Impact Evaluation of Ethiopia's SHARPE program

Alan de Brauw

About CEDIL

The Centre of Excellence for Development Impact and Learning (CEDIL) is an academic consortium supported by the UK government through UK Aid. The mission of the Centre is to test innovative methodologies in evaluation and evidence synthesis and promote evidence-informed development. CEDIL-supported projects fall into three programmes of work: evaluating complex interventions, enhancing evidence transferability, and increasing evidence use.

CEDIL design paper

CEDIL design papers present the protocols of studies supported by the CEDIL programme. They describe the objectives, the methodology and the implementation plan of impact evaluations, evidence syntheses, and methodological papers supported by CEDIL.

About this design paper

This design paper was submitted to CEDIL by the "Impact Evaluation of Ethiopia's SHARPE program" Project L.397 team.

Please direct any comments or queries to the corresponding author, Alan de Brauw at A.DEBRAUW@CGIAR.ORG

Suggested citation: de Brauw, A. (2022) 'Impact Evaluation of Ethiopia's SHARPE program', CEDIL Design Paper 7. Centre of Excellence for Development Impact and Learning (CEDIL), London and Oxford.

All content is the sole responsibility of the authors. CEDIL has not commissioned a professional copy-edit of this paper. Any errors and omissions are the sole responsibility of the authors.

CEDIL Research Design Paper

Project title: Impact Evaluation of Ethiopia's SHARPE program

Lead organisation: International Food Policy Research Institute

Principal investigator: Alan de Brauw

Project number: L.397

Introduction

This report will present the research protocol for the impact evaluation of the SHARPE programme in Ethiopia. The report will be structured as follows. First, we will briefly describe the overall goal of the SHARPE program as it works to build market systems in three regions of Ethiopia that host refugees. In this description, we give a concise overview of what is meant by market systems programming. Second, we describe our research questions and briefly discuss the theory of change. Third, we provide a description of our adaptive research plan, before describing a timeline for the remainder of the project.

Before going on to discuss the impact evaluation research, it is important to realize that the complexity of SHARPE is in the fact that it is a market systems intervention. As we describe in detail below, market systems interventions are different from "standard" development projects for several reasons. First, they do not work directly with beneficiaries; there are no "interventions" in a market systems intervention like hiring a number of community health workers, or agricultural extensionists. Rather, market systems interventions identify actors within those systems—typically firms—and work with those firms to expand their markets and overcome constraints to inclusive growth. Second, the idea is to tinker in those market systems. In other words, market systems projects are inherently adaptable as they continually monitor changes in market systems for further constraints against growth or development.

The research approach is therefore intentionally designed to be adaptable for at least three reasons. First, as noted above, the flexibility of market systems interventions implies that we should use a flexible evaluation plan; if, for example, either interventions or monitoring led to changes in the theory of change for that specific market system, further evaluation would need to adapt to that theory. Second, there remains some uncertainty about how deep SHARPE's investments will proceed in one of the two market systems, and as such our research strategy will need to adapt to what will be accomplished in that market system. Third, an advantage is that whereas we have designed a first market experiment around an important point in the theory of change, the design of the subsequent experiments will depend on the lessons both from the SHARPE program in general and from the original market experiment. As results arise, they will include essential information about what further experiments will be most informative and useful to both illustrating the results of the SHARPE program, and to developing further evaluations around market systems interventions.

The SHARPE Program and Market Systems Development

SHARPE is a humanitarian intervention using a market systems development or "markets for resilience" approach to improve livelihoods among refugees and host populations in three locations in Ethiopia: Jijiga, Dollo Ado, and Gambella regions, each of which contains at least one refugee camp (and one refugee camp of the same name). SHARPE was initially designed to improve refugee livelihoods and self-reliance and generate economic opportunities for host

communities through the piloting and scaling of market systems development programs across seven market systems sectors: crops, livestock, fish, wood, labour, aid, and access to finance. In designing market systems development programs along with economic actors already present in the systems being studied, SHARPE aims to create interventions that both strengthen the economies of refugee-hosting populations and reduce tensions between refugee and host populations.

SHARPE began with a detailed study of challenges and constraints in each of the market systems, which can differ by region. SHARPE works market systems using a staggered approach- it is first working in market systems with more potential for change, and has hopes (presumably in a second phase) to then move to market sectors that are farther behind. Based on a joint selection process, we initially selected two market systems for concentrating the research partnership— financial services and aid; the latter will be dependent on decisions taken by and likely funding for other external partners. However, the two sectors are quite linked and well fit the plans for research as we discuss below.

In Jijiga, where we conducted scoping activities, we found refugee and host households are typically small, on average five members. Most household members are in the economically active population, demonstrating a potentially high demand for digital financial services. Most refugees arrived in Ethiopia within the last two years from Eritrea while others came straight from Somalia. The host population was largely born and raised in the area. Refugee livelihoods depend mostly on income from social transfers (if they have their ID card), daily work, small trade/business, and remittances. In scoping work we conducted, some refugees suggested that actually obtaining an ID card is a challenge due to bureaucratic constraints. The host population is much more likely to participate in crop and livestock production than refugees, not surprisingly. Yet nearly all speak the same language (Somali).

Before moving to an initial discussion of how SHARPE is working in the financial services and aid market systems, it is worth discussing what makes market systems development programs unique. Rather than focusing on one or two nodes in a value chain, market systems interventions attempt to consider the way that markets could better function for all actors within the system, including those who are often excluded from market participation (e.g. women, minorities, or the poor). They often consider agricultural products, and so they must consider input markets, farmers, traders, processors, and retailers, as well as auxiliary services (such as finance and logistics).

As described above, market systems development projects do not directly intervene in economies or with households. Rather, they work indirectly with specific actors to help them test ways that changes in their business practices can be mutually beneficial to firms and their customers. They often work with a lead or model firm, with the further notion that other firms in operating in the same market system will follow those business practices. As many market systems development programs have focused on agriculture, it is useful to illustrate the contrast between the market systems development approach and a more traditional one in the context of agriculture. In a traditional approach, an intervention might be designed to hire a large local training staff to teach farmers new techniques, quality standards, etc. However, the argument is

that once an agricultural program is over, it removes the infrastructure that existed to ensure the program worked and change that might have occurred may not last. By working with local companies with incentives to grow, it is argued that market systems development programs would lead to more sustainable local improvements. Such programs often work through a "lead firm," with the idea that the lead firm will model behaviours that would be mimicked by other system actors (e.g. competitor firms). If that lead firm required a certain type of input for processing (for example, aflatoxin-free maize for blending chicken feed), they would need to teach farmers to grow it themselves, or provide inputs so farmers could do so. Helping local companies learn about and overcome those constraints to their growth is the hallmark of market systems development programs.

A major concern, though, is that there have been very few attempts at quantitative evaluation of market systems development programs (e.g. Osorio-Cortes and Albu, 2021). Observing before-after changes makes it challenging to infer what might have happened in the counterfactual, and as such it is difficult to attribute any changes positively to market systems development.[1] Ghebru, Grant and Smart (2021) list all but one of the interventions that have been evaluated quantitatively, and there is virtually no peer-reviewed academic literature that even attempts to evaluate aspects of market systems interventions.[2] One of the reasons that so little evaluation of market systems projects exists is in their complexity; therefore a goal of the project is to help begin to develop a framework for such evaluations. In this report, we provide a conceptual framework of how such evaluations can be designed to combine rigorous learning about some aspects of market systems interventions without strong requirements to change the nature of those interventions.

Market Systems Chosen for Impact Evaluation

IFPRI is conducting collaborative research on the financial services market system with SHARPE. We hope to also conduct research on the aid market system, but donor investments in the aid market systems remain unclear at present. There are clear synergies between plans for the two markets should the latter become feasible. In the financial services market, SHARPE has been intervening through digital financial services (DFS), including mobile money, which lower the transaction costs of entering the formal financial system. If enough refugees can be added to DFS, aid may be cost-effectively delivered through mobile money platforms. In turn, greater adoption of DFS among refugees (and surrounding host community members) will lead to greater long-term financial service viability while greater access to and use of financial services may itself improve livelihoods and reduce aid dependency. Research on the financial services

---

[1] The most famous example, though not market systems development, is the Millennium Villages Project, which attempted to attribute all sorts of before-after changes to its interventions, most of which were already occurring in the country (Clemens and Demombynes, 2011).

