Cash in hand and savings decisions

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Abstract

Cash is an important means of transaction, generally assumed to be fungible. However, behavioral economics and consumer research show that 'cash in hand', physically holding on to cash and then handing it away, affects purchasing decisions. I study how cash in hand influences decisions in a different, but very important domain: savings. Savings accounts are a promising tool for reducing poverty, but the use of savings accounts is often puzzlingly low. Holding on to cash that needs to be physically deposited into a savings account may increase the psychological costs of saving. This study experimentally identifies the causal effect of cash in hand on savings deposits of female microfinance clients in the Philippines. In contrast to many laboratory and several field studies with similar interventions, I do not find reduced savings deposits due to cash in hand.

Keywords: *Cash, Savings, Field Experiment, Individual Choice*
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1 Introduction

Half of the world population uses only cash (Demirguc-Kunt et al. 2018). The standard assumption regarding cash is that it is fully fungible. Yet, economic research has shown in various contexts that fungibility can be reduced by labeling (e.g. Abeler and Marklein 2017; Hastings and Shapiro 2013; Kooreman 2000) or by 'cash in hand', i.e. physically holding on to cash and handing it away (e.g. Luccasen and Grossman 2018; Reinstein and Riener 2012). Regarding cash in hand, both experimental (Prelec and Simester 2001; Soman 2003) as well as survey evidence (Mercatanti and Li 2014) suggests that cash *payments* are lower than payments with other means of transactions. The evidence on violations of fungibility, both due to labeling and cash in hand, stems predominantly from high income countries. However, the fraction of the population that uses only cash is very small there, as compared to developing countries in which more than half of the population relies exclusively on cash transactions (Demirguc-Kunt et al. 2018).

In a natural setting dominated by cash, this paper investigates the causal effect of cash in hand on savings deposits. While labels have been studied and used to reduce fungibility and thus increase savings (e.g. Dupas and Robinson 2013b), cash in hand effects have so far not been studied in the domain of savings. This paper focuses on depositing cash into savings accounts, as the use of accounts has been shown to reduce poverty.[1] The physical deposit of cash might reduce or even inhibit the use of savings accounts and other savings institutions and thus help explain low savings rates in accounts. Despite positive effects of savings on poverty reduction, formal savings rates remain low in developing countries: while 61 percent of the population in developing countries have a financial institution account, only 21 percent save in it (Demirguc-Kunt et al. 2018). Reasons for this are not fully understood (Karlan et al. 2014).

I experimentally study the effect of cash in hand on savings decisions of 300 microfinance clients in the Philippines. I pay participants cash to take part in an interview, and then allow them to deposit some of this payment in their savings accounts. To hold constant other factors that might influence savings decisions, and to identify the causal effect of cash in hand on savings decisions, I exogenously vary the point in time at which the participants receive the cash. All participants know how much they will receive as this is publicly announced before

[1] Benefits of using savings accounts include an increase in business investment (Dupas and Robinson 2013a), household consumption (Brune et al. 2016), financial well-being (Prina 2015), as well as female empowerment (Ashraf et al. 2010), and a reduction in debt (Kast and Pomeranz 2018). Importantly, Dupas et al. (2018) suggest that access alone is not enough and that active usage is required to obtain these beneficial effects.

the start of the individual interviews. In the Cash in Hand (*CiH*) treatment, participants receive the cash at the beginning of the interview, so that they hold the cash for about 15 minutes before deciding how much of it to deposit. In the Cash Announced (*CA*) treatment, participants decide how much to put in the savings account before receiving the cash. Participants in *CiH* thus hold on to cash and hand over the amount they want to save, whereas individuals in *CA* verbally state the amount they want to save.

The main hypothesis is that cash in hand decreases savings *deposits*.[2] In the experiment, participants choose between taking cash home right after the interview or saving it for later. The presence of cash in the *CiH* treatment increases the tangibility of taking the money home right after the interview.[3] In contrast, the potential future benefits (and costs) of saving the cash remain intangible. This makes savings harder than in the *CA* treatment in which the option of taking the money home is less tangible. While the hypothesis is new in the context of savings deposits, the treatment variation builds on experimental laboratory studies that find i) lower donations in the presence of cash (Luccasen and Grossman 2018; Reinstein and Riener 2012), ii) lower spending with cash as compared to card payments (Feinberg 1986; Prelec and Loewenstein 1998; Runnemark et al. 2015) and iii) stronger endowment effects if the item is physically present (Bushong et al. 2010; Knetsch and Wong 2009; Peck and Shu 2009; Strahilevitz and Loewenstein 1998). Tangibility can help explain the findings of these three literatures. With cash present, the cost of giving it up is more salient which leads to lower donations with cash in hand. Similarly, the pain of paying is larger when cash is tangible. Given that cash itself is more tangible (in terms of amounts) than e.g. debit cards even though both means of transactions can be 'felt', spending is lower with cash as compared to cards. Lastly, tangibility can also explain why endowment effects are stronger in the presence of the item: the cost of giving it up is more salient and thus perceived to be higher. In sum, a physical transaction increases the psychological cost of an action due to the tangibility of the cash/item/donation to be transferred.

I find that cash in hand does not alter savings decisions. On average, participants save 42 percent of their experimental earnings, and both the means and the distributions of savings amounts are identical in *CiH* and *CA*. This null finding is robust to a cross-randomized variation in stake size. Given the extensive literature discussed in more detail below that em-

[2]Section 4.2 discusses implications for savings at home.

[3]Tangibility here means "perceptible by the senses" or "capable of being perceived; especially capable of being handled or touched or felt". Rick and Loewenstein (2008) elaborate on the argument that future transactions are inherently less tangible and Section 4.3 discusses potential mechanisms in more detail.

ploys similar manipulations, this is a surprising null result. The absence of a significant effect is neither driven by an ineffective manipulation nor by excessive noise. I rely on an established treatment variation and the null finding is robust to different estimation techniques and specifications. The lack of treatment effect heterogeneity further supports that a cash in hand effect does not exist in this setting. Lastly, the effect is quite tightly estimated, as under conventional power and significance thresholds, the minimal detectable effect size is 10 percent of the experimental earnings or a 25 percent change in savings (which I benchmark against laboratory studies with similar treatments and savings field experiments). This allows ruling out an economically relevant effect.

The study design and the experimental method of this paper have several advantages, combining a relevant field setting with the control of a laboratory experiment. All participants receive at least some of their income in cash and they already have a savings account, so that the experiment takes place in a natural setting with participants who have experience with the decision. The experimental setup allows isolating and cleanly identifying the causal effect of cash in hand, holding constant alternative (and previously studied) explanations for low savings such as temptation to spend the money, transaction costs or inertia in decision making. In addition, studying the clients of a microfinance organization that grants me access to administrative data, allows me to show that the experimental savings decision is correlated with actual (pre-experimental) savings behavior. The administrative data also permit investigating (and ruling out) selection into the experimental sample.

This study provides the first test of cash in hand in a field setting. In economic laboratory experiments, cash in hand has been compared to a display of a monetary amount on a computer screen. Studies have found lower charitable donations (Luccasen and Grossman 2018; Reinstein and Riener 2012), lower participation and smaller investments in an experimental game (Shen and Takahashi 2017) and punishment to be more deterrent (Wang and Qin 2015) with cash in hand. Less clear-cut results are presented by Charness et al. (2019) who find cash in hand effects on misreporting behavior in a loss, but not in a gain frame and Myrseth et al. (2015) who find no overall effect of cash in hand on public good contributions, but changes in treatment effect heterogeneity. Using a deposit into an existing savings account and a comparatively large sample, this study further questions the universality of cash in hand effects, by reporting a null effect and no treatment effect heterogeneity.

Studying the physical transaction of cash, this paper also contributes to consumer research investigating how the representation of money affects spending decisions. This litera-

ture has established how in cash transactions, parting with money is something vividly felt, which induces a high level of 'pain of paying' (Prelec and Simester 2001; Soman 2003; Thaler 1999). Consequently, consumers spend less when paying with cash than when using other means of payment (Feinberg 1986; Prelec and Loewenstein 1998; Runnemark et al. 2015). Interestingly, the cash in hand or pain of paying effect even emerges when the cash transaction is only anticipated as in some of the above studies, the decision is made before the transaction. Contrary to this line of research, this study investigates a setting in which the representation of money is kept constant (all treatments only involve cash) and focuses on the physical transaction.

With its field setting, the paper also addresses the explanatory power of cash in hand effects in savings deposits, and demonstrates that they are unlikely to be of first-order importance as an explanation for low savings rates. It thereby contributes to a growing body of research in developing countries that tries to explain undersaving as compared to a world without institutional and behavioral frictions.[4] Most interventions tackling behavioral factors have focused on time-inconsistent decision making and/or inattention, providing some form of commitment device or reminders, which have resulted in mostly modest uptake (21%-40%) and usage rates (9%-21%) (Ashraf et al. 2006a,b, 2010; Brune et al. 2016; Karlan et al. 2016). Cash in hand effects could explain the pattern found in most of these studies. For example, two recent field experiments compare defaulting payments into a savings account to handing out payments in cash (Brune et al. 2017; Somville and Vandewalle 2018). Both studies find distinctly higher savings with automatic deposits, which could be due to e.g. inertia in decision making or small transaction costs.[5] Yet, the results are also consistent with a cash in hand effect decreasing savings deposits. As transaction costs and inertia are held constant in my experiment, my findings suggest that cash in hand in itself is not an important driver of savings in these studies and in savings deposits more generally.[6]

[4]In many cases, low formal savings do not seem to be exclusively driven by liquidity constraints and being too poor to save (Banerjee and Duflo 2007). In addition to direct savings costs such as transaction costs, regulatory barriers, and social constraints, explanations have focused on behavioral biases such as time-inconsistent decision making and inattention (Ashraf et al. 2006a,b, 2010; Brune et al. 2016; Dupas and Robinson 2013b; Karlan et al. 2016).

