distance from financial institutions.

Gender is another significant determinant of savings behaviour. Asfaw (2023) explains that in agro-pastoral communities, households led by men are more inclined to save and participate in saving decisions. Moreover, the disparity increases among women who are divorced, separated, or widowed, who are 48% less likely to have a savings account in a formal institution compared to men (Oswald, 2014). However, Chowa (2006) highlights that women in Uganda save 'better' than men when provided with the opportunity. This might be because women are found to be more risk averse in these contexts.

In line with the LCH, age is considered a primary determinant of savings as people tend to save more in their middle years than in their younger or later years where their income is lower (Donkor and Anane 2016). Bime and Mbanasor's (2011) findings indicate that relatively young farmers save more than older farmers in Cameroon. Conversely, Kamdjoug, Gueyie and Kengne (2020) find that in Cameroon, age has a positive effect on savings with microfinance, along with revenue, number of branches and quality of services.

Seasonality is a determinant of savings where monthly income changes or spendings peaks occur in festive, plantation or harvest seasons, and school fee periods. Pelrine and Katabalya (2005) recommend anchoring strategies to promote savings within the temporal structure of Uganda's rural economy, arguing that seasonality must be respected to manage liquidity effectively; they also highlight how Ugandan rural savers may appreciate a school fee saving product or a medical saving product promoted during the harvesting season where farmers' savings are the highest. Such saving products may positively affect farmers' risk behaviour by providing a mechanism for coping with risk and income variation (Gikonyo et al., 2022).

Institutional and Digital Determinants

Informal savings in Kenya are found to increase when there is simply a safe place available to save (Dupas and Robinson, 2013; Dupas et al., 2018), whilst this was not enough in itself in Malawi, Uganda, and Chile. Thus, in the case of Uganda more formal saving methods might be useful, where institutional determinants of savings become critical. Some research suggests that the practicality and proximity of formal banking services is most significant to its uptake, rather than trust in banks (Donkor and Anane, 2016; Kibet et al., 2009; Parlasca, Johnen and Qaim, 2022). Beverly and Sherraden (1999) include facilitation (such as payroll deduction), access (institutionalized savings mechanisms), financial education (targeted) and savings incentives (such as matched savings or interest) as institutional determinants.

In line with suggestions of practicality as a significant institutional bottleneck to formal savings in rural populations, Bendig, Giesbert and Steiner (2009) find that the proximity of the nearest savings institution from the rural household affects the savings response (i.e. the further the institution, the less likely the farmer will be to save). How much it might cost to make the transaction also has an impact (Wright, 1999; Kar and Dash, 2009), along with the speed and straightforwardness of the process, the ease of access to savings (Robinson, 2001), the reliability and flexibility of the services (Beck et al., 2006). Other incentives to use formal savings institutions include the range of the financial products offered to rural households, the friendliness of the staff towards rural users (Robinson, 2001), the availability of small savings amounts (Aryeetey and Gockel, 1991) and trust that savings will be secure (Klaehn, Evans and Branch, 2002). Krone and Dannenberg (2018) also propose that safety and transparency challenges may deter farmers from using mobile money for agricultural transactions in East Africa, as well as high fees. Moreover, a study by Tabetando, Matsumoto and Fani (2022) investigating mobile money adoption of smallholder households in rural Uganda found mobile phone ownership, distance to a mobile money agent and household characteristics including the size, the head's years of schooling and age to be the key determinants.

Digital savings is slowly gaining grounds amongst rural African farmers – mostly in the form of mobile money and far less often, digital savings accounts with banks. In these contexts, mobile money services provide an essential way to accumulate savings as well as send and receive money (Koomson, Martey and Etwire, 2022). These methods also address the practicality issues around formal savings by ensuring more reliability (Kikulwe, Fischer and Qaim, 2014) and shifting users away from the disposition of informal savings (Mbiti and Weil, 2011). While mobile money is generally less expensive, more accessible, and flexible than other formal services, inadequate physical infrastructure with few agents and a disadvantageous spatial distribution were found to hinder its access in Uganda (Hamdan, Lehmann-Uschner and Menkhoff, 2022). Other limits voiced by farmers include server system failure and mobile money agent float unavailability (Parlasca, Johnen and Qaim, 2022).

Nonetheless, Kikulwe, Fischer and Qaim (2014 argue that mobile money services incentivize savings and Aidoo-Mensah (2023) suggests Ghanaian tomato farmers' motive to save with mobile money was a perceived benefit to funds being less accessible for spending. Specifically in the case of Uganda, the adoption of mobile money has contributed to closing the digital divide and improved the access for low-income groups to economical financial services, which is especially being used for person-to-person transactions and grocery payments (Museba, Ranganai and

Gianfrate, 2021). The introduction of digital savings accounts in Mozambique increased savings, partly due to remittances received, but interestingly only when farmers received an interest on the mobile money balance. Remunerated saving accounts issued through mobile money services could arguably be a “promising pro-poor policy” (Batista and Vicente, 2020) which partly encourages agricultural investment and in turn increases profits (Kikulwe, Fischer and Qaim, 2014; Batista and Vicente, 2020). However, Parlasca, Johnen and Qaim (2022) find that whilst mobile money savings is partly utilized for agriculture finance in Kenya, traditional sources remain more significant giving value to accessibility and low interest rates. Aidoo-Mensah (2023) highlights that savings motives for Ghanaian tomato farmers fall into three main categories, two of which are precautionary savings behaviours and all of which align with further use of digital banking products. Parlasca, Johnen and Qaim (2022) argue in a more nuanced manner that although mobile money can have positive effects on agriculture and promote higher farming incomes, specific improvements and adjustments are still a prerequisite for mobile financial services to revamp agricultural finance in Sub-Saharan Africa (Benami & Carter, 2021).