[2] The only exception is de Brauw, Kramer, and Murphy (2021), which examines labor changes in a panel of jute producers collected to study a market systems intervention in rural Bangladesh (the USAID Agricultural Value Chains project). There are several reports publicly available related to projects, but none are peer reviewed (e.g. Dunn, Schiff, and Greevey, 2011; de Brauw, Kramer, and Murphy, 2019; Ghebru, Smart, and Mogues, 2019).

market system is better-defined given current implementation plans, while research on the aid market remains more tentative given uncertainty in implementation timing and details.

The rationale for SHARPE's investments in the financial services market system is the following. Financial service providers already exist in Ethiopia, in the form of microfinance institutions (MFIs), private banks, and financial technology firms. However, the supply of financial services has not reached a large proportion of the populations in the three target regions of Jijiga, Dollo Ado, and Gambella. These regions host over 70 percent of the roughly 800,000 refugees in Ethiopia.[3] SHARPE sees addressing the lack of access to financial services as an entry point, through mobile money. SHARPE has in particular identified several high-value economic actors participating across a range of markets, who could use additional credit could potentially unleash substantial economic growth opportunities with meaningful benefits for job creation and market exchange.

Digital platforms offer a way to extend financial services such as transfers, saving, or credit into areas lacking the brick-and-mortar presence of conventional service providers. SHARPE is interested in building up DFS in three regions. SHARPE is aiming to promote the expansion of the DFS ecosystem by increasing the supply of DFS agents, including enrolment officers, enrolled users, and registered vendors.[4] With these pieces in place, the expectation is that greater usage and sustainability will follow and may offer a useful platform for future humanitarian transactions.

SHARPE began working with Somali Microfinance Institute (SMFI) in the Somali Region in late 2020.[5] SMFI works with a digital cash and payments product called HelloCash, which is itself a product of Belcash Technology Solutions, and is offered by two other financial institutions in Ethiopia (Lion International Bank and Cooperative Bank Oromia). SMFI operates in both the Jijiga and Dollo Ado areas of Somali Region.[6] HelloCash is one of several mobile money products, all offered until May 2021 through financial institutions, in Ethiopia; others offered by banks include m-Birr and Amole. In May 2021, the state run Ethio Telecom introduced another mobile money product, Telebirr. A difference between Telebirr and other mobile money systems in Ethiopia is that it is run by a non-financial institution; a second mobile money system might enter when Ethio Telecom is partially privatised, and a foreign firm is offered entry. So Somali MFI can be thought of as the lead firm in this context and to note, they face competition in DFS.

---

[3] It should be noted this statistic was generated prior to violence in Tigray region in the second half of 2021, which caused additional internally displaced people within Ethiopia and likely led to refugee movements out of camps in the north of the country. Note further than the primary region studied here, Somali region, has been largely unaffected by the conflict.

[4] In this context, enrolment officers are known as Know Your Customer (KYC) officers.

[5] In February 2022 SMFI received "bank" status by financial authorities in Ethiopia and has been rebranded as Shabelle Bank. Later deliverables from our project team will refer to SMFI as Shabelle Bank.

[6] SHARPE is farther behind in studying the financial market system in Gambella. A negotiation with the Wegagen Bank took place during the 2020-2021 FCDO fiscal year, but contracts were not signed due to budget uncertainty that began in April 2021. By the time that uncertainty had cleared up, the contract needed renegotiation, so we do not cover it here; further, note that the Wegagen Bank would have to adopt HelloCash to be able to offer digital financial services in Gambella.

SMFI is looking to expand its services along two dimensions: increased adoption on the extensive margin and increased intensity of service usage among those who have already enrolled. They also view women and refugees as groups who may be especially financially marginalized, who could constitute a valuable pool of new clients, and for whom returns could be especially high.

Currently, refugees and women comprise a smaller proportion of DFS users than men and hosts. Among those refugees and women who have opened accounts, few are active users. These groups likely face greater constraints to adoption but may also have high returns. For instance, at the inception of this study, our initial hypotheses were that displaced populations are likely to have suffered meaningful and recent negative shocks to their household finances due to economic disruptions caused by COVID-19 and political uncertainty. These shocks further disrupt refugees' traditional and standing informal networks of financial support. These vulnerabilities may be exacerbated for women. Financial services in these marginalized populations and surrounding host areas have the potential to unlock greater financial security and growth opportunities for both refugees and host populations. However, refugees face myriad challenges in gaining access to services including language, literacy, logistics, legalities, and costs. Our motivation for the study centres on the idea that DFS has the potential to expand quickly into less well-serviced areas and populations. If this expansion is successful, DFS can support refugees' integration in the economy, by stimulating refugees' ability to save, transfer and invest money, and even build up a financial track record to access loans. With local MFI partners, SHARPE wants to better understand the barriers to uptake and service usage among these underrepresented groups.

The Aid Market System

The rationale for strengthening the aid market system is as follows. A major change is expected to take place in humanitarian assistance provided in refugee camps in Ethiopia, as national strategies for aid delivery shift away from in-kind (food) transfers towards cash payments and eventually to digital transfers. This shift has important implications for the livelihoods of refugees as well as how they interact with host populations in the local economy. In the short run, switching humanitarian assistance from food to cash could increase liquidity, leading refugees to increase investments in their livelihoods (e.g. self-employment) as well as increase consumption via purchases, thus bolstering the market on both the supply and demand sides. It could potentially also help refugees seek more wage work, whether in the formal or informal sector. On the other hand, the switch could create conflict between refugees and host communities, through increased competition for low-skilled work, political economy considerations and potential inflation in local markets. These issues intersect with those related to digital financial services.

Digital platforms may improve the feasibility of providing assistance at large scale while offering substantial efficiency gains over physical cash. Structural barriers pose challenges as well, including unreliable network service. It is possible that during the following year, in-kind transfers will transition from a mix of food and cash to physical cash; if digital platforms are sufficiently

developed during this time, assistance may further transition to digital cash. Such shifts would require participation of both the United Nations High Commissioner for Refugees (UNHCR) and the World Food Programme (WFP). As these transitions occur (if they occur), it is useful to understand how households in both refugee and host communities adjust, what impacts emerge on livelihoods and other measures of well-being, and how social cohesion across the groups is affected, with particular attention to effects on marginalized groups and individuals. If implementation timing allows, our research will address these issues.

Impact of COVID-19 on the Research

COVID-19 has had several effects on both the SHARPE program and the impact evaluation associated with it. First, the SHARPE program was preparing market system assessments to go to the field when COVID-19 first arose; as a result, those studies were delayed and became primarily desk studies. As a result, information that would have been collected in-person by SHARPE at first was missed, and the market system development design process had less information to draw on. Additionally, the research team has been unable to travel to Ethiopia. Thus, the team has relied on working remotely with SHARPE and SMFI via virtual calls and videoconferences rather than being able to schedule a series of in-person meetings, which has required much more time to advance discussions. Inability to travel may have delayed receiving permission to conduct scoping studies in the camps from the Administration for Refugee and Returnee Affairs (ARRA), Ethiopia's refugee authority; the team was able to build this relationship over time via email correspondence, however the process took time. Third, the project would ideally include an in-person quantitative baseline survey, however such a survey was not possible to conduct in the relevant timeframe given COVID-19 restrictions, particularly since a sampling frame was not available and would have required a census to develop.

The RCT data collection has been designed so that it can be conducted by phone. Given that we are studying mobile money among individuals that could be potential customers of SMFI in this RCT, and enrolment in and use of HelloCash requires phone access, phone surveys are natural ways to collect data. Moreover, the first RCT has been designed such that initial data collection focuses on current HelloCash users, thus the sampling frame can draw from SMFI's registration lists. The qualitative work is being conceptualized as including both key informant interviews and focus groups. However, focus groups will only take place if COVID levels are low; otherwise, the qualitative design will increase the number of individual interviews and modify the sampling to attempt to capture richer information. Finally, we project that by the time we collect an endline survey, it should be possible to do so in-person. We are aware of several on-going in-person surveys in Ethiopia and feel reasonably assured that our survey should be able to take place as planned late in summer 2022. That said, we also plan to start the quantitative endline survey with ample time to ensure that it can absorb a delay.