[5]More generally, defaults that make use of e.g. automatic payroll deductions in developing (Blumenstock et al. 2018) and developed countries (Thaler and Benartzi 2004) appear to be a powerful tool to increase savings. However, they cannot be applied in settings that mostly rely on cash transactions and in which infrastructure for digital financial payments is lacking or not in use.

[6]In addition, this study also helps discern which features of savings deposits influence savings behavior. Harigaya (2017) shows that changing from deposits with account officers during regular meetings to deposits at one's own discretion with agents at corner stores, led to a decline in both savings balances and the frequency of deposits. This was mainly driven by lower peer pressure and the increased salience of the transaction fees. While the cash transaction was not altered in his study, the present study suggests that cash transactions do not inhibit savings.

This study's design is closely related to endowment effect studies in the laboratory (cf. Ericson and Fuster 2014) and employs a similar treatment manipulation in a relevant field setting. The manipulation of this study relies on findings showing that endowment effects are stronger when the item is physically present (Bushong et al. 2010; Knetsch and Wong 2009; Peck and Shu 2009; Strahilevitz and Loewenstein 1998). Moreover, the time spent with cash in hand in my experiment is the upper bound of the time that, in laboratory experiments, the participants spend with their endowment. Conceptually, however, the cash in hand effect in savings decisions differs from the endowment effect. Endowment effects are usually described in terms of trading of goods (vs. money), while this study investigates 'trading' of cash now vs. cash in the future.[7] Despite physically handing over the cash, the money saved is still owned, which is not the case for traded goods (nor for money spent, as discussed above).

The potential policy relevance of cash in hand effects is not limited to the use of savings accounts. Given the wide-spread use of cash, it is important to further understand the role cash plays in economic decisions more generally. This is especially true in light of the recent policy debate in both developing and developed countries regarding a (faster) transition to a cashless economy. Yet, beyond labeling and cash in hand, surprisingly little is known about whether and how cash itself influences decision making. For policy design, however, it is important to understand in which instances fungibility is reduced due to behavioral responses. Why does cash in hand appear to influence spending, but not saving decisions? This paper calls into question the universality of cash in hand effects and points to interesting avenues for future research to better understand cash and its influence on decision-making.

The remainder of this paper is structured as follows: Section 2 introduces the research design, including the data sources, setting, procedures, and behavioral predictions. Section 3 presents the results, and discusses power, treatment effect heterogeneity, as well as ecological validity and representativeness of the sample. Section 4 discusses potential reasons for absence of a cash in hand effect, and Section 5 concludes.

[7] So far, endowment effects for cash have only been studied in the lab. While Bateman et al. (2005) find endowment effects for cash when trading for goods, Svirsky (2014) detects no endowment effect for cash when offered the possibility of exchanging it for other cash now. In the field, the most fungible 'item' that have been found to inhibit endowment effects are company shares (Anagol et al. 2018).

2 Research design

2.1 Data sources

I use a mixture of a controlled environment and a field setting, in which I observe actual savings decisions of a relevant population and randomly assign the presence of cash at the time of decision making. Embedding the savings decision in an interview allows me to collect a rich set of background characteristics.[8] I am able to link the interview data – collected on tablets during the sessions – to administrative data of weekly savings deposits and withdrawals as well as some basic demographics, including a poverty measure collected at the time of the last loan application. This allows me to assess how the experimental savings decision relates to savings behavior outside the experiment. An explanation of the variables can be found in Appendix J.

2.2 Setting and sampling

To ensure that I sample from a relevant population (who receive their income in cash), I work with clients from the Filipino microfinance organization Ahon Sa Hirap (ASHI), who provide financial services to poor women. Clients join the partner MFI to borrow for productive purposes, but when joining, the MFI also automatically opens a savings account for them.[9] The account offers an interest rate of four percent p.a. if a balance of at least 500 Philippine peso (₱) is maintained over a duration of twelve months.[10] While the combination of saving and borrowing might seem counter-intuitive, it is a widespread practice in microfinance settings (Armendáriz and Morduch 2010) and in this particular case, the two are complements rather than substitutes: Early repayments of the loan are not possible, so savings can serve as an insurance against potential future shocks and resulting repayment problems. Moreover, loans are usually taken to invest into one's own business, whereas participants state that emergencies (58 percent) and education (38 percent; up to three answers possible) are the main savings goals. The approval of loans does not depend on the savings balance or any savings behavior.

Clients usually self-select into groups of five and apply together to become members of the MFI. Two to eight of these borrower groups from the same neighborhood form a 'center' and meet weekly in a designated place to publicly conduct all transactions with the MFI in

[8] The questionnaire can be found in Appendix I.2.

[9] This is not necessarily true for all microfinance clients. Yet, since clients do not join the MFI to save, my sample is still comparable to the clients of other MFIs.

[10] ₱500 corresponds to about 2.5 times the average daily wages of the sample population, and were worth €9.38 (US$ 9.96) at the time of the experiment. The inflation rate in the Philippines was about 2.5 percent.

cash. Attending the weekly center meetings is mandatory and non-excused absences results in lower credit ratings. The marginal transaction cost of using the savings account is thus zero, as clients attend the meeting and can just deposit (or withdraw) savings. In addition, since all clients have an account by default, the hassle costs of opening an account do not matter in this setting.

All participants are women and the majority are self-employed (73 percent own a business). Eighty percent receive at least half and 59 percent receive all their income in cash. While mobile banking has progressed significantly in other countries, its coverage in the Philippines remains quite low, with only 11 out of 467 rural banks offering electronic banking facilities (one rural bank offers mobile banking) in the first half of 2017, and this is unlikely to change soon (Central Bank of the Philippines 2017). As of 2017, only 5 percent of the population had a mobile money account and 25 percent used digital payments (Demirguc-Kunt et al. 2018). The Philippines thus constitute a setting in which the implications of cash transactions will remain relevant at least in the medium run.

Three branches of the partner MFI were selected based on their geographical proximity, to minimize the travel times for the research team. Within each branch, centers were selected based on meeting times and distance from each other, so that two centers could be visited per day. Section K in the Appendix provides evidence that this procedure did not result in a selected sample. The selection of the participants in the sample centers is closely linked to the experimental procedures, and is hence described in Section 2.4.

2.3 Experimental design

The experiment is embedded in a paid individual interview, which consists of three parts (see Appendix I.2 for details). The first part of the interview comprises questions regarding personal characteristics, the composition of the household, its financial situation, and personal business activities. Part 2 contains an incentivized elicitation of risk and time preferences as well as loss aversion. Part 3 includes survey questions regarding savings behavior, financial literacy, and hypothetical questions on narrow bracketing and attention to finances.

The experiment consists of a cash payment for participation in the interview and an unannounced savings decision. At the end of Part 1, participants are asked whether they want to save (some of) their earnings in their existing savings account. Before making the decision, participants are informed that if the amount saved is still in the account after four weeks, it will be matched with 20 percent. This match is added to the savings account by the research

team; it has been employed to induce sufficient savings and to reduce potential influences of time preferences.

Two treatments are implemented in a 2×2 between-subject design. The main treatment dimension varies cash in hand: Individuals receive the cash payment for participation either at the beginning of the interview or after the savings decision. Table 1 illustrates how much cash participants in *CiH* and *CA* hold during each part of the interview. Participants in *CiH* hold on to the cash during the first part. Treated participants thus make the savings decision by handing over (parts of) their cash holdings to the interviewer. In contrast, participants in *CA* make the savings decision without holding the money in their hands, but knowing that they will receive the remainder of their earnings just after making the savings decision. They verbally state the amount they want to save. The second treatment dimension varies the earnings amount to be either ₱300 or ₱500 (1.5 or 2.5 times the average daily wage; see Section 2.4 for more background on this treatment).

Table 1: Timing of Cash Holding during the Interview (Main Treatment Manipulation)

		Cash that participant holds	
Minutes	Activity	CiH Treatment	CA Treatment
		Receive cash E	
0:00	Part 1: General survey	E	0
15:00	*Savings decision S*	E	0
		Hand back S	**Verbally state S**
			Receive cash E-S
17:00	Part 2: Preference elicitation	E-S	E-S
25:00	Part 3: Savings survey	E-S	E-S
40:00	End: Preference payouts	E-S (+X)	E-S (+X)

Notes: E denotes the earnings received for participating in the interview (₱300 or 500), S the amount saved, and X the potential payoffs from experimental preference elicitation.

The structure of the interview serves two main purposes: First, it provides the possibility of controlling for potential spillover effects from the treatment onto the preference elicitation (i.e. subjects in *CiH* save less and thus are richer in Part 2, which in turn might alter their decisions). Cassidy (2019), for instance, shows experimentally that liquidity constraints can result in higher elicited present bias. Giving everyone the remainder of their earnings before the elicitation reduces this concern. Still, all questions, even those in Parts 2 and 3, can potentially be influenced by the treatment manipulation if *CiH* leads to lower savings and thus larger cash holdings in Parts 2 and 3. On the one hand, I make use of this feature when discussing po-

tential channels in Section 4.3. On the other hand, I show that the answers in Part 3 are the same for the two groups (see Table 2), and use administrative data, where possible, to check that the respondents' answers to the interview questions are reliable and not influenced by the treatment (see Appendix H). Second, asking savings-related questions only in Part 3 prevents priming participants before the experimental savings decision. The decision to save is the first time savings are mentioned in either the session and the interviews.

