



BEYOND MEETING IMMEDIATE NEEDS:

The Impact of
Electronic Cash
Transfer Approaches
on Disaster
Recovery and
Financial Inclusion



ACKNOWLEDGEMENTS

Typhoon Haiyan took the lives of over 8,000 people. This disaster was yet another tragic reminder of the need to develop strategies to protect communities exposed to recurring negative shocks. Causal Design was founded with a commitment to conducting rigorous and independent research for organizations working in these communities. We are incredibly grateful to Mercy Corps' team in the Philippines for their dedication to the humanitarian response after Haiyan, allowing us to conduct research on their intervention, and being open to experimenting with alternative service delivery models.

In particular, we acknowledge Ninette Adhikari for a year of patient support to our principal investigators. Vaidehi Krishnan, Voltaire Cerna, Agnes Sabonsolin, Jasper Palen, and the rest of the Mercy Corps Philippines staff made our field work feasible, effective, and fun. Thea Anderson, an expert on financial inclusion, provided extensive context and valuable additions to our studies' findings. Finally, we are grateful to Jon Kurtz, Erynn Carter and Olga Petryniak. They, and Mercy Corps as a whole, are dedicated to being thought leaders in our sector.

Causal Design partners with international development clients to provide rigorous independent program evaluation, expand cultures of evidence within organizations, and join them in efforts to relieve human suffering and end poverty.

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GLOSSARY

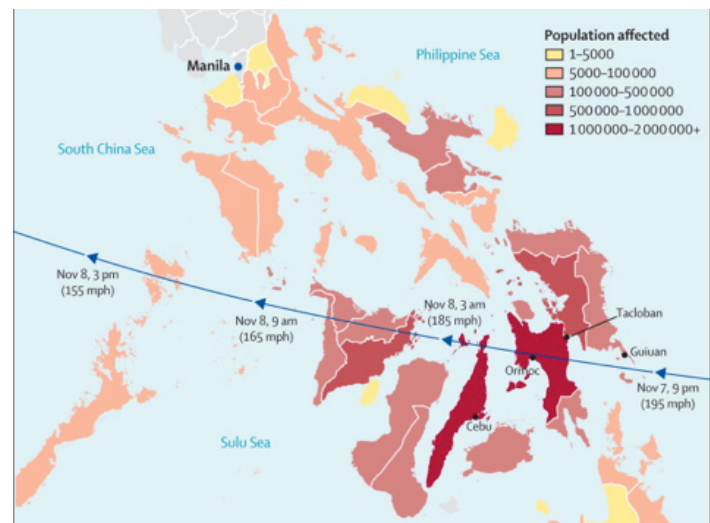
BPO	BankO Partner Outlet
CSI	Coping Strategies Index
DFID	Department for International Development
DSWD	Department of Social Welfare and Development (Philippines)
FCS	Food Consumption Score
FDM	Financial Decision Maker
INGO	International Non-Governmental Organization
MICRA	Microfinance Innovation Center for Resources and Alternatives
NGA	Non-Governmental Agency
NGO	Non-Governmental Organization
ODK	Open Data Kit
PDM	Post-distribution monitoring survey
PHP	Philippine Peso
PPI	Progress out of Poverty Index
SMS	Short Message Service
UCT	Unconditional Cash Transfer
UNHCR	United Nations High Commission for Refugees
USD	US Dollar

EXECUTIVE SUMMARY

Unconditional cash transfers (UCTs) are becoming a more common method to address the immediate needs of populations affected by acute and chronic crisis. With numerous tropical storms each year,¹ the Philippines are consistently vulnerable to interruptions in economic growth and damage to productive assets and infrastructure. Efforts to address immediate disaster concerns and facilitate reconstruction and recovery are of pronounced importance given the large cumulative economic and social toll. Practitioners and policy makers in the Philippines and other disaster prone countries are searching for program models that can promote recovery while strengthening the longer-term resilience of communities at risk of disasters.

In January 2014, Mercy Corps launched the TabangKO ('my help') program to deliver emergency cash assistance to households affected by Typhoon Haiyan (Figure 1)² on November 2013 through a mobile banking platform. These cash transfers were intended to help meet the immediate needs of the beneficiaries and assist households in reestablishing their sources of livelihood. Additionally, the mobile delivery method aimed to familiarize beneficiaries with using a secure and formal means to store and access funds. By adding financial literacy training and savings-encouraging voice messages, the program also aimed to stimulate the use of formal and informal financial products, such as savings accounts. These forms of financial inclusion have been linked to better recovery outcomes among households affected by Typhoon Haiyan.³

Figure 1.
Map of the Philippines and Path of Typhoon Haiyan



The significance of the TabangKO program comes from its innovative approach, which simultaneously aims to aid recovery, build resilience, and promote financial inclusion in a post-disaster setting. Given the sense of urgency and often-complicated logistics, UCT programs in this context are rarely evaluated, let alone include components that establish formal savings accounts. Mercy Corps has created a unique opportunity to compare the effectiveness of different forms of the same cash transfer program. In doing so, this evaluation begins to explore how medium to longer-term economic outcomes could be improved through an emergency response intervention.

METHODOLOGY

This impact evaluation employed a randomized controlled trial to explore how different cash transfer amounts through TabangKO would affect the use of financial resources and promote economic recovery after a natural disaster. It also examined how combining UCTs with an overview of financial concepts and a series of savings-encouraging voice messages would impact savings behavior. Overall the TabangKO program delivered cash transfers to 25,480 households. However, the evaluation is limited to only 1,659 randomly selected households in the Western Leyte

1 See <http://kidlat.pagasa.dost.gov.ph/index.php/learning-tools/730-tropical-cyclone1>.

2 Chiu, Yu-Tzu. (2013) "Typhoon Haiyan: Philippines faces long road to recovery." *The Lancet*. Volume 382. Issue 9906, 1691 - 1692

3 Hudner, D. and Kurtz, J. (2014). "Do Financial Services Build Disaster Resilience? Examining the Determinants of Recovery from Typhoon Yolanda in the Philippines." Mercy Corps Working Paper.

region. Additionally, the impact estimates in this study are primarily based on data collected in January and February of 2015. This was 14 months after the original typhoon, and 8 months after the TabangKO program began in Western Leyte. Most results should be interpreted as a medium-term impact of the program. The following figure illustrates how different versions of the program compared to one another.

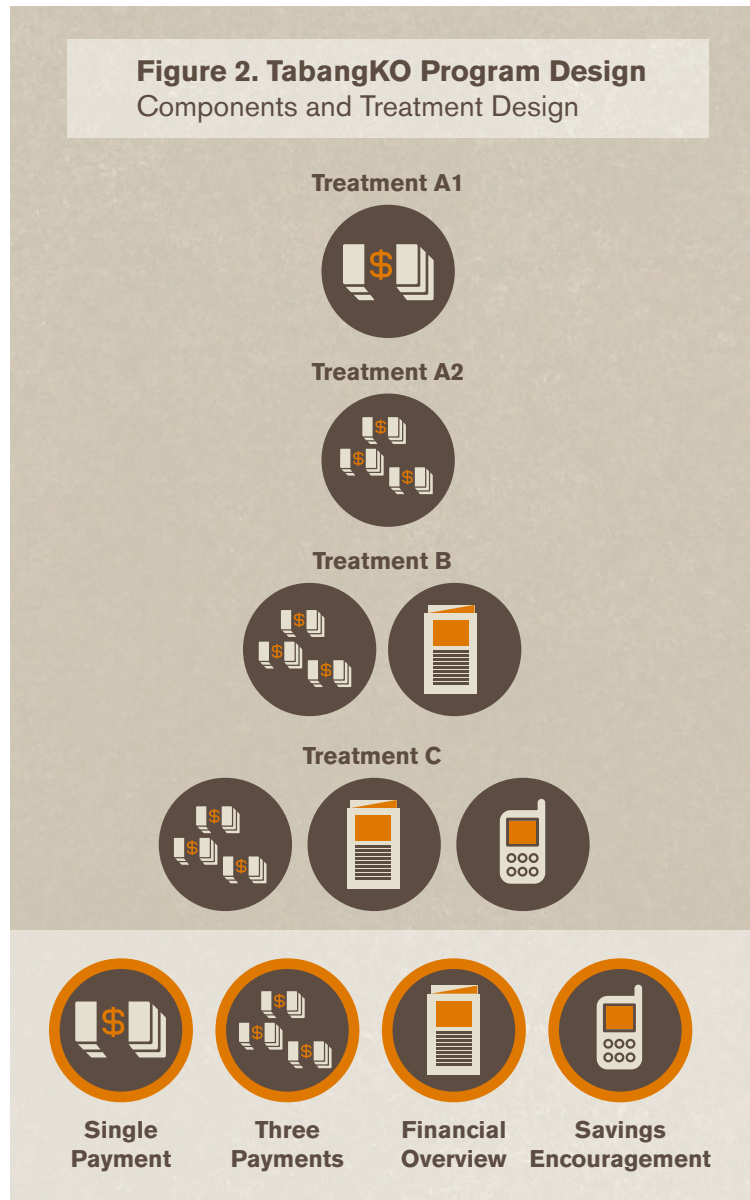
The connections between cash transfers and positive investments in livelihood and education are already well documented.⁴ This study, by comparison, examined the different ways that cash transfers could be combined with financial literacy training to impact beneficiaries in a post-disaster environment (**Figure 2**). As a result, the impacts of each version of the program are measured relative to one another, rather than being relative to receiving no cash transfer at all. **In other words, results that are not statistically significant mean that there is no difference in impact between two versions of the program, not that there was no impact from the intervention altogether.**

RESULTS & RECOMMENDATIONS



How Transfers Were Disbursed Mattered

Single sum transfers, when compared to three payments of the same amount, resulted in increased ownership of small productive assets. Within the evaluation, households that received the single cash transfer invested more in small livestock (hogs, goats, and poultry) when compared to households that received the same amount of cash in three payments. Although the trend between baseline and the final survey showed a decline in small animal ownership, households that received the single cash transfer had approximately 0.5 more small animals than those that received three smaller cash payments. Furthermore, potential disadvantages of receiving a lump sum – such as spending less cash on food and other daily consumption goods, and the use of more negative coping strategies to offset money spent on larger investments – did not materialize within the study. These findings demonstrate that recovery programs that seek to promote investments in productive assets should deliver cash transfers in the form of a lump sum. While the magnitude of impact was only 0.5 animals per family, this amount extended across the total TabangKO beneficiary pool of 25,000 households would have been substantial.



⁴ Ariel Fiszbein, Norbert Rüdiger Schady, Francisco H. G. Ferreira (2009). "Conditional Cash Transfers: Reducing Present and Future Poverty." The World Bank.

Qualitative research confirmed that lump sum transfers would have been preferable for many respondents, as it would have given households the ability to make larger purchases and investments. However, there were still a number of beneficiaries who valued having payments spread out over time to ensure that money could be saved for future needs. A number of studies⁵ confirm that savings products that restrict access are of great value to beneficiaries actively saving for the future. For programs looking to promote savings behavior, future research should explore how an increase in the number of smaller transfers would encourage more engagement of formal savings products. The TabangKO impact evaluation did not show a difference in savings behavior between households that received a single payment and those that received three.



One-Off Financial Literacy Trainings did not Influence Financial Behaviors

The introductory financial literacy overview given during registration events did not have any effect on the savings behavior of beneficiaries. Changing the behavior of beneficiaries, such as increasing cash savings, financial investment, and the use of more sophisticated financial products, will likely require more engagement than a one-time overview. In a post-disaster context, it is unlikely that immediate relief efforts will focus on the delivery of a full and robust financial literacy curriculum. However, as communities move forward with recovery, ensuring that households have access to the benefits of financial products will play a role in speeding improvement and reducing vulnerability. As delivered, the TabangKO financial training program was not likely to deliver these benefits. Existing evidence⁶ shows that financial literacy programs that deliver actionable “rule of thumb” financial trainings are more effective than general skills building courses. Additionally, future pilots should investigate ways⁷ to reinforce the initial learning with routine information delivered throughout the cash transfer process in order to further increase the probability that program beneficiaries will realize the benefits of financial inclusion.



Behavioral “Nudges” Can Promote Savings in a Disaster Recovery Context

Financial messages delivered over the course of a cash transfer program have the potential to overcome other factors that restrict savings behavior. Mobile-based savings encouragement led to changes in usage of both informal and formal savings products for beneficiaries who reported receiving the series of voice messages. This effect persists even after taking into account education levels, differences in financial literacy,⁸ and the average income of the beneficiary. However, when looking across the entire treatment group targeted by the voice messages, this effect was absent.

The reasons for this are not clearly borne out in the study. Data within the study show that the voice message series was not delivered successfully to all targeted beneficiaries. As a result, analyzing beneficiaries who recall the voice message can give us some insight into what the effects would have been on the larger group. However, there is strong concern that these results overestimate impact as the individuals who remember the voice messages are likely to also be more predisposed to savings behavior.

5 Ashraf, Nava; Karlan, Dean; Yin, Wesley (2014). “Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines.” Innovations for Poverty Action.

6 Alejandro Drexler, Greg Fischer, and Antoinette Schoar (2011). “Keeping it Simple: Financial Literacy and Rules of Thumb.” <http://www.mit.edu/~aschoar/KIS%20DFS%20Jan2011.pdf>.

7 Financial Conduct Authority (2015). “Message received? The impact of annual summaries, text alerts and mobile apps on consumer banking behavior.” <http://www.fca.org.uk/news/occasional-paper-no-10>.