Status of Financial Market System Development Project

Since late 2020, SHARPE has been working on helping to build up the HelloCash infrastructure in both Jijiga and Dollo Ado zones of Somali Region. The HelloCash platform is operated with a mobile phone and each account is linked to a SIM card. Most households in Jijiga, at least, both host and refugee, have access to a mobile phone. Illiteracy is a noted barrier to digital platform

use, which is particularly prevalent among women. With the support of SHARPE, HelloCash has conducted several recruitment strategies, including but not limited to: door to door marketing, market days, billboards, tv/radio ads/flyers, and bulk text messages to SMFI customers. Overall, most hosts and refugees were aware of HelloCash, but many were uncertain about how to get enrolled. To become enrolled, customers speak to a "Know Your Customer" (KYC) officer, with an ID card and a phone with a SIM card. To operate as an agent who can manage deposits or withdrawals, potential agents need a business license, 6000 birr, community acceptance, and an ID. Agents have reported issues such as a general cash shortage for cash-out services and limited internet network coverage. As business licenses are not present in refugee camps, the first requirement initially led to a dearth of agents within camps.

The objective of its initial agreement was to help create 40,000 active HelloCash DFS accounts owned by hosts and refugees (50% hosts, 50% refugees; including 50% operated by women) in the Somali region. This activity will be supported by expanding the HelloCash ecosystem by establishing 300 new agents, 250 new merchant pay points, 600 bajaj pay points, and 25 HelloCash kiosks. The intervention was launched in August 2020; due to contractual issues, the current implementation is contracted to end in March 2022, but it is being extended for most of the remainder of the life of the SHARPE project, which is meant to run until March 2023.

By the end of June 2021, internal HelloCash data suggested that 166 agents have been on-boarded, fewer agents than had been targeted. Moreover, only 15 of these agents are refugees, in part because negotiation with Ethiopia's government has been necessary to ensure refugees could be eligible to serve as agents. The merchant goal has been met, with 1,469 merchants in the database, and there are 458 bajaj pay points.[7]

The data also suggested 39,406 customers had been registered to HelloCash accounts as of June 2021 (24.6% female; 21% refugees). These numbers suggest that onboarding customers has been more successful in host areas than among refugees. Further, at present far more customers appear to be men than women. Of the 39,406 customers registered, only 4,026 (30% female; 23% refugees) were in the Dollo Ado region, suggesting much of the customer development to date has been in Jijiga.

The status of interventions in the aid market system is pending. As described above, plans will depend on decisions about humanitarian assistance made by UNHCR and WFP, regarding the timing of transition from food to cash, and the timing and scale of the transition from physical cash to digital cash. In turn, these decisions are dependent upon funding for that transition. If we can add the aid market system to the project in 2022, we will do so to be able to answer all our research questions. However, we do not anticipate being able to design a rapid randomized intervention within the aid market system; we will describe how we would attempt to answer this research question later in the document.

---

[7] A bajaj is a three wheeled taxi used in smaller towns in Ethiopia, so this figure suggests one can start to pay for transportation with HelloCash.

Research questions and theory of change

We have two overarching research questions for the study, as well as one conditional research question (RQs). The first two pertain primarily to the financial services market system, specifically DFS. The third pertains primarily to the aid market system, though it is shaped by whether DFS is sufficiently developed for a digital delivery platform; this question is tentative as present implementation plans are uncertain. The RQs are:

1. What are key constraints to take-up and continued use of DFS among refugee and host communities in Jijiga, Dollo Ado, and Gambella, particularly among refugees and women? How effective in improving DFS take-up and use are jointly designed strategies between SHARPE and IFPRI to address specific constraints? What factors (e.g. demographics, context, and implementation fidelity) shape whether these strategies are effective?
2. What is the impact of take-up and continued use of DFS on investment, livelihoods, and economic integration, particularly among refugees and women? What factors shape these impacts?
3. What is the impact of transitioning humanitarian assistance from in-kind transfers to physical cash to digital cash transfers on livelihoods and other measures of well-being (e.g., employment, income, diets, housing) among refugee households, particularly women household members? How do these changes in assistance modalities affect refugee economic integration and social cohesion with host communities? What factors shape these impacts?

Brief Literature Review

We next describe some of the literature related to our three primary RQs.

Financial Inclusion, DFS, and Low and Middle-Income Countries

We are first interested in literature that uses mobile money as a vehicle to lead to increased financial inclusion. In 2017, the World Bank Findex began to ask whether respondents had used a mobile phone or the internet to access an account (whether at a financial institution or not). There is a wide variety of experiences among low- and lower-middle-income countries. Ethiopia was on the low end of the spectrum, at fewer than 1 percent of respondents using a mobile account, while neighboring Kenya was at 72 percent due to the influence of m-Pesa (Demirguc-Kunt et al. 2018).[8] Jack and Suri (2016) find that m-Pesa has had positive long run effects on outcomes beyond financial inclusion such as consumption, financial resilience, and savings; the latter effect is strongest among female-headed households.

---

[8] Even restricting the sample only to rural respondents, 71 percent of Kenyans have used a mobile money or internet account.

Further, interventions strengthen the case that access to mobile money can increase financial inclusion. Casaburi and Macchiavello (2019), for example, study payments made via mobile money for milk, finding that if payments are made infrequently, then household savings increase; the mobile money account in this case worked as a savings commitment device. Breza et al. (2020) study the introduction of mobile money accounts as payroll accounts; they find workers learned how to use accounts, increased their savings, and became better able to cope with negative shocks to well-being.

That said, several authors demonstrate that mobile money is not a panacea. For example, Creti (2014) describes technological difficulties and the low familiarity of potential users with technology as clear barriers. CEGA (2020) further emphasizes that as it can take time to learn about new technologies, and how to use and trust them, some people could begin to avoid them if this transition takes too long. Along the same lines, reports by the Chamboko et al. (2018) and GSMA (2021) suggest that because women have less access to mobile phones, they face higher barriers to DFS adoption. Iazzolino and Wasike (2015) argue that cash is "sticky," so people will continue to rely on it even in the presence of a robust mobile money system. In addition to the practicalities of cash for small expenses, paying in cash is expected for social obligations such as meetings for micro-savings groups (e.g. *chamas* in Kenya) or church fundraisers.

Refugee-Host Relations

One of the overall goals of SHARPE is to help improve refugee-host relations through improved markets. There are some clear factors that lead to challenges in such relationships (e.g. Aukot, 2003). For example, refugees often receive benefits that host community members do not receive; hosts in turn often blame refugees for problems in areas. Policies historically further discourage integration, though that has begun to change in some countries and contexts. Agblorti (2011), in the context of Ghana, suggests that relationships can be positive if host community members perceive positive benefits for themselves from the presence of refugees; otherwise, the relationships are likely to be tense. However, host populations can be vulnerable as well and therefore jealous of aid they observe going to camps, or they can be misguided in their understanding of what leads to improved living standards among refugees, both of which can lead to tensions. Barbelet and Wake (2017) further describe how uncertainty among refugee situations can affect tensions, since despite different economic conditions and challenges for refugees they often have similar goals and aspirations. Longer-term planning would help their integration, though with fickle aid budgets for UNHCR and WFP donors that is unlikely to occur.

Nonetheless, empirical studies often suggest the presence of refugee camps is often positive economically for host community members. Masterson (2016) finds cash grants given to Syrian refugees in Lebanon benefited local economies, and did not cause inflation. Alix-Garcia et al. (2018) argue increases in nighttime luminosity in northwest Kenya suggest improvements in the local economy near the Kakuma camp. However, not all estimates are positive; for example, Alix-Garcia and Saah (2010) suggest that refugee camps near Rwanda lead to higher agricultural prices; however, there are positive wealth effects in rural areas, in terms of asset holdings, beyond the camps (though negative ones in urban areas).