Beyond financial institutions, the influence of plural, overlapping institutions in rural farming areas is significant. For example, Njamweah and Kidombo (2018) find that coffee cooperate leadership and governance in Kenya has a high impact on the savings behaviour of farmers, with financial literacy training within cooperatives to increase savings behaviour positively. This training might include basic accounting, budgeting, cost control and insurance training. Museba, Ranganai and Gianfrate, (2021) found that there is still improvement potential in educating communities on the advantages of digital financial services in Uganda. When implementing a digital payment system, the tea production company McLeod Russel, for example, investigated Ugandan workers’ priorities as well as challenges (Better Than Cash Alliance, 2018). A study by Patil, Dwivedi and Rana (2017) investigating the adoption of digital payments revealed that performance expectancy and observed usefulness are most important in influencing consumers’ use intention. The perceived ease of use also played a significant, although lesser role. Perceived risks were concluded to be the main barrier for consumers to adopt mobile payments. Similarly, in crisis situations such as Covid, individuals in Uganda adopted mobile money depending on its considered usefulness and facility of use influenced by emotions, cognition, and context (Okello Candiya Bongomin, Mpeera Ntayi and Munene, 2016).

In a similar way, TCG seeks to assure coffee farmers of the benefits of digital payments, understanding the associated risks and reasons that would hinder them from receiving, spending, and saving money digitally. Some of the barriers have already been established by TCG:

withdrawing money in rural areas is restricted because agents often lack float, there are high withdrawal fees and taxes and transport costs to the nearest major town must be accounted for. Nevertheless, a pre-pilot project in 2023 by TCG proved that farmers agree to deliver coffee on credit and be paid digitally if the bottlenecks are mitigated (TCG, 2023b).

Though not all following facets can be explored with the TCG farmer database alone, the literature review and contextual information from TCG allow us to hypothesise about the factors influencing farmers' capacity to save digitally, if TCG are the formal institution:

I. Age – following the LCH and assuming older working age groups will have a higher income to consumption ratio relative to their lifespan, with higher investment in savings for retirement.
II. Gender – with female-headed households being more efficient savers when given the income capacity, but male-headed households having larger income and higher associated savings frequency.
III. Land ownership – and related income, assuming highest income is received from crop production.
IV. Trust in institution.
V. Education of household head.
VI. Financial education amongst overlapping institutions (for example, that of informal savings groups or deployed by TCG).
VII. Practicality of TCG savings compared to alternative savings methods (degree of rurality); and
VIII. Perceived benefits of saving with TCG compared to alternative savings methods (e.g. interest rates or range of products)

1.3. Concluding Remarks

In addressing the research question, the literature review explores some motives for farmer savings, rooted in behavioural theory (LCH). It examines methods of saving via informal and formal means, presenting digital saving as a viable option for increased rural savings where a range of bottlenecks are addressed, and determinants considered (I – VIII). However, determinants and motives can vary depending on the region and context, and there is a related lack of comprehension around which attributes influence motivation and capacity for formal institutional savings in the Mount Elgon region. To fill this gap, our methodology analyses the

saving patterns of farmers in the region, considering TCG as a formal institution for savings which can address some of these bottlenecks (e.g. trust in institution). The report also suggests a research base for further investigation of motivations to save via different methods and determinants of savings in this region.

2. Methodology and Deliverables

2.1. Methodology and Procedure

The main objective of this consultancy project was to identify farmers who have contracted loans with TCG and who have subsequently saved at least once with TCG. We decided to focus on this subset of savers because we are using TCG as a proxy for a formal financial institution. Farmers who take out loans and save money with TCG are those who treat TCG most closely to a formal financial institution. In the context of the Mount Elgon region, the restraint of access to formal financial institutions (banks) undermines farmers' financial capacity to adopt digital products. Thus, analyzing the behaviors of farmers taking full advantages of TCG's financial services may provide fundamental insights for future research on rural farmers' savings. Using TCG savings as a proxy for formal, digital savings, we identified 4 farmer savings archetypes from the database.

Due to the nature of this research, our team adopted a quantitative research methodology. For our analysis, the organization provided us five datasets through their CRM, Airtable: Survey Data 2023 (466 entries), Adv / Late Payments (763 entries), Coffee Purchase Log (18,218 entries), All registered Farmers (496 entries), and Farmer Training Services 2023 (375 entries). For our research, we focused primarily on the first three documents. Within the Survey Data conducted in 2023, the characteristics of farmers indicated are their household size, sources of income, main source of income, number of children attending school, among others. The *Adv / Late Payments* provides information about the type of payments (advanced or late) that TCG made to each farmer, the amount, and the date. Lastly, the *Coffee Purchase log* contains information about the farmer's operations at the transactional level with TCG, the altitude and volume of the coffee purchase, the amount, and the date. Through these datasets, we built a new database in Excel

that allowed us to analyse the financial behaviour, specifically the savings, of the farmers they work with.