8 Understanding of financial concepts, such as interest rates and basic numeracy, comprised an individual's financial literacy level.

When looking across the entire treatment group, the savings encouragement messages were found to have a larger impact on households in which the financial decision maker was female. The data within the evaluation showed that female financial decision makers that received voice messages had a savings rate⁹ that was almost double the savings rate of their male counterparts. An almost equal number of men and women report receiving the voice messages. Yet, some aspect of the message content, and not the mode of delivery, was more effective at encouraging savings behavior among women. As a result, how the information is presented will likely also play a large role in the overall effectiveness of a mobile-based savings encouragement program.

These results are in general agreement with the current literature on the effects of similar programs. Studies in behavioral economics¹⁰ as well as evidence from conditional cash transfer studies¹¹ show that “soft enforcement” and the continuous engagement of beneficiaries¹² can elicit desired behaviors. Reminders or regularly scheduled informative messages, when well implemented¹³ and targeted, can work in tandem with general financial literacy training and education to reinforce positive financial behavior after a natural disaster.

CONCLUSIONS

Within the context of disaster response and humanitarian aid, the TabangKO program was highly successful in delivering emergency funds to extremely vulnerable households in the wake of one of the most damaging natural disasters in Philippines history. While it is evident from qualitative interviews that the cash assistance distributed through TabangKO had a clear positive impact on communities as they continued the rebuilding process, it is also evident from this effort that ensuring that these benefits extend beyond the immediate effects of an influx of cash is not a straightforward task.

Mercy Corps was able to introduce an under-banked population to formal banking products through a UCT program. This unique model differed from other NGOs operating in the region that primarily relied on an existing remittance infrastructure, but did not increase the cost of delivering the assistance.

This experiment provides valuable insights to international development donors and practitioners. Specifically, post-disaster cash transfer programs should be intentional about design elements as small variations can create an added impact on the long-run wellbeing of beneficiaries. We find that single payments are more effective than routine smaller transfers in building productive assets important for household level resilience. Additionally, there is evidence that routine voice messages can help push households toward financial behaviors, like saving, that can contribute to their resilience to and recovery from future natural disasters.

9 Savings rate was defined as actively using at least one savings product (informal or formal).

10 Financial Conduct Authority (2015). “Message received? The impact of annual summaries, text alerts and mobile apps on consumer banking behavior.” <http://www.fca.org.uk/news/occasional-paper-no-10>.

11 Benhassine, N., Devoto, F., Duflo, E., Dupas, P., and Poulliquen, V. (2014). Turning a Shove into a Nudge? A “Labeled Cash Transfer” for Education. NBER. Cambridge, MA: National Bureau of Economic Research.

12 Pop-Eleches et.al “Mobile phone technologies improve adherence to antiretroviral treatment in a resource-limited setting: a randomized controlled trial of text message reminders.” <http://www.ncbi.nlm.nih.gov/pubmed/21252632>.

13 In order to maximize delivery, Mercy Corps employed market research to identify the optimal times at which beneficiaries would receive these messages. Other disaster-response programs should employ similar techniques and evaluate the method of delivery for savings encouragement messages prior to implementation in order to reach all their beneficiaries, not just subsets.

1.0 INTRODUCTION

1.1 RESEARCH QUESTIONS

In November 2013, Typhoon Haiyan (also known as Yolanda in the Philippines) devastated several Philippine islands, displacing over 4.1 million, damaging 1.1 million homes, and leaving over 6,000 dead.¹⁴ While Haiyan was recorded as one of the country's deadliest typhoons, storms of this type are common to the Philippine islands due to its geographic location.¹⁵ Efforts to address immediate disaster concerns and facilitate reconstruction and recovery are of pronounced importance given the large cumulative economic and social toll. Practitioners and policy makers in the Philippines are searching for program models that can promote recovery while strengthening the longer-term resilience of communities at risk of disasters. Mercy Corps set out to test such models during its response to Typhoon Haiyan.

1.2 RECOVERY PROFILE

The data collected within this report show that the majority of households targeted by Mercy Corps' program have not yet fully recovered almost one year after Typhoon Haiyan. This reflects the experience of 1,659 households spread out over 39 barangays¹⁶ across the western half of the island of Leyte. Given that these households were randomly sampled from over 25,000 that received the intervention, we can assume that these experiences are representative of a large portion of the island's population who experienced significant damage to their homes. The overall state of recovery is similar across the communities surveyed:

- **76.5% of respondents report they have somewhat recovered, but are still worse off than before Haiyan.**
- **The level of home recovery is lower compared to overall recovery, with 45% saying they have “somewhat” repaired their home.**

Beneficiaries were also asked to describe their current economic standing in the community both before and after Typhoon Haiyan. On average, 57% of respondents report that they are worse off economically than they were before Haiyan. A smaller portion of respondents, 37%, say they are at the same economic level as they were just prior to the typhoon.

1.3 TABANGKO CASH TRANSFER PROGRAM

In early 2014, Mercy Corps partnered with BPI Globe BankKO,¹⁷ a mobile micro savings bank, to deliver unconditional cash transfers (UCTs) of 3,950 PhP (approximately 89 USD) to over 25,000 households severely impacted by Typhoon Haiyan. The theory of change for the program was that households with greater financial inclusion – or access to and use of a range of financial services and products – would be better able to withstand future disasters and more rapidly recover without extensive humanitarian intervention.

14 Typhoon Haiyan Situation Report No. 27, UN OCHA, 27-December 2013.

15 Philippines Atmospheric, Geophysical and Astronomical Services Administration (accessed April 1, 2015). <http://kidlat.pagasa.dost.gov.ph/index.php/learning-tools/730-tropical-cyclone1>.

16 Smallest administrative unit in the Philippines and is the native Filipino term for a village, district or ward.

17 See <http://www.banko.com.ph>.

To achieve this, Mercy Corps used the emergency cash transfers as an opportunity to link formerly unbanked or under-banked households in the typhoon-affected regions with savings accounts from the formal financial sector. This was followed by financial literacy messaging and programming to help households further realize the benefits of the formal banking system.

The beneficiaries of this program were grouped among three distinct areas affected by the disaster: Northern Cebu and Western¹⁸ and Eastern Leyte. To participate in the program, a household representative was required to open a BankKO mobile savings account to receive the transfers. The transfers were scheduled for disbursement¹⁹ in three payments: 2,000, 1,200, and 750 PhP (approximately 45, 27, and 16 USD, respectively), between January and September 2014. This disbursement schedule was designed to give beneficiaries continued access and engagement with the savings account while also creating an additional stream of income. The three disbursements for the area were carried out in May/June, August, and September of 2014.²⁰ The program utilized BankKO's mobile platform to securely deposit the cash transfers into individual savings accounts. According to the baseline survey conducted in April/May of 2014, 96% of beneficiaries reported that these new accounts were their only formal bank accounts.

In addition to the UCT, a randomly selected set of participants received a brief one-hour overview of general financial literacy principles from the Microfinance Innovation Center for Resources and Alternatives (MICRA), a local consulting company, when they registered to receive the cash transfers and opened their bank account. For a randomly selected subset of beneficiaries, Mercy Corps added to the financial overview training by providing additional financial literacy messages via voice calls that promoted savings through a 'soap-opera' style 12-part story.²¹

1.4 PROGRAM OBJECTIVE

Using cash transfers as emergency assistance, Mercy Corps sought to address the outstanding needs of households affected by Typhoon Haiyan. By providing unconditional cash as opposed to in-kind relief goods, households would have the flexibility to spend according to their family's specific needs. This would ultimately allow for investment in a wide array of household or income-generating assets that would expedite recovery. Indirectly, cash transfers can also aid in the recovery of local markets by supporting traditional channels of distribution and consumption, which assists non-beneficiary households through greater demand for goods and services induced by the UCT. The measurement of these market effects, however, was beyond the scope of this study.

By utilizing a mobile platform to open bank accounts, the TabangKO program also aimed to reduce the traditional barriers to entry of formal banking in hopes of establishing it as a viable means of financial management for beneficiaries.²² Through promoting inclusion and familiarity with more formal financial services, households would be better able to supplement existing informal financial products with formal products, such as loan and insurance programs, allowing them to better address their recovery needs. Additionally, formal banking institutions would be able to provide higher levels of security in the storage of funds compared to traditional methods of storing cash within the home. This is especially important given the potential for home damage that major disaster events like Typhoon Haiyan pose. In the case of TabangKO accounts, beneficiaries would accrue a three percent annual interest rate on their savings, provided that the account established and maintained an average daily balance of PhP 2000 (45 USD) for 12 months. Through the program, historically under-banked beneficiaries received access to a mobile savings account and, in the process, could potentially increase access to formal financial services and products offered by BankKO.

18 The impact evaluation focused only on households in the Western Leyte region.

19 A small sample of beneficiary households were given their transfer in a single lump sum as a part of the impact evaluation study.

20 The portion of beneficiaries assigned to the single payment group received a lump sum payment in May/June 2014.

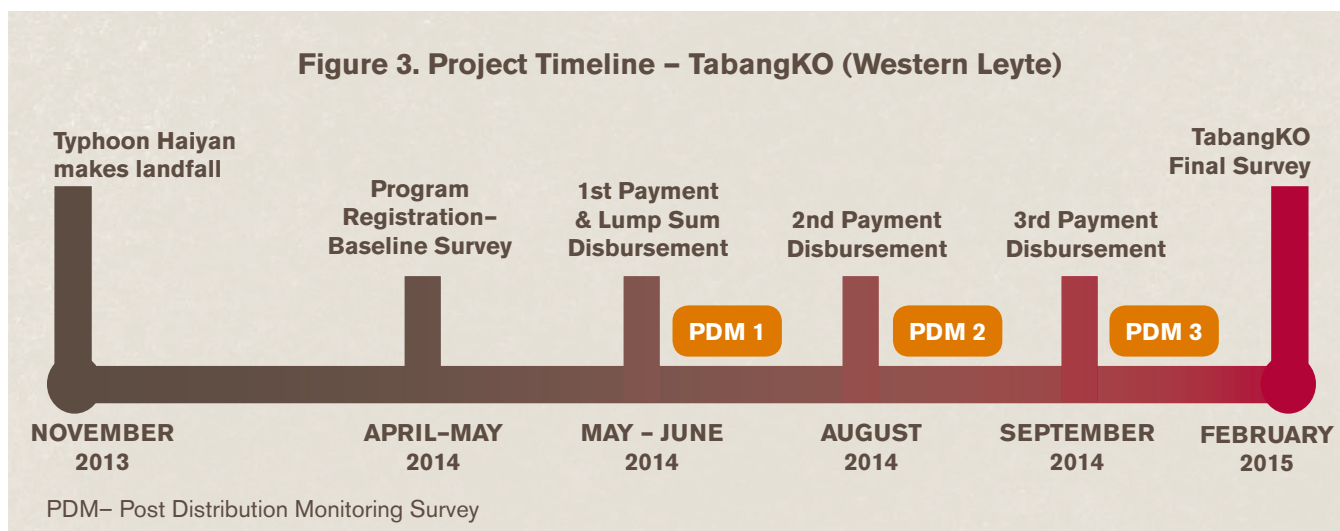
21 All financial literacy materials were developed and implemented independently by Mercy Corps without collaboration with BankKO or its affiliates during the course of the TabangKO program. At the time of this research, BankKO has not expanded financial services in the area beyond the TabangKO program, but will in early 2015.

22 However, this is also very dependent on the mobile agent network in the targeted geographies, which was very limited during the program.

1.5 DISTRIBUTION PAYMENTS AND SCHEDULE

According to the baseline survey, median annual income across households was 20,000 PhP (440 USD). This suggests that the transfer amount of 3,950 PHP (89 USD) equates to 1-2 month's income for most households within the study. Qualitative interviews also indicated that the cash transfer value was above the price range for several important productive assets, such as smaller livestock assets like pigs, goats and poultry. Individual sheets of corrugated iron²³ were also within the transfer amount range, though it is likely that the transfer would have only been able to fund a portion of an entire roof. This material was seen as the alternative to thatch/straw roofing, while pigs and poultry²⁴ were identified in qualitative interviews as strong areas for financial investment given the profit margins for the selling of animals.

Figure 3 shows the timetable for the TabangKO program and its associated cash transfer disbursements in Western Leyte. Distribution of each UCT was generally completed over a span of two to four weeks.²⁵



1.6 BENEFICIARY SELECTION

Mercy Corps identified potential intervention sites by assessing the presence of humanitarian and disaster relief agencies (INGOs, NGO, and NGAs) in typhoon affected areas. Sites were chosen to reflect those most underserved by other humanitarian aid agencies and focused on inland areas that sustained significant wind damage. Given that transactions would be sent over a mobile platform and that withdrawal of funds could only be conducted at BankKO Partner Outlets (BPOs), access to adequate levels of Globe cellular coverage and the presence of BPOs were also critical factors in site selection.

Potential beneficiaries were identified using a list compiled by the Department of Social Welfare and Development (DSWD), which catalogued various levels of damage that households experienced. Households that resided in the pre-selected areas and were categorized as having been “totally damaged” by DSWD criteria were chosen for program enrollment. Mercy Corps staff and community partners verified that damage was sustained in

23 At baseline 61% of household were using iron roofing. By the time of the final survey 83% of households were utilizing iron roofing.

24 At baseline, 53% of households owned poultry and 21% owned hogs. At endline these figures were 59% and 9% respectively.