Aid Delivery through Digital Cash

Assuming some work begins in 2022 to pilot digital cash transfers for aid in either Gambella or Somali regions, research can be conducted to study impacts of this pilot project. The challenges of doing so include a robust technology infrastructure (Gurung and Perlman, 2018); as the scoping research conducted did find there are some gaps in coverage in Jijiga, at least, this consideration is quite important. In research on Colombian refugees in Ecuador, Valli et al. (2019) find that short term digital cash transfers and training improved social cohesion amongst Colombian refugees and Ecuadorian hosts, but not among the Ecuadorian population at large. They also found that refugees experienced enhanced personal agency, attitudes about diversity, confidence in institutions, and social participation.

Cash transfers (in lieu of food transfers) more generally may have positive effects on several variables beyond food security and nutrition outcomes normally studied (e.g. Hoddinott, Sandstrom, and Upton, 2018; Schwab, 2019) related to relationships between refugees and the host country population. For example, Alloush et al. (2017) find that in three Congolese refugee camps, cash transfers help strengthen market linkages, better than in-kind aid. Masterson (2016) finds that unconditional cash grants given to Syrian refugees in Lebanon increased mutual support between beneficiaries and non-beneficiaries and improved relations. And Lehmann and Masterson (2020) find that cash at worst had not affected anti-refugee violence, and at best reduced it in Lebanon as well.

Theory of Change

Based on the discussion above, we show illustrative process theories of change (pTOC) for our research questions. Figure 1 shows an illustrative pTOC for RQ1 and RQ2, using the example of targeted outreach on DFS and complementary programming for economic integration as strategies to test through small-scale trials. Figure 2 shows an illustrative pTOC for RQ3, under the assumption that the DFS platform is sufficiently developed for a transition from food to digital cash. In each pTOC, examples of strategies to trial are shown in bold black lines, with key steps in regular black lines, illustrative "support factors" in blue dashed lines, "derailers" in blue wavy lines, and targeted objectives in black wavy lines. Qualitative work (complemented by quantitative work) would aim to understand what actual support factors and derailers are relevant in the study contexts, as well as whether intermediate steps are occurring between tested strategies and targeted objectives.

Our evaluation is being set up to explore to what extent the pTOC steps are occurring, why or why not, under what conditions, and whether these pTOCs need to be modified to include additional constraints or other factors. From the perspective of SHARPE, the "final" outcomes of interest are impacts of changes in financial inclusion on (a) incomes and (b) economic inclusion, particularly among women and refugees. There are three primary components to our evaluation strategy:

1. The research team has been engaging with SHARPE to co-design rigorous trials to attempt to overcome specific constraints within market systems. Those trials will begin to run in March and will potentially be adapted over time as described below.
2. While these constraints do not cover the entire pToC for RQs 1 and 2, qualitative research is being designed to learn about the influence of other interventions that SHARPE has helped SMFI run in addressing other relevant constraints. This qualitative work will consist of key informant interviews with HelloCash customers and non-customers, as well as focus group discussions if the COVID situation allows.
3. We will conduct a "final" quantitative survey at least in Somali region to assess differences between Hello Cash customers and non-customers, to build evidence about whether the package of interventions led to changes in livelihoods, income or economic inclusion, particularly among women and refugees, in targeted areas, as well as economic integration among refugees. Attribution will be a key consideration here, and the idea will be to trace changes along the pToC by triangulating learning from the randomized trials, the qualitative work along the pToC, and quantitative measures from the final survey. This survey will be planned for the second half of the summer in 2022, so that results can be presented in workshops held by SHARPE before it closes; an additional benefit to that timing is that if it is delayed (due to COVID), there is some time before the end of the project to either pivot to a series of phone surveys or to hold off on the survey while a COVID variant moves through Ethiopia.

Adaptive Research Plan for Randomized Trials

A primary feature of our approach is to conduct research on specific constraints along the pToC. We propose an adaptive research plan that follows from descriptive research conducted by SHARPE as part of its studies of the market system, as well as from preliminary scoping research in Jijiga conducted by IFPRI. The adaptive research plan we develop fits with a market systems development approach and allows for flexibility in addressing constraints along the pToC.

Before beginning to describe the adaptive research plan, we note that the plan builds upon two types of research that SHARPE has been or is currently conducting as a market systems development project. First, SHARPE conducted market assessments for each of the seven market systems after its inception; these studies were completed by July 2020 and were reviewed by the IFPRI research team so that we could jointly plan this research. These assessments were explicitly designed to understand constraints shaping those market systems. From the perspective of financial services, the SHARPE team identified that digital financial services could potentially help expand financial inclusion, especially as cell phone ownership had ceased to be a major constraint; the vast majority of all adults, whether host country nationals or refugees, now have cell phone access.

An underlying hypothesis behind the pTOC figures is that there are primary "constraints" that are reached that lend themselves well to experimentation, particularly for subpopulations such as women or refugees. We illustrate the adaptive research plan from the perspective of randomized trials in Figure 3. Our approach for identifying constraints to test with collaborative interventions

is to draw on the descriptive analysis of SHARPE's monitoring data and IFPRI's scoping work conducted last year, as well as continued conversations with both SHARPE and SMFI staff as they conduct their work in the financial market system.

First Randomized Trial: Community Referrals

For the first rapid trial, SMFI, SHARPE, and IFPRI are implementing a referral experiment, wherein current customers are rewarded for referring the HelloCash service to potential customers in their own communities, as described in greater detail in Appendix A. Community referrals target specific constraints around individuals being not fully informed about the benefits and uses of HelloCash for people "like themselves," being misinformed about how HelloCash registration data is used, or being sceptical or distrustful of the service itself. These constraints may be particularly salient in areas where current outreach efforts are failing to penetrate, or among groups (such as women and refugees) whose characteristics are underrepresented by HelloCash's KYC officers. Endorsement of the services by individuals' own peers could help address these constraints. Target individuals would be those who are not otherwise constrained by capability to take up the service (e.g., phone access, literacy). Phone surveys will be used to conduct baseline and endline surveys for this randomized trial.

Outcomes of interest for the first randomized trial include 1) whether providing small payments to people making referrals (we call them community referrers, or CRs) can be an effective way for reaching new HelloCash customers, with a particular focus on what characteristics of referrers and referral rewards are most effective in engaging women and refugees; and 2) whether using community referrers to reach new customers is a financially viable strategy from SMFI's perspective. The first hypothesis will be tested by measuring the number and composition of new people enrolling in HelloCash by treatment group, where different treatment groups vary the rewards that referrers are offered for making successful referrals of other men or women. The second hypothesis will use administrative data to examine the number of transactions, the total value of transactions, and the average amount per transaction. We will compare service utilization of the new customers recruited through referrals program with other new customers generated through other means and further, compare this service usage to the price of offering referral rewards to assess the efficacy and viability of continued usage of a referral rewards program from SMFI's perspective.

Going back to the diagram in Figure 3, we consider what will happen when we begin to have results from the first intervention. On Figure 3, this point is represented by the red junction, and there are at least two things that could occur, which is illustrated through the red junction. If the first intervention is considered "successful" (more later on defining success in this context) and ready for scale-up, then we could move on to learning about the next constraint or set of constraints affecting the market system, based on the theory of change for the market system. If the experiment fails to catalyse either take-up or use, then we will either stop the intervention and move to a different constraint or, after consulting with SHARPE and SMFI, develop suitable adjustments, go back, and adapt the working approach to addressing the constraint.

There are several ways the results of the first experiment could be inconclusive. For example, the experiment could lead to additional take-up, but assessment of the longer-term profitability of its

adoption is tenuous (or even negative). Alternatively, referrals could increase enrolment overall but fail to engage women, refugees, or both, making them an ineffective tool for increasing use among these target populations. Or, an external event could affect the trial, making results inconclusive. In these situations, we could either go back and adapt the experiment (as with "no" in the diagram), or the inconclusivity could suggest the approach was not all that useful to Somali MFI in the first place, and we could move on (as with "yes" in the diagram).