To understand the databases at a greater capacity, we held several meetings with the TCG team. During these sessions, financial concepts and cultural dynamics were discussed and reviewed including, for example, the logistics of the coffee season or the logic behind the monetary transactions between farmers and TCG. The organization defines saving as farmers that deliver coffee on credit. We discovered that before the start of every season, farmers have the possibility to contract an advance payment (zero interest loans) and have the responsibility to repay this debt throughout the fiscal year (July 1st – June 30th). When farmers contract an advance payment with TCG, it opens an opportunity for them to save with TCG. Throughout the coffee season and every time these borrowers sell coffee to TCG, they can choose to remain in debt, repay their debt or save. Indeed, if they repay a higher amount than what they initially owed to TCG, this is considered as *savings* with the organization since the TCG now owes the farmer money. For this reason, it was necessary to review each advance payment in detail and ensure that the interpretation we gave it was consistent with the coffee sales balance owed. In addition to the challenge of interpretating the operations, it was also necessary to standardize the information from the different databases, for instance, aligning the format of the dates and amounts, in order to compile and work with it properly.

Once we understood the logic behind the operations, we did the following to identify farmers that saved with TCG: first, using information from the Adv/Late Payment data, we identified 247 advance payments taken by 110 farmers. Afterwards, we compared the advance payments of these farmers against their balanced owed transaction that derived from the Coffee Purchase Log. Subsequently, we created a new Excel database and synthesized this information by season into different pivotal tables that also included the farmers' names, gender, dates of balanced owed and advance payments and altitude of coffee. Then, we analysed the financial relationship each farmer had with TCG per fiscal year. We manually calculated the amounts of debt and savings, the number of days they kept their money with TCG, and how many times they saved during the year. This allowed us to identify sustainable criteria that would serve as the basis for establishing the savers archetypes.

2.2. Database Findings and Saving Archetypes

To assess the sustainable nature of farmers' savings, we defined four different sustainable saving criteria: two based on savings quality and two others based on savings consistency. Through these four sustainable savings criteria, we elaborated four different archetypes of farmers saving with TCG.

Table 1: Sustainable Savings Criteria

Saving Criteria	Criteria Description	Category of Criteria
1	To determine a saving quality, we analysed the duration over which a farmer kept money at TCG before withdrawal. If a farmer saved money with TCG over more than 1 day, we identified this farmer as reaching one out of the four sustainable savings criteria.	Quality of Saving
2	To determine a saving quality, we also analysed the amount of money that was saved each time a farmer saved. If a farmer saved over 200,000 UGX or $51, we identified this farmer as reaching one out of the four sustainable savings criteria.	
3	To determine savings consistency, we considered the number of times a farmer saved across multiple seasons. If a farmer effectively saved across multiple seasons, we identified this farmer as reaching one out of the four sustainable savings criteria.	Consistency of Saving
4	To determine savings consistency, we also considered whether the farmer had saved multiples times across the course of one coffee season. If a farmer effectively saved more than one time across the same coffee season, we identified this farmer as reaching one out of the four sustainable criteria.	

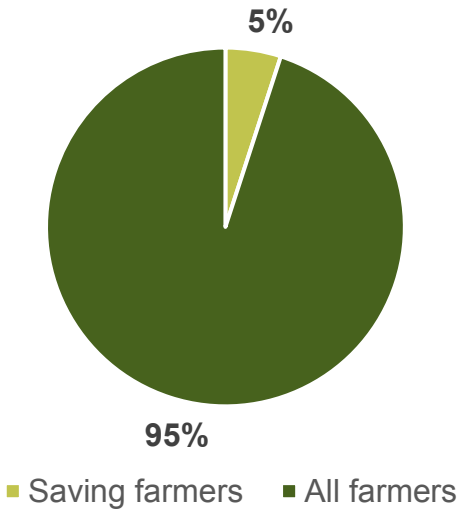
Table 2: Farmer Saving Archetypes

Archetype Name	Archetype Description
Most Committed Savers	Reaching at least three of the sustainable saving criteria
Quite Committed Savers	Reaching at least two of the sustainable saving criteria
Less Committed Savers	Reaching only one sustainable saving criteria
Least Committed Savers	Reaching none of the sustainable saving criteria

Overall findings

Over the course of the last five coffee seasons, 28 farmers out of the 110 farmers that contracted advance payments have saved money with TCG at least once. This represents less than 5% of the active farmers TCG partners with (*Graph 1*). Among these borrowing and saving famers, 14.3% are women and 85.7% are men. Since the start of TCG operations in 2019, 20,733,700 UGX or $5,316 have been saved with the organization by farmers who contracted loans with TCG. The first time a borrowing farmer saved money with TCG was during the coffee season running from 2021 to 2022, for an amount equivalent to 93,400 UGX or $24. In the coffee season of 2022-2023, 18 farmers saved 9,491,500 UGX or $2,430. In the coffee season of 2023-2024, 11 farmers saved 11,148,800 UGX or $2,855 with TCG. All seasons combined, the average amount saved each time a farmer saved with TCG approximated 200,000 UGX or $51 and the average days of savings before withdrawal was three and half days.

Graph 1: Farmers saving with TCG



The following section provides a dive deep into the individual farmers' analysis. Using TCG savings as a proxy for formal, digital savings, we identified 4 farmer savings archetypes from the database. As explained in the section above, the archetypes are defined as 1) most committed savers, 2) quite committed savers 3) less committed savers 4) least committed savers.