25 The first transfer was delayed an average of 4 weeks for 72% of beneficiaries.

target areas in order to select beneficiaries. Priority was given to households that used lighter and less stable building materials and therefore suffered greater damage. Households were then contacted with details of the program through local barangay representatives. Prior familiarity, interest in opening a bank account, and take-up of financial products and services were not factored into the selection process. By the completion of program, 25,480 households were included in the TabangKO program and received the UCT. Of these, 5,489 beneficiaries resided in Western Leyte (region subject to this impact evaluation).

2.0 Impact Evaluation Design & Methodology

2.1 EVALUATION DESIGN

This evaluation utilized randomized assignment to evaluate the impact of the TabangKO program. Randomized experiments are powerful tools for assessing the causal effect of an intervention. In lieu of a pure control group, this evaluation randomly assigned participants to one of four different treatment arms to evaluate the most effective way to implement and package cash transfer programming. While there is a broad evidence base on the effectiveness of cash transfers in general, this study sheds new light on how different packages of cash, delivery, and interaction with training may have varying impacts. It also aims to contribute to some of the earliest understanding of UCTs as an emergency relief tool, especially when linked with financial literacy. By combining cash transfers with mechanisms that increase usage of formal savings accounts and promote savings behavior, the intervention seeks to learn how to effectively build on the initial benefits of cash alone. The study is designed to examine how programs focused on immediate emergency relief can be optimized to address longer-term sustained recovery.

While the TabangKO program was implemented across three regions, the impact evaluation focused on the region of Western Leyte. The area provided a population with enough households and villages to generate statistically valid results, as well as adequate logistical support to implement the evaluation design. A detailed sampling plan is in Annex A.2. In addition, timing differences allowed beneficiaries to be randomly assigned to different program arms, making it possible to implement a rigorous impact evaluation design.

This impact evaluation varies from traditional randomized trials in that there is no pure control. While treatment was assigned randomly before the program began, it was not realistic for Mercy Corps to withhold the cash grants element of the intervention from an otherwise eligible household. The implication of this evaluation design is that the study's impact estimates only represent the marginal, or added, effect of the different programs, and not the full impact of Mercy Corps' assistance to beneficiary families. More specifically, where "No statistical difference or effect" is reported, this should be interpreted as "There was no difference in impact between one version of the program compared to another;" not that there was no impact from the intervention altogether.

2.2 THEORY OF CHANGE

In designing the TabangKO program, the Mercy Corps team was guided by the following theories of change:

- 1) When households can protect their assets and are not forced to resort to negative coping mechanisms, they will then be able to more quickly stimulate the economic recovery of their households.**

2) When financial literacy training is provided alongside cash transfers, households will take up new financial services and products, thereby better protecting their assets and increasing their economic resilience to future natural disasters.

This research tested whether or not different ways of distributing cash transfers could more quickly stimulate recovery. It also investigates how the provision of financial literacy and saving accounts can, as part of a recovery program, increase savings behaviors and the use of formal and informal financial services.²⁶ To date, there is limited evidence on how to best leverage financial literacy programs immediately following an emergency.

Cash Transfers

Studies conducted on the overall impact of UCTs suggest cash transfers consistently have positive impacts on food security, hunger, human capital formation, and the ability to sustain livelihoods in the face of shocks.²⁷ For example, following the growing Syrian refugee crisis in Lebanon, the UNHCR delivered cash transfers to over 87,000 refugees to help households cope with the added costs associated with preparing and enduring winter months within IDP camps.²⁸ An evaluation of this intervention showed a direct link between these transfers and increased spending on heating supplies. Furthermore, these cash transfers were shown to have positive effects on the local economy while also increasing schooling enrollment among children. Households also recorded less negative coping activities, such as reducing the number of meals eaten per day.

The TabangKO cash transfer was aimed at addressing a number of household needs. Similar to the program implemented in Lebanon, the cash assistance distributed through TabangKO was meant to go beyond consumption goods and toward helping households cope and better manage the recovery process. Through this emergency cash assistance, households are predicted to experience higher levels of recovery and improved livelihood in the following ways:

- **Meet immediate emergency gaps (food, shelter, health, debt, etc.)**
- **Prevent productive asset shedding**
- **Invest in productive assets**

The ways in which these outcomes lead to the overall objectives of the TabangKO cash assistance are illustrated in **Figure 4** below.

There is still a lack of evidence on dosage effects of emergency cash transfer programs. This leaves questions on effective timing and distribution of cash transfers, as well as optimal amounts that will lead to improvements sought among the recipients. Within a longer-term development context, a 2013 study of the GiveDirectly program in Western Kenya found that UCTs increased food consumption by 20% and decreased the number of days children go without food by 42%. The same study concluded that the size and frequency of transfer programs had an effect on outcomes, which leads to policy trade-offs.²⁹ Specifically, GiveDirectly found that,

26 The program did link beneficiaries with additional financial products (e.g. loan products), but the impact is not included in this study as the timeline is beyond the data collection period.

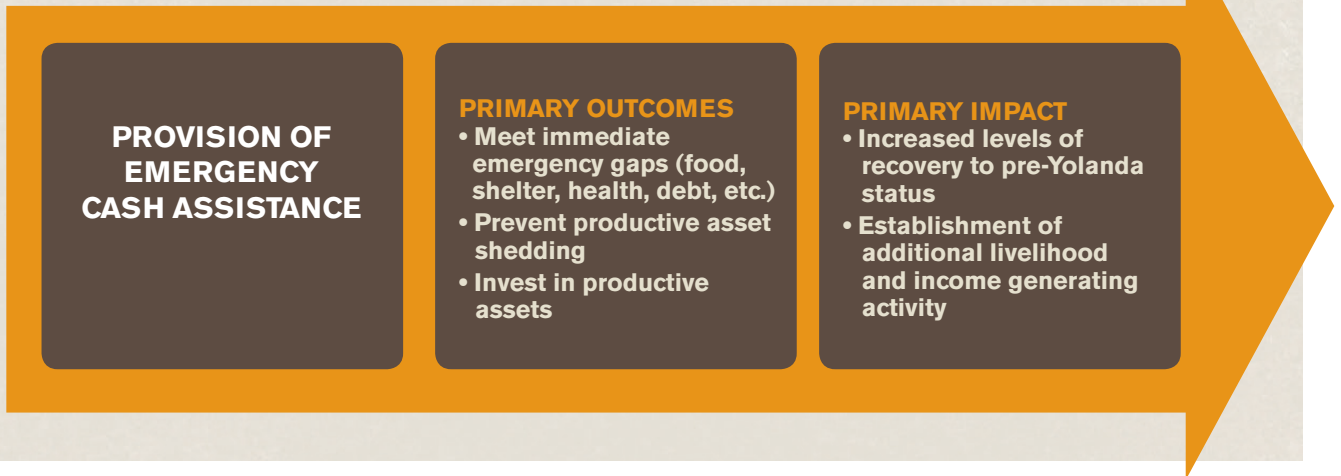
27 While the evidence on UCTs is growing, there is room for rigorous studies of UCTs in emergency contexts.

28 Christian Lehmann and Daniel Masterson (2014). "Emergency Economies: The Impact of Cash Assistance in Lebanon." International Rescue Committee.

29 Haushofer, Jonathan; Shapiro, Jeremy (2013-10-24). "Policy Brief: Impacts of Unconditional Cash Transfers"

“monthly transfers have stronger effects on food security than lump-sum transfers, while lump-sum transfers show larger effects than monthly transfers on particular types of assets such as metal roofs.” The Mercy Corps TabangKO program and impact evaluation set out to test this logic in the context of an emergency response.

Figure 4.
TabangKO Theory of Change – Emergency Cash Transfers



Financial Literacy

Financial literacy covers a range of messages and methodologies that are implemented in a variety of programs in various contexts around the world. Numerous independent studies and systematic reviews document how financial training generates increased awareness and more positive views of formal financial products and services.³⁰ A review of twelve research studies conducted by DFID finds compelling evidence that access to formal banking services through tailored savings products and mobile technology leads to increases in overall income for the poor. Such services help manage income through beneficial investments and better allocation of capital.³¹ The effectiveness of these training programs, however, is closely tied to a range of other circumstances and characteristics, including education, life stage of the beneficiary, and geographic access.³² There is also evidence that banking technology using mobile phones can facilitate savings and reduce transaction costs of trading among the poor.³³ Given that the TabangKO transfers were implemented through a mobile platform, this aspect also has the potential to impact the behavior of recipients. Overall, the evidence suggests that while financial literacy may be an important component to promote income and livelihood generation, how programs are designed, implemented, and delivered is critical to optimizing overall effectiveness.

Understanding how financial programs can be used in the context of individuals living in poverty after a large-scale natural disaster is key to this research. A study of rural farmers in India³⁴ shows that even when taking into account levels of stress, work, and nutrition, poverty itself can cause individuals to experience reduced cognitive abilities. This results in poorer decision-making on a range of activities, such as personal finance

30 Fenella Carpena, Shawn Cole, Jeremy Shapiro, Bilal Zia (2011). “Unpacking the Causal Chain of Financial Literacy.” World Bank Policy Research Working Paper 5798.

31 Pande, Rohini, et al. (2012-February). “Does poor people’s access to formal banking services raise their incomes?”

32 Lisa Xu and Bilal Zia (2012). Financial Literacy around the World: An Overview of the Evidence with Practical Suggestions for the Way Forward.

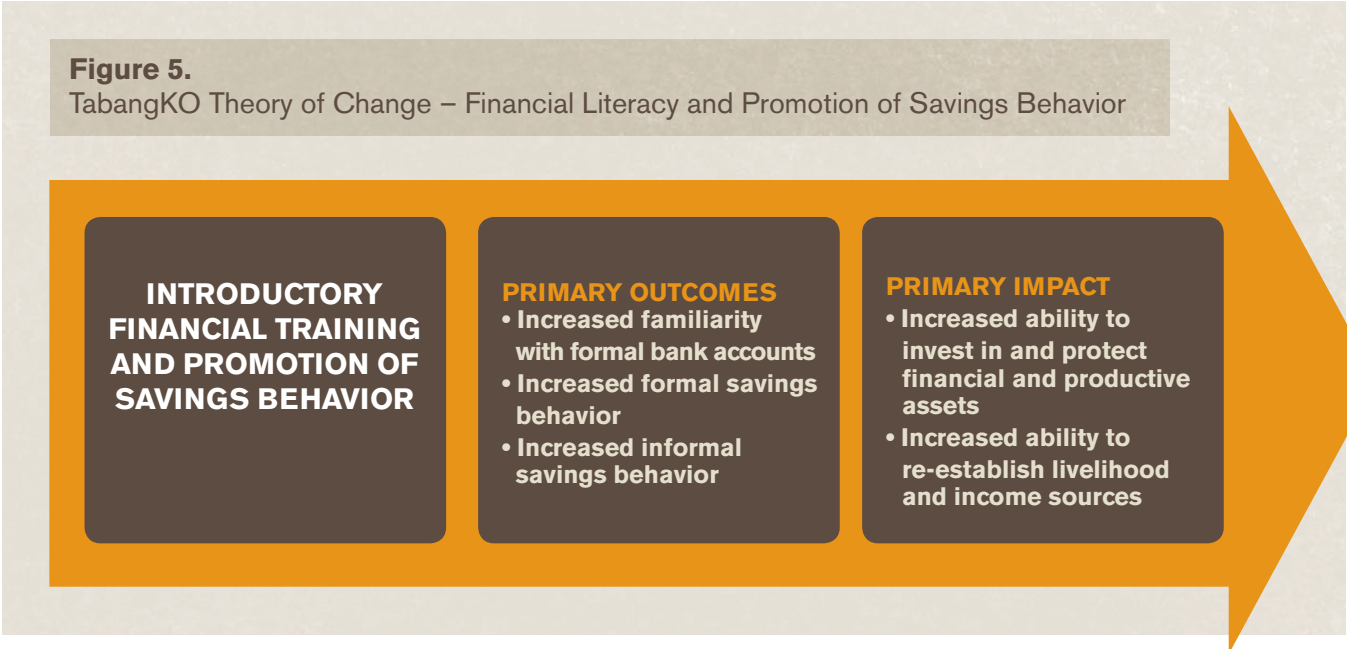
33 Pande, Rohini, et al. (2012-February). “Does poor people’s access to formal banking services raise their incomes?”

34 Anandi Mani, et al. (2013). “Poverty Impedes Cognitive Function.” Science 341, 976.

and long-term investment. Immediately following a major disaster, the consequences of poor financial decision making are likely heightened. Thus, the initial steps to re-establishing livelihood and reliable income are critical to overall recovery. Financial programs that better equip households to respond to and mitigate financial shocks have the potential to substantially reduce household vulnerability. However, there is little direct evidence of how poverty combined with the post-disaster context may affect beneficiary populations and their ability to respond to training and interventions to promote savings. This evaluation provides the opportunity to understand the added impact of an introductory overview of financial literacy as well as a series of voice messages promoting savings in a post-disaster context. The introductory financial training and the reinforcement of savings behavior is expected to impact recovery and livelihood investment through the following channels:

- **Increased usage of bank accounts**
- **Increased formal savings behavior**
- **Increased informal savings behavior**

These intermediate outcomes are hypothesized to increase a household's future ability to invest in more sophisticated financial products, such as loans and insurance, while also helping to ensure that more financial resources are on hand during emergencies. In addition to increasing financial options, households that have greater access to and use of financial services are believed to be less likely to sell off productive assets to meet emergency goals and needs. These links are illustrated in **Figure 5** below:



Generally, interventions that contribute to greater overall recovery from future shocks and stresses should also be associated with outcomes related to food security, poverty, and the ability to meet daily needs. As such, positive program effects should also have indirect impacts on these secondary variables.