2.4 Procedural details

Announcement of interviews One week before the session took place in a selected center, all the clients in the center received an announcement letter, informing them of the possibility of taking part in paid individual interviews that would earn at least ₱300. Familiarizing prospective participants with the procedure and coming back as announced establishes trust, such that all participants believe that they will be paid, irrespective of the treatment.[11] Further, it might create a reference point of ₱300 for participation, which is why cross-randomize an additional ₱200 as a true windfall gain in the ₱500 treatment.[12]

Recruitment of participants Each session took place on the announced day during the weekly center meeting and started at the beginning of the meeting to make sure the interviews finished within the typical duration of the meeting (1.5-2 hours). At the beginning of each session, the research team was briefly introduced and the expected duration of an interview (40 minutes) was stated before the clients could volunteer to participate. From the pool of all volunteers, ten participants were selected by a publicly drawn lottery. In all sessions, all present clients volunteered to take part, so that selection of present clients into the sample is not a concern. Unbeknownst to participants, the number drawn in the lottery not only determined the participation but also the treatment assignment – *CiH* or *CA* – and the interviewer.[13]

[11] To further increase trust, the announcement letter was read out and distributed by the MFI, a trusted institution (96 percent of participants think their savings are safe with this MFI). A question during the interview checked whether participants received the letter. While eight percent (7.3 percent) of participants in *CiH* (*CA*) stated not having received it, these shares do not differ between the treatments ($\chi^2, p = 0.828$). The vast majority of participants can read and write (92 percent have at least completed elementary school) and are used to receiving written documents from the MFI. The English translation of the letter can be found in Appendix I.1.

[12] While the announced earnings of ₱300 might already have established a reference point or entered the participants' budget plans, the additional ₱200 should be treated as a true windfall gain. Note that I cannot disentangle the income effect (participants with ₱500 are richer) from the surprise effect. The treatment necessary to disentangle the two would have been an announcement of ₱500, which in turn might have induced selection into the sample. To rule out this selection, I opted for the present design.

[13] Randomization of interviewers avoids selection of interviewer–interviewee parings from either side. Randomization was done prior to the start of all sessions using Stata and the randomization protocol was implemented by myself.

Randomization of treatments The two treatments are randomized on two different levels: *CiH* is randomized at the individual level and all interviewers conducted interviews in both treatments, balancing interviewer-specific effects. To rule out confusion of treatments, the computer-based program of the questionnaire provided detailed scripts and required treatment-specific entries (e.g. where cash in *CiH* is kept during Part 1). By relying on individual level randomization of cash in hand, in combination with this particular setting, I can rule out other potential explanations for undersaving (see also Appendix D) and cleanly estimate the cash in hand effect on savings decisions.

The earnings amount is randomized at the session level and was only announced after the recruitment, to avoid potential selection effects.[14] Randomization at the session level is necessary since the earnings amount is publicly announced (in front of all members of the borrower center) to increase trust. Moreover, to avoid any denomination effects, the different bills were displayed during the announcement of the amount. In sessions with the ₱300 treatment, the following notes were shown (and later handed to participants during the interview): one 100, two 50 and five 20 peso bills. In the ₱500 treatment sessions, two 100, four 50 and five 20 peso bills were shown and handed out.[15] Pre-tests have shown that displaying the bills in front of the borrower center before the start of the interview establishes trust in receiving the money.

Sessions and earnings Three hundred clients were interviewed in 31 different centers in semi-urban and rural areas of the Laguna Province on the main island in the Philippines, Luzon. Center meetings take place Monday to Thursday and usually start either at 9am or at 1pm, resulting in two sessions per day, which were conducted in the spring of 2017. Each center was revisited four weeks after the initial session to deposit the match in the savings account, when applicable. The average earnings from the sessions were ₱417 (€7.82 or US$ 8.30), including payouts for survey participation and preference elicitation. 85 percent of all participants (93 percent of those who saved) were eligible for the match and additionally received the match payment after four weeks (more information in Table G.1).

Additional logistics A team of five local interviewers were trained to conduct the interviews on Surface Pro tablets using z-tree (Fischbacher 2007). Selected participants were interviewed

[14]Since I have an uneven number of centers in my sample, 15 centers received ₱300 and 16 ₱500. Cell sizes are thus as follows: 73 (73) individuals in *CiH* (*CA*) with ₱300 and 77 (77) in ₱500.

[15]Individuals in *CiH* knew they could change the bills into coins, but they did not receive coins, since the number of coins needed to make decisions in ₱1 steps was perceived as unnatural and even offensive during pre-testing. Participants in *CiH* did not request change and participants in *CA* did not state amounts that would have required change.

one-on-one by a local interviewer in private. Before the start of each interview, participants verbally gave informed consent for taking part. Right after the savings decision, the interviewer put the amount saved into an envelope which was later handed to the loan officer who would register the savings. First, five participants were interviewed in one round. Once these interviews were over, the next five interviews were conducted. Only two rounds of interviews were conducted in each center to avoid information flow from those already interviewed to the to-be-interviewed participants. Additionally, at the end of the interview, all participants were asked not to talk about the details of the interview with others. During the interview, participants were thus unaware of the potential existence of other treatments. All questions and instructions were translated into the local language, Tagalog, (and back-translated to English) and piloted before the start of the experiments.

3 Results

3.1 Balance

Table 2 provides the results from OLS regressions with the treatment dummies as independent variables, where CA_{300} is the omitted category. The dependent variables come from both the interviews (self-reports) and administrative data.

The F-test of the treatment dummies jointly explaining the respective variables is always insignificant at the 10 percent level. The successful randomization permits simple non-parametric comparisons of the treatments.

3.2 Main result: Savings deposits

Pooling the two earnings treatments, participants saved ₱166.17 (SD: ₱125.18) on average.[16] This corresponds to 42 percent of the average experimental earnings. Holding on to cash for on average 15 minutes and handing it over to save it did not alter the savings decisions (Wilcoxon rank-sum exact test, $p = 0.792$). Figure 1 shows the savings amounts for all four treatments. While participants with higher earnings save more, there is no interaction effect of *CiH* and earnings (see also Table 3).

[16]Here I deviate from the pre-specified analysis that would have used the share saved (all results are reported in the appendix). While the findings do not depend on this change, analyzing the amount saved is more intuitive, as participants appear to think about the decision in absolute numbers.

Table 2: Balance

	$\mathbf{CA}_{300}$	$\mathbf{CiH}_{300}$	$\mathbf{CA}_{500}$	$\mathbf{CiH}_{500}$	R^2	F-test
Self-Reports ($N = 300$)						
Age	43.19	0.986	0.535	-1.532	0.001	0.945
Education (yrs)	8.712	-0.164	-0.102	0.450	0.003	0.718
Financial literacy (0-1)	0.514	0.027	0.077*	-0.073	0.018	0.229
SR attention to finances (y/n)	0.274	-0.0685	-0.0792	0.146	0.008	0.471
MR attention to finances (y/n)	0.301	-0.0822	-0.0936	0.121	0.007	0.337
HH size	5.288	0.466	0.024	-0.687	0.011	0.529
Owns business (y/n)	0.658	0.082	0.109	-0.095	0.009	0.617
Cash income (y/n)	0.918	0.014	0.017	0.0123	0.004	0.577
Currently saving (y/n)	0.753	0.082	0.078	-0.108	0.007	0.473
Savings at home (₱)	1,034	441.8	318.7	-662.1	0.005	0.606
Savings in account (₱)	662.3	-16.17	364.5	-267.1	0.010	0.630
Travel cost to center (₱)	0.685	-0.397	0.419	0.280	0.007	0.270
Travel time to center (min)	5.658	-0.164	0.680	0.489	0.006	0.788
Banks untrustworthy (0-1)	0.468	0.00548	-0.0555	0.00491	0.008	0.465
Savings in ASHI are safe (0-1)	0.932	0.0274	-0.0386	0.0408	0.018	0.297
Decision making power (0-1)	0.511	0.0522	0.000573	-0.0847*	0.013	0.155
Would like a private account (0-1)	0.616	0.0548	0.0394	-0.00285	0.006	0.611
Saving less due to...						
...claims from husband	0.538	-0.00905	-0.00861	-0.0246	0.002	0.939
...claims from family & friends	0.168	0.0137	0.0108	-0.0689	0.006	0.589
Administrative Data ($N = 296$)						
Savings balance (₱)	764.9	64.35	2.396	-31.22	0.001	0.981
Loan amount (₱)	23,722	1,014	-5,385*	355.1	0.035	0.105
PPI score (0-100)	43.42	1.556	-0.547	-1.492	0.002	0.916
Main income: Enterprise (y/n)	0.836	-0.0959	0.0865	-0.0470	0.032	0.656
Electricity (y/n)	0.458	0.0139	0.00920	-0.0281	0.000	0.992
Water (y/n)	0.153	0	-0.0229	0.0701	0.005	0.426
Landline (y/n)	0.0139	-0.0139	-0.0139	0.0272	0.007	.
Membership (months)	60.96	-1.219	-19.53	-5.209	0.052	0.130

Notes: The upper panel presents results for variables elicited during the experiment and the lower panel variables from pre-experimental administrative data. Higher values indicate larger agreement/better outcomes. Mean of the CA group and coefficients from OLS regressions with treatment dummies as independent variables and clustered SE (not shown) at the center level. The last column shows p-values of the F-test of joint significance of the treatment dummies. *** p<0.01, ** p<0.05, * p<0.1.