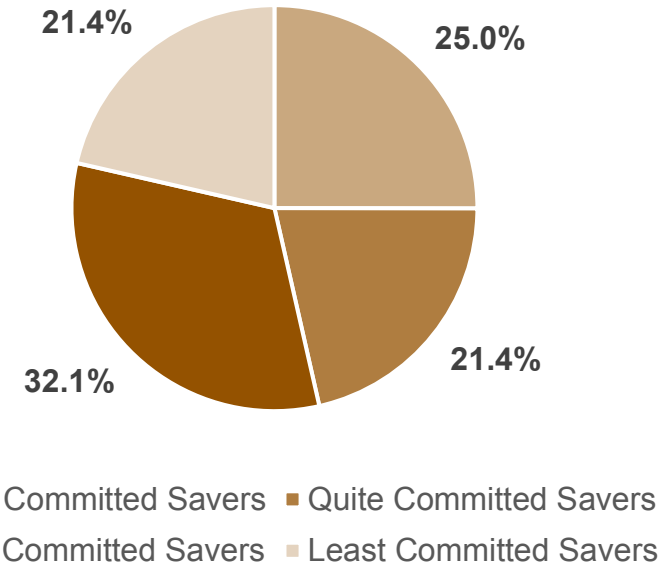
I. Out of the 28 farmers that have contracted a loan and saved at least once with TCG, we identified seven most committed savers (*Graph 2)* demonstrating outstanding consistency and quality. This archetype of farmers is 100% composed by men. The average and median ages of these saving farmers is respectively between 40.5 and 38 years old.

II. Out of the 28 farmers that have borrowed and saved at least saved once with TCG, we identified six quite committed savers (*Graph 2)* demonstrating consistency and quality in their saving patterns. This archetype of farmers is composed of 16.7% of female farmers and 84.3% of male farmers. The age of this category of savers was slightly younger than the first category, with an average age of 37 years old and a median age of 37.5 years old.

III. Out of all the farmers that borrowed and saved at least once with TCG, we identified nine savers (*Graph 2)* demonstrating either one consistency or one quality criteria in their saving patterns. This category of savers encompasses the largest number of farmers and is also 100% composed by men. It is the oldest in comparison to the others, with an average age of 48.3 years old and a median of 55.

IV. Out of the 28 farmers that contracted a loan and saved at least once with TCG, we identified six least committed savers (*Graph 2)*. In this category, 50% were female farmers and 50% were male. This category of savers is the youngest in comparison to the others, with an average and median age of 32.5 years old. (*Graph 2*)

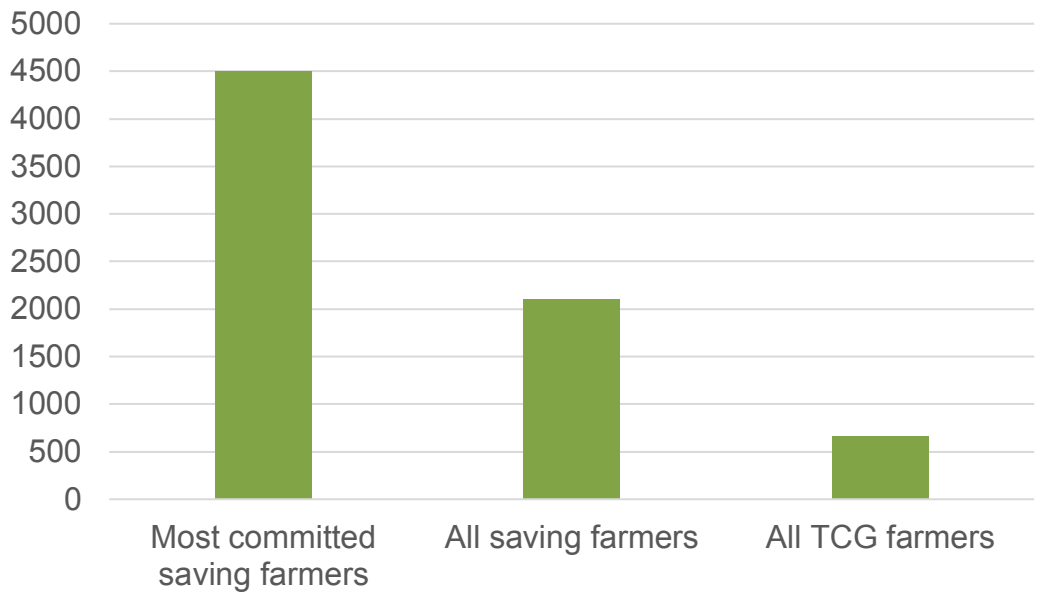
Graph 2: Distribution of saving farmers by archetypes



Volumes of Production

According to our analysis, quantities of red coffee cherries sold to TCG per season significantly determined the quality and the consistency of the savings. In the coffee seasons of 2022 - 2023 and 2023 - 2024 (over which the majority of savings with TCG were undertaken by farmers), the average volume of coffee cherries delivered by the most committed saving farmers amounted to over 4,500 kg per season. Average volume delivered by quite committed saving farmers amounted to over 2,000 kg per season over the same time periods. While the two other categories of savers shared a similar smaller volume of red cherries delivered per season, standing at around 1,000 kg in the 2022 - 2023 and 2023 – 2024 seasons. *(Graph 3)*

Graph 3: Average volumes of coffee cherries delivered to TCG per season in kg



Partnership Duration

According to our analysis, duration of partnership with TCG was an important determinant of farmers' savings. More than 42% of the overall saving farmers have been selling coffee to TCG since 2019, with the majority of 'least committed' savers (83.3%) starting work with TCG more recently, after the coffee season running from 2019 to 2020.

Proportion of coffee sold to TCG

Based on the data from the 2023 survey, we also observed a strong correlation between the proportion of coffee sold to TCG relative to overall production and farmers' savings. Indeed, most of the saving farmers identified reported to sell more than half of their production to TCG in 2022 - 2023, with most committed saving farmers selling all or almost all of their production to TCG. Since TCG offers the highest rates for speciality coffee in the region, we can easily deduce that the larger the proportion of coffee sold to TCG, the higher the coffee quality of the farmer is.

