

Savings Intervention Report

Sustainable Cocoa Production Program (SCPP)

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About the Partners

Swisscontact is the Swiss business-oriented independent foundation for international development cooperation. Represented in 34 countries with over 1,200 employees, Swisscontact promotes since 1959 economic, social and environmental development and has been engaged for 43 years in Indonesia. In the country, Swisscontact implements its Sustainable Cocoa Production Program (SCPP) and the **Green Prosperity – Sustainable Cocoa Production Program (GP-SCPP)**, funded by the Swiss State Secretariat for Economic Affairs (SECO), the Millennium Challenge Account Indonesia (MCA-I) and collaborates with ten local and multinational cocoa and chocolate companies. The Program focuses on increasing the farmers' household income from cocoa by 75% and reducing greenhouse gas emissions from the cocoa sector by 30%. Currently expanding to 57 districts across 11 provinces, including major cocoa producing areas in Sulawesi, Sumatra, and East Nusa Tenggara targeting 165,000 smallholder cocoa farmers by 2020. SCPP is currently the largest Public Private Partnership of its kind in Indonesia. (www.swisscontact.org/indonesia)

ideas42 has a clear mission: to use our unique experience as a nonprofit at the forefront of behavioral science to change millions of lives. We create innovative solutions to tough problems in economic mobility, health, education, safety and justice, consumer finance, energy efficiency and international development. Our approach is based on a deep understanding of human behavior and why people make the decisions they do. Working closely with our partners from government, foundations, NGOs and companies, we have more than 80 active projects in the United States and around the world. (www.ideas42.org)

Cargill Cocoa & Chocolate is a global supplier of high quality cocoa and chocolate products. It has been operating in Indonesia since 1995 from sourcing facilities located in Makassar. The **Cargill Cocoa Promise** launched in 2012 represents a commitment of Cargill Cocoa & Chocolate to making a tangible difference to farmer productivity worldwide, and increasing income and improving livelihoods through farmer training, community support and farm development. Bringing together governments, NGOs and farming communities in supportive relationships with farmers and cooperatives, the programs are having a positive and meaningful impact on the ground, and across the industry. (www.cargill.com)

PT Bank Rakyat Indonesia (Persero) Tbk (BRI) is the oldest bank in Indonesia with its history going back to 1895. Since its inception, BRI has had a commitment to focus on banking services in micro, small, and medium enterprises (MSME's). This commitment is reflected in the allocation of loans for the sectors that affect the livelihood of the population and other financial services that the Bank offers to the community. With 115,000+ employees in 10,000+ branches and outlets and the largest branchless banking network in Indonesia, BRI serves 9+ million loan and 60+ million saving customers. Mid 2016, BRI launched BRISat, globally the first satellite owned and operated by a bank. BRI is listed as "blue chip" at the Indonesia Stock Exchange. Over the past few years, 40,000+ loans were disbursed to cocoa farmers in Indonesia. (www.bri.co.id)

Mondelēz International, Inc. is a global snacking powerhouse, with 2015 net revenues of approximately \$30 billion. Creating delicious moments of joy in 165 countries, Mondelēz International is a world leader in biscuits, chocolate, gum, candy and powdered beverages, with billion-dollar brands such as Oreo, LU and Nabisco biscuits; Cadbury, Cadbury Dairy Milk and Milka chocolate; and Trident gum. Mondelēz International is a proud member of the Standard and Poor's 500, NASDAQ 100 and Dow Jones Sustainability Index. (www.mondelezinternational.com)

The Swiss State Secretariat for Economic Affairs (SECO) is the federal government's centre of excellence for all core issues relating to economic and labour market policy. Its aim is to contribute to sustained economic growth, high employment and fair working conditions, by creating the necessary regulatory, economic and foreign policy framework. It has been a long-standing partner of SCPP.

Millennium Challenge Account – Indonesia (MCA-I) is the implementing entity of the Compact Grants from Millennium Challenge Corporation (MCC), which supports US Strategic Partnership with Indonesia. MCA-Indonesia aims to reduce poverty through economic growth, and manages the following main projects: (1) Green Prosperity, (2) Community-Based Health and Nutrition to Reduce Stunting, and (3) Procurement Modernization. Within the Green Prosperity window, Swisscontact was awarded with their first project ever. MCA-I is funding three cocoa programs in Indonesia, of which GP-SCPP is the largest.

Executive Summary

Understanding human behavior is critical to solving many of the world's pressing social challenges such as poverty. However, shifting individual behavior can be very challenging. The field of behavioral science offers tools to designing programs and interventions that tackle social problems by leveraging insights from decades of research on human decision-making. This report describes in detail the behavioral design intervention conducted by ideas42 and the Swisscontact implemented Green Prosperity – Sustainable Cocoa Production Program (GP-SCPP), funded by the Swiss State Secretariat for Economic affairs and the Millennium Challenge Account for Indonesia MCA-I, to increase the saving rates of Indonesian cocoa farmers.

Low-income individuals in developing countries have historically saved through many channels such as storing money in the home, saving with informal savings groups, or buying livestock to liquidate at a future date.¹ However, these informal saving methods may fail to meet their needs in a convenient, safe and secure manner. On the other hand, formal savings accounts offered by financial service providers, can help low-income households achieve greater financial security, smooth income, and cope with income shocks.² Over the past decade there has been a push to provide traditionally under-banked and low-income populations access to financial products such as savings accounts. Despite this push in the financial inclusion sector, many challenges still need to be addressed. For instance, an estimated two billion people globally still don't have access to banking products and services, and for those that do have bank accounts, many of them are dormant or sub-optimally used.^{3 4}

ideas42 partnered with Swisscontact, Cargill, and Bank Rakyat Indonesia (BRI) to understand the behavioral barriers to saving amongst a cocoa farmer population in Indonesia. Despite farmers reporting an intention to save, many were not, and of those who did they were saving small amounts. We conducted qualitative and quantitative research to understand why farmers were not saving and generated insights about the psychologies and situational features contributing to this problem.

<p>Our behavioral diagnosis identified five key barriers farmers faced in trying to save:</p> <ol style="list-style-type: none"> 1. Farmers prioritize savings last 2. Farmers discount the potential for small amounts of savings to add up 	<p>To address these issues and improve Indonesia cocoa farmers' savings outcomes we implemented an intervention innovative to both Indonesia and the cocoa industry that had two key components:</p> <ol style="list-style-type: none"> 1. Behaviorally informed onboarding process to help farmers set concrete savings goals and make plans to save
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¹ Chowa, G. A., Masa, R. D., & Ansong, D. 2012. Determinants of Saving among Low-Income Individuals in Rural Uganda: Evidence from Assets Africa. *Advances in Applied Sociology*, 2(4), 280-29.

² Pascaline Dupas & Jonathan Robinson, 2013. "Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya," *American Economic Journal: Applied Economics*, American Economic Association, vol. 5(1), pages 163-92, January; Lasse Brune & Xavier Giné & Jessica Goldberg & Dean Yang, 2016. "Facilitating Savings for Agriculture: Field Experimental Evidence from Malawi," *Economic Development and Cultural Change*, University of Chicago Press, vol. 64(2), pages 187-220; Prina, Silvia, 2015. "Banking the Poor Via Savings Accounts: Evidence from a Field Experiment," *Journal of Development Economics*, vol. 115, pages 16-3.

³ Demircuc-Kunt, Asli, Leora Klapper, Dorothe Singer, and Peter Van Oudheusden. 2015. "The Global Findex Database 2014: Measuring Financial Inclusion around the World." Policy Research Working Paper 7255, World Bank, Washington, DC.

⁴ Karlan, D., Ratan, A. and J. Zinman. 2014. "Saving by and for the Poor: A Research Review and Agenda," *Review of Income and Wealth*, 60(1), 36-78.

<p>3. Farmers do not prioritize saving for cocoa inputs over non-productive consumption goods</p> <p>4. Farmers do not have concrete savings goals, nor a plan for how to achieve them</p> <p>5. Farmers are inattentive to how small purchases affect their ability to save</p>	<p>2. Savings supply chain facilitated by Cargill traders at the point of cocoa bean sales to prioritize the act of saving and make it more convenient for farmers to save at a time they are flush with cash.</p>
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The savings intervention ran for 6 months (June 2016 – November 2016) in the field in South Sulawesi, Indonesia and included 3,028 SCPP cocoa farmers. We used a randomized controlled trial, the gold standard in impact evaluation, to determine the efficacy of the savings intervention.

The results of the intervention showed that there were **no significant differences between farmers that received the two components of the intervention (the treatment group) and farmers that did not (control group)** when comparing net savings, total volume and average deposits, frequency of deposits, total volume and average withdrawals, and frequency of withdrawals.