Second Randomized Trial: New user payments

A second randomized trial has also been designed, based on continued discussions with both SHARPE and SMFI, and will start around the same time as the first experiment. Phone surveys will be used to conduct an endline survey for this trial as well. The trial targets constraints to service use, conditional on individuals being enrolled, and is motivated by the large number of enrolled but inactive HelloCash users. Constraints to use are hypothesized to include reluctance to put money in an account without some experience trying out and building trust in the service, possibly exacerbated by liquidity constraints. In this experiment, (randomly selected) newly enrolled customers will receive a small payment via mobile money, so they can "try" withdrawing it for cash, using it for airtime, or making purchases with it. The idea is to incentivize to make an initial transaction, so they learn how to conduct a basic transaction and become more comfortable using it. At first, this experiment will only run through referred customers, but may expand to other new customers if customers begin to make additional transactions in the treatment group relative to the control group. We describe this experiment in more detail in Appendix B. As with the first randomized trial, we will compare the effects on service utilization of the new user payments with SMFI's costs of providing them, to assess the efficacy of this approach and viability of scaling it up.

Similarly, we describe ways this second trial may be adapted in the Appendix.

Mixed-method Study of Financial Market Systems Interventions: Pulling Everything Together

As described above, SHARPE has also undertaken a range of collaborative interventions, primarily with SMFI, to address several demand-side and supply-side constraints. These constraints include multiple customer recruitment strategies to increase information and awareness and expansion of the HelloCash ecosystem to increase access (establishing new agents, merchant pay points, bajaj pay points, and HelloCash kiosks). Nonetheless, it has also encountered several challenges, including cash shortages and limited network coverage amongst agents, and relatively few agents who are refugees due to eligibility requirements. To better understand the extent to which various strategies have been effective in increasing take-up and use of HelloCash, and ultimately improving livelihoods and economic integration – as well as for whom, and what other constraints need to be addressed for success – we will look outside of an experimental framework at the overall market system. In particular, we will conduct mixed-method work, informed by the descriptive analysis of SHARPE's monitoring data and IFPRI's scoping work

conducted in 2021. One component will a quantitative endline survey planned for summer 2022; another will be further qualitative work that is taking place before, alongside, and after the endline survey.

Quantitative Endline Survey

Given that several indirect interventions have been ongoing to address constraints in the financial services market system, and the goal of this research is to measure overall impacts of SHARPE, it is useful to quantitatively gauge which of these interventions (or which combinations) customers, agents, and retailers/drivers perceive as having helped them take up HelloCash and/or use it. It is similarly important to understand which interventions have not been effective, to both support mid-level theory development (discussed below) and to help design more effective future interventions. To do so, we will conduct a quantitative endline survey – distinct from the phone surveys for the two randomized trials. There are at least two challenges in conducting such an endline survey. First, we will need to be careful to design the study so that we can bound how much of any differences in outcomes of interest can be attributed to the market systems development program under SHARPE. Second, we need to think carefully about how to design a sample that can both help us understand those bounds and measure heterogeneity in ways interesting to the program, recognizing that there is no clear sampling frame to draw from.

Speaking to the attribution problem, we need to include both "beneficiaries" and "non-beneficiaries" in the sampling frame. One possible way to define beneficiaries is HelloCash customers. However, not every HelloCash customer will have necessarily been influenced by a SHARPE-funded intervention, since they are not targeted to individuals or households, and conversely, not every person reached by a SHARPE intervention will necessarily be a HelloCash customer. Moreover, defining a comparable group of non-beneficiaries will be challenging. Whereas in the randomized trial component, the randomization provides us comparable beneficiaries and non-beneficiaries, as SHARPE attempts to refocus the market system in general, literally anyone can be defined as a beneficiary or not, since the goal is to have an indirect influence on the market. Still, it is a safe assumption that non-customers of HelloCash are more likely not to be beneficiaries.

A challenge, then, is how to develop an appropriate sample frame in regions selected for the intervention. We would want both HelloCash customers and non-customers included. HelloCash customers are relatively easy to find—since they all have recorded phone numbers from registration. However, non-customers are more difficult. Within refugee camps, there are lists of residents, but outside of refugee camps there are not.[9] We also want to have a "large enough" sample of both customers and non-customers to be able to compare groups (e.g. women, refugees); since we don't have a good sense of a population of the targeted parts of Jijiga and Dollo Ado, a concern with simple random sampling within PSUs (via, for example, sampling

---

[9] Note that refugee camps are not static in population either, so lists may be slightly outdated due to movements of people into or out of the camps. Obtaining access to those lists may also be a challenge. That said, according to UNHCR documents there has not been much movement into Ethiopian camps from Somalia in the past two years.

specific dwellings, or through a random walk type exercise) would be that we would end up with a relatively small sample of HelloCash customers, and particularly among some subgroups of interest (e.g., refugee women).

Therefore we will follow a hybrid sampling strategy. We will conduct a random sampling exercise as above, but plan to purposively augment the sample as needed for HelloCash customers so that they are overrepresented. To do so, we will draw from HelloCash's main registration lists, which also include information on the gender and refugee/host status of each customer. Given the size of the customer base, we will include some customers from the randomized trial samples as well, to ensure we can measure the relative importance of the randomized trials in helping to influence final outcomes. Across the various groups, we would ask about exposure to the various SHARPE interventions, interaction with the various market system nodes, and experience with (or reasons for not enrolling in or using) the HelloCash system. We will initially use the data to both describe what appears to work or not work, and then attempt to bound contributory effects, while also triangulating with qualitative work.

Here it is also worth covering RQ3. If a pilot has begun, we will add a subsample of beneficiaries that are participating in the pilot project to receive aid through mobile money in the final survey; we will also include them in key informant interviews. This sub-sample size would depend upon the number of pilot beneficiaries; ideally we could cover the next people eligible as a "control" group as well. Obviously, both would be among refugees, potentially increasing the number of refugees in the sample relative to host country nationals. This would give us a first impression of impacts on the aid market system and would help us begin to answer RQ3. However, we understand at this time it is unlikely that any changes in aid modality will occur.

Qualitative Work

The qualitative work here will include key informant interviews with decision makers at Somali MFI, "Know Your Customer" (KYC) officers in the field (who drive take up), transaction agents, and retailers or bajaj drivers who accept payments using HelloCash. To the extent that COVID makes it possible, the work will include focus groups with users, focusing on women and refugees. If not, we will include more women and refugees as subjects of key informant interviews.[10]

The qualitative component of our research will also help with two further goals. First, it will help us contextualize the randomized trial results—for example, to what extent were any positive results dependent upon other parts of the system SHARPE has helped build; e.g. the KYC officers? It will help us understand their relative importance versus other changes in the market system. Second, it will help us triangulate findings from the quantitative endline survey. Doing so will help us better understand why (or why not) various interventions support reaching different steps of the pTOCs, for whom, and what additional constraints must be addressed. Third, it will help us measure impacts that are more difficult to quantify, such as economic integration and economic inclusion. By helping answer these questions, the qualitative work will build an understanding of the relative importance of other actions that have been carried out by SMFI

with guidance from SHARPE to help develop the financial market system. This part of the study will be crucial to putting together the overall findings, as it will help us understand the relative contributions of different types of interventions or actions that have been undertaken as part of SHARPE.

In sum, the qualitative work is being designed to ensure we can trace how constraints have been addressed that impeded market systems development in the financial services sector of the Somali region, including but not exclusive to the learning from rapid RCTs. Through key informant interviews and potentially focus groups, we will develop an understanding of the relative contributions of different market systems development intervention components, synergies, and what has worked versus what has not. We will learn about outcomes more difficult to quantify (and ideally will come up with ideas for quantification), and we will also be able to document remaining constraints.

These insights will help to inform what market system strategies may work, for whom, under what conditions, in contexts beyond the study settings. For example, we will learn to what extent community referrals can bring in new users to a digital financial service, in settings where constraints include inadequate information about or trust in the service; to what extent payments to newly enrolled customers can stimulate service use, in settings where constraints include reluctance to put money in the system to try out the services, possibly due to income constraints; for whom these strategies are most likely to be effective; whether they can promote inclusion of underrepresented groups; and whether these strategies are financially viable for the service provider. We will also learn about market system constraints that may shape who will (and will not be) benefitted by expansion of digital financial services, as well as interventions that may be potentially effective in addressing these constraints. Moreover, we will learn how successful uptake of digital financial services can lead to improvements in livelihoods and economic integration, and how this differs for population subgroups of a population. If interventions in aid markets occur during the study period, we will furthermore learn how synergies between strengthening digital financial services and providing aid through digital platforms can increase the viability of both financial and aid sectors, as well as strengthen economic impacts for aid recipients.