Savings Types

Based on the data from the 2023 survey, 17 out of the 28 identified farmers currently save money in a variety of ways. What is more, there seems to be no strong correlation between the types of savings (mobile money, bank account, VSLA or at home) farmers respond as partaking in and the quality of the savings with TCG.

Most Committed Saving Farmer Archetype

All in all, we combine these findings to draw the characteristics of the 'most committed' saving farmer. We find that the 'most committed' saver is a male, large smallholder, of an average of 38 years old, who produces high-quality coffee. This high-quality coffee enables him to sell most of its production to TCG, which offers the highest coffee prices in the region according to the TCG 2022 - 2023 Transparency Report (2023). We also find that the 'most committed' saving farmer started working with TCG in 2019.

2.3. Financial Diary & Qualitative Research

From the literature and TCG farmer database, we can disseminate factors which might influence farmer's capacity to save. However, farmer's motives for using different savings methods are unclear. To identify whether farmers who have the capacity to save with TCG are saving significantly via other methods, practical survey techniques have been identified (pictorial and digital diaries; qualitative research), with suggestions for further exploration.

Financial Diaries

TCG have created and dispersed paper tools to aid in financial literacy amongst the cooperative of farmers they work with. In line with the direction of TCG research this past year, the organisation has identified a need to understand the consumption and saving patterns of farmers in more detail. In relation to our research on savings behaviour, we have also researched data practical collection techniques, with the intention of providing TCG with tool ideas, which can be developed in future research projects, as a data collection tool, but also as a practical tool for the furtherment of farmers' financial literacy and positive savings behaviour.

From this research, we identified a study carried out in South Africa, Zimbabwe, and Tanzania, which used pictorial diaries for health expenditure research (Murphy et al., 2023). After an informal interview with LSHTM, we find that the area studied in Tanzania has very comparable rurality (and is even close to the border of) the Mount Elgon region. The study finds that, without drawing conclusions on increased accuracy from pictorial diaries, that expenditure quantities recorded in this form were higher than those recorded in traditional survey structure formats. We created a pictorial diary in similar style to the one used in this study, which is simple in structure to reduce respondent fatigue and leaves freedom for participants to include figures in a day-to-day financial diary type format, without numerical brackets (Murphy et al., 2023). With an interest in savings behaviours and methods, we include forms of capital investment, savings group contributions, mobile money quantities and amounts being held with TCG as sections in this diary.

In relation to the improvement of household finances in rural African contexts, another study by the Consultative Group to Assist the Poor (CGAP) uses year-long 'smallholder diaries' across Tanzania, Mozambique, and Pakistan (Anderson and Ahmed, 2016). In this study, a combination of quantitative and qualitative techniques is used to identify information in stages which contribute to the financial diary, as opposed to a singular quantitative diary. The process began with initial, guided questionnaires to identify demographics, income sources, assets and financial tools which allowed for tailored 'Smallholder Diary' questionnaires. Researchers visited every two weeks to complete and clarify cash flows and clarifying the source of finance for any larger cashflows in the previous two weeks, such as for fertiliser. This method has the potential to elaborate on the use of savings, but in this case, the authors highlight the reliance on in-kind crop flows and related magnitude of crop loss. Separate qualitative interviews were carried out alongside smallholder diaries, to explore income decision-making, aspirations of farmers, preferences of financial tools, agricultural decision-making and finally, perceived risk and related prioritization and coping mechanisms. Across these studies, areas of interest found for the further development of a

pictorial diary study are deeper incentive, trust through consistency of the research program, and practicality of data collection.

Incentive and Trust

After discussing issues around trust with LSHTM, and how farmers came to be comfortable to share this information with researchers, it became clear that there may have been deeper incentives for farmers to share these financial details with their team. The study was hosted by the large, ongoing Prospective Urban Rural Epidemiology project (PURE), which has been recruiting since 2002 and in action since 2009 (Teo et al., 2009). The study has created direct health incentives for participation such as free screenings which is a particular issue of inequality in East Africa (Omondi, 2021). Through PURE, some studies have explored the injustices of health costs in East Africa (Spencer, 2015; Murphy et al., 2020) and LSHTM's team hypothesises that their team might have had ease in eliciting responses for sensitive financial information due to a perceived potential from participants that exposure or expression of the ongoing financial health cost injustice, might influence change. Despite a lack of concrete evidence for this, the ease with which LSHTM's team had in responses to their survey and pictorial diary suggests that deeper incentives and motives might be at play, beyond long-standing partnerships with PURE and the small, standard financial incentives that LSHTM's team distributed (contributions to phone credit etc). After contacting CGAP, it was clarified that the study (Anderson and Ahmed, 2016) involved local partners who had spent time gaining trust with respondents. Nonetheless, it took 3-4 visits with enumerators, every two weeks for roughly 2 months, for respondents to feel reassured. It was only after a consistent series of visits that a more elaborate picture was offered by respondents.