Despite these results, the bank data on farmers' savings and loan accounts obtained for data analysis offered a better understanding of farmers' financial behavior as opposed to self-reported data that was previously used. Furthermore, across the sample, **we saw an 8.88 percent increase in farmers' average savings amount** from an average balance of IDR 7,727,178 in May to an average balance of IDR 8,413,233 [USD 630] in October and a **19.57 percent increase in median savings** (from IDR 942,810 to IDR 1,127,290 [USD 85] in the same period). However, since we have little indication of farmers' prior savings behavior particularly during the harvest season when they earn more income and their savings balance may increase, we are **unable to attribute this increase in savings to the behavioral intervention** described in this report. In addition to harvest season, the improvement in farmers' saving rates may also be due to having, and actively using, a bank account as well as the financial literacy training (Good Financial Practices) Swisscontact GP-SCPP provided to farmers in the past.

While the results appear to indicate the intervention had no significant impact in improving farmers' savings behavior, macroeconomic changes and several data and implementation challenges affected our ability to accurately assess the intervention's efficacy and may have also negatively affected the success of the intervention. Given these issues and the merit in using the behavioral approach in understanding farmers' savings behavior to develop designs to improve their savings outcomes, we recommend that Swisscontact, Cargill and BRI replicate the intervention in order to adequately evaluate its effect on cocoa farmers' savings. If the partners choose to repeat the intervention, we propose the following changes in order successfully tackle low savings behavior among cocoa farmers in Indonesia:

- 1) Resolve implementation challenges;
 - a. Provide Electronic Data Capture (EDC) machines for traders and each of their employees;
 - b. Ensure touch points with farmers that regularly prompts savings; and
 - c. Have consistent and thorough delivery of the behaviorally-informed savings onboarding session from all Swisscontact staff.
- 2) Establish processes that ensure complete and reliable data collection; and
- 3) Set appropriate intervention sample size and time period

Introduction

Households have historically saved as a way of insuring against emergencies, making critical investments, for social and cultural obligations, and for general household consumption. The value of savings for low-income populations is evidenced by the many different methods that are used to mobilize savings, such as storing cash within the household, using informal savings groups, or purchasing assets like cattle that can be liquidated in the future.⁵ However, these informal ways may not always meet their financial needs and are often unsafe. Money stored at home, with family, or friends is susceptible to theft and/or temptation spending, while purchasing livestock makes it difficult to quickly access cash in emergencies. Alternatively, formal savings accounts, accessed through banks and other financial service providers, can provide low-income households with greater financial security, help smooth income, and cope with income shocks.⁶ However, despite the benefits of formal savings accounts, globally more than two billion people, particularly low-income individuals, lack access.⁷

While there has been a concerted effort over the past decade to increase the access of low-income households to formal savings accounts, supporting improvements to savings behavior and utilization of these accounts remains a persistent challenge. Myriad studies in financial access have shown that even when access exists, households may not take up these accounts, and even if they do, the accounts may go underutilized.⁸ A 2014 global survey on how people save, borrow, and manage their finances showed only half of account holders in developing countries reported using their account to deposit or withdraw money in a typical month.⁹ Economists and policy makers generally point to a number of standard reasons why accounts go underutilized such as customers' low rates of financial literacy, the costs associated with opening and using accounts, and the continued inaccessibility of accounts in rural areas. Yet, evidence shows that even when these barriers don't exist, and despite households' intention to save, they may still not take up or use these accounts.¹⁰

Behavioral science provides another lens to understand why households may not use formal savings accounts despite access, resources, and information. Research in behavioral finance has shown that despite peoples' intention to save money, the act of saving can be made more difficult because of psychological and contextual reasons. For instance, people may procrastinate on making savings deposits when they lack concrete plans about how and when to save, and limited self-control may get in the way and cause people

⁵ Chowa, G. A., Masa, R. D., & Ansong, D. 2012. Determinants of Saving among Low-Income Individuals in Rural Uganda: Evidence from Assets Africa. *Advances in Applied Sociology*, 2(4), 280-29.

⁶ Pascaline Dupas & Jonathan Robinson, 2013. "Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya," *American Economic Journal: Applied Economics*, American Economic Association, vol. 5(1), pages 163-92, January; Lasse Brune & Xavier Giné & Jessica Goldberg & Dean Yang, 2016. "Facilitating Savings for Agriculture: Field Experimental Evidence from Malawi," *Economic Development and Cultural Change*, University of Chicago Press, vol. 64(2), pages 187-220; Prina, Silvia, 2015. "Banking the Poor Via Savings Accounts: Evidence from a Field Experiment," *Journal of Development Economics*, vol. 115, pages 16-3.

⁷ Demircuc-Kunt, Asli, Leora Klapper, Dorothe Singer, and Peter Van Oudheusden. 2015. "The Global Findex Database 2014: Measuring Financial Inclusion around the World." Policy Research Working Paper 7255, World Bank, Washington, DC.

⁸ Karlan, D., Ratan, A. and J. Zinman. 2014. "Saving by and for the Poor: A Research Review and Agenda," *Review of Income and Wealth*, 60(1), 36-78.

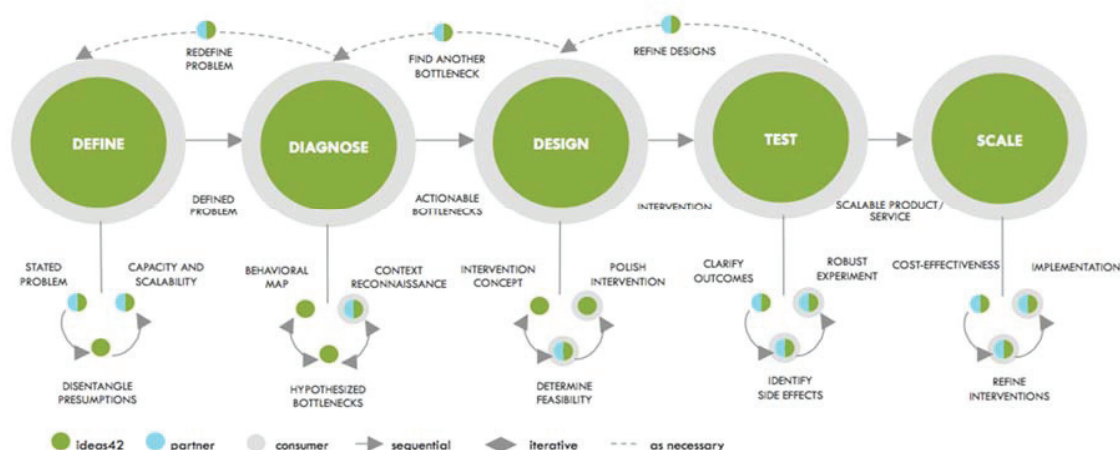
⁹ The Global Findex Database 2014, Measuring Financial Inclusion around the World

¹⁰ Fiorillo, A., Potok, L., & Wright, J. (2014). Applying Behavioral Economics to Improve Microsavings Outcomes. Ideas42 Working Document.

to spend money when present temptations and needs are top of mind.^{11 12} ideas42 has shown that by addressing these and other behavioral barriers to saving, interventions can significantly improve savings rates. One example is a behavioral design solution ideas42 developed in partnership with CARD Bank and the Grameen Foundation in the Philippines to address savings account dormancy. We found that despite customer's intention to save, they lacked clear savings goals and plans for how to achieve those goals, which hindered their ability to build savings in the accounts. Using this insight, ideas42 redesigned the account opening process to include a goal setting and plan making component. This simple redesign resulted in a 37% increase in account balances as well as a 15% increase in initial deposits by intervention participants. This project demonstrated how a simple design change can help consumers get around behavioral barriers to saving and improve savings outcomes as a result.

Swisscontact implements the Green Prosperity – Sustainable Cocoa Production Program (GP-SCPP), funded by the Swiss State Secretariat for Economic affairs and the Millennium Challenge Account for Indonesia MCA-I. In partnership with GP-SCPP, ideas42 examined a similar savings challenge with a cocoa farmer population in Indonesia. Despite a sample population of Indonesian cocoa farmers stating an interest in saving and having access to formal banking institutions, many farmers reported having little if any savings. To support farmers building liquidity through savings, ideas42 worked with GP-SCPP, Cargill, and Bank Rakyat Indonesia (BRI) to develop an innovative behaviorally informed intervention that leveraged goal-setting and plan-making as well as a cocoa traders-as-savings-agents model. This report summarizes the key learnings from a savings project conducted by ideas42 and the GP-SCPP from May to November 2016.