2.3 RESEARCH QUESTIONS AND HYPOTHESES

The research questions below constitute the primary focus of the research design implemented in the TabangKO program impact evaluation. Through randomization and rigorous quantitative and qualitative analysis, Mercy Corps seeks to better understand the overall effect of different forms of the TabangKO intervention by exploring the hypotheses below.

1) What difference does the frequency of cash transfers make to a household's recovery and livelihood?

H1: Differences in the frequency and size of how cash transfers are delivered will result in differences in how cash is spent within the home.

H2: Differences in the frequency and size of how cash transfers are delivered will result in differences in the rate of investment in productive assets within the household.

H3: Differences in the frequency and size of how cash transfers are delivered will result in differences in the rate of productive asset shedding within the household.³⁵

H4: Differences in the frequency and size of how cash transfers are delivered will have an effect on the savings behavior of beneficiary households.

2) What difference does an introductory overview of financial concepts have on the savings behavior of beneficiaries?

H5: An introductory overview of financial concepts will increase the savings behavior of beneficiary households.

3) What difference do targeted savings messages have on the savings behavior of beneficiaries?

H6: Finance related messages and savings encouragement messages will increase the savings behavior of beneficiary households.

Additional Areas of Focus

In addition to the questions above, the evaluation also explored the following areas to better understand the overall impact of the TabangKO program:

- **Did the different forms of program treatment have any measurable effect on households' recovery?**³⁶
- **For whom did the different TabangKO program arms work best?**
- **Did the TabangKO program effectively deliver the intervention, in terms of costs and benefits, to the community?**

³⁵ This will be compared to baseline rates of ownership across all assets to determine rates of asset shedding.

³⁶ Recovery in this instance is primarily measured by outcomes in dietary diversity, use of coping strategies, and poverty assessment using the PPI.

2.4 KEY OUTCOME INDICATORS

The primary outcomes of interest for measuring change are use of cash, productive asset investment, prevention of asset shedding, and savings behavior. Secondary outcomes include dietary diversity measured through food consumption, poverty related coping strategies, and the Progress out of Poverty Index (PPI).³⁷ In all cases, outcomes measured all household consumption, investment, and behavior since registration into the program. **Table 1** below further describes each indicator and lists the variables used to measure each outcome.

Table 1. Primary Intermediate Outcomes and Associated Variables of Interest³⁸

Primary Intermediate Outcomes	Variables of Interest
<p>Use of Cash Use of cash is defined as general household spending on consumable goods as well as financial investments made to rebuild or upgrade the quality of the home (roofing/walls).</p>	<ul style="list-style-type: none"> • Nondurable Goods Index • Durable Goods Index • Materials used to build home
<p>Productive Asset Investment Productive asset investment includes inventories of income generating assets as well as the ability to repair any damaged productive assets since receiving the cash transfer.</p>	<ul style="list-style-type: none"> • Animal Assets Index (Large and Small Animals³⁸) • Work Equipment Index • Ability to recover damaged work assets
<p>Prevention of Asset Shedding Prevention of asset shedding measures changes in asset ownership between the baseline and final survey period.</p>	<ul style="list-style-type: none"> • Animal Assets Index (Large Animals) • Work Equipment Index
<p>Reported Savings Behavior Savings behavior reflects the use of formal and informal savings mechanisms to save financial assets and the behavioral response to hypothetical increases in income.</p>	<ul style="list-style-type: none"> • Reported Average Monthly Savings • Savings Usage (Formal and Informal) • Reported Activity Following Hypothetical Positive Cash Shock
<p>Secondary Outcome Indicators These outcomes reflect areas in which the program is hypothesized to indirectly contribute to overall recovery from Typhoon Haiyan.</p>	<ul style="list-style-type: none"> • Food Consumption Scores • Coping Strategies Index • Progress out of Poverty Index

In certain cases, outcome variables were constructed through the creation of various indices from a set of variables. For established indices, guidance was taken from source material on the appropriate scoring and compiling process. For general asset compilation, the evaluation employed two strategies – the sum of asset inventories was aggregated across the variables and Principal Component Analysis (PCA). For variables utilizing a Likert scale, average values were used to construct a single index.

³⁷ The PPI is a tool that predicts the likelihood that a household lives under the national poverty line based on responses to a standardized questionnaire. See <http://www.progressoutofpoverty.org/about-ppi>.

³⁸ For the purpose of the evaluation, water buffalo and cattle are considered large livestock, while hogs, goats, and chickens were categorized as small livestock.

2.5 IDENTIFICATION STRATEGY

Within Western Leyte, the eligibility criteria and subsequent registration process resulted in 5,489 enrolled households. Of these 1,738 were randomly selected to receive a baseline survey and assigned to the following treatment groups as defined in **Table 2** below.

Table 2. Distribution of Treatment Groups at Baseline

Treatment Group	Intervention	No. of Households Recorded
A1	Cash Transfer (Lump Sum)	446
A2	Cash Transfer (3 payments)	456
B	Cash Transfer (3 payments) Financial Overview	364
C	Cash Transfer (3 payments) Financial Overview Voice Messages (Savings Encouragement)	393
Total³⁹:		1,659

The A2 treatment arm represents the standard distribution method in the context of this evaluation. In this version of the program, Mercy Corps beneficiaries received the equivalent of 89 USD as a UCT via BankO's mobile banking platform. The sum was distributed to the household in three payments over a period of six months (April - September 2014). The A1 arm is a slight variation to the original intervention in which households received the entire cash transfer in a single lump sum between May and June 2014. The impact evaluation compared A1 to A2 in an effort to understand the differing marginal impact UCTs have on households when delivered in differing dosages. Cash transfers for beneficiaries in treatment arms B and C receive the same cash transfer sum and frequency of payments as those in arm A2.

2.6 RANDOMIZATION PROCESS

Within Western Leyte, the targeted beneficiaries were identified from 39 barangays spread out over six municipalities (**Table 8**). Within each barangay, half of the households verified by the initial DSWD process were randomly assigned to receive the one-hour introductory module on financial literacy principles during registration. For the households that did not receive the one-time financial literacy training, half were assigned to receive the transfer in a one-time lump sum disbursement. The other half was scheduled to receive the transfer over three payments. Finally, for the group that received introductory financial literacy training, half were assigned to receive a series of additional voice messages promoting savings behavior from Mercy Corps.⁴⁰ **Figures 6 and 7** illustrate the process that was put in place to randomly assign households to specific treatment groups and the resulting comparisons that can be drawn from them.

39 79 baseline respondents could not be linked to their original treatment assignments.

40 Voice messages were delivered by Mercy Corps independently of BankO.

Figure 6.
Randomization Process
– TabangKO program

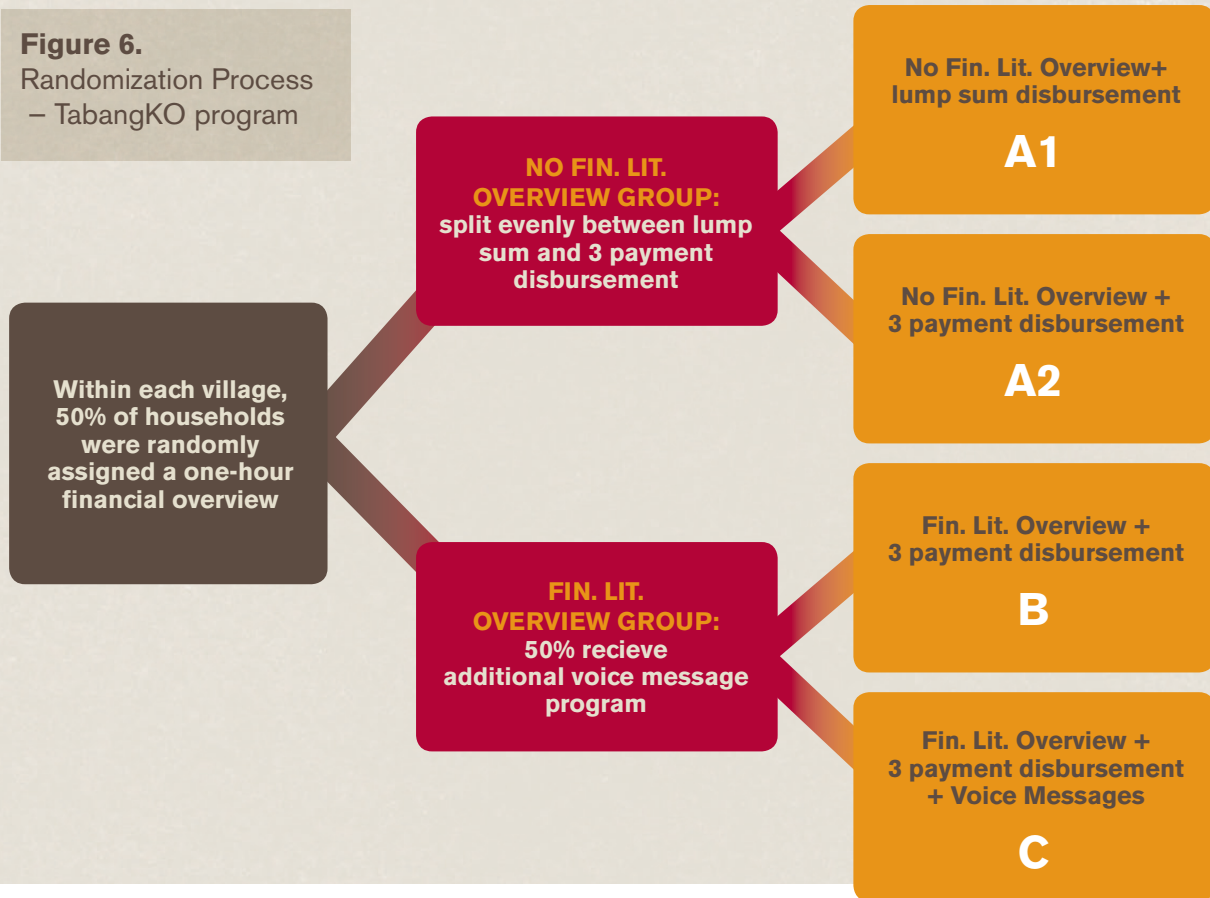
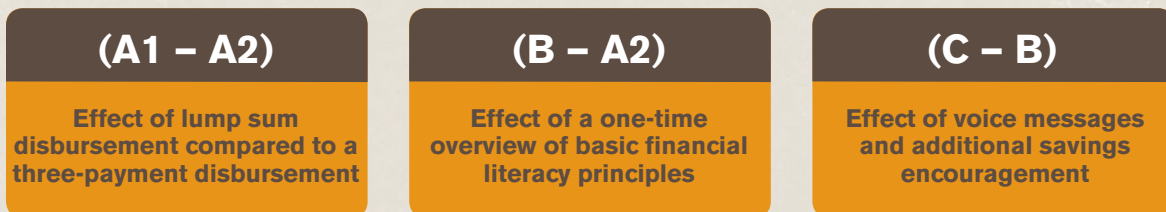


FIGURE 7 Comparisons Between Treatment Groups to Measure Marginal Effects



2.7 ESTIMATION STRATEGY

The following equations were used to estimate the impact of the intervention across treatment groups. Baseline analysis of data indicated that treatment groups were similarly distributed across a wide range of observable characteristics. This similarity suggests that the randomization process led to unbiased estimates when the results were measured.

The single difference specification is as follows.

$$y_{iB,t} = \beta_0 + \beta_1 T + \delta_B + \varepsilon_{iB,t} \quad (1)$$

Where y_{it} is the outcome for household beneficiary i in Barangay B at time t ; T is the treatment dummy; δ_B is the Barangay (village) level fixed effects; and ε_i is the error term.

The ANCOVA model was used to estimate the outcome variable when baseline values could be determined for beneficiaries and it was assumed autocorrelation is reasonably low.

$$y_{iB,1} = \beta_0 + \beta_1 T + \beta_2 Y_{iB,0} + \delta_B + \varepsilon_{iB,1} \quad (2)$$

In order to increase robustness of findings, specifications that include relevant household level controls were also estimated.

2.8 HETEROGENEOUS EFFECTS

The evaluation also attempted to explore any heterogeneous effects that may potentially arise resulting in differential effects for sub-groups within the study. The effects will be estimated using the following equation:

$$y_{iB,t} = \beta_0 + \beta_1 T + \beta_3 (TxG) + \beta_4 G + \delta_B + \varepsilon_{iB,t} \quad (3)$$

$T \times G$ is the interaction between treatment and the heterogeneous indicator, where G is an indicator variable for the heterogeneous effect.

Heterogeneous impacts were examined along a range of individual and household level effects. These include:

Individual (Financial Decision Maker)

- Gender
- Age
- Education level
- Baseline financial literacy

Household

- Size of household
- Average Monthly Income (log)

2.9 CONTROLLING FOR PROGRAM BIAS

Data analysis of the baseline survey indicated that all treatment groups were generally balanced across control variables and geographic indicators such as gender, age, education and village of residence. In certain cases, relatively low response rates for specific assets and behaviors did yield the potential for outliers to drive the results. Where outliers were suspected across self-reported continuous variables, the research team conducted the following robustness checks: (1) drop outliers, (2) truncate the data where there is little to no expected loss in statistical power, or (3) transform the data into log form if possible.