Not only are the mean amounts saved the same in *CiH* and *CA* (for both earnings amounts, respectively), but there is also no difference in the distribution of choices (see Figure 2, Kolmogorov-Smirnov test, $p = 1$, irrespective of pooling or testing the two earnings amounts separately). Examining the distribution of amounts saved, it becomes apparent that focal points exist for absolute amounts. This provides evidence that the participants thought about the decision in absolute terms (see also the graph for shares of the earnings saved, Figure A.1 that does not show such clear patterns for certain round percentages). It is thus rather unlikely that participants used a rule of thumb, such as 'save 40 percent of earnings', which would explain the equality of shares saved.

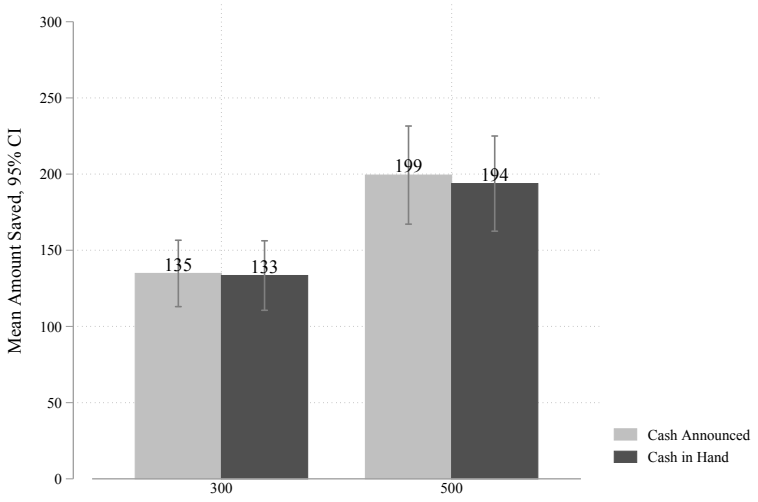
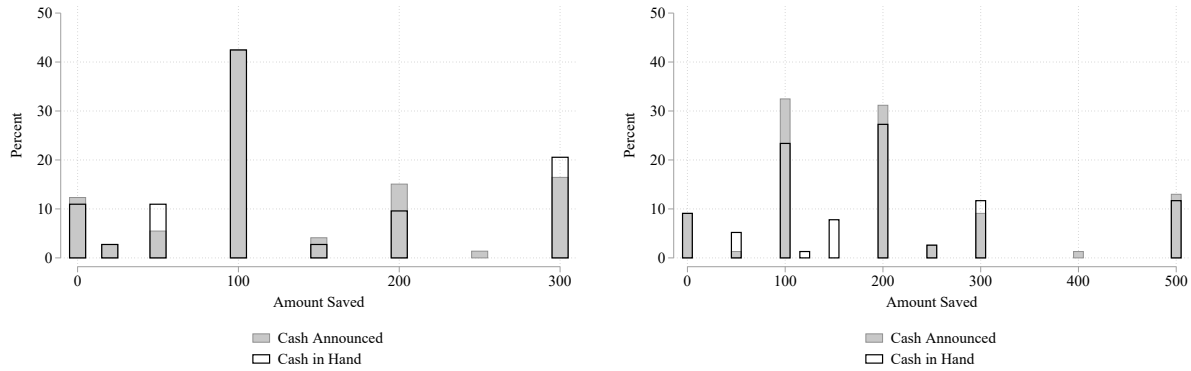


Figure 1: Mean Amount Saved by Cash in Hand and Earnings



(a) 300 ₱ **(b)** 500 ₱

Figure 2: Distributions of Amount Saved

Using OLS regressions, I control for potential influences on the savings decisions, such as financial literacy, age, education, household size, owning a business, having money left after buying all necessities, decision making power, and transaction costs in terms of the time and money needed to travel to the center meeting. Table 3 confirms the non-parametric findings and shows that no interaction effect exists with the earnings amount (columns (3) and (4)). The inclusion of control variables in columns (2) and (4) does not alter the results and thus confirms successful randomization.[17] The coefficients of the *CiH* treatment dummies are small and statistically indistinguishable from zero. When testing the two coefficients in columns (3) and (4)

[17]The results are also robust to the inclusion of indicators for above median risk aversion, loss aversion, present bias, and future bias. Due to potential problems of reverse causation (e.g. *CiH* could result in higher elicited loss aversion), however, they are not included as controls in the reported regressions.

for joint significance, the p-values of 0.79 and 0.99 clearly indicate that the null hypothesis of no *CiH* effect cannot be rejected. These results are robust to Tobit estimations that censor the lower limit at zero and the upper one at 500 (see Appendix Table A.2).

Table 3: Treatment Effect on Amount Saved

	(1) Amount Saved	(2) Amount Saved	(3) Amount Saved	(4) Amount Saved
CiH	-3.533	-3.522	-1.370	-7.961
	(13.25)	(13.85)	(17.26)	(18.07)
	[-28.49, 22.11]	[-28.87, 22.69]	[-34.30, 31.42]	[-41.00, 25.59]
Endowment 500			64.56**	60.44**
			(24.62)	(22.98)
			[17.28, 111.1]	[17.19, 103.3]
CiH x 500			-4.215	8.068
			(27.09)	(27.24)
			[-54.18, 46.89]	[-41.51, 59.23]
Mean in omitted	167.9	167.9	134.8	134.8
p: CiH + CiHx500 = 0			0.791	0.996
Observations	300	300	300	300
Adj. R^2	-0.003	0.035	0.053	0.097
Clustered SEs	yes	yes	yes	yes
Controls		yes		yes

Notes: OLS estimates with SE in parenthesis, wild cluster bootstrapped 95% CIs accounting for small number of clusters (centers) in brackets. Controls: age, education, financial literacy, hh size, business owner, money left, decision making power, distance to center, time to center, interviewer FE. *** p<0.01, ** p<0.05, * p<0.1.

The above discussed results show no effect of *CiH* on savings deposits. For this to be a convincing and interesting result, it should be sufficiently powered.

3.3 Power

I conducted ex-ante power calculations to determine the sample size and now provide ex-post power calculations for the minimal detectable effect sizes (MDE). Setting $\alpha = 0.05$ and $1 - \beta = 0.8$ and using a two-sided t-test, I would be able to detect a difference of ₱41, which is equivalent to ten percent of the average earnings, and 0.33 standard deviations of the amount saved.[18] The confidence intervals in Table 3 and A.1 point to even smaller MDEs. Since their interventions are similar, I use the MDE of 41 ₱ and calculate standardized effect sizes for several laboratory studies of the endowment effect (see Appendix E for details). Table E.1 provides ev-

[18] In terms of the share saved, I would be able to detect a ten percentage point difference in shares saved between *CiH* and *CA* (pooling the two earnings treatments), which represents 0.32 SD of the mean share saved. Calculated with Stata's power twomeans command.

idence that my power is sufficient to detect an effect smaller than what most other studies find. The setting of my experiment, however, is closer to field experiments on savings behavior. I therefore also benchmark the effect size to such studies.[19] The present experiment would be able to detect a 25 percent change in savings deposits, which is a smaller effect than most of the recent field experiments find (Appendix E provides further details). I conclude that compared to both laboratory studies with similar treatment manipulations and field experiments with comparable settings, the minimal detectable effect is small. This implies that the null effect is not due to a lack of power.

3.4 Treatment effect heterogeneity and covariates

The null finding presented above might mask treatment effect heterogeneity. Based on the previous literature, several groups that respond differently to *CiH* come to mind. For instance, participants who use their savings account more might be less likely to be affected by the psychological cost of making the deposit.

I use the administrative data to classify different types of savers, trying to capture various dimensions of savings behavior. Participants might save large or small amounts. Moreover, (ir)regular deposits capture the habit of saving in terms of frequency, whereas (un)equally-sized deposits get at savings goals in terms of amounts. For all three dimensions, I have created binary indicators based on median splits of weekly savings deposits of all clients in the three participating branches for the last nine months (up to the date on which the first interviews were announced; see Appendix F for a detailed description and a balance table). I use these types and the deposit dummies (high, regular and equally-sized) to investigate treatment effect heterogeneity.

Other relevant dimensions might be narrow bracketing and loss aversion if the presence of cash creates a stronger reference point in consumption, or cognitive abilities as those with lower cognitive abilities are more likely to violate fungibility (Abeler and Marklein 2017). In addition, a longer duration of the first part (that determines the duration of holding the cash in *CiH*) might lead to lower savings due to the longer exposure to cash, similar to stronger endowment effects with an increased duration of ownership (Strahilevitz and Loewenstein 1998).

Instead of arbitrarily and repeatedly subsetting the data, I use a model selection procedure based on machine learning that automatically controls for multiple testing. I use LAS-

[19] I would like to thank Laura Schechter for this comment.

SOplus (Ratkovic and Tingley 2017), which estimates both treatment effect heterogeneity and important covariates and permits statistical inference. The algorithm is a Bayesian method in which the effects are simultaneously estimated and selected. First, each effect of a potential covariate and its interaction with *CiH* is consistently estimated and then, following a thresholding rule estimated from the data, small effects are trimmed to zero. Ratkovic and Tingley (2017) describe the method in detail and show in simulation studies that it is conservative and has a low false discovery rate.