To understand the behavioral constraints and design solutions to support cocoa farmer savings, we utilized ideas42's five stage behavioral diagnosis and design methodology:



¹¹ ibid

¹² DellaVigna, S., 2009. "Psychology and Economics: Evidence from the Field," *Journal of Economic Literature*, 47, 315–72,

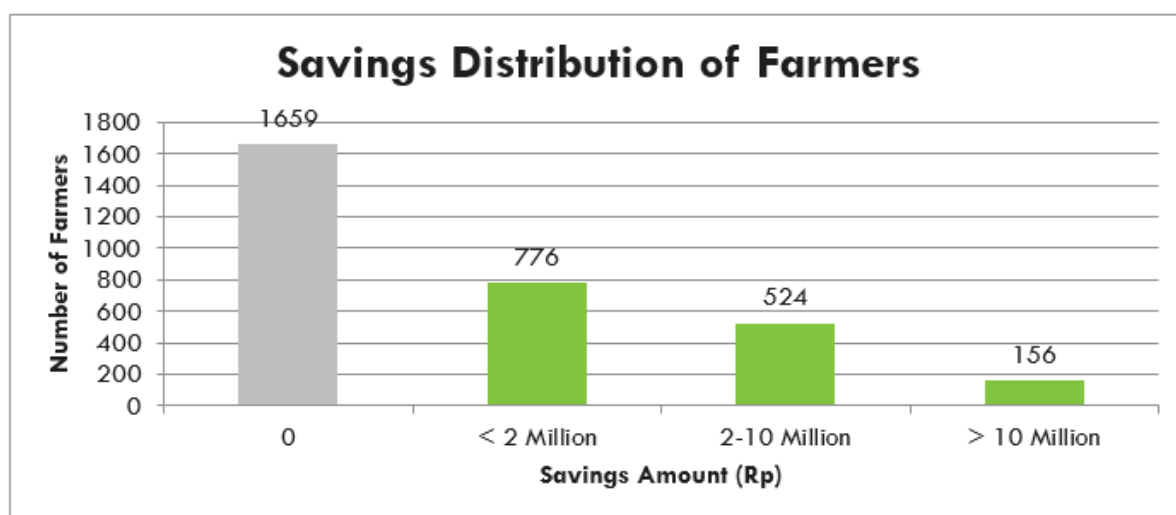
Our work began by working with Swisscontact to carefully **define** the problem. The behavioral approach to problem-solving starts by defining the problem simply, in terms of the specific human-behaviors we want to promote and free from assumptions about what might be causing or motivating those behaviors.

We then move forward with the behavioral **diagnosis** to identify the particular barriers impeding the behavior we seek to achieve. In the diagnosis effort, we uncovered specific psychological and contextual features that prevented cocoa farmers from achieving their savings goals, and utilizing formal savings accounts. With a strong diagnosis, we proceed to the **design** stage which seeks to design solutions to combat the identified bottlenecks. We began with high level design concepts, which we iteratively developed with support from Swisscontact, Cargill and BRI to improve the feasibility and efficacy of the designs. Finally, we implemented the designs with a group of 3,028 Swisscontact cocoa farmers to **test** the impact of the design on savings behavior. The intervention was delivered to farmers over a six-month period, during the major cocoa harvest season.

Defining the Problem

There are many ways one might approach trying to improve farmers' savings behavior, so beginning with the right problem definition is critically important when developing the most promising solutions. The problem definition process utilizes a combination of available qualitative and quantitative information to understand the nature of the challenge, and where we should begin our broader diagnosis and design effort.

In the context of this intervention, we began by better understanding how GP-SCPP currently engages farmers in savings. To help improve farmers' savings, Swisscontact provides Good Financial Practice (GFP) trainings that educate farmers amongst others on the importance of savings and how to save. We identified a gap between farmers' intention to save and their actual savings behavior through a GFP survey administered by SCPP. The survey showed that while 97% of farmers stated that they had an intention to save, less than 50% had any savings, and of those who did save, most saved very little.



Additionally, we looked at the savings goals farmers reported in the survey. The top four goals were their children's school fees, farm investments, emergencies and health care. Even though farmers stated they want

to save for farm inputs, this wasn't a top priority for them. However, investing in farm inputs has the potential to increase agricultural productivity and improve farmers' livelihoods over the long term. With this information, we worked with Swisscontact to jointly arrive at a behaviorally-informed problem definition:

SCPP cocoa farmers are not saving enough for cocoa farm inputs. We want them to save enough and invest in cocoa farm inputs.

With this problem definition in place we moved into the diagnosis phase.

Behavioral Diagnosis

ideas42 uses a proprietary behavioral mapping methodology to generate insights about the psychologies and situational features contributing to the problem. In this case, we examined the process - the decisions and actions - that farmers go through when deciding to save. We started by developing an initial behavioral map, charting the various decision and actions steps that farmers would need to take in order to deposit savings on a regular basis. Then with additional qualitative and quantitative data, we tenaciously re-iterated on our initial map to refine our hypotheses about what behavioral and contextual factors were inhibiting savings behavior.

On the quantitative side, we used the existing GFP survey data to better understand farmers' intentions, assets and self-reported livelihood strategies. On the qualitative side the ideas42 team conducted 8 in-depth interviews in Aceh Tenggara and 13 interviews in Soppeng to learn more about farmers' financial lives and decisions. The interviews focused on understanding the savings habits of farmers and asked questions about farmers' income and expenditures, financial management, savings goals, interactions with financial institutions, and intra-household financial decision-making.

Through the behavioral diagnosis process, the ideas42 identified five key bottlenecks farmers faced in trying to save.

Farmers prioritize savings last

When we asked farmers about their savings behavior, we consistently heard that farmers use whatever income they get during the cocoa season to pay for their immediate needs and expenses, and then save whatever is left over. However, farmers also reported that when they followed this rule of thumb, they rarely had much if anything left over for savings. This led many farmers not to make savings deposits for over two years. Focusing on immediate needs at the expense of future savings is a symptom of present bias, whereby people put greater weight on immediate payoffs as opposed to those in the future, even if those in the future are larger. Additionally, following this rule of thumb increases the likelihood that little if anything would be left over for savings because people tend to adapt their expenditures to the availability of funds, meaning they were more likely to spend less if they prioritized saving first, but spend more if they prioritized saving last.

"Don't save what is left after spending, spend what is left after saving." (Warren Buffet)

Farmers discount the potential for small amounts of savings to add up

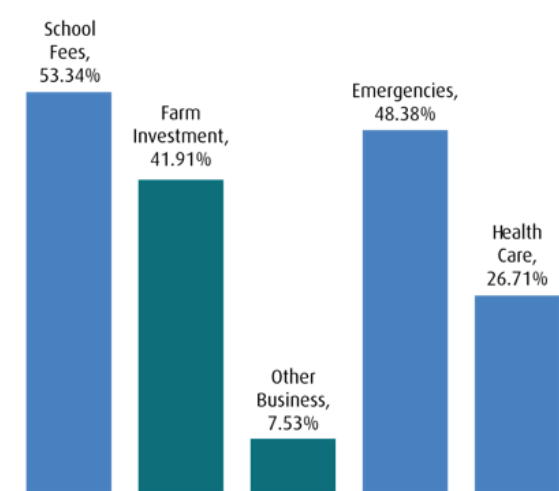
Farmers reported that they often had small sums of money that they could use for various consumption goods, or other needs on a regular basis but did not deem these small sums as being worthy of savings. In

fact, in a few interviews farmers stated that they would not put money they had into the bank unless it was above a certain threshold, otherwise they would use it for consumption purposes. And it can be difficult to encourage farmers to save these small sums due to the peanuts effect in which the value of small amounts of money is discounted, despite the fact that when aggregated the amounts may be large. By disregarding the worth of saving small sums of money, farmers ended up saving far less than they could have.

Farmers do not prioritize saving for cocoa inputs over non-productive consumption goods

Survey data provided by Swisscontact indicated that only 41.9% of farmers had an intention to save for agricultural inputs. Moreover, 41% of farmers also reported that in the case of an emergency, they are most likely to forgo investments in agricultural inputs - more than any other expenditure. This is problematic because having little to no investments in cocoa productivity reduces farmers' opportunity to realize a significant financial return.

When farmers did express specific goals with respect to savings during our interviews, these savings goals were for household expenditures, education and employment opportunities for their children, and cultural obligations. One reason farmers may have formed intentions to save for these non-productive expenditures instead of agricultural inputs could be because those non-productive expenditures can provide an immediate and tangible benefit (present bias), whereas investments in agriculture provide an uncertain benefit or a benefit that does not pay off until well into the future.



Farmers do not have concrete savings goals, nor a plan for how to achieve them

When ideas42 asked farmers about what they saved for, farmers often reported saving so they had money when they needed it, but did not express specific savings goals for expenses such as agricultural inputs, education, or home construction costs. Even if farmers did provide examples of things they were saving for, they often were not able to describe the total cost associated with that goal or what actionable steps they planned to take in order to achieve it. Behavioral science shows that when goals are abstract and vague as opposed to concrete and actionable, people are much less likely to be able to follow through on their intentions. In the case of cocoa farmers, without concrete goals and plans to achieve those goals, farmers were much less likely to build savings.

Farmers are inattentive to how small purchases affect their ability to save

Farmers have some income that could go to savings, but is instead spent on small consumption goods such as cigarettes, snacks and coffee. In our interviews with SCPP cocoa farmers, we identified that farmers do in fact have some slack in their finances that they could put towards savings, but this slack - for male farmers - was generally spent on small consumption goods. Male farmers reported spending a little money every day on coffee or tea, and cigarettes. On a daily basis, men reported smoking about 5-10 cigarettes for about 5,000-10,000 Indonesian Rupiah (IDR)¹³, and drinking 3 cups of coffee for about 15,000 IDR. While

¹³ One USD corresponds to 13,300 IDR during the time of the intervention

these purchases may not seem like much, small daily purchases can make a big difference. Farmers were unaware of how these small purchases can add up to large sums over time.