Of the original 1,738 beneficiaries registered for the program, 98 could not be surveyed in the final round. Analysis was done to investigate whether or not these beneficiaries shared any observable characteristics (education levels, income, gender, household size, etc.). The results of this diagnostic (**Table 15**) show this

group of households was significantly different when analyzing one of the control variables used to balance treatment groups at baseline. Individuals who were included in baseline but not included in the final survey were slightly more educated in terms of formal years of schooling. As a result, the analysis will include controls for years of education to ensure that this potential bias is accounted for. The results also showed that attrition did not occur more in one treatment group than any other.

2.10 LIMITATIONS IN MEASUREMENT AND IMPLEMENTATION

Assignment to treatment was done randomly at the individual level. All of the models used have included barangay (village) fixed effects to control for trends within a community. However, there is a potential for the treatment to have spillover effects to other beneficiaries, especially for the behavioral aspects of the intervention. In this case, we assume any spillover effect would underestimate the impact of the financial literacy overview and savings encouragement messages.

The impact estimates in this study are primarily based on data collected in January and February of 2015. This was 14 months after the Typhoon, and eight months after the TabangKO program began in Western Leyte. Most results should be interpreted as a medium-term impact of the program. Data collected during the cash transfer period (May to September 2014) or just after the last transfers (September 2014) were made would better represent the immediate or short-run effects of the programs.

A number of implementation hurdles affected the ability for participants to receive all parts of the assigned intervention. For example, within treatment group C, voice messages were sent to the primary account holder's mobile phone via an assigned Globe SIM card. While SIM cards may be used interchangeably with a single phone, messages sent to a specific SIM card cannot be retrieved unless that card is in use. Given that it is common for households to have multiple SIM cards, it is unlikely that the Globe provided SIM card used to receive messages and cash disbursements notifications would be installed at all times. Combined with varying cellular network reliability, there was some concern that messages would not adequately reach the intended beneficiaries.

Qualitative evidence also suggests that formal banking at designated BankKO Partner Outlets (BPOs) was hindered by travel time and costs incurred by beneficiaries. These BPOs served as agents on behalf of BankKO that would provide financial withdrawal and deposit services for beneficiaries to manage their savings accounts. Given that treatment groups were randomized and balanced across geographic characteristics, we can assume this does not bias any specific treatment outcome. However, the results may underestimate the change in access to formal banking sites, as savings behavior would be reduced for beneficiaries throughout the sample.

Finally, the experimental area was restricted to the Western Leyte region. While the results of the impact evaluation show causal relationships between treatment effects and outcomes, the evaluation makes the assumption that these results are externally valid. The applicability of the impact measured within Western Leyte may vary depending on how generalizable this region is to the rest of the Philippines and other areas that experience similar natural disasters.

3.0 Final Survey Design & Data Collection

3.1 FINAL SURVEY QUESTIONNAIRE

The final survey questionnaire was developed with input from stakeholders including Mercy Corps, Causal Design, and a team of students from Johns Hopkins School of Advanced International Studies. The questionnaire collected data on over 500 variables within 18 modules. Respondents to the survey were BankO account holders, and thus the primary beneficiaries of the program. The endline survey interviewed the same respondents from the initial baseline survey.

Translation & Pre-testing

Mercy Corps field staff conducted translation of all survey instruments. Translation accuracy was subjected to testing and verification by the data collection team during the training and piloting period. Pre-testing and piloting of the survey were conducted immediately after the conclusion of enumerator training and were targeted to beneficiaries within the region that was not included within the final survey data collection.

3.2 SURVEY IMPLEMENTATION & LOGISTICS

Mercy Corps was responsible for the logistical implementation of the final survey data collection within Western Leyte. The research team worked closely with the enumeration team to monitor the data collection effort and served as technical and logistical advisors during enumeration.

Enumerator Recruitment & Training

In early January 2015, the research team engaged with Mercy Corps to conduct a series of enumerator training and data collection piloting exercises. Enumerators completed one week of training on the survey tool, mobile data collection, and the protocols to be used during data collection.

Mobile Data Collection System

Data was collected on mobile devices using Open Data Kit (ODK) software, which was programmed with logical checks and skip methodologies to reduce errors, and eliminated the need for secondary data entry.

3.3 DATA ANALYSIS

Data were exported from the ODK database. Stata 13 was used for data cleaning and analysis. Detailed .do files have been kept to document the research process.

4.0 Results

4.1 SUMMARY OF KEY RESULTS

The following findings reflect the impact measured when comparing different arms of the TabangKO program, but not the overall impact of the TabangKO program. This study represents one of the few randomized controlled trials implemented within an immediate disaster-relief response effort. Where necessary, the research has expanded on areas of interest outside the original research questions.

What difference does the frequency of cash transfers make to a household's recovery and livelihood?

Single sum transfers, when compared to staggered payments of the same amount, result in increased ownership of small productive assets.

Households that received the single cash transfer invested more in small livestock (hogs, goats, and poultry) compared to households that received the same amount of cash in three smaller payments. Furthermore, disadvantages and expected negative effects of receiving lump sum disbursements did not materialize within the study. These would have included smaller amounts of cash spent on food and other consumption goods and the use of more negative coping strategies to offset money spent on investments.

Single sum transfers, when compared to staggered payments of the same amount, do not result in changes in ownership of major productive assets or on spending of consumable goods.

The frequency of cash transfers did not have an effect on ownership of household appliances, construction materials, the number of large livestock (water buffalo and cattle), or work equipment (agriculture tools, fishing materials, etc.) owned.

The frequency of cash transfers did not have an effect on the overall sum of money spent on food, water, clothes, rent, home repair, fuel, healthcare, transportation and education.

Single sum transfers, when compared to staggered payments of the same amount, had no effect on ownership of larger livestock and work equipment.

Changes in how many large livestock and work assets a household owned from the beginning to the end of the program were not driven by differences in how cash transfers were disbursed and timed.

Single sum transfers, when compared to staggered payments of the same amount, had no effect on savings behavior.

Savings behavior, as measured by the use of formal and informal savings products as well as reported monthly savings, did not differ between households that received a single transfer and those that received three payments.

What difference does an introductory overview of financial concepts have on the savings behavior of beneficiaries?

An introductory financial literacy overview given during registration events did not have any effect on the savings behaviors of beneficiaries.

Savings behavior, as measured by use of formal and informal savings products as well as reported monthly savings, did not differ between households that received the financial literacy overview and those that did not.

What difference do targeted savings messages have on the savings behavior of beneficiaries?

Delivering a series of mobile-based voice messages that promote savings has the potential to increase savings behavior among beneficiaries who were sufficiently exposed to the messages.

The evaluation provides evidence that mobile phone based savings encouragement leads to changes in usage of both informal and formal savings products, but only for beneficiaries who report receiving the series of messages. Additionally, these messages were found to have a large impact on the active use of at least one savings product (formal or informal) for households in which the financial decision maker was a female. However, given the nature of the findings, there is risk that this result is being partially driven by other factors.

Did different forms of the program have any measurable effect on households' recovery?

None of the arms of the TabangKO program had a significantly different effect on the secondary outcomes related to household recovery.

There did not appear to be a relationship between different versions of the TabangKO program and marginal changes in food consumption, use of emergency coping strategies, or scores on the Progress out of Poverty index.

For whom did the different TabangKO program arms work best?

The series of voice messages that promoted savings behavior had larger effects on improving savings activity on households with female financial decision makers, younger financial decision makers, and financial decision makers with higher levels of education and financial literacy.

There was evidence that the mobile-based savings encouragement affected groups of financial decision makers (FDMs) differently. For beneficiaries assigned to treatment group C, survey data showed increased savings behavior for women and for FDMs with higher levels of financial literacy and general education. Additionally, increased effects on savings behavior were observed for younger beneficiaries.

Did the TabangKO program effectively deliver the intervention, in terms of costs and benefits, to the community?

The BankKO mobile banking platform is an economical and scalable cash transfer medium. The added financial literacy elements are reasonable expenses, but the voice messages on savings appear to be a more cost-effective intervention.

One of the most revealing findings in this study may be on cost-effectiveness. Without increasing expenses,⁴¹ Mercy Corps capitalized on an emergency cash transfer program to introduce formal banking products to a relatively un-banked population. Additionally, this experiment demonstrates that small operational changes can have significant effects on efficacy – that is, the percent of targeted beneficiaries that actually receive the program. Moving from smaller routine transfers to a single lump sum payment directly increased a household's ownership of livestock without any added program expense. In fact, it is likely cheaper to deliver a lump sum program as monitoring and indirect administrative expenses are reduced.

Further investigation is needed into the effectiveness of the savings encouragement messages. Of the 17.3% that reported receiving the voice messages, the average use of savings accounts (formal or informal) increased by 106%. If the efficiency of this program can be increased, it has the potential of being a powerful tool in financial inclusion.

41 According to the DFID Value for Money report on UCTs in response to Haiyan, most NGOs spent 1-3% on UCT transfer fees. Banko's transfer was 2%.

4.2 FREQUENCY OF CASH TRANSFERS

What difference does the frequency of cash transfers make to a household's recovery and livelihood?

Asset Investment

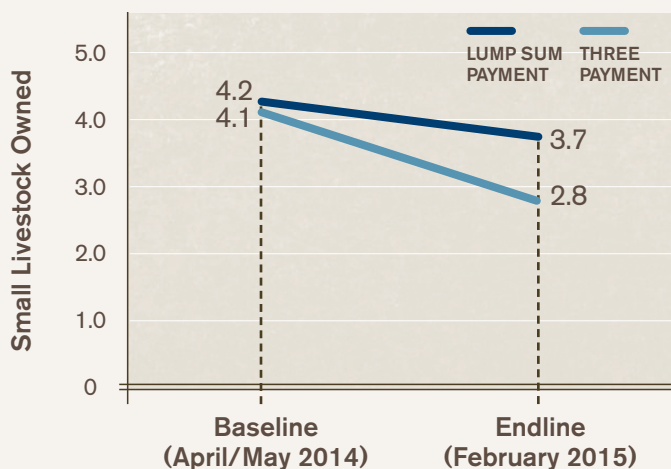
A difference in cash disbursement timing was hypothesized to have effects on how a household would spend money on goods for consumption (food, clothing, fuel, etc.) and home improvement,⁴² as well as on investment in productive assets, particularly livestock and work equipment. This was analyzed by comparing two specific forms of the TabangKO program. In the first version, beneficiaries received a single lump sum cash transfer (treatment group A1). In the comparison group, beneficiaries received the same amount, but spread out over three payments (treatment group A2). The single transfer and the first of three payments were distributed at the same time. It should be noted that the final survey was conducted approximately eight months after the original cash disbursement. As a result, it is likely that the span of time allowed immediate differences in short term spending patterns to have diminished. Thus, any significant impact measured between groups would suggest that the frequency of payments has the potential to affect outcomes beyond the program timeframe.

The data collected in the final survey show evidence that asset ownership of small livestock (hogs, goats, and poultry) between households were statistically different by the time of the final survey (February 2015). On average, households that received the single cash transfer have approximately 0.5 more animals than those that received three smaller cash payments (see Table 3). Analyzing trends between the baseline and final survey (Figure 8) suggests that the number of animals owned was declining for both groups; however, the lump sum payment seems to have prevented a bulk of this decline. Further investigation revealed that this was only the case for overall ownership of small livestock and was not driven by a specific animal. This finding is reinforced by qualitative interviews and baseline analysis that suggested high demand of both hogs and poultry, as opposed to a single animal, in the period between Typhoon Haiyan and the initial disbursement across the entire region.

For many households, traditional sources of livelihood were adversely affected by the typhoon, thus securing alternative sources of income and food would have been a large part of the recovery process. Small animals that could be grown and sold within a relatively short timeframe would have supplemented income and contributed positively toward recovery.

The frequency of payments did not, however, have the same effect across other measured uses of cash. Specifically, final survey data did not find any significant differences in ownership of work equipment nor in ownership of large livestock (water buffalo and cattle) assets between the treatment arms. There was also no difference in quality of materials recipients used to construct their homes. In the case of large assets and housing

Figure 8. Average No. of Small Livestock Owned – Lump Sum vs. Three Payment Group



⁴² Home improvement was defined specifically by the type of materials used to construct the roofing and walls for a given beneficiary's home. Thatch and straw constituted weak materials, while iron and cement denoted strong materials.

material, this is likely due to the size of the transfer itself. As specified earlier in the report, the transfer of the equivalent of 89 USD equated to approximately 1-2 months of income for most households within the study. This amount would not be enough to invest in larger livestock and equipment ownership or to upgrade an entire roof or set of walls for a home. However, it would have been adequate to purchase additional smaller livestock.

The data also showed no differences in spending patterns on nondurable consumption goods.⁴³ It was expected that payments staggered and spread out over time would allow households to better meet consumption needs while also allowing for some large investment to be made after the initial (largest) distribution. Thus, differences in consumption would have been strongest immediately after the transfers. The study, however, sought to examine whether or not the different versions of the program were able to affect consumption differently and allow for these differences to persist beyond the program. The results show that the arms were, on average, equal in terms of their effect on consumption spending. This suggests that households within the lump sum group were able to make sure that funds were available to meet basic needs throughout the program despite only having the transfer disbursed at the outset.