In addition to the type data, I include education as a proxy for cognitive abilities, preference data dummies for above median loss and risk aversion as well as a dummy indicating present bias, indicators for narrow bracketing, an indicator for a high PPI score, an indicator for being amongst the first five participants interviewed in a session (round 1) and, for consistency, the control variables from the regressions.[20]

Figure A.2 shows the density of selected effects. Consistent with the previous results, the *CiH* dummy has not been selected as a significant determinant of the savings decision. The algorithm did not detect a significant interaction effect either. Given that preferences and biases usually exhibit substantial hetereogeneity (e.g. Andersen et al. 2010; Bruhin et al. 2010), the absence of treatment effect heterogeneity further strengthens the null finding. Nonetheless, the analysis reveals some covariates of the savings decision to be significant, in line with previously identified determinants of savings, showing that meaningful heterogeneity exists in the sample. Five covariates, large deposits, high financial literacy, large households, interviewer 2, and round 1, are significantly and positively related to the savings decision.[21] This is a first indication that the controlled setting reflects actual savings decision making.

3.5 Ecological validity

Ecological validity assesses whether the study design is meaningful for the setting of interest. To establish that the experimental savings decision is a relevant proxy for actual savings behavior, I compare the decision to actual savings. The decision is positively correlated with the amount in the account (Spearman's $\rho = 0.138, p = 0.017$), but not with the previous week's deposit (Spearman's $\rho = 0.052, p = 0.37$), which is likely due to the high volatility of the deposits.

[20] Note that the estimation procedure is robust to including 'irrelevant' variables, as they are shrunk to zero in the selection process: For instance, only including the selected variables in the estimation and re-running it, results in all variables being selected.

[21] Effect sizes (in ₱): large deposits 23.27; high financial literacy 21.26; large households 33.52; interviewer 2 33.07; round 1 30.38. All selected covariates are balanced across treatments: Interviewer 2 and Round 1 by design and the other variables by randomization (see also Table 2).

Moreover, the decision is related to the total savings stock, which adds up all self-reported savings amounts from the survey (Spearman's $\rho = 0.173, p = 0.003$). As also confirmed by the LASSOplus estimation, my experimental setting thus reflects actual decision making and does not appear to be overly complicated or artificial. More generally, I find that the participants' answers to non-cash related questions in the interview are consistent with administrative data and are thus not influenced by the experiment as such (see Appendix H).

4 Discussion

Why does cash in hand not alter the savings decisions? Given that the previous literature established cash in hand, pain of paying and endowment effects, it is surprising that *CiH* does not influence behavior in this setting. In the following, I will discuss the two main differences of this study with existing research: First, this being a field experiment with some necessary differences in the design and the sample, and second, the type of decision. Lastly, I will briefly address potential channels.

4.1 Field experimental design and sample

Design

The design heavily relies on the literature on cash in hand and endowment effects, so the main treatment is very similar. Additionally, the duration of cash holding has been adopted from the endowment effect literature. While it is unclear whether endowment effects emerge instantaneously, a consensus exists that 15 minutes are sufficient to induce the effect in the laboratory (cf. Ericson and Fuster 2014). In addition, the laboratory study most closely related in terms of design varies cash in hand and a computerized display of earnings and finds an immediate effect of lower charitable donations with cash in hand (Reinstein and Riener 2012). The treatment variation in itself is thus comparable to previous experimental economics research. Similar to controlled laboratory experiments, the design of this study excludes all other explanations for low savings, such as transaction costs, inertia in decision making, social constraints as well as lack of trust and regulatory barriers (see also Appendix D).

However, some features of my experiment are clearly different from the previous laboratory experiments, for instance, the stake size and the incentives involved in the experimental

decision. The payment amounts were chosen to make the savings decision meaningful.[22] The 20 percent match of amounts saved was implemented to ensure that savings amounts vary and are not concentrated on the lower or upper end of the distribution and to reduce the potential influence of present bias.[23] While the calibration has been successful (reflected in the variety of the shares of earnings that the participants save, see Figure 2 and A.1), the earnings amount and the match constitute a large additional incentive to save and thus makes the experimental decision high-stakes. If the cash in hand effect is comparatively small, it might only exist when impulsive, less important decisions are made. For incentivized, rather high-stakes decisions (the savings decision in my experiment), individuals might be able to override the impulsive response and decide rationally. Several points speak against this interpretation. In general, behavioral effects that have been demonstrated in laboratory experiments cannot be explained by stake size (see, e.g., Camerer 2015).[24] For endowment effects, Anagol et al. (2018) show that they persist even in high-stakes field environments such as the stock market. For cash in hand effects, similar evidence is lacking as this is the first high-stakes study. However, based on the income treatment variation, it does not appear that the cash in hand effect is dependent on stake size. It is thus unlikely the high stakes in my experiment explain the different findings, but it might be interesting to further reduce the stake size (but keeping the decision meaningful) in future research.

In contrast to the pain of paying literature in consumer research, the cash in hand treatment variation of this study keeps the representation of money constant. All participants think about the deposit as a cash deposit and the only difference is whether the cash is physically present at the time of decision making. This is an important distinction to the pain of paying studies in which cash payments are compared to card payments. Moreover, the present design even keeps constant the denomination of the cash that participants decide about as the exact denomination was shown publicly prior to the interviews.[25] In this regard, the study provides

[22] While the payment amounts might appear large in comparison to the median weekly savings deposit of ₱33, they are in the range of participants' cash holdings during the center meetings as the median weekly loan repayment installment is ₱333. Moreover, I do not detect treatment effect heterogeneity, neither with respect to wealth nor with the savings amount in the account. *CiH* does not influence the ratio of experimental savings to savings in the account either.

[23] Present bias is balanced across treatments and has not been selected by LASSOplus as a significant determinant of the savings decision.

[24] I would like to than an anonymous reviewer for this comment.

[25] For spending cash, it has been shown that a single, larger denomination bill reduces spending as compared to the same amount of money in smaller bills (Raghubir and Srivastava 2009). The treatment variation could have resulted in different savings decisions if participants in *CA* thought about the cash in a different denomination than the ones in *CiH* who actually hold the bills in their hands. The equality of distributions of the share and amount saved in *CiH* and *CA* (as depicted in Figures A.1 and 2) shows that this is not a concern.

a clean test of cash in hand effects, as both the denomination and the representation of money are kept constant across treatments and only the presence of cash is varied.

Sample

The sample of this study differs from student samples in several aspects. Participants are female microfinance clients who mostly rely on cash transactions and might be prone to using simple heuristics. In addition, they are exposed to institutional incentives to save and might have an intrinsic motivation to put money aside.

All participants are experienced with cash transactions and savings decisions. The fact that the experimental savings are related to pre-experimental savings in the account (as discussed in Section 3.5) shows that the experiment reflects real-life savings behavior. While some studies have found that endowment effects disappear for experienced participants (e.g. Engelmann and Hollard 2010; List 2011), recent evidence from the field documents endowment effects that persist even for experienced traders (Anagol et al. 2018).[26] In addition, literature on cash in hand and pain of paying has documented these effects in samples that are also experienced in cash transactions. Therefore, experience is unlikely to be the driving force behind the null result.

Relying on a poor sample and knowing that poverty might impede cognitive function (Mani et al. 2013), participants might not deliberate about the decision, but act based on a simple heuristic when deciding. While the distribution of the amounts that participants save indicate that focal points are important (Figure 2), the shares saved are statistically different from a 50:50 heuristic (t-test, $p = 0.002$ for *CA* and $p < 0.001$ for *CiH*).

The savings account only bears interest when a minimum balance of ₱500 is maintained for a year. This might create an additional incentive to save for the 147 participants (73 in *CiH* and 74 in *CA*) below this threshold. This is not a concern, since participants above the threshold save rather more (Wilcoxon rank-sum test, $p = 0.062$) and the amount necessary to reach the threshold is not correlated with the savings decision of those who have fewer than ₱500 in their savings account (Spearman's $\rho = -0.062, p = 0.456$).

[26] Whether experience fully eliminates the endowment effect is still an open question. Engelmann and Hollard (2010), Giné and Goldberg (2018), and List (2003, 2011) provide evidence that experience with a similar transaction eliminates the endowment effect. However, Harbaugh et al. (2001) show that general market experience does not reduce reluctance to exchange goods in the laboratory and Anagol et al. (2018) demonstrate that while trading experience reduces the endowment effect for stocks (by 17 percentage points as compared to non-experienced traders), they still document a sizable effect: a 60% higher likelihood of holding the stock for experienced traders.

For motivated savers, *CiH* could increase the salience of savings rather than consumption, and thus lead to larger savings. Approximating motivation (and experience) with the different types of savers, I do not find treatment effect heterogeneity that would support this. Given that all participants have a savings account, 81 percent state that they are currently saving, the incentive to save (20% match) and savings balances of on average ₱790 (that makes it easy to meet the criteria for receiving the match) one would assume high motivation to save. It thus is rather surprising that only 15 percent save their entire earnings. Overall, participants do not seem to be overly motivated to save.

To summarize, in contrast to laboratory studies with comparable designs, the stake size and the constant representation of money as cash and its denomination render this study a clean, lower-bound test of cash in hand effects. The field setting provides an interesting but different sample in comparison to existing studies. More research is needed to tease out which aspects of the design and the setting discussed above actually contributed to the absence of a cash in hand effect or whether cash in hand effects generally do not exit in savings decisions. In particular the role of the sample and the representation of money appear to be worth further investigation.