In addition, there were established social norms around smoking cigarettes and drinking coffee - they are not just consumption goods, but activities in which farmers participate with each other. This further gives farmers little incentive to reduce their consumption, and therefore reduces their opportunity to save money for other, more productive agricultural opportunities.

With these behavioral bottlenecks identified we moved into the design phase, using the diagnosis insights to drive our design solutions.

Behavioral Design

The ideas42 team used the insights from the diagnosis process to design the behavioral solution to increase the savings of cocoa farmers in Indonesia. In our design work, some design components address many of the identified bottlenecks, and sometimes a few design elements are used to solve for a single bottleneck.

Guided by the diagnosis, ideas42 developed a two-part intervention designed to address the behavioral bottlenecks impeding cocoa farmers' saving behaviors. The first part of the intervention was a behaviorally-informed savings onboarding session which included five components: (1) Savings Goal-Setting and Plan-Making Worksheets, (2) a Savings Guidance sheet, (3) a Savings Envelope, (4) a Savings Tracker Calendar, and (5) a Successful Savings Case Study Example. The second part of the intervention involved setting up cocoa traders as savings agents in order to create regular opportunities for farmers to save at the point they receive cocoa income.

Savings Onboarding Session

1. Savings Goal-Setting and Plan-Making Worksheets

The **Goal-Setting and Plan-Making Activity** aimed to help farmers set concrete savings goals to link to their pre-existing savings intention. The goal-setting exercise first asked farmers to visualize and record their savings goals. This was meant to help farmers decide on the specific target they wished to save for as research has shown that setting explicit goals can be an effective tool to help people achieve their objectives by driving effort and attention towards goal-relevant tasks.¹⁴ For the plan-making activity, farmers were asked to provide specific steps on how they would harvest and sell their beans to obtain income for savings. Studies have also shown people become more likely to achieve their goals when they develop concrete steps on how to complete them.¹⁵ Once farmer families wrote down their savings plans, they were asked to sign their plans as a form of commitment. While farmers were not penalized if they didn't follow through on their plan, by creating a savings plan and signing it, farmers made a soft

¹⁴ Locke, E. A., & Latham, G. P. 2002. "Building a practically useful theory of goal setting and task motivation: A 35-year odyssey," *American Psychologist*, 57, 705–717; Latham, G. P., & Locke, E. A. (2007). New developments in and directions for goal-setting research. *European Psychologist*, 12, 290–300.

¹⁵ Lusardi, A. 2009. "U.S. household savings behavior: The role of financial literacy, information and financial education programs," in C. Foote, L Goette, and S. Meier (eds.), "Policymaking Insights from Behavioral Economics," Boston: Federal Reserve Bank of Boston, 109–149.

commitment (has no contractual consequences) to carry out their savings goals. Soft commitments have been shown sometimes to be more effective than hard commitments when motivating behavior.¹⁶

Image 1. Savings Goal-Setting Worksheet

The worksheet is titled "Tujuanku Menabung" (My Savings Goal). It features a blue header with logos for Cargill, Mondelez, and SCPP. The main content area is divided into sections for personal information, savings goals, and a drawing. The first section asks for the user's name and where they plan to save. The second section asks for the frequency and amount of savings, and for a drawing related to the goal. The third section asks for a description of the goal and why saving is important.

Image 2. Savings Plan-Making Worksheet

The worksheet is titled "Rencana Tabungan" (Savings Plan). It features a blue header with logos for Cargill, Mondelez, and SCPP. The main content area is divided into sections for personal information, savings goals, and a plan. The first section asks for the user's name and where they plan to save. The second section asks for the frequency and amount of savings, and for a drawing related to the goal. The third section asks for a description of the goal and why saving is important. The fourth section asks for a plan to achieve the goal, including a timeline and a list of activities.

2. Savings Guidance Sheet

To make saving easier and salient for farmers throughout the intervention, we provided farmers several savings tools. The **Savings Guidance Sheet** provided farmers a guideline on how much to save based on their cocoa sale income. While figuring out how much to save from each cocoa sale may seem like an inconsequential step, in the absence of any guidance or plan that decision can be hard to make, and may lead farmers not to save anything at all. To get around this, we gave farmers an easy rule of thumb about how much they should be saving based on how much they made from each cocoa sale. Swisscontact indicated to us that they propose farmers save roughly 11 percent of their cocoa income from each sale. Therefore, the guidance sheet provided farmers with a rule that they should save between 10 to 20 percent of their income. The sheet itself displayed potential income from 50,000 to 5,000,000 Indonesian Rupiah (IDR) to take into account the different income that farmers across Soppeng might receive, and provided

¹⁶ Bryan, Gharad, Dean Karlan, and Scott Nelson. 2010. "Commitment Devices." Annual Review of Economics, 2(1): 671–698

the actual IDR values corresponding to 10 and 20 percent of that income, making it easy for farmers to determine whether their chosen savings amount was within the recommended range.

Image 3. Savings Guidance Sheet



Untuk membantu memenuhi tujuan tabungan Anda, SCPP merekomendasikan menyimpan 10-20 % penghasilan Anda dari setiap penjualan kakao

Untuk tujuan Anda
Untuk tujuan yang lain

Bila saya mendapatkan sejumlah ini dari penjualan kakao	Maka saya bisa menabung antara :	
	10 %	20 %
Rp 50,000	Rp 5,000	Rp 10,000
Rp 100,000	Rp 10,000	Rp 20,000
Rp 200,000	Rp 20,000	Rp 40,000
Rp 300,000	Rp 30,000	Rp 60,000
Rp 400,000	Rp 40,000	Rp 80,000
Rp 500,000	Rp 50,000	Rp 100,000
Rp 600,000	Rp 60,000	Rp 120,000
Rp 700,000	Rp 70,000	Rp 140,000
Rp 800,000	Rp 80,000	Rp 160,000
Rp 900,000	Rp 90,000	Rp 180,000
Rp 1,000,000	Rp 100,000	Rp 200,000
Rp 2,000,000	Rp 200,000	Rp 400,000
Rp 3,000,000	Rp 300,000	Rp 600,000
Rp 4,000,000	Rp 400,000	Rp 800,000
Rp 5,000,000	Rp 500,000	Rp 1,000,000

3. Savings Envelope

The **Savings Envelope** was designed to help farmers aggregate small amounts of money within the household that they would like to commit to savings. One insight from behavioral economics is that while money is fungible, people often develop *mental accounts*, or purposes for specific sums of money that make that money less fungible. One example of this is a goal based savings account. When people save for a very specific purpose, they are much less likely to take those savings and use them for something else. In a similar way, creating places to put money for specific purposes, such as a drawer where you put money for your child's education, can help make those savings stickier. The envelope was designed to leverage this idea, and help farmer households find a specific place for their savings that was readily accessible at times when they were most likely to have loose change on hand, and was also connected to their saving goal. Additionally, because it was a place to store loose change, it was also a tool to help farmers aggregate those small sums, making it more likely that they would build substantial savings amounts that they deemed worthy of depositing into the bank at a future date.

Image 4. Savings Envelope

Amplop Tabungan Saya

Saya akan menyetorkan uang yang saya simpan di amplop ini ke pedagang terdaftar Cargill pada penjualan kakao berikutnya

Target tabungan saya adalah :

Jika saya menghasilkan :	Saya akan menabung :
Rp. 50,000	Rp. 5,000 - 10,000
Rp. 100,000	Rp. 10,000 - 20,000
Rp. 200,000	Rp. 20,000 - 40,000
Rp. 300,000	Rp. 30,000 - 60,000
Rp. 400,000	Rp. 40,000 - 80,000
Rp. 500,000	Rp. 50,000 - 100,000
Rp. 600,000	Rp. 60,000 - 120,000
Rp. 700,000	Rp. 70,000 - 140,000
Rp. 800,000	Rp. 80,000 - 160,000
Rp. 900,000	Rp. 90,000 - 180,000
Rp. 1,000,000	Rp. 100,000 - 200,000
Rp. 2,000,000	Rp. 200,000 - 400,000
Rp. 3,000,000	Rp. 300,000 - 600,000
Rp. 4,000,000	Rp. 400,000 - 800,000
Rp. 5,000,000	Rp. 500,000 - 1,000,000

4. Savings Tracker Calendar

The **Savings Tracker Calendar** was designed to help farmers get ongoing feedback about goal achievement both in terms of how much they have saved, but also about their savings plan itself. Feedback about goal attainment can be incredibly important and motivating as it provides concrete information about where someone is in their progress and makes salient what steps they would need to take in order to stay on track. The tracker recorded two key elements. First, for each week of each month, farmers were given two check boxes in which they could log whether they (1) went to make a cocoa sale, and (2) whether they saved at that cocoa sale. By providing farmers with this information, farmers could easily see whether they were fulfilling their cocoa savings plan by selling their beans and saving as frequently as they had initially planned. Second, the tracker provided farmers a place to write in how much they had saved each month so they could easily calculate their total savings to date and make sure they were on track to reach their goal.