Table 3. Analysis of Various Uses of Cash (Comparison of Treatment A1 and A2)

	(1)	(2)	(3)	(4)	(5)
	Small Animal Ownership	Large Animal Ownership	Strong Roofing Material	Strong Wall Materials	Spending on Goods
Treatment A2: Three Payment Distribution	-0.477*	-0.00908	0.00971	0.00641	-231.5
	(0.269)	(0.0546)	(0.0255)	(0.0187)	(454.0)
Observations	858	858	859	859	859
R-squared	0.166	0.166	0.082	0.150	0.044

Robust standard errors in parentheses. Specification includes village level fixed effects. Columns (1) – (4) control for baseline levels of assets. *** p<0.01, ** p<0.05, * p<0.1

Prevention of Asset Shedding

In addition to investment, the evaluation also sought to capture differences in the shedding (selling for an urgent need) of high value assets. This was done by directly comparing the number of large livestock and work equipment that households owned at the time of baseline to the number owned at the final survey. Small livestock were deliberately excluded, as the sale of these animals is a common means of livelihood for beneficiaries. In contrast, large livestock, particularly water buffalo, are used as a means of transporting goods or for cultivating land, and could be seen as long-term investments in productivity.

Final survey data did not show differences in ownership of these assets when comparing groups that received a single lump sum transfer to those that received three payments. Additionally, respondents were directly asked if they had recently (within the last two weeks) engaged in the selling of assets to meet emergency needs. It was found that responses were similar between the single payment and three payment groups, further confirming that one type of cash disbursement was not more effective at reducing asset shedding than another.

⁴³ In the context of the study, nondurable consumption goods include food, clothes, rent, fuel, healthcare service, transportation costs, education fees and water.

It is important to note that asset shedding to meet emergency needs most likely occurred in the immediate time period following the disaster (November 2013). The asset changes in this report, however, only captured the difference between the baseline (May 2014) and the endline (February 2015) surveys. Instead of measuring immediate asset shedding, the evaluation was only able to capture whether or not the treatment models were effective at reducing any additional asset shedding after the acute emergency period.

Savings Behavior

In addition to spending and investment, the data were analyzed to see if there was any noticeable difference in savings behavior between households that received a lump sum transfer and three payments. It was hypothesized that requiring participants to access mobile bank accounts more often by increasing the number of transfers received would result in increased general usage of the accounts and other financial services. There is, however, no evidence that the lump sum and the three-payment disbursement were different when it came to encouraging savings behavior. High transportation costs and distance from the nearest BPO may have played a large role in reducing incentives to engage formal bank accounts.

4.3 OVERVIEW OF FINANCIAL LITERACY CONCEPTS

What difference does an introductory overview of financial concepts have on the savings behavior of beneficiaries?

This impact evaluation explored the role that introductory financial literacy training has on outcomes related to savings behavior in the recovery phase. The evaluation found that, for households that receive three cash payments, the addition of an introductory financial training component did not have an effect on savings behavior.

Table 4 below shows that, in general, households in treatment groups A2 and B were, on average, not significantly different in measures of savings behavior. This was true regardless of whether savings occurred within the formal financial sector, or from informal sources, such as saving within the home.⁴⁴

Table 4. Analysis of Savings Behavior – Effect of Financial Overview (Comparison of Treatment A2 and B)

	(1)	(2)	(3)	(4)	(5)	(6)
	Saving Anywhere	Average Savings per Month	Informal Savings Use	Informal Savings Amount	Formal Savings Use	Formal Savings Amount
Effect of Introductory	0.00644	-5.620	-0.00835	9.667	-0.0146	6.772
Financial Overview	(0.0288)	(31.55)	(0.0367)	(65.00)	(0.0147)	(46.76)
Observations	782	782	782	782	782	782
R-squared	0.138	0.113	0.121	0.075	0.090	0.068

44 Column (1) describes in percentage points, the difference in actively using any type of savings account – formal and informal. Columns (2) (4) and (6) show differences in amount of savings in PHP. Columns (3) and (5) provide a difference in number of financial products used to save cash in the informal and formal market, respectively.

There are a number of factors that could explain the lack of savings. For example, a household may have greater motivation or desire to increase savings behavior, but may be constrained by reduced income, cash flow, debts, and household necessities. What seems evident from the study is that the program arm that incorporates the financial literacy overview is unable to overcome these barriers to savings.

The evaluation also sought to test whether savings behavior could be measured in a theoretical sense by presenting beneficiaries with scenarios where they work through a hypothetical positive cash shock, in this case winning a lottery. The resulting data showed no differences in how lottery winnings would be used (saved or spent) between households that received the financial overview and those that did not. As a result, the data indicate no evidence that an overview of financial literacy has any effect on savings – or a potential to save.

4.4 SAVINGS ENCOURAGEMENT

What difference do targeted savings messages have on the savings behavior of beneficiaries?

The TabangKO program randomly delivered to a subset of beneficiaries a savings encouragement comprised of a series of voice messages that promoted savings through ‘soap-opera’ style 12-part stories. Studies in the area of behavioral economics give credence to the notion that engaging beneficiaries with messages delivered to mobile devices, which reinforce targeted behavior, are successful in increasing those behaviors.⁴⁵ ⁴⁶In prior research, the delivery platform, content and timing all matter for promotion of the target behavior. Furthermore, ensuring the information provided is simple to understand and apply is also crucial to effectiveness.⁴⁷ ⁴⁸This evidence, however, has not been applied or fully examined in the context of an emergency cash transfer program.

Comparing treatments B and C allows for the evaluation to directly measure the effect of the additional series of voice messages on the standard three-payment cash transfer model. On average, households that **reported receiving** the voice messages were more likely to be actively using an informal or formal savings product when compared to households that only received the financial literacy overview. This effect, however, was not present when looking across the entire treatment group targeted by the voice messages.

The reason for this difference in results is likely due in part to implementation hurdles inherent to the context of mobile phone usage in this area of the Philippines. In all cases, messages were sent to the primary BankKO account holder's mobile phone via an assigned SIM card, which also doubled as their bank account number. However, it is common for households to have multiple SIM cards. As a result there was no guarantee that the card used to receive voice messages (and cash transfers) would also be the primary SIM card for the beneficiary. Combining the lack of interoperability of SIM cards with the varying mobile network reliability created a large concern that the savings encouragement messages would not adequately reach the intended audience. To overcome these barriers, the Mercy Corps team took additional steps to conduct market research to continually refine the implementation process. Through these efforts, the program team was able to identify the most optimal times to schedule the call in order to increase overall coverage of the messages among the target population. Utilizing call logs from this program arm, the study was able to focus its analysis on the households that received a phone call that attempted to deliver the voice message. Measuring the impacts only on households that were called did not show major differences in savings behavior, except in the area of average monthly savings. However, this effect is not present when taking into account education, financial literacy, and other controls variables, suggesting that the results are not particularly robust (**Table 5**).

45 Financial Conduct Authority (2015). "Message received? The impact of annual summaries, text alerts and mobile apps on consumer banking behavior." <http://www.fca.org.uk/news/occasional-paper-no-10>.

46 Pop-Eleches et.al. "Mobile phone technologies improve adherence to antiretroviral treatment in a resource-limited setting: a randomized controlled trial of text message reminders." <http://www.ncbi.nlm.nih.gov/pubmed/21252632>.

47 See <http://www.cgap.org/blog/heuristics-behavioral-approach-financial-literacy-training>.

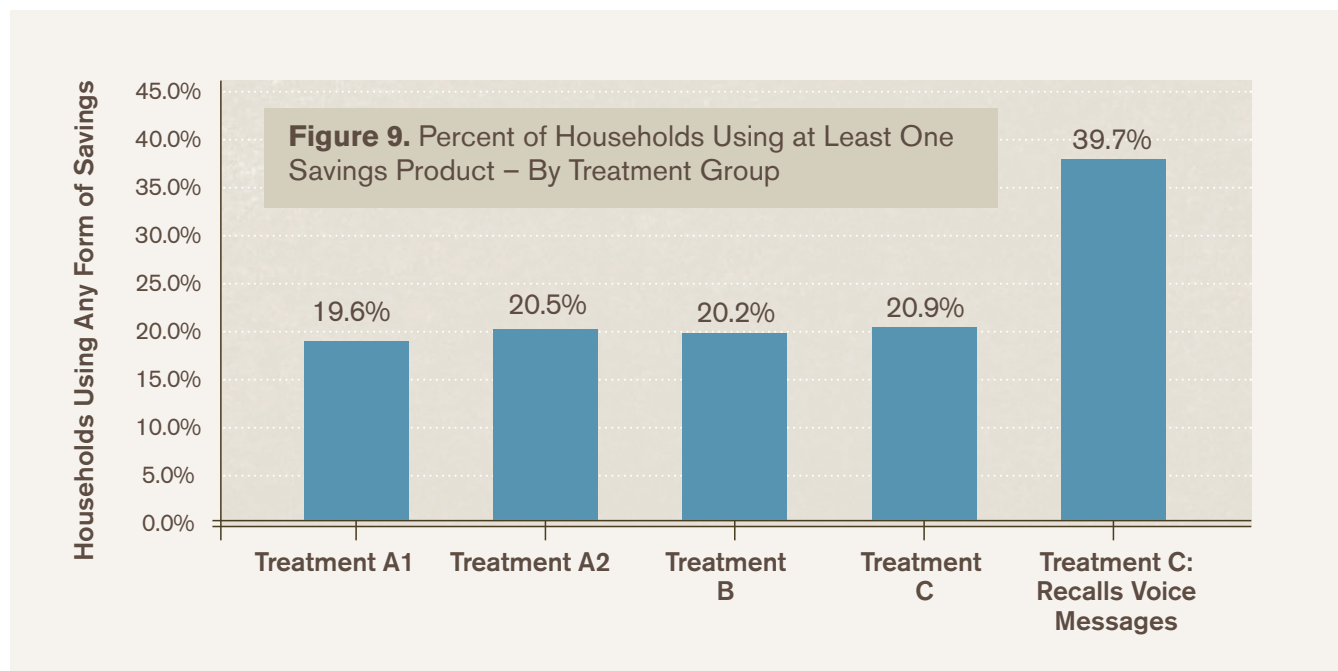
48 Alejandro Drexler, Greg Fischer, and Antoinette Schoar (2011). "Keeping it Simple: Financial Literacy and Rules of Thumb." <http://www.mit.edu/~aschoar/KIS%20DFS%20Jan2011.pdf>.

Table 5. Analysis of Savings Behavior - Effect of Savings Encouragement (Comparison of Treatment B and C)

	(1)	(2)	(3)	(4)	(5)	(6)
	Saving Anywhere	Average Savings per Month	Informal Savings Use	Informal Savings Amount	Formal Savings Use	Formal Savings Amount
Effect of Voice Messages	0.0300	88.6*	0.147	21.38	0.0263	60.06
(Delivery Attempted)	(0.0343)	(49.33)	(0.0425)	(80.36)	(0.0211)	(83.67)
Observations	590	590	590	590	590	590
R-squared	0.169	0.110	0.150	0.093	0.070	0.077

Robust standard errors in parentheses. All specifications include village level fixed effects. *** p<0.01, ** p<0.05, * p<0.1

In addition, several questions were added to the final survey to identify the extent to which beneficiaries remembered the voice messages. This allowed for another approach to measure outcomes between households that received the messages and those that did not. **Figure 9** below shows the statistically significant difference in rates of using at least one type of savings product (formal or informal) between this subset of treatment C who were sufficiently exposed to the voice messages and the rest of the beneficiaries.



This difference was also present in the hypothetical lottery scenarios described earlier. In these cases, households that recalled the savings encouragement were 13.5 percentage points more likely to identify savings as a response to a winning lottery earning and 17.5 percentage points less likely to say they would use the lottery winnings primarily for immediate consumption (**Table 6**). However, the data fail to show a significant difference in actual amounts of cash stored across all actively used informal and formal savings products. This is likely due to cash and income constraints identified earlier.

Table 6. Analysis of Positive Cash Shock – Effect of Savings Encouragement (Comparison of Treatment B and C)

	(1)	(2)
	Lottery – Spend Winnings	Lottery – Save Winnings
Effect of Voice Messages (Delivery Confirmed)	-0.175***	0.136**
	(0.0663)	(0.0677)
Observations	415	415
R-squared	0.130	0.127

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7 below shows the differences in rates of reported savings product usage for households that recalled the savings encouragement. Column (1) shows that individuals who report receiving the voice message are 13.2 percentage points more likely to indicate that they are actively saving through at least one savings product (informal or formal) compared to treatment group B after controlling for geography and location.

Table 7. Analysis of Savings Behavior – Effect of Savings Encouragement (Comparison of Treatment B and C)

	(1)	(2)	(3)	(4)	(5)	(6)
	Saving Anywhere	Average Savings per Month	Informal Savings Use	Informal Savings Amount	Formal Savings Use	Formal Savings Amount
Effect of Voice Messages (Delivery Confirmed)	0.132**	104.8	0.176*	134.5	0.103**	207.4
	(0.0652)	(82.29)	(0.0924)	(149.1)	(0.0499)	(164.8)
Observations	415	415	415	415	415	415
R-squared	0.191	0.121	0.186	0.095	0.116	0.104

Robust standard errors in parentheses. All specifications include village level fixed effects. *** p<0.01, ** p<0.05, * p<0.1

Though statistically significant, it would not be accurate to believe that the households who recall receiving the messages represent the overall impact of the intervention. It is likely that these beneficiaries are different from the rest of the beneficiaries in treatment group C in a way that predisposes them toward increased savings behavior. While we can potentially argue this example demonstrates the efficacy of the savings encouragement messages, it is less useful as a demonstration of impact effects at scale and likely demonstrates the effect of voice messages on individuals who are already more likely to save.