4.2 Saving vs. spending decisions

Previous literature has studied the cash in hand effect in the context of purchasing and donation decisions. These decisions differ from savings decisions in various ways. Moreover, cash in hand can have different implications for savings deposits as compared to saving at home. I briefly discuss both points below.

Savings deposits vs purchases and donations

The *CiH* treatment varies how the transaction is made and this *cash transaction* is the same for savings deposits and purchases: Cash is handed away to someone else and is not physically present any more. This physical transaction is the key argument for pain of paying and the element subject to experimental variation in the cash in hand studies. Nonetheless, savings deposits and spending decisions can vary on several other aspects.

A first difference is that spending cash implies giving up both possession and ownership, while saving cash in an account only implies a temporary change in possession. Given that physical presence and possession are more important for attachment effects than actual

ownership (Reb and Connolly 2007), it is less likely that this aspect can explain the absence of a cash in hand effect in savings deposits.

A second, closely related difference is that spending cash implies giving it up entirely in exchange for utility derived from consumption, warm glow, etc. This is likely to be perceived as costly. Saving cash in an account, on the other hand, implies not having access to the cash for some time (in my setting, at least one week until it can be withdrawn). This can still be costly, for example in terms of reduced flexibility. Indeed, participants in my experiment appear to incur large costs by giving up flexibility: only 15 percent save their entire experimental earnings despite the high-powered incentives. In this setting, where participants are poor, face liquidity constraints and cash is the main mode of transaction, the need for cash and its high valuation are not surprising. It is thus not clear whether the perceived cost of handing the money away is strictly lower in this study than in others.

Lastly, savings decisions always entail an intertemporal trade-off, whereas spending decisions might not (in cases where cash and goods are exchanged simultaneously). A thorough comparison of the financial and consumption events and their respective timing that are associated with savings as compared to spending decisions depends on the exact trade-offs under consideration and is beyond the scope of this paper.[27] To the extent that intertemporal considerations are not or reversely influenced by cash in hand (as compared to spending decisions) and that these considerations outweigh the above discussed aspects, the difference in the decision domain could explain why this paper finds no effect of cash in hand.

With a similar transaction, a change in possession and reduced flexibility associated with savings deposits, it is plausible that cash in hand effects could also exist for savings deposits, in particular in my setting. However, more research is needed to better understand the cash in hand effect in different decisions.

Savings deposits vs saving at home

In this study, I focus on savings deposits into accounts as the use of such accounts has been shown to be beneficial in terms of poverty reduction. However, other forms of saving exist. In particular, if a cash in hand effect exists for some transactions, it increases the amount of cash an individual holds. If this cash is defined as "saving at home", the effect of cash in hand for either purchases or savings deposits would lead to an increase in savings at home.

[27] For example, Cohen et al. (2020) discuss some of the differences in detail, with a focus on issues that arise when modeling and measuring time preferences.

Moreover, if saving under the mattress is the only means of saving, the total amount of savings might increase. It should, however, be kept in mind that the availability of cash in developing countries often leads to sharing requests by others (Kast and Pomeranz 2018), such that it is unclear whether reduced spending due to cash in hand would lead to higher saving at home in the medium or even long run.

In this experiment, I cannot closely track what happens to the cash that is not saved during the experiment. However, in a short follow-up survey on how the cash received in the experiment was used, no difference in spending patterns can be detected between *CiH* and *CA* (see Table G.1). This is consistent with the null finding on savings deposits. So far, cash in hand effect have been studied for single transactions and this paper examines a new type of transaction. To understand potential substitution effects between different types of transactions, a more comprehensive design would be needed.

4.3 Potential Channels

Lastly, I briefly discuss evidence for the main potential channels, i) cash in hand increasing the tangibility of taking the money home (Rick and Loewenstein 2008) and ii) the possession of cash in *CiH* creating an attachment effect (Reb and Connolly 2007) and how these channels would affect different types of transactions.[28]

First, if *CiH* increases the tangibility of taking the money home, it should lead to lower savings deposits. Similar arguments apply for spending and donations (see, e.g. Reinstein and Riener 2012, for the argument that donations will be lower when the consumption to be sacrificed is highlighted by cash in hand). This decrease in handing away cash would mechanically lead to higher savings at home (see also Section 4.2). In this experiment, is unlikely that this channel plays an important role as only 17 percent of experimental participants state that having cash lets them focus on consumption only.[29] Additionally, the treatment did not affect consumption after the experiment (see Table G.1).

[28] Reinstein and Riener (2012) discuss three potential channels why donations can be lower with cash in hand. First, a disutility from parting with cash, similar to pain of paying or endowment effects, might arise that decreases donations (what I call attachment to cash). Second, cash could highlight the consumption that is being sacrificed by donating the money (similar to the tangibility argument). Third, cash as a "reminder of money" might render experimental participants more selfish and thus reduces donations. In the context of saving, it is unclear how to think about selfishness, for example in a dual-self model: which self becomes more selfish and how does this selfishness relate to the 20% match? I would like to thank an anonymous referee for this comment.

[29] Eighty-three percent disagree or strongly disagree with the statement "If I have cash, I think about what I can buy, but I don't think about savings." There is no statistically significant interaction effect of only focusing on consumption and *CiH*.

Second, if *CiH* increases attachment to cash, participants will save less if they need to make a physical transaction. The same is true for spending and donation decisions, where individuals would want to keep the money. Again, such an attachment would lead to higher savings at home. In terms of the extensive margin (handing over any cash to be deposited) there does not seem to be an attachment effect. Eleven percent (ten percent) do not save in *CiH* (*CA*). In terms of the intensive margin, respondents appear to prefer spending fewer, but larger bills. For example, in order to save ₱100, participants can hand over five ₱20 bills, two ₱50 bills or one ₱100 bill. Seventy-eight percent of those who save ₱100 in *CiH* hand over one bill. This is in contrast to the denomination effect in spending where the likelihood of spending is reduced with larger bills (Raghubir and Srivastava 2009). While the preference for depositing larger bills may be attributed to attachment to cash, it could also be explained by e.g. the ease of calculating when using fewer bills.[30]

Lastly, I find suggestive evidence for an additional channel that can be active when holding onto cash: a version of money illusion that changes the perception of disposable income and makes individuals feel richer. In Part 1 of the survey, individuals in *CiH* were already holding on to cash, whereas individuals in *CA* only knew that they would receive money later on. With cash present, participants reported higher amounts in the question 'How much money will you personally be able to take home at the end of today?' (means: *CiH* ₱707, *CA* ₱606; Fligner-Policello test, $p = 0.032$; Kolmogorov-Smirnov test, $p = 0.039$). Appendix C provides a detailed description of the test and presents additional results in line with such an effect. Based on the income effect (see also Appendix B), this channel should increase formal and informal savings, whereas its effect on spending behavior would depend on the type of spending. However, as Table C.3 shows, feeling richer is not associated with significantly higher savings. This suggests that this channel might only be active for impulsive and less important decisions (such as answering a non-incentivized question or small-stakes decisions) and is not strong enough to induce any effects in incentivized, rather high-stakes decisions (such as the savings decision in the experiment).[31]

[30] Note that in both these channels, the decrease of savings deposits assumes that the effect of tangibility on the perceived costs of parting with cash is larger than a potential effect of tangibility on the anticipatory utility of receiving cash for the future self (see Rick and Loewenstein 2008, for the general discussion that earlier choices are more tangible). Absent a time-dimension in spending and donations, no such assumption is necessary for those transactions.

[31] An alternative interpretation of these findings would be that this channel is exactly counterbalanced by the other three potential channels. Given that there is no treatment effect heterogeneity with any of the variables that might interact with *CiH* or that would be indicative of one of the discussed channels, it seems more plausible that a *CiH* is absent my setting.

Overall, I do not find evidence that *CiH* significantly impacts savings deposits. The discussion highlights the need for more research that focuses on cash in hand effects in different settings and different behaviors.

5 Conclusion

This study uses a well-established manipulation to test cash in hand effects in the domain of savings. In a cash-dominated setting, holding on to cash does not reduce savings deposits due to the physical cash transaction.

Given sufficient power to detect economically relevant effect sizes for the cash in hand effect and the documented correlation of experimental with real-world behavior, this null effect is an interesting result that complements the literature in several aspects. The findings are of interest for behavioral economics as they suggest that cash in hand effects found in the laboratory are not generalizable to all field settings. In a realistic, high-stakes decision environment, the physical deposit of cash does not distort decision making. The results of this study are also relevant for consumer research, as they imply that the pain of paying is unlikely to be driven by the physical transaction of cash. It rather seems that the representation of money and its denomination – both held constant in this study – contribute to the pain of paying.

Due to its prevalence, cash merits a better understanding of how it influences decisions. While this paper isolates the causal effect of cash in hand, more work is needed to understand whether and how cash in hand interacts with other variables, such as interest rates, temptation or claims on cash by family members that are relevant to the setting. The present design could be easily modified to test e.g. whether the presence of cash increases temptation or whether it facilitates planning. More generally, it will be important to understand how cash in hand effects differ for formal and informal savings on the one hand and spending behavior on the other hand. Examining cash in hand effects jointly for spending and (in)formal saving decisions will help explain the diverging findings of the literature focusing on spending and this study. Lastly, the suggestive finding that participants who hold on to cash feel richer should be replicated and investigated further as this might have important implications for experimental design.