Image 5. Savings Tracker Calendar

Catatan Tabungan Saya

Nama: Abdul Muis & Rahmiati

Saya menabung untuk: 360 bibit kakao

Untuk itu, saya mesti menyimpan: 3.600.000

Januari	Februari	Maret
<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 0</p>	<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 0</p>	<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 0</p>
April	May	Juni
<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 250.000</p>	<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 500.000</p>	<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 750.000</p>
Juli	Agustus	September
<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 1.000.000</p>	<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 1.250.000</p>	<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 1.500.000</p>
Oktober	November	Desember
<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 1.750.000</p>	<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 2.500.000</p>	<p>Terjail</p> <p>Disabung</p> <p>Total yang disimpan: 3.250.000</p>
<p>Total Yang Disimpan</p> <p>3.850.000</p>		

5. Savings Case Study

To address farmers' prioritization of savings for non-productive consumption goods over cocoa inputs, we developed a visual, narrative case study. It highlighted how a family was able to successfully achieve their savings goal and showed the returns that can be had from investing in agricultural inputs to help them achieve even greater success in following years. The case study also demonstrated how the family used the same savings tools farmers were given during the session to highlight how the tools were to be used by the farmers, and illustrate how the successful use of the tools can lead to goal achievement.

Image 6. Savings Case Study

Rencana Tabungan Untuk :

Nama

Saya menabung untuk

Untuk itu, saya mesti menyimpan

Beberapa tahun terakhir ini kami telah kehilangan pendapatan karena pohon kami semakin tua, dan tidak lagi menghasilkan seperti yang seharusnya. Kami ingin membeli bibit kakao baru sehingga kami bisa mulai menanam kembali kebun kakao kami.

Untuk Mencapai Tujuan Tabungan

Rencana Saya

Saya berencana untuk memanen kakao saya setiap minggu, pada hari untuk dijual

Setiap kali saya menjual biji ke pedagang kakao terdaftar Cargill, saya akan menyetor uang ke rekening tabungan BRI saya dari :
(tandai pilihan dengan ✓)

- ☒ Penjualan Kakao Saya
- ☐ Pendapatan Usaha Tani Saya Yang Lain
- ☒ Pendapatan Non-Usaha Tani

Ongoing Saving Opportunities with Cargill Traders as Banking Agents

The second part of the intervention developed an opportune savings moment at the time of each cocoa sale by onboarding Cargill's registered cocoa traders as branchless banking agents, with BRI and its BRI-Link solution. The objective was to bring banking closer to farmers, and provide farmers a moment to save at a time when they were most likely to have cash on hand. Evidence from behavioral science shows that people are more likely to spend and save when they have just received a large lump sum, so we wanted to leverage that moment when farmers would be most amenable to saving. The traders were trained to provide a savings opportunity at each cocoa sale. First, they would ask the farmers how much they wanted to save, once the farmers learned how much they would receive from the cocoa sale. The traders would share the Savings Guidance sheet with the farmers to help support the decision about how much to save, and based on the savings amount requested by the farmer, the trader would electronically deposit that savings amount into the farmers' bank account using a BRI-Link Electronic Data Capture (EDC) device. Cargill traders would then provide a receipt as assurance that the savings deposit was made and the remaining income to the farmer as cash-in-hand. Farmers also had the ability to deposit any other sources of income they might have via the traders as BRI-Link agents, such as the savings they had built up at home using the

savings envelopes. By making savings accessible, easy and integrating the savings moment with farmers' savings goals, we hoped to help create a fluid pathway for the farmers to build a habit of saving.

Testing the Behavioral Intervention

Implementation Process

The design solution was launched in May of 2016 in Soppeng, South Sulawesi, Indonesia with the help of Swisscontact, Cargill and BRI Bank, and branded as a pilot savings initiative for the intervention population. Soppeng was chosen for the intervention for several reasons: First, the private sector partners Cargill and BRI operate in this region, have shown high interest in farmers' savings behavior and were committed to implementing the intervention. This is particularly important for a development collaboration project, because a successful intervention provides a pathway to scale in the future. Second, the farmers in the region were interested in participating in the savings initiative. They had received training in Good Agricultural Practices (GAP) before, which increased their production. This higher production provided more available cash for farmers to save for future needs. Third, due to the supply chain component of the intervention that used traders as branchless banking agents, the initiative seemed to be most manageable in Soppeng in order to deal with the large number of participants, the limited number of traders, and the time investments needed by all stakeholders. Taking all these factors into account, Soppeng seemed to be most suitable for such a pilot intervention.

To prepare for the initiative, BRI sent staff into the field to open savings accounts for farmers who did not have an existing BRI savings account. 757 new accounts were opened during this process, providing us a total intervention population of 3,028 farmers. The farmers with BRI bank accounts were then randomly assigned to either the treatment condition (receiving the behavioral design intervention as described above) or the control condition (just receiving BRI savings accounts). For the treatment population, Swisscontact farmer field officers (FFOs) held the behaviorally-informed savings onboarding session and invited all of the farmer families, including both the farmer and their spouse for the session. This was an important detail because we learned through the diagnosis process that the female head of household was the primary financial decision maker, and therefore needed to be part of this process. Once the farm households were convened, the FFOs explained to farmers the objective of the intervention, which was to help them save and accomplish their goals by making saving easy and convenient. Swisscontact FFOs walked farmers through the session exercises and materials. They helped farmers develop concrete savings goals and plans using the Savings Goal-Setting and Plan-Making worksheets, as well as the Savings Guidance sheet. After, FFOs went through the case study example of a farmer family successfully saving. They also explained to farmers how to conduct a savings transaction with Cargill traders. Finally, they provided the farmers with the two additional savings tools—the Savings Envelope, and the Savings Tracker Calendar—to further help farmers facilitate their savings throughout the intervention.

After the savings onboarding session, Swisscontact FFOs then held a separate training session for the five Cargill traders and their staff. While five traders were trained, only four traders decided to participate in the initiative. The goal of this session was to prepare traders for the savings initiative and help them understand their responsibilities. FFOs reviewed the overall objective of the initiative – to increase farmers' savings rates – and explained how the initiative would work. They then guided traders through their main duties for the initiative, which included reminding farmers in the treatment population to save and helping them make savings deposits through the BRI-Link device during each cocoa sale. Upon the completion of the training session, BRI staff helped set up the traders as BRI-Link agents and provided electronic data capture (EDC) machines they would use to process farmers' deposits. Once farmers and traders were fully

on boarded, the first savings transactions began in June 2016. Being a branchless banking agent, comes with earning a little provision on the transactions executed.



Implementation Monitoring

Throughout the savings initiative, Swisscontact FFOs conducted monthly interviews with control and treatment group farmers as well as traders to get a snapshot of farmers' savings behaviors and see whether traders were offering the appropriate farmer groups BRI-Link services and reminding them to save. During these monitoring efforts, FFOs reached out to a random sample of ten farmers in each of the treatment and control group and all four traders on a monthly basis. Please see the appendix for some examples of farmers' statements on their savings behavior.

Experimental Design

To test the efficacy of the initiative we evaluated the intervention using a randomized controlled trial (RCT), the gold standard in impact evaluation. An RCT randomly assigns half of the participants to receive an intervention while the other does not receive it. Randomization allows us to create groups that have statically similar demographic characteristics, which then allows us to identify causal links between the intervention and specific outcomes of interest. By comparing the two groups of farmers we could assess whether there were any differences in savings behavior with respect to the behavioral intervention—the savings onboarding session and the use of Cargill traders as BRI-Link agents.

ideas42 designed a 6-month (June 2016 – November 2016) evaluation that included 3,028 SCPP cocoa farmers in 98 farmer groups, with approximately 10-30 farmers in each group, across 30 villages. A matched pair design was used where the 30 villages were grouped into 15 pairs based on demographic characteristics provided in the Swisscontact administrative data, which included age, number of dependents, gender, marital status, estimated yearly cocoa income, and number of farmer groups per village. Each of the village pairs was randomly assigned to either the treatment or the control condition. Our intervention was provided at the farmer village level to mitigate the extent to which the treatment and control group are contaminated through spillover effects (e.g. control group farmers finding out about the savings initiative and receiving components of the savings initiative). We did this because we had been advised by Swisscontact that farmers within a given village often know of and talk with one another, making spillover between farmer groups within the same village very likely. The treatment and control groups were successfully balanced on the Swisscontact survey demographics variables before the RCT began (See Table 1 in Appendix). This ensured the treatment and the control populations were similar and that the analysis

between these groups would be a fair comparison. ideas42 used the available Swisscontact administrative data to conduct the balance checks.