This may also be due to the reliability of the subsample itself. The relatively smaller number of participants raises the risk that they would be inherently different from other households in treatment C. To account for these concerns, analysis was run combining households that received the cash transfer in three payments as a single group while including a number of control variables, such as years of education, financial literacy scores, and average reported income. The results showed that the treatment effect did still exist for the subset of treatment C after incorporating these controls. While this does not completely rule out the potential biased findings, it does suggest that there is potential for the savings encouragement to have an impact on certain individuals.

Additionally, there was evidence of differences in how the savings encouragement (treatment C) affected female FDMs compared to males when looking at the full treatment group. While male FDMs showed no differences from the average, female FDMs who were assigned to receive voice messages were 13.2 percentage points more likely to be actively saving in at least one savings product (formal or informal) and reported larger amounts saved in informal savings products (**Table 8**).⁴⁹ This increase in savings use equates to more than double the average savings rate of the comparison group.

Table 8. Heterogeneous Effects - Effect of Savings Encouragement on Female FDMs

	(1)	(2)	(3)	(4)	(5)	(6)
	Saving Anywhere	Average Savings per Month	Informal Savings Use	Informal Savings Amount	Formal Savings Use	Formal Savings Amount
Effect of Voice Messages on Female FDMs	0.132**	22.66	-13.80	0.136*	68.01	0.0464
	(0.0635)	(75.03)	(61.52)	(0.0745)	(148.0)	(0.0324)
Observations	706	706	706	706	706	706
R-squared	0.143	0.097	0.143	0.138	0.076	0.057

Robust standard errors in parentheses. All specifications include village level fixed effects. *** p<0.01, ** p<0.05, * p<0.1

4.5 SECONDARY IMPACTS

Did different forms of the program have any measurable effect on households' recovery?

Secondary impacts were measured across three indices tied to outcomes related to the recovery of households.⁵⁰ The scores were constructed using guidance from source material provided by the authors of each index. Index values were then compared between all comparison groups. Generally, different versions of the TabangKO program did not demonstrate statistically significant differences in The World Food Program's (WFP) Food Consumption Score or Coping Strategy Index, or the Grameen Foundation's Progress out of Poverty Index (PPI). However, secondary analysis of the baseline data showed that greater use of formal and informal financial products – which affected recipients via the savings encouragement messages – were linked to better recovery outcomes among households affected by Typhoon Haiyan.⁵¹ These findings lend support to the theory that expanding financial inclusion can contribute to resilience to future disasters.

4.6 HETEROGENEOUS IMPACTS

For whom did the different TabangKO program arms work best?

Analysis was conducted on the results to test whether or not any of the treatments had different effects on subpopulations of the beneficiaries observed. These subpopulations were constructed using the following variables: gender, age, education, financial literacy scores, and income. In terms of how cash was used and how

49 Formal savings products include any formal bank account, credit union, formal savings association, or community welfare scheme.

50 The outcomes were food consumption, coping strategy use, and the Progress out of Poverty Index.

51 Hudner, D. and Kurtz, J. (2014). "Do Financial Services Build Disaster Resilience? Examining the Determinants of Recovery from Typhoon Yolanda in the Philippines." Mercy Corps Working Paper.

asset investment was made, the data showed no differences in savings behavior along these variables. This was also true for responses that directly measured the use of formal and informal savings and the associated amounts of cash saved.

There did appear to be some differences, however, in savings behavior and how different groups responded to the series of voice messages. For beneficiaries assigned to receive the voice messages, the data showed that, on average, as financial literacy scores rose, beneficiaries reported higher average monthly savings amounts (Table 9). A similar case was observed when analyzing beneficiaries by years of education. Assuming financial literacy and basic education signal a stronger ability to comprehend and utilize the messages found in the savings encouragement, the treatment is found to have a stronger effect on more educated beneficiaries (Table 9). The largest gains in savings behavior appear to be clustered in the transition between primary and secondary schooling levels.⁵²

Table 9. Analysis of Heterogeneous Impacts – Treatment Group C

	(1)	(2)	(3)	(4)
Treatment C – Voice Messages	Average Monthly Savings	Average Monthly Savings	Amount Saved (last month)	Use of Informal Savings
Added Impact of Financial Literacy & Voice Messages (Financial Literacy Score * Treatment C)	45.21* (26.14)			
Added Impact of Education & Voice Messages (Education Years * Treatment C)		28.56** (13.88)		
Added Impact of Education & Voice Messages (Education Years * Treatment C)			21.66** (10.96)	
Added Impact of Age & Voice Messages (Age * Treatment C)			-2.708* (1.626)	
Added Impact of Age & Voice Messages (Age * Treatment C)				-0.00399* (0.00209)
Observations	720	720	720	720
R-squared	0.127	0.132	0.167	0.141

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

The final area to show levels of varying effectiveness of the mobile-based savings encouragement was the age of the beneficiary. As the age of the financial decision maker increased, the ability for the treatment to encourage use of informal savings products diminished (see Table 9). Given that the TabangKO program incorporated a large technological component through the use of mobile phones and that active saving often required some level of travel among beneficiaries, it is likely that younger beneficiaries would see increased treatment effects.

52 The data showed most increases occurred after 6-7 years of formal education.

4.7 VALUE FOR MONEY

Did the TabangKO program effectively deliver the intervention, in terms of costs and benefits, to the community?

The primary goal of this study is to report on the marginal impacts of different forms of the TabangKO program. However, impacts must be evaluated in the light of their value for money (VfM) to inform decisions regarding scaling of policies and interventions. DFID conducted a comprehensive review of the VfM in cash transfer programs after Haiyan. They evaluated interventions based on their economy, efficiency, and effectiveness.

We briefly add analysis of these three areas below, including the cost per beneficiary and marginal cost of each program element (**Table 18**). Our estimates of Value for Money only look at the marginal costs of the program arms. A more comprehensive evaluation Value for Money is available in the TabangKO performance evaluation conducted in April 2015⁵³.

Economy

The TabangKO program is economical: transfer expenses added as little as 2.3% to the cost of sending the cash. Even in the most expensive modality, Group C, the sum of transfer fees, account fees, financial overview expenses, and voice messages only increased expenses 8.8% over the value of the cash grant itself. The costs associated with the basic treatment arms (A1 and A2) align with the most economical options⁵⁴ available during this period. When investigating the comparable value for money across post-Haiyan cash programs, DFID determined that, “Most [transfer fees] fell in the range of 25-60 pesos (\$0.56 - \$1.30) per transfer (1-3%).⁵⁵”

While this paper does not attempt to compare cash transfers to in-kind assistance, the DFID Value for Money study concluded that cash was at least as economical as food aid in this context. CARE reported that their transfers (on the Island of Panay) were \$0.12 cheaper per dollar to deliver than the equivalent in food aid⁵⁶. TabangKO's most expensive program arm, Group C, which included a financial literacy presentation and voice messages encouraging saving, was less costly to administer than CARE's food aid programs. While all of Mercy Corps' treatment arms appear to be more economical than in-kind support, it is still unknown how the financial literacy programs compare to other alternatives. The savings reminders only increased delivery costs by \$1.14 per beneficiary. However, the financial literacy overview was nearly four times more expensive than the messages, adding a cost of \$4.47 per beneficiary.

Three Components of Value for Money

Economy relates to the price at which inputs are purchased

Efficiency relates to how well inputs are converted to the output of interest, which in the case of humanitarian programs is usually access to certain goods and services. Efficiency also includes costs to recipients, such as paying for transport or the opportunity cost.

Effectiveness relates to how well outputs are converted to outcomes and impacts.

Source: Cabot-Venton, C., S. Bailey and Pongracz, S. (2015) “Value for money of cash transfers in emergencies.” DFID.

53 The calculations used only factor in direct expenses and not administrative costs associated with country office activity.

54 In comparison with the other transfer programs evaluated by DFID in the Value for Money report.

55 Cabot-Venton, C., S. Bailey and Pongracz, S. (2015) “Value for money of cash transfers in emergencies.” DFID

56 Ibid.

Efficiency

There are some concerns with the efficiency of BanKO for delivering cash transfers to rural households. With limited access to BPOs, beneficiaries face significant time and money expenses to withdraw cash. Beneficiaries estimated paying PHP 112 (\$2.50 USD) in travel costs in order to access their money. These expenses disproportionately hurt beneficiaries who receive cash over three payments. In some cases, individuals reported not even going to collect the final transfer (worth approximately \$16 USD). This indicates that, despite similar implementation costs, the lump sum program is more efficient in delivering the product to clients. Interestingly, and despite the intuitive disadvantage of the split payments, less than 5% of beneficiaries cited the distance to a BPO as a reason for not using a bank account. While time and distance are not determining factors, they do degrade the efficiency of the tranche payments.

At \$4.47 per person, the financial literacy overview was the largest expense (outside of the cash grant itself), and had no significant impact on the targeted savings behaviors for the beneficiaries. The voice messages only added \$1.14 per beneficiary. However, only 17.3% of households remember hearing them. In the table below, “Marginal Costs” represent the direct and stand-alone cost of each program element. These are independent of Mercy Corps indirect or operational costs. The “Total Cost” column represents the total cost per beneficiary for delivering that program package. For example, Group B is the sum of the costs of the cash grant, transfer fees, and financial overview. The final column estimates how much it cost per dollar delivered to the beneficiary. For example, to simply give away \$1, the cost would be \$1.02 due to the 2% transfer fee.

Table 10. Value for Money – per Beneficiary Costs

Program Arms	Marginal Cost	Total Cost	Cost per USD
Cash Received by Beneficiary	\$89.77	\$89.77	–
Transfer Fees (Same for all groups)	\$2.19	\$91.96	\$1.02
Voice Messages (Group C-Group B)	\$1.14	\$93.11	\$1.04
Financial Overview (Group B)	\$4.47	\$96.44	\$1.07

Effectiveness

The most revealing findings in this study are around effectiveness. This experiment shows that small operational changes could have significant effects on efficacy. Moving from routine transfers to a single lump sum payment directly increased a household’s ownership of livestock without any added program expense. In fact, it is likely cheaper to deliver a lump sum program as monitoring and administrative expenses could have been reduced.

While neither the introductory financial overview nor the voice messages demonstrated efficiency, further investigation is needed into the effectiveness of the savings encouragement messages. Of the 17.3% that reported receiving the voice messages, the average use of savings accounts (formal or informal) increased by 106%. If the efficiency of this program – specifically the coverage of voice messages among recipients – can be increased, it has the potential of being a powerful tool in financial inclusion.

5.0 Discussion and Conclusion

5.1 RECOMMENDATIONS

The TabangKO impact evaluation offers a number of insights into cash transfer and financial literacy programs delivered in a post-disaster context. As discussed earlier in this report, the study does not measure whether or not the TabangKO program had a net impact on the lives of beneficiaries. The connections between cash transfers and positive investments in livelihood and education are already well documented.⁵⁷ Instead, the study compares ways of delivering cash transfers and financial literacy programs in a disaster-relief context to identify how they impact beneficiaries differently. This information can be used to guide future programs and better understand how to design and streamline emergency response interventions to achieve longer-term recovery and resilience outcomes.

How Transfers Were Disbursed Matters

Single sum transfers, when compared to three payments of the same amount, result in increased ownership of small productive assets.

Recommendation: Cash transfers delivered to households actively recovering from a large scale shock, such as a natural disaster, should be given in a lump sum as opposed to staggered payments. This is especially relevant where the goal is to promote investment in productive assets.

Within the TabangKO context, both the bulk and the initial disbursement amount were set above the costs of small livestock. However, three months⁵⁸ after the conclusion of the program, the single transfer was able to generate higher rates of overall small livestock ownership when compared to three payments. While the magnitude of impact was only approximately 0.5 animals per family, this amount extended across the total TabangKO beneficiary pool of 25,000 households would have been substantial. It should also be noted that the study finds that this increase in impact would come at no added operational costs to the program. Furthermore, disadvantages and expected negative effects of receiving lump sum disbursements did not materialize within the study. These would have included smaller amounts of cash spent on consumption goods and the use of more negative coping strategies to offset money spent on investments.

For future study: Qualitative interviews and focus group discussions suggested that lump sum transfers would have been preferable for many respondents, as they would have given households the ability to make larger purchases and investments. That said, there were still a number of beneficiaries who saw the value in having payments spread out over time to ensure that money could be saved for future needs. A number of studies, including work done specifically on savings commitment devices in the Philippines⁵⁹ show that savings products are of greater value to those seeking ways to restrict access in order to save for future purchases. For programs looking to promote savings behavior, future research should explore how an increase in the number of smaller transfers would encourage more engagement of formal savings products within a post-disaster context.⁶⁰ Programs that seek to combine increased asset investment with increased savings should explore payment models that more heavily weight the initial transfer while providing additional small transfers beyond the three payment design.

57 Ariel Fiszbein, Norbert Rüdiger Schady, Francisco H. G. Ferreira (2009). "Conditional Cash Transfers: Reducing Present and Future Poverty." The World Bank.

58 Endline was eight months after lump sum beneficiaries received their transfer, perhaps signaling the persistent effects desirable when bridging disaster relief and economic development goals.

59 Ashraf, Nava; Karlan, Dean; Yin, Wesley (2014) "Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines." Innovations for Poverty Action.

60 For example, smaller transfers over the period of 9 or 12 months may provide more opportunity for a recipient to get into the habit of using the BankKO account, and thus developing the desired behavioral outcome.