Practicality of Data Collection – Digital Solutions

LSHTM expressed that on reflection, the practicalities of financial pictorial diaries for data collection might outweigh the benefits of their structure and style. Participants did not often fill in the diaries until visited by prompters, weeks after administering the diaries. Also, the need to revisit on multiple occasions is especially difficult is rural areas when travel is restricted. In addressing these issues, a new and innovative area of research for rural data collection has potential: digital diaries. LSHTM highlighted the potential for use of mobile text prompts for completion of the paper tool (Murphy et al., 2023). After our conversation, LSHTM explains that this technique was implemented spontaneously because of extreme rainfall in the most rural study

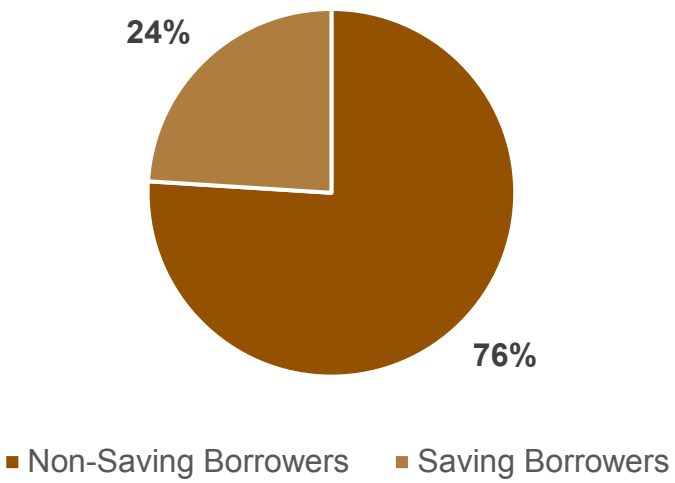
location in Tanzania, when members of the team couldn't reach the sites to prompt participants. However, more developed digital diaries are being researched which might reduce the number of physical site visits required but depend on network access and the consistent understandings between researcher and participant on the purpose of the mobile diary system (Seguin et al., 2022).

3. Discussion and Implications

3.1. Discussion of Results

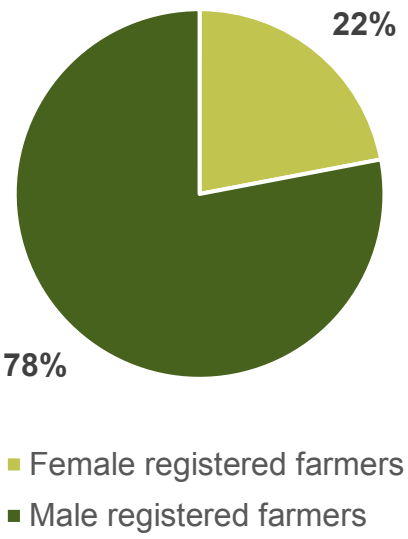
The average coffee delivery of the identified borrowing and saving famers stands around 2,125 kg per farmer per season, a figure high above the average volume delivery of 666 kg at TCG (TCG Transparency Report, 2023). Thus, the 28 saving famers identified in this report belong to the 18% largest smallholder farmers – approximately 115 farmers - supplying 65% of TCG's coffee. Our analysis reveals that despite a demonstrated capacity to save (with contracted loans associated to higher volumes of coffee delivery), an overwhelming majority (76%) could be **saving** with TCG (Graph 5). Answers could lie in farmers' motives to save with TCG and their perceived benefits of alternative methods. The promotion of digital saving benefits related to ease and flexibility might be significant but might be most effective when coupled with an obvious comparative advantage (e.g. targeted products with perceived benefits, or interest). Another interesting data point from the survey TCG conducted in 2023, reveals that farmers already saving money with TCG that year, did not disclose this information in the survey when asked about their savings methods. This suggests that farmers themselves might not necessarily identify 'keeping money with TCG' as financial savings. This creates room for improvement, where TCG can increase the actual savings of farmers who have capacity to save but that are not currently saving large amounts with TCG.

Graph 4: Non-Saving Borrowers and Saving Borrowers at TCG

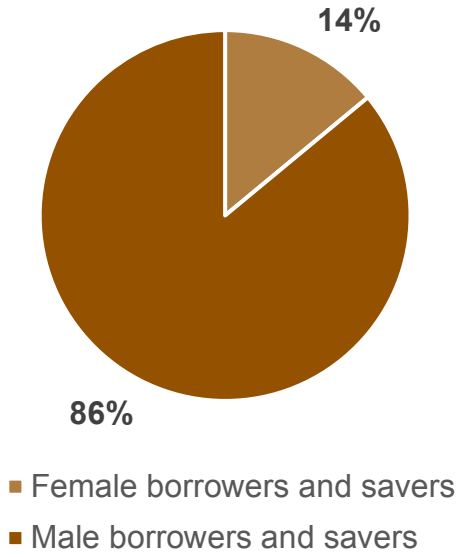


What about farmers that are currently lacking the capacity to save? This could represent up to 80% of TCG partnering farmers, operating on smaller sized crops. Amongst this group, female farmers – who tend to work on small plots that are less productive (TCG Transparency Report, 2023) – may produce lower quantities of coffee cherries which considerably hinders their capacity to make and save money with TCG. This could explain the 8% drop in female farmers borrowing and saving compared to the overall number of female farmers working with TCG (Graph 5 and 4). Perhaps the specialty coffee TCG focuses on is too selective for the poorest smallholders TCG work with and these farmers have no choice but to sell their remaining production to other coffee companies.

Graph 5: Share of registered farmers by gender



Graph 6: Share of female farmers among the borrowing and saving farmers



Ultimately, our analysis enabled to draw five key determinants of capacity savings with TCG: (1) **gender** - with male farmers generally owning larger land littles and crops and able to produce more coffee cherries; (2) **age** - with older farmers generally more inclined to save; (3) **size of**

crops, determining volumes of production; (4) **quality of coffee** - inferred by the proportion of coffee sold to TCG (the larger the proportion sold to TCG, the better the coffee); (5) **partnership duration with TCG** - with farmers who started working with TCG more inclined to save with them. Such savings behaviour could be explained by the fact that TCG gains trust over time as a reliable financial institution and farmers are more inclined to save money with TCG when they have been working with the coffee company for 3 or more coffee seasons.