In addition to studying cash itself, future research could study how cash as compared to electronic payments influences decision making. Currently, little empirical evidence exists and the welfare benefits appear to be mixed. For example, on the one hand (micro) digital

finance appears to have many advantages such as changing financial behaviors and lifting about two percent of the population out of poverty in Kenya (Suri and Jack 2016), facilitating risk sharing (Jack and Suri 2014) or helping smooth income shocks (Riley 2018). On the other hand, other evidence suggests that both repayment rates for digital credit in Kenya and Tanzania (Kaffenberger et al. 2018) and savings rates in a mobile banking setting in the Philippines (Harigaya 2017) are lower than their cash counterparts.

An enhanced understanding of the behavioral benefits and costs of cash and other means of transactions will help design better policies, not only in developing countries. This study contributes to building this knowledge base, providing a clean test of cash effects in a relevant setting with an easy-to-adopt design for laboratory and field settings.

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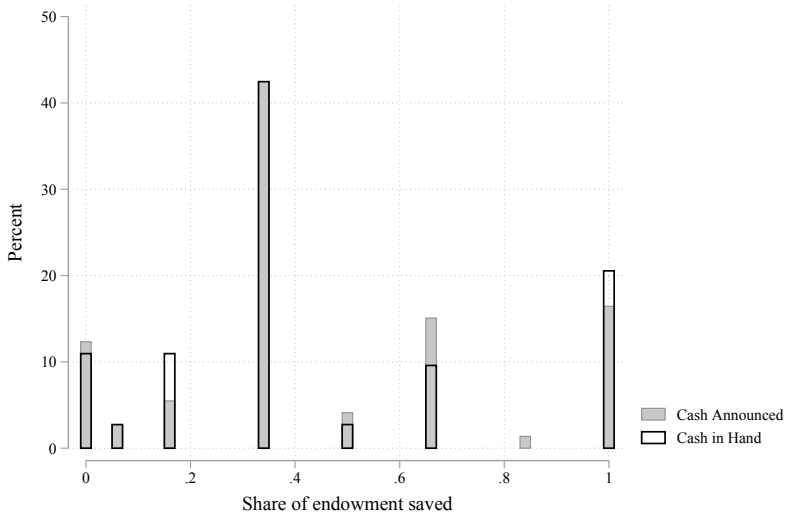
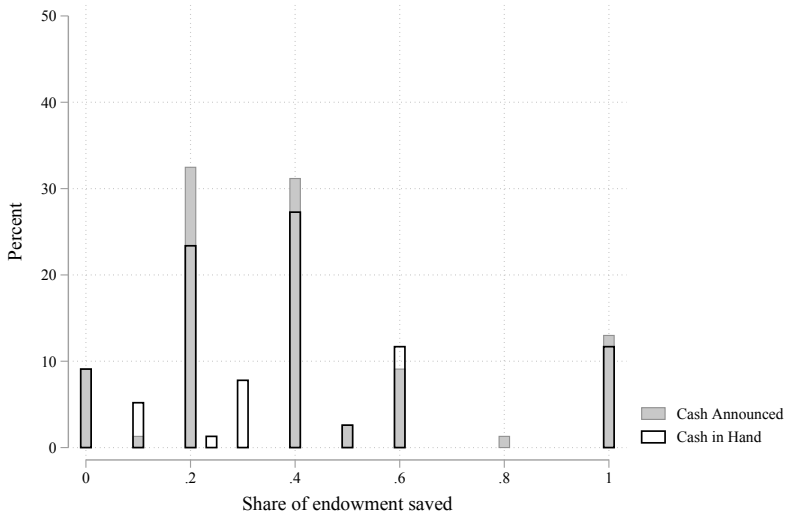
Online Appendix

A Additional Tables and Figures



(a) ₱300



(b) ₱500

Figure A.1: Distribution of Shares Saved

Table A.1: Treatment Effect on Savings Decision

	Share Saved			
	(1)	(2)	(3)	(4)
CiH	-0.00796	-0.00869	-0.00457	-0.0206
	(0.0354)	(0.0358)	(0.0575)	(0.0572)
	[-0.0762, 0.0615]	[-0.0747, 0.0588]	[-0.113, 0.105]	[-0.125, 0.086]
Endowment 500			-0.0506	-0.0643
			(0.0630)	(0.0589)
			[-0.177, 0.0680]	[-0.177, 0.0423]
CiH x 500			-0.00660	0.0236
			(0.0711)	(0.0716)
			[-0.141, 0.129]	[-0.110, 0.156]
Constant	0.423***	0.138	0.449***	0.160
	(0.0317)	(0.157)	(0.0490)	(0.164)
	[0.364, 0.483]	[-0.179, 0.469]	[0.359, 0.542]	[-0.172, 0.508]
p: CiH+CiHx500 = 0			0.791	0.945
Observations	300	300	300	300
Adj. R^2	0.000	0.083	0.008	0.090
Clustered SEs	yes	yes	yes	yes
Controls		yes		yes

Notes: OLS estimates, robust SE clustered on session level in parentheses, wild cluster bootstrapped 95% CIs accounting for small number of clusters (centers) in brackets; *** p<0.01, ** p<0.05, * p<0.1; Controls: age, education, financial literacy, household size, business owner, money left, decision making power, time to center, travel cost to center, interviewer FE.

Table A.2: Tobit Estimation: Treatment Effect on Savings Decision

	(1) Amount Saved	(2) Amount Saved	(3) Amount Saved	(4) Amount Saved
CiH	-3.461	-3.560	-0.308	-7.748
	(15.57)	(16.00)	(20.45)	(21.09)
	[-37.67, 30.75]	[-37.41, 30.29]	[-38.09, 37.47]	[-46.97, 31.48]
Endowment 500			74.99**	69.50**
			(29.79)	(27.55)
			[28.33, 121.65]	[22.23, 116.77]
CiH x 500			-6.115	7.474
			(31.81)	(31.26)
			[-72.20, 59.97]	[-57.70, 72.64]
Mean in omitted	167.9	167.9	134.8	134.8
p: CiH + CiHx500 = 0			0.792	0.991
Observations	300	300	300	300
Pseduo R^2	0.000	0.007	0.006	0.013
Clustered SEs	yes	yes	yes	yes
Controls		yes		yes

Notes: Tobit estimates censored at 0 and 500 with SE in parenthesis, bootstrapped 95% CIs in brackets. Controls: age, education, financial literacy, hh size, business owner, money left, decision making power, distance to center, time to center, interviewer FE. *** p<0.01, ** p<0.05, * p<0.1.

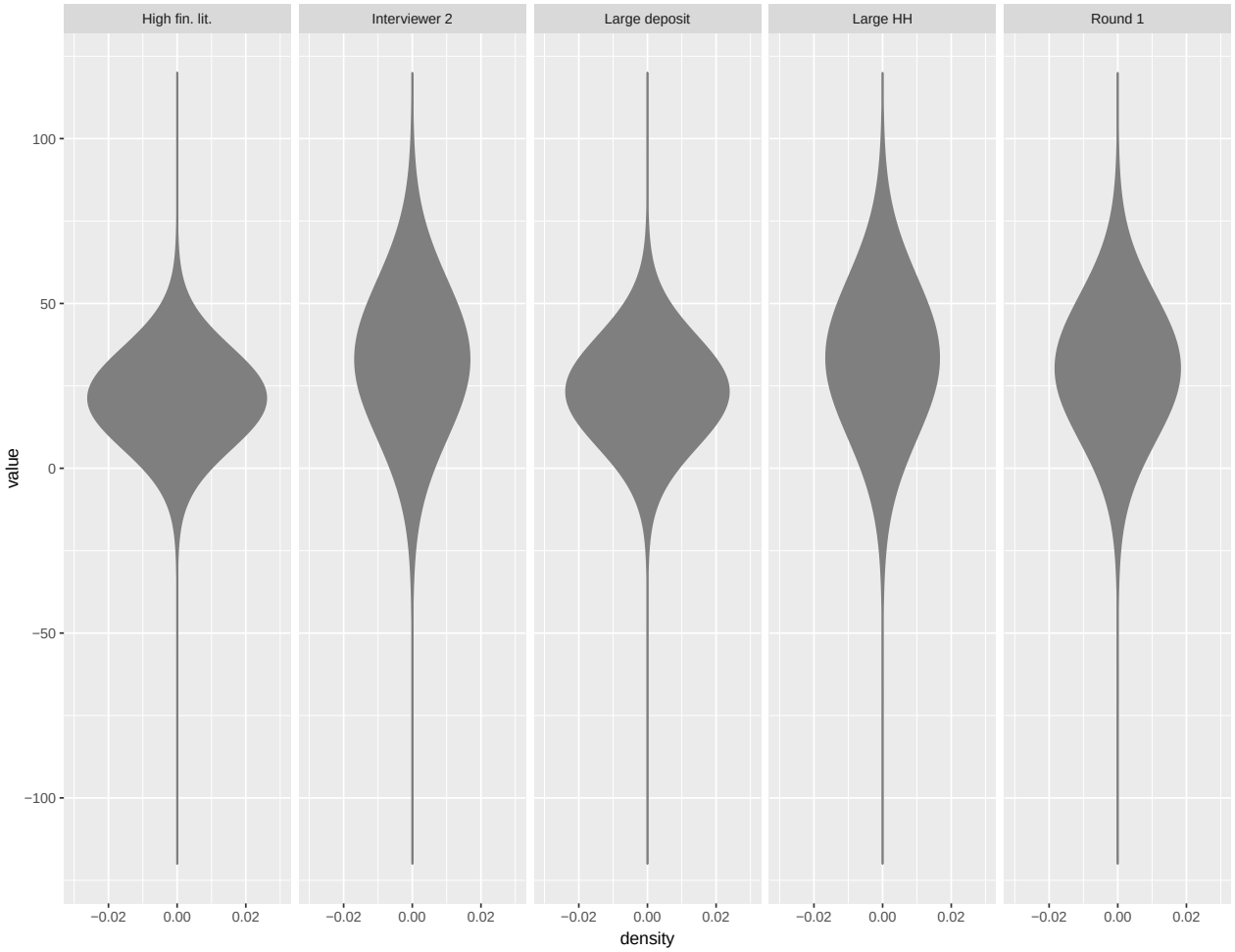


Figure A.2: Density of Selected Effects on Amount Saved

Notes: LASSOplus using linear estimation and allowing for interactions with the CiH dummy. Selected variables: high financial literacy, interviewer 2, large deposits and large households and first round. No significant interaction effects. Binary indicators (for above median value where applicable) included: Age, education, financial literacy, household size, business owner, money left, decision making power, time to center, travel cost to center, duration of part 1, PPI score, narrow bracketing in both questions, narrow bracketing in one question, risk aversion, loss aversion, present bias, future bias, high savings balance, large deposit, regular deposit, equally-sized deposits, trust in banks, trust in partner organization, as well as dummies for saver type, interviewer and interview round within center.