Evaluation Plan

The overarching goal of the intervention was to help farmers build significant savings. We hypothesized that the behaviorally informed intervention would help the treatment farmers build greater savings, and exhibit better savings behavior than the control population over the course of the intervention period. To assess these hypotheses, we used transaction level data provided by BRI to examine deposits and withdrawals into and out from the savings accounts.

We received data from BRI until October 2016 for all farmers who had an active account of which the farmers provided us with the account details. Of the 3,028 farmers participating in the intervention, we received data for exactly half (1,514 farmers) to conduct the analysis. Farmer attrition occurred for three primary reasons. First, some farmers provided inaccurate bank account numbers that could not be matched to BRI data or in few cases account numbers of other banks. Second, not all farmers without existing BRI savings actually opened new accounts during the account opening process, and for those that did, some never activated or transacted on their accounts during the intervention period. Third, some farmers' families or even group members shared the same accounts so one savings account could represent multiple unique farmers. Nevertheless, the attrition in the sample did not appear to affect the overall balance across the treatment and control conditions. ideas42 conducted a post-intervention balance check, which showed no significant demographic differences between the treatment and control groups, allowing us to proceed with the analysis as planned (See Table 2 in Appendix). The final sample size consisted of 745 farmers in the control group and 769 farmers in the treatment group. The following provides an analysis of findings with respect to the metrics of interest.

Results

To evaluate the savings initiative's impact, ideas42 examined the following key outcome variables between the treatment group and control group farmers:

- a) Total savings volume and average deposit amount
- b) Frequency of deposits
- c) Total volume and average withdrawal amount
- d) Frequency of withdrawals
- e) Net savings of farmers

We performed t-tests to determine if there were differences between the outcome measures of the treatment and control groups during the intervention period (June – October). Presented below are our findings from the analysis.

Net Savings Volume of Farmers

The primary metric of interest was the net savings of farmers over the intervention period. We hypothesized that farmers in the treatment condition would have a higher average volume of net savings (savings volume minus withdrawal volume) as compared to the control. What we found was that the treatment population had an average net volume of savings of IDR 696,397 while the control had IDR 676,416, with a difference of IDR 19,981 (2.86% savings difference between the treatment and control group). Even though we observe that the control group seemingly saves more, it also withdraws more, which could explain why the

net savings are higher for the treatment group. Still, none of these differences are statistically significant. The difference in net savings was also not economically meaningful either. 19,980 IDR roughly amounts to .6 more kg of cocoa saved by the treatment population as compared to the control population.

Total volume and average deposits

In addition to net savings, we looked at the total savings volume and average deposit amount. We hypothesized that treatment group farmers would deposit higher savings amounts in their accounts compared to control group farmers. We found that the treatment population had a total volume deposit of IDR 15,119,933 million while the control population had IDR 15,773,132 million IDR, with a difference of 653,199 IDR. The average savings deposit was IDR 3,023,987 for the treatment group and IDR 3,154,627 for the control group, with a difference of IDR 130,640. Though farmers in the control group had a higher total volume and average deposits, these amounts were not statistically different from those of the treatment group.

Frequency of deposits

We were also interested in whether farmers in the treatment condition made savings deposits more frequently than farmers in the control condition. We found that on average treatment group farmers made 6.49 deposits and control group farmers made 7.71 deposits, with a difference 1.22. While the control population made slightly more deposits than the treatment population, this difference was not significant. That's on average 1.30 and 1.54 deposits per month respectively. During the monthly monitoring, we also found that many farmers found excuses for not saving. Saving is a voluntary exercise, so no one is obliged to save.

Total volume and average withdrawals

We then examined farmers' total volume and average withdrawals to see whether farmers in the treatment group made fewer withdrawals than farmers in the control group. We found that the control population had total withdrawal amount of IDR 15.1 million, while the treatment population had IDR 14.4 million, with a difference of 673,180.1 IDR. Additionally, the average withdrawal was IDR 2,884,708 for the treatment group and IDR 3,019,344 for the control group, with a difference of IDR 134,636. Despite the fewer total and average withdrawal amounts of the treatment group compared to the control group, these differences were not significant.

Frequency of withdrawals

Lastly, we looked at withdrawal frequency between treatment and control group farmers. We saw that on average the treatment condition performed 18.87 withdrawals and the control population conducted 18.95 withdrawals, with a difference of .08. This difference was not statistically significant.

Data Limitations

While our results showed no significant difference between the treatment group and control group on the key outcome measures, a lack of available and reliable data limited the scope of our analysis.

One important limitation was the incomplete picture we had of farmers' formal and informal savings. Some farmers had accounts outside of BRI and others could have been using other savings mechanisms such as saving in assets (e.g., gold or land), which would have been congruent with information gained during ideas42's field interviews. From the data provided, ideas42 also observed that some farmers had more

than one BRI account, but we were not able to receive transaction data associated to these additional accounts. Therefore, our interpretation of the results is limited because we could not track nor do we have a full picture of total farmer savings. Without having this full picture, the current data we have serves as an incomplete proxy for farmers' savings.

Furthermore, we were also interested in evaluating whether farmers would make more frequent savings deposits via the BRI-Link services compared to established channels such as visiting a bank branch or using an ATM. Unfortunately, how the BRI data was structured prevented the ideas42 team from clearly distinguishing different transaction channels and determining the exact percentage of farmers who used the BRI-Link services as a method to save.

Intervention Challenges

While the results seem to indicate that the intervention did not have a meaningful effect on farmer savings, we believe that the results in and of themselves do not provide a complete picture of the implementation challenges and external conditions that could have negatively affected the efficacy of the intervention design. The following section provides a review of the implementation challenges that would need to first be considered and/or remediated in order to determine conclusively whether the intervention is effective. These challenges include those related to (1) the macroeconomic changes over the course of the intervention, (2) the implementation of the farmer savings training, and (3) the adherence of traders to the intervention protocols.

Macroeconomic Changes

A major determinant of cocoa farmers' ability to save is whether they have enough spare income to set aside. If the farmers have, in fact, no liquidity to put towards savings, then savings is economically infeasible for farmers. What we learned through our monitoring effort, and by information provided by Swisscontact and Cargill was that the cocoa farmers, despite having a relatively poorer harvest than in the previous couple of years, made roughly the same amount of income from cocoa because the price of cocoa had increased. However, even though farmers appeared to fare relatively well in terms of their income from cocoa, year-on-year inflation had increased the cost of goods for farmers making each IDR less valuable.¹⁷ With these increased costs, farmers likely didn't have enough left over to save. What research in behavioral science shows is that when people are functioning under conditions of scarcity (scarce income, food, time, etc.) they place a greater focus on the management of those resources in the present, and often at the expense of the future. This is particularly important with respect to farmer savings because if the farmers were income constrained over the course of the intervention period, not only did they simply have less income to put towards saving, but they were also much more focused on their present needs at the expense of their future opportunities – e.g. savings.

But surprisingly, Ramadhan didn't play a visible role on farmers' savings rates, although the majority of the farmers in the region are Muslims. We expected farmers would need more cash to cover related expenses to celebrate the end of Ramadhan, which was on 5th July 2016, which would affect their capacity to save. However, we saw no significant difference in farmers' savings behavior in July compared to the other months during the intervention.

¹⁷ <https://tradingeconomics.com/indonesia/consumer-price-index-cpi>

Farmer Savings Training Implementation

Evidence from the field indicated that the execution and implementation of the savings intervention across the treatment group was conducted inconsistently, which may have had negative effects on the efficacy of the intervention itself. For the behaviorally-informed savings onboarding session in which 1,500+ farmers were trained, four different Swisscontact FFOs facilitated the sessions. Having different individuals conduct these meetings may have led to some content being provided differently to different farmer groups. Coupling this with the fact that the training materials had to be translated from English to the local language in Soppeng may have further increased the likelihood that the design concepts were not properly communicated to farmers during the savings onboarding sessions. To assess possible differences between farmers in the treatment group trained by different FFOs, ideas42 compared their savings outcomes. We found that farmers trained by one of the four trainers had a higher net savings ($p < .1$) compared to farmers who were trained by the three other trainers. In fact, this trainer had the greatest amount of contact with ideas42 during both the diagnosis and intervention periods, indicating that this trainer's proximity to the ideas42 team and knowledge of the goals of the intervention may have had an important impact on his particular success as a trainer. Ensuring similar success across other trainers would likely require a more thorough training effort for the FFOs.

Trader Adherence to Intervention Protocols

The traders-as-agents were likely the most critical aspect of the behaviorally informed intervention design. However, because they were independent third parties, despite even Cargill's relationship to them, ensuring they provided a consistent experience to farmers at the point of the cocoa sale, and adhered to the intervention protocols was a major challenge. Additionally, because of BRI's internal policies regarding the distribution of the EDC machines, it was not possible to leverage the traders to the fullest extent possible for this intervention effort. These challenges are described in greater depth below.