3.2. Limitations of Research

There are certain limitations to the research conducted that we want to highlight transparently in the following:

I. Focusing on the farmers that only contracted advance payments limits our analysis to a small subset of farmers from TCG's database and excludes farmers who were not eligible for loans but saved with TCG for a variety of reasons. However, our goal with this methodology was to see how the behaviours of farmers and TCG resembles the financial behaviour of farmers and formal institutions, allowing us more accuracy when using those farmers who interact with other financial products.

II. We used volumes of coffee cherries delivered in kg as a proxy for smallholders' crops size, but this correlation is not certain as agricultural productivity could also be an important factor in determining production volumes.

III. We utilized the proportion of coffee sold to TCG as a proxy for coffee cherries quality based on the assumption that if TCG offers the highest rates in the region and focuses on speciality coffee, farmers producing high quality coffee will make the rational decision to sell the largest proportion of their production they can to TCG. This assumption may be simplistic and may underestimate the significance of path dependency in informing farmers' sales decisions (i.e. selling coffee to another company because of habits).

IV. The gender of the registered farmer analysed does not necessarily correlate to the gender of the head of household who manages finances. In the future, TCG could determine whether the farmer delivering the cherries is also the head of household.

V. The sample size of borrowers and savers with TCG is small, considering that only 28 out of these 110 farmers saved with the SE since the coffee season of 2019 - 2020. The many conclusions drew in this report may be statistically insignificant when tested within a larger sample size of, for example, 1,000 saving farmers.

VI. The savings considered within this report were almost exclusively focused on savings with TCG. This definition of savings should be used with great caution as it is a very specific type of saving money, sometimes unaccounted for by farmers themselves, as the 2023 survey ran by TCG illustrated. The conclusions drew in this report may not hold significance for other types of savings such as savings at home, savings with an established bank, savings with VSLA, etc.

3.3. Recommendations for TCG

We suggest qualitative research process, with an integrated, quantitative pictorial diary. This would build a holistic picture of savings behaviour in the Mount Elgon region and address the research question more thoroughly by linking attributes to motives to save. This research could identify whether those farmers who fulfil the criteria for 'capacity to save with TCG' but do not save with TCG, have motives to save via alternative mechanisms. This could also be used to determine whether farmers in the "most committed" category of savers with TCG are influenced to save with TCG by different motives to those who are "least committed". This further research might inform TCG on how best to align with these motives through increased practicality and perceived benefit of products. Note that practicality refers not only to physical proximity to the institution but a range of factors including ease of access to funds and flexibility. Practicality issues of research collection could be eased with mobile prompts, but researchers might then need to build assurance of visits (and trust in the process) during periods of the year with less volatile weather.

To increase the number of farmers saving with TCG, the organisation could examine whether providing financial tools like interest rates incentivises farmers. Although TCG offered lowered fees for "late payment" savings than other digital payments, the integration of attractive incentives to save via formal methods such as through the provision of interest rates has been shown to work (Batista and Vicente, 2020). Targeted financial products may also increase the use of digital savings through formal products (Pelrine and Katabalya, 2005; Gikonyo et al., 2022).

To promote financial inclusion and savings amongst farmers that are not already saving with TCG, the SE should multiply efforts to economically empower women, and provide agricultural trainings and financial literacy programs to their smallest smallholders. This could have significant positive effects on the most vulnerable farmers' production quality and quantity, thereby increasing both

the proportion of which they sell to TCG and their savings capacity. Increasing opportunities for women to own land (i.e.: through the support of land reforms) could also hold significant importance, considering that women are found to be more efficient savers if given the financial opportunity (World Bank, FAO and IFAD, 2008, p.87).

To convert farmers with savings capacity that are not currently saving, into savers, the impact of targeted interventions aimed at raising awareness and fostering the value of saving amongst all partner farmers could be investigated. This could potentially increase farmers' motivation to participate in available programs. For example, TCG could create a targeted program of savings for school fees that represent a big expenditure for parent farmers with children enrolled at school. This could be highly relevant as evidence from smallholder farmers in Uganda shows that there is a high demand for saving and credit plans for inputs and school fees (Anderson, Learch and Gardner, 2016). The same research also found that Ugandan smallholders prioritise storing money in a trusted place and being able to access it straight away. Whilst they are aware of mobile money and trust it to a similar degree to banks and nonbank financial institutions, most have not made use of banks or even informal lending or saving circles. There is thus a necessity to build on the existing trust of financial mechanisms to increase their usage. Although TCG already has an established trust with their farmers, leveraging this to deepen farmer incentive to save with them is highly recommended.

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Appendix

1. Final version of the TORs agreed with the client

a. Final Question

"What savings behaviours, motives and characteristics amongst rural East Ugandan coffee farmers might influence the potential for digital banking products? A framework for farmer savings and further research in the Mount Elgon region"

b. Notes

The project working title was subject to changes many times over the course of the consultancy project [see more details below]. The final working title was confirmed and agreed by the clients on February 28th, 2024.

2. Original TORs and brief explanation on why and how this was changed

a. Original TORs

Organisation and Department:

The Coffee Gardens Limited, Innovations Team

Project Working Title:

What is the potential for rural coffee farmers in eastern Uganda to adopt digital payment platforms for receiving, spending, transferring and saving money? How can this lead to improved savings?

Background:

What is the potential for rural coffee farmers in eastern Uganda to adopt digital payment platforms for receiving, spending, transferring and saving money? How can this lead to improved savings?