Further Adaptations

A further issue that has come up from both SHARPE's studies and the scoping work related to supply side barriers. Agent recruitment and retention are clear constraints, and there are administrative issues to expanding these services in refugee camps; although regulations have loosened, as of a few months ago only formally registered businesses could act as agents, and formal registration was banned for businesses in camps until very recently. Although these regulations have been loosened by the ARRA, there are clearly remaining supply-side barriers to DFS network expansion related to agent recruitment and retention. So one further direction would be to examine experiments that could help improve incentives or perceived incentives on the supply side, particularly in areas that serve refugees. Demand-side barriers remain as well; scoping findings suggest that illiteracy, challenges in obtaining identification cards, and other

challenges are constraints to enrolment and use of HelloCash. Thus, an additional possible direction would be to attempt to create better supports addressing these – for example, making the HelloCash platform more accessible to those with limited literacy (possibly through a simpler interface or an option to call an operator to help with transactions) or either reducing the requirements for eligibility or making it easier for individuals to meet them.

The adaptive design of the research implies that we will design further strategies to address barriers as we learn about them in collaboration with SHARPE, test strategies focused on a particular barrier in small, rapidly reported randomized trials, and recommend modifications to implementation accordingly. Based on the time remaining in SHARPE, it is unlikely to then lead to further adaptations, but we believe this model could act as a potential model for other market systems interventions, as we describe below under the mid-level theory component.

Answering Research Questions

 The steps envisioned for answering RQ1 include using mixed-method scoping research to better understand the barriers on the ground; co-designing with SHARPE specific strategies to address these barriers that can be "tested" through small rapidly-reported randomized trials; drawing on these small randomized trials and quantitative data collection to rigorously evaluate the impact of these strategies on take-up and continued use of DFS; and conducting qualitative data collection and using mixed-methods analyses to understand what factors shape impacts.

To answer RQ2, our proposed approach would draw on the empirical design described for RQ1. Randomized trials aiming to increase use of DFS, if successful, would create the basis for randomized encouragement designs to assess the impacts of take-up and continued use of DFS on subsequent outcomes. Drawing on the randomized design, quantitative and qualitative data collection would be used to assess DFS impacts on investment, livelihoods, and economic integration, as well as what factors shape these impacts. Depending on feasibility and timing, and based on additional scoping work, complementary programming could be provided in another small, randomized trial to address specific constraints to economic integration.

Regarding RQ3, as described above, the transition from providing humanitarian aid as in-kind benefits (specifically food) to cash (possibly digital) could help create livelihood opportunities and demand for products. This could help develop markets in which both hosts and refugees could participate, while also potentially affecting relations between the communities. Both UNHCR and WFP have expressed an interest in transitioning from in-kind transfers to cash and potentially leveraging the expansion of DFS in the three target regions to provide digital cash, but their plans have not been finalized. Therefore our design of trials, if any, around the humanitarian aid sector (potentially linked with the financial services sector) are currently "on hold" until IFPRI and the SHARPE team are better informed about the UNHCR and WFP plans for digitizing aid on a pilot basis in one or more of the target regions.

Informing Mid-Level Theory

The final stage of the research will be to bring together our quantitative evidence and accompanying qualitative work to inform mid-level theory. Our specific objectives related to mid-level theory are to: 1) Inform the design of impact evaluations specifically designed for market systems development interventions, and 2) Consider how context specific the results of our work are. We briefly describe each in turn below.

First, as described earlier in the report, there have not been evaluations of market systems interventions that include randomized trials. We are at present documenting our procedure and how a project could go about designing an evaluation alongside a market systems development project; we will absolutely recommend a baseline survey which we could not run due to COVID; however, we did eliminate the possibility of the project moving from one area to another (see de Brauw, Kramer, and Murphy, 2019), which can have a large negative effect on the value of a baseline survey.

Second, we need to consider the context specificity of our project, and how the context may play a role in determining results. As noted, we are aiming to design our trials to work across Dollo Ado and Jijiga regions, so that they can better inform future programming in a range of contexts, but the range here remains somewhat limited. SHARPE has begun to work with the Wegagen Bank in Gambella, and with enough time it would be interesting to learn about whether this adaptive framework could also be tested with them, and what changes would be necessary to make that happen. For example, preliminary research in Gambella suggests that the relationship between host country nationals and refugees is not as harmonious as in Somali region; we would want to take   also move financial services work into Gambella, we will jointly consider extending research there as well or using the results of research in Gambella as well. For the first goal, we will broadly consider the positives and negatives of trying to develop an adaptive framework as the one we are planning to implement.

Timeline

The present timeline for our research activities is as follows.

Activity	Timing
Design first rapid randomized trial	September 2021-February 2022
First Rapid Randomized Trial	March 2022-June 2022
Analysis of initial first rapid trial and potential Adjustment	May 2022- July 2022
Further qualitative study of financial market system	April 2022-July 2022
Second rapid randomized trial (Adaptive)	April 2022 -June 2022
Endline Survey (overall impacts of SHARPE in financial and aid market systems)	July-August 2022
Final Analysis	September 2022-January 2023

References

Agblorti, S. K. M. (2011). Humanitarian assistance to refugees in rural Ghana: Implications for refugee–host relations. *Norsk Geografisk Tidsskrift - Norwegian Journal of Geography*, *65*(2), 75–82. https://doi.org/10.1080/00291951.2011.574319

Aggarwal, S., Brailovskaya, V., & Robinson, J. (2020). *Cashing in (and out): Experimental evidence on the effects of mobile money in Malawi*. *110*, 599–604.

Alix-Garcia, J., & Saah, D. (2010). The Effect of Refugee Inflows on Host Communities: Evidence from Tanzania. *The World Bank Economic Review*, *24*(1), 148–170. https://doi.org/10.1093/wber/lhp014

Alix-Garcia, J., Walker, S., Bartlett, A., Onder, H., & Sanghi, A. (2018). Do refugee camps help or hurt hosts? The case of Kakuma, Kenya. *Journal of Development Economics*, *130*, 66–83. https://doi.org/10.1016/j.jdeveco.2017.09.005

Alloush, M., Taylor, J. E., Gupta, A., Rojas Valdes, R. I., & Gonzalez-Estrada, E. (2017). Economic Life in Refugee Camps. *World Development*, *95*, 334–347. https://doi.org/10.1016/j.worlddev.2017.02.030

Aukot, E. (1969). "It Is Better to Be a Refugee Than a Turkana in Kakuma": Revisiting the Relationship between Hosts and Refugees in Kenya. *Refuge: Canada's Journal on Refugees*, 73–83. https://doi.org/10.25071/1920-7336.23482

Barbelet, V., & Wake, C. (2017). Livelihoods in displacement: From refugee perspectives to aid agency response. *London: Overseas Development Institute*.

Breza, E., Kanz, M., & Klapper, L. F. (2020). *Learning to navigate a new financial technology: Evidence from payroll accounts*. National Bureau of Economic Research.

Casaburi, L., & Macchiavello, R. (2019). Demand and supply of infrequent payments as a commitment device: Evidence from Kenya. *American Economic Review*, *109*(2), 523–555.

CEGA. (2020, September 28). *Can digital credit work for agriculture? Lessons from Kenya and Uganda*. https://medium.com/center-for-effective-global-action/can-digital-credit-work-for-agriculture-lessons-from-kenya-and-uganda-5c6d489022a4

Chamboko, R., Heitmann, S., & Van Der Westhuizen, M. (2018). *Women and digital financial services in Sub-Saharan Africa: Understanding the challenges and harnessing the opportunities*. The World Bank.