Intervention Timing and EDC Delivery

Traders were delayed in receiving the EDC machines they were to use to collect and deposit farmers' savings. As a result, farmers were not able to start saving with traders when the initiative first started in June, which meant that farmers went without a clear savings option for at least the first month of their harvest period, potentially impacting savings. Additionally, savings were particularly salient right after the savings training conducted by the FFOs, and farmers likely had the highest intention to save at that point. But, by requiring the farmers to wait until the infrastructure was set up may have caused their interest in savings to attenuate, reducing their intention to save once the EDC machines became available, and thus their actual savings as a result.

No Branchless Banking for Every Trader Interaction

Another major challenge was that BRI was only able to provide each trader group with one EDC machine even though each trader group had 2-4 staff members that helped them with their cocoa sales by collecting the beans at the farm gate. To offer farmers the convenience of savings deposits at each cocoa sale, there needed to be one EDC machine available at each cocoa sale moment, which would require at least one EDC machine for every trader and trader employee. Having each trader group operate only one EDC machine meant that most cocoa sales were done without an EDC machine present since sales transactions

happened in different places simultaneously. Because providing the farmers a consistent moment to save at every sale was a key element of this intervention, it is very likely that the lack of EDC machines had a significant negative impact on the ability of the treatment group to save and was a major contributor to the lack of difference in savings between the treatment and control groups. We should note that BRI is currently working on web-based transactions that would not require EDC devices anymore and would address this issue, but connectivity to a mobile network would be still needed.

Trader Non-Adherence to Intervention Responsibilities

The monthly monitoring reports showed that traders and their staff did not always adhere to the intervention protocols, which may have had a negative effect on the intervention efficacy. First, traders were trained to remind farmers in the treatment population to save at each sales interaction. Providing a moment to save by prompting the farmers to think about saving during each cocoa sale was a key aspect of the intervention design. However, monitoring reports indicated that traders inconsistently prompted farmers to save during the sales interactions. While ideas42 and Swisscontact went through a retraining effort once the issue was identified, there was no indication that these savings moments were provided consistently to the farmers throughout the intervention. The failure to successfully remind farmers to save may have had a negative impact on the results.

Second, treatment spillover, where the control group received elements of the savings intervention may have also negatively impacted our results. The monthly monitoring showed a few traders sometimes provided the BRI-Link services to farmers in the control population, which they had been specifically told not to do during their training. Part of the problem was that, unbeknown to the project team, BRI had provided the traders with marketing materials about BRI-Link services to hang in their shops, making it impossible to hide the services from the control population. Once the control population knew that the traders were BRI agents, there was nothing we could do to prevent the control farmers from accessing the traders for banking services. While it is understandable from a bank's perspective to increase the acceptance of branchless banking services to all customers, for future interventions marketing materials at certain locations should be limited to reduce the visibility of the service to the control group and decrease any spillover effects.

Overall these implementation challenges likely prevented us from accurately assessing the impact of the savings initiative on savings rates. Despite these challenges, the initiative still generated some positive outcomes. Before the intervention, Swisscontact and ideas42 used self-reported survey data to understand farmers' savings behavior. The bank data on savings transaction and loans that BRI provided as part of the intervention offered a more accurate picture and better understanding of farmers' financial behavior. In addition, across the sample size, we saw an 8.88 percent increase in farmers' average savings amount from May (average balance of IDR 7,727,178) to October (average balance of IDR 8,413,233) and a 19.57% increase in median savings (from IDR 942,810 to IDR 1,127,290) (See Table 4 in Appendix). However, since we have little indication of farmers' prior savings behavior particularly during the harvest season when they earn more income and their savings balance may increase, we are unable to attribute this increase in savings to the saving intervention described in this report.

Recommendations

The savings intervention sought to increase cocoa farmers' savings rates by helping them concretize their savings goals and plans, providing an easy and convenient way for farmers to save, and prompting savings

at the moment when farmers are flush with cash. However, data and implementation challenges affected our ability to accurately assess the efficacy of the innovative savings intervention. Therefore, the ideas42 team recommends Swisscontact, Cargill and BRI to rerun the intervention in order to adequately evaluate its effect on cocoa farmer savings. If the partners choose to attempt this intervention again, we propose the following changes for the next iteration of the savings initiative: 1) resolve implementation challenges; (2) establish processes that ensure complete and reliable data collection; and (3) set appropriate intervention sample size and time period.

Resolve Implementation Challenges

Proper implementation is very critical to the success of any intervention. Even when promising design concepts or solutions are developed, they are unlikely to be effective if not properly implemented. Thus, detailed planning and execution on all aspects of an intervention needs to occur. During the savings initiative, the ideas42 and Swisscontact team encountered several implementation challenges around the behaviorally-informed onboarding session and the trader-farmer savings interactions—two key design components of the intervention. As discussed earlier, these challenges may have influenced how farmers developed their savings goals and plans and established regular savings habits, which consequently affected their savings outcomes. Therefore, it is important to proactively problem solving so the same issues do not arise in the next iteration of the savings initiative. We recommend the following actions to be taken: a) provide EDC machines for traders and each of their employees; b) ensure touch points with farmers that regularly prompts savings; and b) have consistent and thorough delivery of the behaviorally-informed savings onboarding session from all Swisscontact staff.

Provide EDC Machines for Trader and each of Their Employees

Through the savings intervention, ideas42 was able to develop a low-fidelity version of the trader as a bank agent model. The potential benefits of this model were not fully realized because of the number of problems that occurred in implementing it. To be able to assess the benefits of this trader-bank agent model, we propose working with BRI to provide EDC machines to not only the Cargill traders, but also the multiple staff members that work under them. In order to enact savings habits among farmers, there needs to be ubiquitous availability of EDC machines in the field so farmers always have a convenient way to deposit their savings any time they make a cocoa sale. The prevalence of EDC machines in the field would support the development of new savings habits for cocoa farmers.

Ensure Touch Points with Farmers that Regularly Prompts Savings

Furthermore, we also need to guarantee that traders and their staff consistently remind farmers to save in order to further reinforce these savings habits, especially since reminders can have significant effects in prompting individuals to make deposits.^{18 19} However, we recognize that there are difficulties in managing trader-farmer interactions during cocoa sales and traders may not always remember to remind farmers to save. Therefore, we propose using more reliable, existing touch points with farmers such as Swisscontact-run farmer group monthly meetings and SMS messages to encourage savings. These channels can be used

¹⁸ Ashraf, N., D. Karlan, Yin, W. (2006b), "Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines," *Quarterly Journal of Economics* 121(2), 673-697.

¹⁹ Karlan, Dean, Margaret McConnell, Sendhil Mullainathan, and Jonathan Zinman, 2011, *Getting to the Top of Mind: How Reminders Increase Saving*, Yale University Working Paper.

in addition to the savings reminders provided by traders to create more opportunities to prompt savings among farmers. It should also not be forgotten that traders in some cases provide pre-financing to farmers. Through this, they ensure sufficient cocoa supply because farmers' perceptions are that they need to sell to that particular trader. If the farmers now have savings and do not need pre-financing anymore, the trader's financing business will decline.

Have Consistent and Thorough Delivery of the Behaviorally-Informed Onboarding Session

Our analysis of farmers' savings behaviors based on which Swisscontact FFOs led their onboarding session showed some farmers had better savings outcome than others, which indicated a difference in FFO's facilitation of the sessions. This inconsistency in the sessions limits our ability to assess the internal validity of the intervention if part of the design solutions were not provided to all farmers in the treatment group in a similar manner. To mitigate these differences in the next iteration of the savings initiative, we propose providing more extensive trainings to FFOs so they fully understand the goals of the intervention. We suggest to get the Swisscontact staff more involved in the diagnosis and intervention process so they grasp all design components and can thus accurately explain them to farmers.

Establish Processes that Ensure Complete and Reliable Data Collection

For our analysis, the ideas42 team had incomplete information on farmers' formal and informal savings behavior and also could not measure certain outcomes based on how the BRI data was presented. Due to the sensitive nature of the information, we recognize the challenges and costs related to the collection of data on informal savings, since neither amount nor frequency can easily be measured and are based on voluntary information provided by the farmers. However, while we may not be able to understand all the informal ways that farmers save, we can still work with BRI to ensure that we receive the full transaction data associated with all savings accounts of the intervention population. Starting these conversations with the bank partner earlier on in the implementation stage will allow us to understand how BRI collects their data and make appropriate data requests based on how we see the data is presented. Having such conversations occur earlier on in the project process would facilitate a more thorough analysis and would also allow us to cross check whether farmers gave correct account numbers and prevent the sample size reduction that occurred in the intervention.

Set Appropriate Intervention Sample Size and Time Period

In addition to the implementation changes, we also recommend some changes to the intervention sample size and time period before replicating the initiative.

Use a More Representative Intervention Population

The farmer sample of Soppeng cocoa farmers had a slightly better savings behavior than the Swisscontact population ideas42 initially received survey data on. This meant that it would be harder to change savings behavior of the participants in the initiative as they were already saving better than the overall farmer population Swisscontact works with. We propose for the initiative to be conducted with a more representative sample of the Swisscontact GP-SCPP farmer population on its next iteration.