One-Off Financial Literacy Trainings did not Influence Financial Behaviors

The introductory financial literacy overview given during registration events did not have any effect on the savings behaviors of beneficiaries.

Recommendation: Valuable time and money during post-disaster operations should not be invested in cursory financial literacy overviews. These types of interventions struggle for success in traditional development contexts, and are even less likely succeed when beneficiaries are attempting to manage the impact of a major shock in their life.

Programs seeking to change beneficiaries' savings and investment behavior must overcome barriers beyond just income and access. These obstacles include low levels of familiarity, knowledge, and trust of formal banking, as well as diminished cognitive performance and decision making due to the effects of poverty.⁶¹ By the end of the TabangKO program, nine months had elapsed between the financial training and the final survey. It is unlikely that any household would be able to accurately recall all major points of the initial presentation. Providing easy and multiple ways to access the information provided are critical to ensuring that the benefits go beyond the original overview.

For future study: Given the post-disaster context, it would be beyond the scope of a disaster relief program to administer a full and robust financial literacy curriculum. However, as communities move forward with recovery, ensuring that households have access to the benefits of financial products will play a role in speeding improvement and reducing vulnerability. Existing evidence⁶² shows that programs designed to convey actionable “rule of thumb” financial trainings are more likely to be successful than general courses. As a result, future interventions should explore which behaviors are most responsive to targeted financial programming within the post-disaster context. Additionally, future pilots should attempt to reinforce the initial learning with routine information delivered throughout the cash transfer process in order to further increase the probability that program beneficiaries will realize the benefits of financial inclusion.

Behavioral “Nudges” Can Promote Savings in a Disaster Recovery Context

Financial messages delivered over the course of a cash transfer program can overcome other factors that restrict savings behavior.

Recommendation: Continue to leverage message platforms (like voice messages) to reinforce financial literacy concepts and “nudge” beneficiaries toward the desired savings behaviors. With such a small cost implication, these types of add-on programs should be refined through pilot testing, and scaled.

The series of voice messages had an impact on the savings behavior of beneficiaries who received them. This effect persists even after taking into account education levels, differences in financial literacy,⁶³ and the average income of the beneficiary. Studies in behavioral economics,⁶⁴ as well as evidence from conditional cash transfer studies,⁶⁵ show that “soft enforcement” and activities that continuously engage beneficiaries⁶⁶ can elicit desired behaviors. In the case of the TabangKO program, the series of voice messages effectively

61 Anandi Mani, Sendhil Mullainathan, Eldar Shafir, and Jiaying Zhao (2013). Poverty Impedes Cognitive Function. *Science* 30.

62 Alejandro Drexler, Greg Fischer, and Antoinette Schoar (2011). “Keeping it Simple: Financial Literacy and Rules of Thumb.” <http://www.mit.edu/~aschoar/KIS%20DFS%20Jan2011.pdf>.

63 Understanding of financial concepts, such as interest rates and basic numeracy, comprised an individual's financial literacy level.

64 Financial Conduct Authority (2015). “Message received? The impact of annual summaries, text alerts and mobile apps on consumer banking behavior.” <http://www.fca.org.uk/news/occasional-paper-no-10>.

65 Benhassine, N., Devoto, F., Duflo, E., Dupas, P., and Pouliquen, V. (2014). Turning a Shove into a Nudge? A “Labeled Cash Transfer” for Education. NBER. Cambridge, MA: National Bureau of Economic Research.

66 Pop-Eleches et.al. (2011) “Mobile phone technologies improve adherence to antiretroviral treatment in a resource-limited setting: a randomized controlled trial of text message reminders.” <http://www.ncbi.nlm.nih.gov/pubmed/21252632>.

increased the use of at least one savings product among beneficiaries who reported receiving them. These results fall in line with the narrative and storyline promoted by the messaging component, which emphasized the importance of savings. Reminders or regularly scheduled informative messages can work in tandem with general financial literacy training and education to reinforce financial behavior.

For future study: Subpopulations and modes of delivery should be carefully considered when designing the delivery of mobile phone based messages. The fact that women were more responsive to the series of voice messages delivered⁶⁷ as a 12 part 'soap opera' style story suggests that this version of the program was more effective at changing female behavior than male. An almost equal number of men and women report receiving the voice messages. Yet, some aspect of the TabangKO voice message content, and not the mode of delivery, was more effective at encouraging savings behavior among women. As a result, how the information is presented will likely play a large role in the overall effectiveness of a mobile-based savings encouragement program and should be studied further. However, the study did not compare voice messages with other delivery mechanisms, such as SMS or call center based reminders. Future work should attempt to compare the relative effectiveness and implementation costs to identify the optimal delivery model.

5.2 CONCLUSION

Within the context of disaster response and humanitarian aid, the TabangKO program was highly successful in delivering emergency funds to extremely vulnerable households in the wake of one of the most damaging natural disasters in Philippines history. While it is evident that the cash assistance distributed through TabangKO had a clear positive impact for communities as they continued the rebuilding process, it is also evident from this effort that ensuring that these benefits extend beyond the immediate effects of an influx of cash is not a straightforward task.

It is noteworthy that Mercy Corps intentionally incorporated programming aimed at establishing longer-term recovery and economic stability, while also ensuring that a rigorous quantitative analysis was in place to measure impact. As a result of this effort, the research conducted within this report was able to identify direct relationships between different components of the TabangKO program and its ability to generate real impact on outcomes of livelihood rebuilding, economic recovery, and financial inclusion. This information will be important in guaranteeing that future responses are founded on rigorous evidence and designed to maximize the benefits of the communities in need.

This experiment provides valuable insight to international development donors and practitioners. Specifically, post-disaster cash transfer programs should be intentional about design elements, as small variations can create an added impact on the long-run wellbeing of beneficiaries. We find that single payments are more effective than routine smaller transfers in building productive assets important for household level resilience.

Mercy Corps was able to introduce an under-banked population to formal banking products through a UCT program. This unique model differed from other NGOs operating in the region, which primarily relied on an existing remittance infrastructure, but did not increase the cost of delivering assistance. While the introductory financial literacy overview did not realize any behavioral effects, there is evidence that routine voice messages can help push households toward financial behaviors, like saving, that can contribute to their resilience to future natural disasters.

67 This aspect of the analysis looks across the entire treatment group and not just at individuals who recalled receiving the message.

Appendix

A.1 GEOGRAPHIC TARGETING

Table 11 lists the barangay (villages) involved in the study and categorizes them by municipality.

Table 11. Western Leyte – Barangay by Municipalities

W. Leyte - Municipality			Total barangay count: 39
Isabel			No. of barangay: 5
Apale Bilwang	Consolacion Monte Alegre	Tubod	
Matagob			No. of barangay: 3
Candelaria	Mansalip	Sta. Rosa	
Merida			No. of barangay: 5
Calunangan Can-Unzo	Libas Libjo	Puerto Bello	
Palompon			No. of barangay: 8
Cambinoy Cangcosme Ipil 3	Lat-Osan Mazawalo Sabang	San Juan Tabunok	
Tabango			No. of barangay: 8
Campokpok Catmon Gibacungan	Gimarco Inangatan Omaganhan	Tabing Tugas	
Villaba			No. of barangay: 10
Buga Buga Canquiason Casili-On Hibulangan	Payao Sambulawan Sta. Cruz	Sulpa Tinghub Tumamak	

A.2 SAMPLING STRATEGY & POWER CALCULATIONS

Required sample sizes are driven by the underlying distribution of values in the outcomes of interest. Practically described, the variation in beneficiaries' average outcome values determines how many households need to be surveyed in order to confidently identify the impacts of the intervention. Additionally, the geographic spread of the program can require additional observations in order to ensure that the sample is representative of all of the treated areas.

Statistical power indicates the probability of detecting a real treatment effect. While initial estimates involve a good deal of guess work, baseline data have been used to estimate the likelihood of identifying program impact on the outcome variables of interest. Mercy Corps had pre-determined a sample size of 1,600 (400 per arm). Prior to the intervention, the estimated necessary sample size was 198 per treatment arm.⁶⁸

A.3 BALANCING TABLES

Table 12. Difference of Means: Household Control Variables

Household Variables	Lump Sum – Three Payment (A1-A2)		Overview – No Overview (B-A2)		Voice Msg. – No Voice Msg. (C-B)	
	Diff	N	Diff	N	Diff	N
Gender (FDM)	-0.037	902	-0.013	820	-0.034	757
Age (FDM)	-1.219	902	-1.458	820	-0.303	757
Education Yrs (FDM)	-0.039	902	-0.176	820	-0.142	757
Family Size	-0.009	902	-0.033	820	0.045	757
School Attendance: Children	-0.088**	518	-0.11***	455	0.055	414

Significance levels: * < 10% ** < 5% *** < 1%

Table 13. Difference of Means: Asset Variables

Asset Variables	Lump Sum – Three Payment (A1-A2)		Overview – No Overview (B-A2)		Voice Msg. – No Voice Msg. (C-B)	
	Diff	N	Diff	N	Diff	N
Land Ownership	-0.038	901	0.008	820	-0.011	757
Wall Materials	-0.017	902	-0.022	820	0.031	757
Roof Materials	0.025	902	0.009	820	-0.031	757
Toilet	-0.04	902	-0.008	820	-0.036	757
Mobile Phone	0.03	902	0.001	818	0.015	755
Water Buffalo	-0.005	902	0.017	820	-0.023	757
Hogs	-0.091	902	-0.059	820	0.025	757
Poultry	0.432	902	0.056	820	0.475	757
Fishing Equipment	-0.021	902	0.086	820	-0.123	757
Crop Equipment	-0.054	902	-0.051	820	-0.067	757

Significance levels: * < 10% ** < 5% *** < 1%

⁶⁸ To observe a .25 standard deviation change of mean on a nationally reported hunger index using alpha of 0.05, beta of 0.8. This did not account for potential losses of power due to high ICC, or gains in power from ANCOVA estimates.

Table 14. Difference of Means: Financial & Livelihood Variables

Financial & Livelihood Variables	Lump Sum – Three Payment (A1-A2)		Overview – No Overview (B-A2)		Voice Msg. – No Voice Msg. (C-B)	
	Diff	N	Diff	N	Diff	N
Annual Income (log)	-0.037	810	-0.067	738	0.024	685
Food Consumed (spending last month)	-98.939	683	260.37**	645	343.67**	600
Housing Repairs (spending last month)	-213.079	472	-44.341	455	172.128	408
Level of Recovery	0.05	901	0.019	820	0.03	756
Aid Received	-0.013	902	-0.015	820	0.007	757
Bank Account	-0.01	899	0.007	819	0.02	756
No Active Savings	-0.027	902	0.025	820	-0.067**	757
No Active Loans	0.001	902	0.044	820	-0.082**	757
No Active Insurance	-0.037	902	-0.012	820	-0.008	757
Received Remittance	-0.063**	901	-0.041	819	0.017	756
Literacy	0.016	896	0.014	813	-0.017	751
Numeracy	0.015	899	0.001	818	0.023**	753

Significance levels: * < 10% ** < 5% *** < 1%

Note: In the following balancing tables Treatment C only includes households that were verified to have been called when delivering the voice messages.

Table 15. Difference of Means: Household Control Variables

Financial & Livelihood Variables	Voice Msg. – No Voice Msg. (C-B)*	
	Diff	N
Gender (FDM)	-0.029	613
Age (FDM)	-1.721	613
Education Yrs (FDM)	0.005	613
Family Size	0.074	613
School Attendance: Children	0.066	338

Significance levels: * < 10% ** < 5% *** < 1% Table

Table 16. Difference of Means: Asset Variables

Asset Variables	Voice Msg. – No Voice Msg. (C-B)*	
	Diff	N
Land Ownership	-0.038	613
Wall Materials	0.022	613
Roof Materials	-0.022	613
Toilet	-0.046	613
Mobile Phone	0.075*	611
Water Buffalo	-0.049	613
Hogs	-0.012	613
Poultry	0.841	613
Fishing Equipment	-0.116	613
Crop Equipment	-0.06	613

Significance levels: * < 10% ** < 5% *** < 1%

Table 17. Difference of Means: Financial & Livelihood Variable

Financial & Livelihood Variables	Voice Msg. – No Voice Msg. (C-B)*	
	Diff	N
Annual Income (log)	0.021	557
Food Consumed (spending last month)	304.986**	683
Housing Repairs (spending last month)	-618.554	472
Level of Recovery	0.008	612
Aid Received	0.006	613
Bank Account	0.017	612
No Active Savings	-0.041	613
No Active Loans	-0.113***	613
No Active Insurance	-0.049	613
Received Remittance	0.019	612
Literacy	-0.009	607
Numeracy	0.026*	610

Significance levels: * < 10% ** < 5% *** < 1%

A.4 ATTRITION TABLE

Table 18. Analysis of Attrition

	Attrition	Observations (N)	R-squared
Female Financial Decision Maker	0.00773 (0.0107)	1,659	0.000
Age of Financial Decision Maker	0.000142 (0.000360)	1,659	0.000
Years of Education of Financial Decision Maker	0.00299* (0.00168)	1,659	0.002
Family Size	-0.00243 (0.00235)	1,659	0.000
Average Monthly Income (log)	0.00419 (0.00478)	1,495	0.001
Lump Sum Group	0.00151 (0.0120)	1,659	0.000
Three Payment Only	-0.00299 (0.0116)	1,659	0.000
Three Payment and Financial Overview	-0.00195 (0.0126)	1,659	0.000
Three Payment, Financial Overview, and Voice Message	0.00350 (0.0126)	1,659	0.000

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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