Clemens, M. A., & Demombynes, G. (2011). When does rigorous impact evaluation make a difference? The case of the Millennium Villages. *Journal of Development Effectiveness*, *3*(3), 305–339. https://doi.org/10.1080/19439342.2011.587017

Creti, P. (2014). *Mobile Cash Transfers for Urban Refugees in Niamey, Niger*. Oxford: The Cash Learning Partnership. https://reliefweb.int/report/niger/mobile-cash-transfers-urban-refugees-niamey-niger

de Brauw, A., Kramer, B., & Murphy, M. (2019). *Impact evaluation: Bangladesh AVC : endline report on impacts associated with the Bangladesh agricultural value chains project*. USAID Bureau for Resilience and Food Security (RFS). https://pdf.usaid.gov/pdf_docs/PA00TRHM.pdf

de Brauw, A., Kramer, B., & Murphy, M. (2021). Migration, labor and women's empowerment: Evidence from an agricultural value chain in Bangladesh. *World Development*, *142*, 105445.

Demirguc-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2018). *The Global Findex Database 2017: Measuring financial inclusion and the fintech revolution*. World Bank Publications.

Dunn, E., Schiff, H., & Creevey, L. (2011). Linking small-scale vegetable farmers to supermarkets: Effectiveness assessment of the GMED India project. *USAID AMAP MicroReport*, *166*.

Garz, S., Heath, R., Kipchumba, E., & Sulaiman, M. (2020). *Evidence of Digital Financial Services Impacting Women's Economic Empowerment*. Brac Institute of Governance and Development and WEE DiFine. https://bigd.bracu.ac.bd/wp-content/uploads/2021/01/WEE-DiFine_White-Paper_Nov2020.pdf

Ghebru, H., Grant, W., & Smart, J. (2021). *Design and Implementation of Impact Evaluation of Market Systems Development (MSD) Programs: The Case of InovAgro*. DAI and International Food Policy Research Institute. https://beamexchange.org/resources/1460/

Ghebru, H., Smart, J., & Mogues, T. (2019). *Access to markets for smallholder farmers in Alto Molócue and Molumbo, Mozambique: Mid-term impact evaluation of INOVAGRO II* (0 ed.). International Food Policy Research Institute. https://doi.org/10.2499/p15738coll2.133449

GSMA. (2021). *The Mobile Economy. Sub-Saharan Africa 2021*.

  https://www.gsma.com/mobileeconomy/wp-
  content/uploads/2021/09/GSMA_ME_SSA_2021_English_Web_Singles.pdf

Gurung, N., & Perlman, L. (2018). Focus Note: The Role of Digital Financial Services in
  Humanitarian Crises Responses. *Available at SSRN 3285931*.

Haushofer, J., & Shapiro, J. (2016). The short-term impact of unconditional cash transfers to the
  poor: Experimental evidence from Kenya. *The Quarterly Journal of Economics*, *131*(4), 1973–
  2042.

Hoddinott, J., S. Sandstrom, & Upton, J. (2018). The Impact of Cash and Food Transfers: Evidence
  from a Randomized Intervention in Niger. *American Journal of Agricultural Economics* 100(4):
  1032-1049.

Iazzolino, G., & Wasike, N. (2015). The unbearable lightness of digital money. *Journal of Payments
  Strategy & Systems*, *9*(3), 229–241.

Lehmann, M. C., & Masterson, D. T. R. (2020). Does Aid Reduce Anti-refugee Violence? Evidence
  from Syrian Refugees in Lebanon. *American Political Science Review*, *114*(4), 1335–1342.
  https://doi.org/10.1017/S0003055420000349

Masterson, D. (2016). Giving better: Lessons from cash grants for syrian refugees in lebanon.
  Refugee Research and Policy in the Arab World.

Osorio-Cortes, L., & Albu, M. (2021). *The Results Achieved by Programmes that use the Market
  Systems Development Approach: A Narrative Synthesis of Current Evidence* (Beam Evidence
  Review 2021). https://beamexchange.org/resources/1543/

Schwab, B. (2019). In the Form of Bread? A Randomized Comparison of Food and Cash Transfers.
  American Journal of Agricultural Economics 102(1): 91-113.

Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*,
  354(6317), 1288–1292. https://doi.org/10.1126/science.aah5309

Valli, E., Peterman, A., & Hidrobo, M. (2019). Economic Transfers and Social Cohesion in a
  Refugee-Hosting Setting. *The Journal of Development Studies*, *55*(sup1), 128–146.
  https://doi.org/10.1080/00220388.2019.1687879

Appendix A: Design Details, Randomized Trial 1 – Community Referrals

Motivation and Research Objectives

The first randomized trial revolves around a referral system. The scoping research suggested complete and relevant information about benefits of HelloCash services may not be reaching all potential SMFI clients impeding HelloCash adoption and service usage. People from both the refugee camps and surrounding host communities do not always have easy access to agents and may additionally have inaccurate information about the value of HelloCash or concerns about its services. Scoping suggested that these impediments may pose a particular challenge among women and refugees.

A peer referral system has the potential to address some of these factors. In the system being tested, current active HelloCash users would be asked to make referrals of interested members of their community to enroll in HelloCash services and would be given a small reward if they ultimately register. An effective referral system could:

- Clarify benefits of digital financial services – if active HelloCash users in their community can help to articulate how they use and benefit from the services in a way that SMFI agents may be less able to address.
- Address misinformation about the HelloCash service – if current users can clarify how the system works and help to correct misconceptions about how the service works and how the data will be used (a concern raised during scoping).
- Offer links to agents – if referrals are link link interested new enrollees to an SMFI dispatcher and help them connect with nearby SMFi agents, reducing search costs and time for these potential new clients.
- Improve trust in the system – if prospective users are uncomfortable holding their money on a digital platform but would benefit from hearing the experience of current users.

Stemming from the overall research questions for the study, the rapid trial's research questions are:

1. Do incentivized peer referrals boost enrolment in and/or use of DFS?
2. Are referrals more (or less) effective in refugee communities and for reaching refugees?
3. Are referrals effective for reaching women? Does this differ in refugee and host communities?
4. Do referrals reach a different pool of new users than status quo outreach approaches along other dimensions (e.g. age, education, poverty level)?
5. Does being invited to make referrals impact individuals' usage of HelloCash services?

6. How do referrals and successful enrolments respond to different levels of referral rewards? How does the size of the referral payment affect who gets referred?
7. How profitable are these newly enrolled clients for SMFI? Does the referral system have a positive return on investment? Is the referral system sustainable?
8. What remaining constraints prevent refugees from enrolling and/or using the service if they are referred? Do these constraints differ by characteristics of the person referred or the person referring them?

The research approach is to conduct a pilot study using a randomized controlled trial to explicitly test whether a community referral system can work to increase enrolment (particularly among women and refugees), and determine if these rewards are sustainable and potentially scalable.

Study Design Details

This trial will pilot a new community referral approach to reach new potential clients in refugee and surrounding host communities. Selected current active users of HelloCash will be asked to identify potential new customers in their own communities, discuss with them how HelloCash works and its benefits, and provide "referrals" to a call centre so that KYC officers can follow up with and enrol them in HelloCash services.

Using administrative data provided by SMFI, the research team will draw a random sample of 800 current active HelloCash users referred to as "community referrers" (CRs). This selection will be done to ensure an equal representation of both women and men as well as refugees and host community members in the overall sample across Jijiga and Dollo Ado. In other words, the goal is that there will be a total of 200 male refugees and 200 male hosts community members as well as 200 female refugees and 200 female host community members in the sample of CRs included in the study.

Next, the research team will contact these 800 selected CRs and invite them to participate in the study while completing a baseline survey. After the baseline is complete, they will be randomly assigned to different rewards groups or a control group. This assignment determines the level of rewards that they will be offered for making successful referrals of new HelloCash users from their communities. A successful referral is when someone a CR refers actually registers in the HelloCash system. These individuals are referred to as "referred individuals (RIs). The four rewards groups will be as follows:

	CR reward for referring successful MALE enrollee?	CR reward for referring successful FEMALE enrollee?
Reward group 1 (LL)	Small (20 birr)	Small (20 birr)
Reward group 2 (LH)	Small (20 birr)	Large (40 birr)

Reward group 3 (HH)	Large (40 birr)	Large (40 birr)
Control group	No reward	No reward

Following on the reward groups indicated in the table in the first column, rewards will depend on the assigned group as well as the gender of people being referred (and enrolling). By varying the size of rewards as well as the relative value of the rewards for men and women, we can assess the efficacy of the referrals scheme as a method of reaching refugees and women.