In addition, we recommend using only new bank account holders for the intervention. For this intervention, only 25% of cocoa farmers opened and used their first account with BRI for the intervention. However, it could be interesting to test the initiative with farmers who didn't have a BRI account prior to the intervention

as such farmers do not have a pre-existing habit for how they use their BRI account. Behavioral research shows that it is harder to change already existing habits of using a BRI account, or so to say, the status quo.

Start the Intervention at the Beginning of the High Harvest Season

Lastly, if the initiative were to be repeated, it would work best in the high harvest season for cocoa farmers, as their income is too low to save at other times of the year. As discussed, the poor season this year may have negatively affected farmers' ability to save. This makes it more important to launch the initiative when farmers make the largest income from cocoa sales since crop production and prices can be unpredictable.

We believe that resolving these implementation and data challenges prior to the next iteration of the project, as well as applying the additional proposed changes would aid the success of the savings initiative and allow us to properly evaluate its impact.

Conclusion

Providing access to formal savings accounts has not been enough to help low-income individuals regularly use them and build savings. More effort is needed to prompt farmers to use and engage with their savings accounts more effectively, which can help them be better prepared to cope with income shocks and smooth consumption. ideas42 sought to drive such improved engagement for cocoa farmers in Indonesia by designing a savings initiative that leveraged insights from behavioral science to address GP-SCPP cocoa farmers' little to no savings. We believe there is great value in using the behavioral approach of understanding the contextual features that drive cocoa farmers' savings decisions and actions to develop effective solutions that increase savings. Due to implementation challenges, we encountered during the savings initiative, we were unable to properly evaluate the full impact our behavioral intervention had on cocoa farmers' savings behavior. We thus propose to address the implementation challenges and replicate this initiative to successfully tackle low savings behavior among cocoa farmers in Indonesia and other cocoa growing regions. Providing access and fostering use of a savings account is one way to include farmers in the formal financial sector. Many expenditures (e.g. school fees and daily expenses) that farmers have are better financed through built savings and not short-term loans from traders, money-lenders or banks that farmers can incur debt and penalties from defaults. Thus, savings represents a less risky and more viable option to help address farmers' financial needs.

Appendix

Table 1. Summary Statistics on Treatment and Control Groups Pre-Attrition (Farmer Survey Data)

VARIABLES	CONTROL	TREATMENT	SIGNIFICANCE (T-TEST)
N = 3028	1409	1619	
Number of Villages	15	15	
Number of Farmer Groups	47	51	
Average Number of Farmers/Village	102.53 (62.22)	99.33 (56.91)	0.8842
Average Farmer Groups/Village	3.40 (2.03)	3.20 (1.82)	0.7783
Age	46.71 (2.92)	46.81 (2.48)	0.9215
% Male	80.00%	77.10%	0.4702
Marital Status	93.92%	93.12%	0.5391
Average Number of Dependents	2.92 (0.43)	2.97 (.44)	0.3230
Average Land Under Cocoa Production	1.07 (0.15)	1.12 (0.39)	0.6227
Average Annual Cocoa Income	7,980,663 (2,156,639)	8,354,847 (4,856,587)	0.7871
Average Non-Cocoa Income	8,738,180 (4,734,802)	7,679,948 (4,205,855)	0.5228
Reported Other Income Sources (%)	99.07%	96.23%	0.2545
Reported Savings (%)	92.13%	90.16%	0.7078
% With BRI Account	92.50%	96.50%	0.1789
Reported Bank Loan (%)	10.85%	10.25%	0.8760

Table 2. Summary Statistics on Treatment and Control Groups Post-Attrition (Farmer Survey Data)

VARIABLES	CONTROL	TREATMENT	SIGNIFICANCE (T-TEST)
N = 3028	745	769	
Number of Villages	15	15	
Number of Farmer Groups	47	51	
Average Number of Farmers/Village	47.40 (24.04)	53.53 (29.35)	0.5363
Average Farmer Groups/Village	3.40 (2.03)	3.20 (1.82)	0.7783
Age	45.78 (2.91)	46.87 (2.44)	0.2773
% Male	77.43%	75.88%	0.7784
Marital Status	94.23%	94.00%	0.8710
Average Number of Dependents	2.93 (0.63)	2.84 (.63)	0.4848
Average Land Under Cocoa Production	1.12 (0.19)	1.16 (0.41)	0.7107
Average Annual Cocoa Income	8,019,442 (1,862,082)	8,830,454 (5,184,828)	0.5731

Average Non-Cocoa Income	8,813,438 (4,391,451)	7,973,529 (3,941,817)	0.5858
Reported Other Income Sources (%)	99.22%	95.64%	0.2520
Reported Savings (%)	95.17%	99.25%	0.5763
% With BRI Account	95.27%	96.5%	0.1031
Reported Bank Loan (%)	14.81%	11.06%	0.4227

Table 3. Transaction Behavior and Savings Outcomes by Control and Treatment

VARIABLES	CONTROL	TREATMENT	SIGNIFICANCE (T-TEST)
N = 1514	745	769	
Total Volume of Deposits	15,773,132 (9.31e+07)	15,119,933 (5.06e+07)	0.8648
Average Volume of Deposits (by Month)	3,154,627 (1.86e+07)	3,023,987 (1.01e+07)	0.8648
Average Frequency of Deposits (by Month)	7.70 (42.90)	6.49 (8.16)	0.4399
Total Volume of Withdrawals	1.51e+07 (9.34e+07)	1.44e+07 (5.08e+07)	0.8611
Average Volume of Withdrawals (by Month)	3,019,344 (1.87e+07)	2,884,708 (1.02e+07)	0.8611
Average Frequency of Withdrawals (by Month)	18.95 (15.20)	18.87 (17.42)	0.9688
Average Net Savings (Deposits net Withdrawals)	676415.7 (1.06e+07)	696397.3 (1.18e+07)	0.9724

Table 4. Pre-Intervention and Intervention Savings Balances

VARIABLES	N	PRE-INTERVENTION (MAY)	OCTOBER	SIGNIFICANCE
Average Savings	1514	7,727,178 (1.55e+07)	8,413,223 (1.50e+07)	0.3419
Treatment Group Average Savings	769	8,218,129 (1.63e+07)	8,913,869 (1.65e+07)	0.4562
Control Group Average Savings	745	7,220,412 (1.46e+07)	7,896,449 (1.60e+07)	0.5468
VARIABLES	N	DURING INTERVENTION (JUN – OCT)		

Average Savings	1514	8,191,286 (1.50e+07)
Treatment Group Average Savings	769	8,674,279 (1.57e+07)
Control Group Average Savings	745	7,692,734 (1.42e+07)

Table 5. Proportion of Farmers with Additional (> 1) Savings Accounts

VARIABLES	CONTROL	TREATMENT	SIGNIFICANCE
N=270	129	141	
Two or More BRI Accounts	17.32%	18.34%	0.323

Table 6. Proportions of Farmers with Loans

VARIABLES	CONTROL	TREATMENT	SIGNIFICANCE
N=248	113	135	0.323
% With Loans from BRI	15.17%	17.56%	0.210

Monthly Monitoring – Quotes from Participants

Maryam – Farmer

“There are times I only have 50,000 or 100,000 Rupiah [USD 3.75 resp. USD 7.50] to save and I feel ashamed if I go to the bank to deposit it. Without the saving program, I would never accumulate savings for future necessities.”

Usman – Farmer

“When I wanted to deposit 300,000 Rupiah [USD 22.55], it was difficult, because I had to go to the bank and wait in the long line. But now it only takes less than a minute, it is very easy. My time can be spent working on my farm instead of in the bank.”

Hj. Dharma – Farmer

“If I wanted to make a deposit in the bank branch, it costs me 20,000 Rupiah for public transportation. Can you imagine if I only have 50,000 or 100,000 Rupiah to deposit? It’s just not worth it.”

Aripe – Farmer

Even though Aripe thought it was easier to save through cocoa bean traders, he still preferred to go to the bank branch because he could visibly check and have his account book printed. While with the trader, he only receives a receipt.

Supardi – Farmer

Supardi used the trader several times to deposit money, however, he deposits more often through the BRI branch directly. He says the bank branch is more accessible because it is near his local market.

H. Uli – Trader

“I always try to remind farmers and small traders to save their money. I personally think farmers won’t save if nobody reminds them.”

H. Risa – Trader

“Anytime the farmers sell their cocoa, I usually just remind them it’s okay to save just 50,000 Rupiah at a time.”

H. Anwar – Trader

“Some farmers who are now used to branchless banking recommend it to other farmers, especially if the farmers want to transfer money to their kids out of town.”

H. Muchsin - Trader

“The bank officers also reminded farmers they just need to visit me to do bank transactions. My place is closer than the bank branch.” [The closest bank is located almost 15 km away from Pak Muchsin’s place.

Saharuddin - Farmer

In the field school, Saharuddin learned that it is important to save first and spend later. However, when he explained it to his wife, she dismissed it and claimed it was ‘just a theory.’