The Coffee Gardens (TCG) is a social business working with smallholder coffee farmers in eastern Uganda. We built a processing factory situated in a rural village in the foothills of Mt Elgon, where we produce specialty coffee for export markets. Our aim is to produce high quality coffee in a way that is economically viable for us and benefits the farming community and the environment - achieving a triple bottom line.

Payments to coffee farmers in eastern Uganda are typically made in cash, creating risk for both farmers and our staff. TCG has prioritised financial transparency, providing individual farmer record keeping books, receipts for each transaction, SMS price and balance updates and has a fully digitised system that allows us to track individual farmer performance year-on-year.

In the 2022-23 coffee season, our 600 farmers earned around $240,000 USD with the 121 biggest farmers earning $170,000 USD between them. Despite some having significant coffee income, most farmers would be classified as financially vulnerable due to insufficient or non-existent savings. Our systems have enabled us to provide farmers with financial services, such as zero interest loans and savings schemes, with around 80 farmers a year receiving ~$12,000 USD in loans. All of our measures have built trust with farmers, reflected in a 99.5% repayment rate. To this effect, farmers have turned to us in order to save; rather than receiving cash payments, farmers keep their money with us and withdraw at a later time. To date, farmers have chosen to save over $40,000 USD.

To address risks and to enable farmers to improve savings, access additional financial services and to ultimately address vulnerability, TCG has piloted increasing the usage of digital payments (mobile money), which have shown that farmers are willing to receive loans digitally as well as deliver coffee on credit and accept digital payments (given certain incentives). We are embarking on a partnership with NSSF Uganda and Stanbic Bank to scale this up, generate learnings and create a delivery model for further scaling.

Question:

The research should identify and quantify the opportunity for farmers to a) save money by receiving and using digital payments and b) save part of their income using formal products.

In order to understand how digital payments can lead to improved savings, we see the need to conduct research that tracks how farmers actually utilise their [coffee] income. For example, for different farmer archetypes, what proportion of income is used for:

- Paying for coffee harvesting related labour (i.e. pickers, coffee transport, sorters)
- Paying for services (school fees, medical bills, transporting goods)
- Repayment of loans
- Inter-community lending (e.g. social lending, savings circles, VSLAs)
- Remittances to family members (outside of the village)
- Household expenditure (essentials, food, soap, etc)
- Social expenditure (cultural events)
- General expenditure (drinks, alcohol, snacks)
- Capital expenditure (e.g. livestock, land, home construction)
- Farm inputs (e.g. fertiliser, tools, seeds)
- Future savings
- Unknown/unaccounted for
- etc

Further, it would be important to understand how farmers who have not engaged with our digital payment pilot interact with mobile payments. How frequently do they deposit and transfer/make payments? What are the costs associated with this vs if they stored their funds digitally?

Objective:

This research will provide the empirical basis for a “Coffee as a Business” curriculum that will aim to institutionalise formal methods for paying farmers (ensure farmers receive their full payments), assist farmers to improve financial planning (reduce losses), and promote savings products (reduce farmer vulnerability).

In addition to a report, we would like to see a visual output based on current expenditure patterns that can be shared back with farmers within the curriculum to help them understand a) the importance of recordkeeping and financial planning, and b) opportunities for saving.

We believe that once farmers start to see where there are opportunities to save (and how much), then appropriate products can be offered to them both to facilitate savings and to provide farmers with the benefits from saving, such as interest.

Methodology:

We expect a strong theoretical underpinning to guide the research, particularly in terms of segmenting farmer types (i.e. gender, socio-economic status, etc), which can then be used to identify archetypal farmers by using our farmer database, which includes longitudinal data. We then expect the study to be largely qualitative, involving a high degree of interaction with identified farmers. Given the typically poor nature of record keeping, students may wish to design a [paper] tool to allow identified farmers to record information in real time, to be cross checked with a potential on-the-ground assessment.

For the past 3 years, LSE students have carried out remote research with The Coffee Gardens, but the nature of this research project may require an on-the-ground exercise. We are seeking funding to cover the cost of flights from the UK to Uganda (TBC). Should this be the case, field work should take place before the end of January 2024, in order to be able to validate findings while farmers are still receiving income from coffee sales.

Critical skills:

Prior research experience using qualitative methods is a must. Experience of conducting field research in rural, hard-to-reach communities is also a must.

Our farming communities mostly live high up in the mountain (2000-2200 masl) with accessibility by motorcycle taxi only. Helmets, safe drivers and an on-the-ground induction will be provided but students must be comfortable with travelling in rural areas via motorcycle taxi and/or hiking. This is a tough environment.

Contact:

Shakeel Padamsey, Co-Founder & Finance Director
Micheal Buteera Mugisha, Co-Founder (and current PhD Candidate, LSE)

b. Brief explanation on why the TORs have changed:

(1) Following consultations with the client, the project focus was adjusted for the first time based on a survey conducted by TCG which indicated lower than anticipated receptivity towards digital payments among farmers. Consequently, the Terms of Reference (TOR) were revised in December to prioritize an analysis of consumption and savings behaviours, with a reduced emphasis on digital payment adoption.

(2) To gather data on consumption patterns, a pictorial diary methodology was created and sent to TCG. However, limitations in farmers incentives to fill out the diary resulted in implementation failure. The planned field research trip to Uganda was also supposed to inform some of our qualitative research on farmers' spendings. However, the trip was officially cancelled in mid-January.

(3) In response to these unforeseen limitations, the TOR was further refined to exclude the component on farmers' spending behaviours. The final project title reflects this revised scope, focusing on savings behaviours, motivations, and characteristics.