Learning and Analysis Approach

First, because the CRs will be randomly assigned across these four groups, we can interpret any differences in the characteristics of the resulting enrolments as being *caused* by the different reward structures. We can therefore compare these outcomes to partner objectives, and offer advice on the most effective set of incentives for reaching women and refugees.

Second, since the cost of recruiting new users through the referral system can be clearly documented, we can assess whether it can be scaled up in a profitable manner. The question is whether the average net present value of a new customer signed up through referrals exceeds the small payment made to each CR. Along with any benefits from new customers, we can further measure increases in the value of the CRs as customers, if any. If the average per customer benefits exceed the costs, then the system can be scaled up profitably, at least until the average quality of new customers (as measured by that net present value) begins to decline.

Finally, random assignment to the referral groups allows us to assess the effect of being included in the referral scheme on the referrals themselves. In particular, the rewards from active CRs could benefit them financially or the act of referring others to HelloCash could boost their own use of HelloCash services.

Power Calculations
We are assigning 200 individuals to each group, with half women and half refugees via individual randomization. Assuming that no one will be referred within the control group, we will be able to demonstrate that the referral system has a positive impact on enrolment for each treatment group relative to the control so long as the average number of referrals exceeds 0.281; for women and refugees, the average would need to exceed 0.398 referrals. The same is true for the difference between treatment groups (e.g. it would have to exceed 0.281 on average to be able to detect differences). We will monitor the trial throughout and therefore will have multiple data points on each treatment group via weekly (or at worst biweekly) enrolment data.

Adaptations

We anticipate four potential types of adaptation over the course of implementation:

1. We have already translated "reminder" text messages to send to the three treatment groups if few referrals are being made after two weeks of piloting; we will also send the reminders after four, six, and/or eight weeks if we observe responses slow. If necessary, or we learn that text messages are not being received or read, we will switch to phone call follow-ups.
2. After four weeks, if we become concerned about statistical power related to one or more outcomes of interest (particularly among women or refugee CRs), we will collaborate with partners to consider increasing sample size among that specific group- for example, if we are observing only a few women referring others, we can consider adding more women to the treatment group.
3. We plan to conduct qualitative interviews after the first four weeks of the pilot and, if the referrals are not working, this will provide another opportunity to assess potential dimensions of adaptation. For example, concerns have already been voiced about inflation which might require adjustment of the reward levels in order to sufficiently motivate participating CRs. Alternatively, we may find remaining confusion on how the scheme works, requiring follow-up clarification.
4. Finally, the referral scheme could offer a platform on which to test other forms of messaging or constraints following the qualitative work in week four. Currently, CRs are encouraged to answer questions raised by potential new clients, but a future adaptation could offer them more explicit coaching on a specific message or concern to convey to new users if we find evidence that it is being identified as a meaningful barrier to adoption.this is brutal https://www.cgiar.org/kundhavi-kadiresan/

Appendix B: Design Details, Randomized Trial 2 – Signup Bonuses

Motivation and Background

The second randomized trial is being developed around a concern raised by SMFI and developed into a researchable idea by IFPRI, SHARPE, and SMFI. A concern is that a sizeable proportion of their customers sign up for HelloCash but then never actually conduct a transaction. One way to ensure that they make a transaction is to pay a small gift or bonus to their mobile money accounts upon sign-up; many mobile based businesses make such payments to try to get customers to try using their products.

The second trial will therefore offer small signup bonuses to randomly selected new HelloCash enrolees. By providing a starting balance to these customers, they will have an added incentive to at least learn how to withdraw the initial money placed in their digital wallet. At a minimum, they will learn that money placed on the system can be converted to cash when they need it and may be more willing to accept payments from others using mobile money. More ambitiously, they may start to develop greater trust in HelloCash, learn how to make transfers or payments in both directions, or be willing to store their savings in their digital wallets.

Study Design Details

During the course of the study, SMFI will provide the research team with a list of new HelloCash clients each week initially generated through the community referrals. From this list, the research team will help to draw a random selection of new registrants. These individuals will be sent a sign-up bonus of 20 birr to their HelloCash mobile money wallets along with a message notifying them of the transfer. The message will thank them again for registering, and encourage them to use the money however they like, send it to a friend, make a payment, save it, or simply cash out. Using administrative records and individual interviews, we will be able to compare how these randomly selected reward winners end up using HelloCash services and viewing their value overall with the usage and views of those who did not receive the reward.

Power Calculations

A key outcome for this trial is the number of transactions that occur after the bonus. Assuming that 600 new enrollees result from the referral system, then an increase in transactions of 0.22 standard deviations can be identified using this design (relative to a normalized control group). Among subgroups, if we assume 200 new enrollees instead, then we can identify differences of about 0.4 standard deviations.

Adaptations

Again, we anticipate three different potential adaptations:

1. If early results suggest that there may be an effect but that differences are noisy, we can increase the share of people offered sign up bonuses as the study goes on to increase statistical power.
2. After four weeks, we will conduct preliminary follow-up calls with a small randomized selection of people receiving the bonuses to assess whether they a) were even aware of them, b) how that may have affected their perception of HelloCash services and SMFI, and c) how they used that free balance. These qualitative interviews may point to whether and how adjustments of the structure of these rewards could further boost service usage among new enrollees.
3. If these rewards prove effective, the research team may consider further bonuses to existing HelloCash users whose activity has fallen dormant (not just new enrollees). This, again, will offer important and relevant insights to SMFI on how to reactivate non-active customers.
4. One clear adaptation here is that if we observe a positive difference in transactions but it does not look like it can be statistically identified, we can discuss opening to all new enrollees (not just those enrolling through the CR system). We will consider this adaptation after the initial program is running for 4 weeks; if we are concerned about statistical power, we will ask about opening the pilot to further new enrollees.

Figure 1: Illustrative process theory of change for Research Questions 1 and 2 *

DFS available, but low use among refugees

Some refugees not using DFS have capability to take it up (phones with necessary software, cell coverage, literacy, etc)

Outreach to refugees providing relevant, accurate information on DFS availability/benefits

Sufficient benefits exist for refugees to use DFS (relative to cost; functionality, security, acceptability, ease of redemption, etc)

Refugees not well-informed about availability and benefits of DFS

Inequities in access and benefits – particularly by gender, age, ethnicity, etc

Increased use of DFS among refugees

Refugees redeem some DFS transactions for physical cash

Refugees have mobility outside camps

DFS agents less available in camps

Refugees sometimes go outside camps to redeem DFS transactions for physical cash

Refugees become more economically integrated into "general" community

Refugees have higher savings

Refugees able to make more productive investments

Refugees engage in wider range of livelihoods

Refugees offer more goods / services or supply more labor to "general" communities

Absent DFS, hard to save – e.g., due to financial exclusion, insecurity, sharing obligations

Opportunities exist for productive investments

Complementary programming

Discrimination or hostility; language, cultural, or other barriers

* Particular focus throughout will be on women

Figure 2: Illustrative process theory of change for Research Question 3 *

Food could not be easily converted to

Markets accessible

Refugees have mobility outside camps

General markets more likely to accept digital cash or to offer items beyond what's available in

Targeted refugees enrolled in and understand how to use DFS platform

Digital cash provided to refugees (instead of food)

Digital cash implemented well

Refugees aware of transition in aid to digital cash

Inequities in access and information – particularly

Refugees have increased access to digital cash

Refugees have more liquidity

Refugees make more purchases

Refugees use "general" markets for more

Refugees redeem some of the digital cash for physical cash

DFS agents less available in camps

Refugees sometimes go outside camps to redeem digital cash for physical

Refugees become more economically integrated into "general"

Refugees have higher savings

Refugees make more productive investment

Refugees engage in wider range of

Refugees offer more goods / services or supply more labor to "general"

Complementary

Discrimination or hostility; language, cultural, or other

Absent DFS, hard to save – e.g., due to financial exclusion, insecurity, sharing obligations

Opportunities exist for productive investments

* Particular focus throughout will be on women

Figure 3: Conceptual Diagram of Adaptive Research Plan

Note: Results would only "scale" if sensible for company to take over