B The income effect: Saving more with higher income

Exogenously varying income in the second treatment dimension provides direct evidence for the income effect. Participants with *CiH* might be influenced by both the perceived income and the pain of handing over cash effects. Therefore I focus on the 150 participants in *CA* that do not hold cash when making the savings decisions. I replicate the previously documented income effect as shown in Figure B.1: receiving ₱200 more results in ₱65 higher savings (*CA* only, Fligner-Policello test, $p = 0.007$).[32] Moreover, the similarity of the fractions of those who did

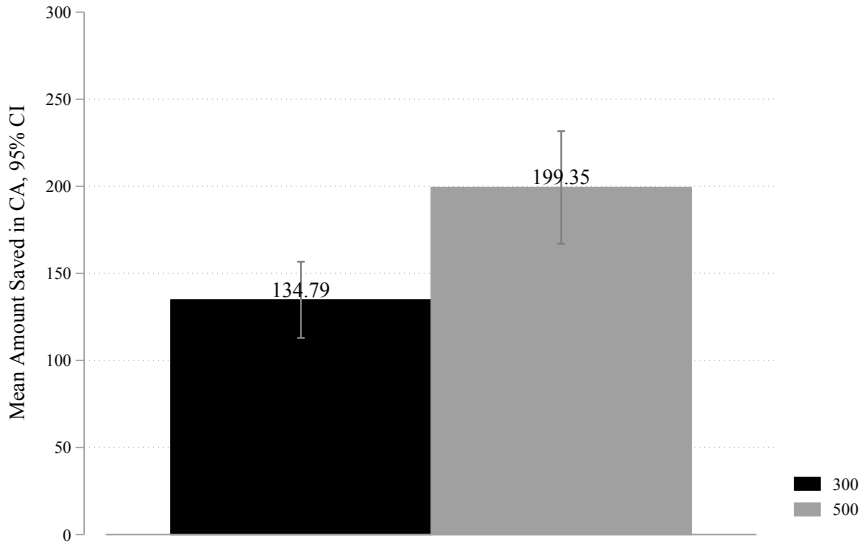


Figure B.1: Mean Amount Saved in *CA* by Earnings Amount

not save anything (12 percent (9 percent) in ₱300 (₱500)) provides evidence against reference-dependence: if the participants had established a reference point around a consumption level of ₱300 prior to the savings decision, a larger fraction of participants in ₱300 would not have saved anything.[33] This result clearly shows that the income effect is generally present in this environment.

[32] The results do not change when participants in *CiH* are included. In terms of relative savings, participants save the same in the ₱300 and ₱500 treatments (mean shares saved in *CA* 0.449 and 0.399, Fligner-Policello test, $p = 0.670$). However, income effects have been established for absolute amounts.

[33] I cannot disentangle whether participants did not establish a reference point or whether the incentive to save overruled its effects. However, the match appeared more important for a clean test of cash in hand effects (absent time preferences), so that I leave a more rigorous test of reference-dependent savings and its potential interactions with the incentives for saving for future research.

C Feeling richer with *CiH*

If the presence of cash makes earnings and transactions more noticeable, *CiH* should lead to higher perceived wealth prior to the savings decision. To test this possibility, I use the following question from Part 1: 'How much money will you personally be able to take home at the end of today?' (*money today*). As briefly pointed out before, questions from Part 1 (general household survey questions) might be influenced by the *CiH* treatment. In particular, questions related to cash, such as income, might be prone to influence from the *CiH* treatment.

To test this possibility, I use the following question from Part 1: 'How much money will you personally be able to take home at the end of today?' (*money today*). As briefly pointed out before, questions from Part 1 (general household survey questions) might be influenced by the *CiH* treatment. In particular, questions related to cash, such as income, might be prone to influence from the *CiH* treatment. When being asked about *money today*, individuals in *CiH* were already holding on to cash, whereas individuals in *CA* only knew that they would receive money later on. Note that at this point of the interview, individuals do not know about the subsequent savings decision and can therefore not anticipate their savings behavior and incorporate this in their report of *money today*.

Figure C.1 presents the cumulative distribution function of reported *money today* and indicates higher reports for *CiH* throughout most of the support of the distribution (means: *CiH* ₱707, *CA* ₱606; Fligner-Policello test, $p = 0.032$; Kolmogorov-Smirnov test, $p = 0.039$).[34] These results are confirmed in the regressions reported in Table C.1. Overall, reported amounts are higher on average than the earnings since, to obfuscate the purpose of the question, the question concerned all cash transactions of the day.

It is important to verify that the difference in feeling richer is not driven by actual differences in wealth. Evidence for this comes from Figure C.2, showing that the two CDFs of *CiH* and *CA* are identical for an asset index that is constructed based on ten (non-cash) wealth-related questions also asked in Part 1 (means: *CiH* 0.49, *CA* 0.48; Wilcoxon rank-sum test, $p = 0.681$; Kolmogorov-Smirnov test, $p = 1$).[35]

[34]The pattern is the same for disaggregating the means on earnings level: $CA_{300} = 581, CiH_{300} = 635, CA_{500} = 629, CiH_{500} = 778$. However, the treatment difference is only statistically significant for ₱500 (for ₱300: Fligner-Policello test, $p = 0.782$; Kolmogorov-Smirnov test, $p = 0.844$ and for ₱500: Fligner-Policello test, $p = 0.007$; Kolmogorov-Smirnov test, $p = 0.001$).

[35]The questions range from the household's access to running water and electricity to the possession of assets such as TVs or mobile phones. All questions are binary and are aggregated into an equally weighted index, as described in the pre-analysis plan and in Appendix J.

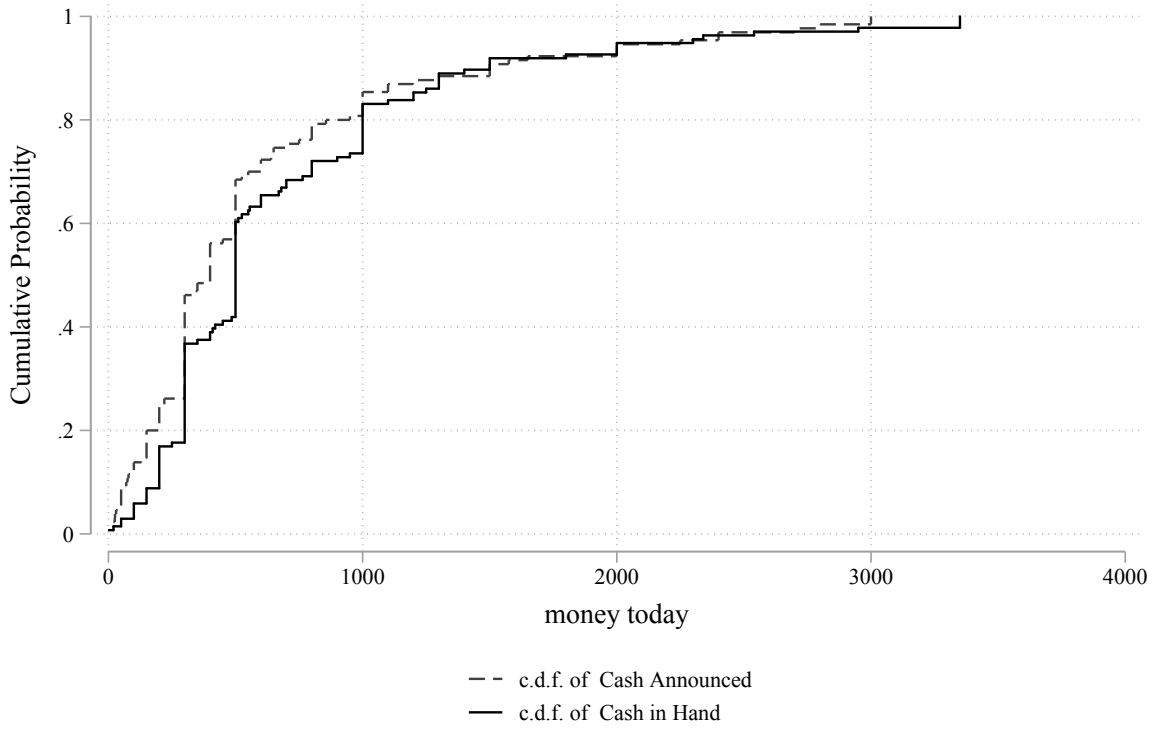


Figure C.1: CDF of Money Today

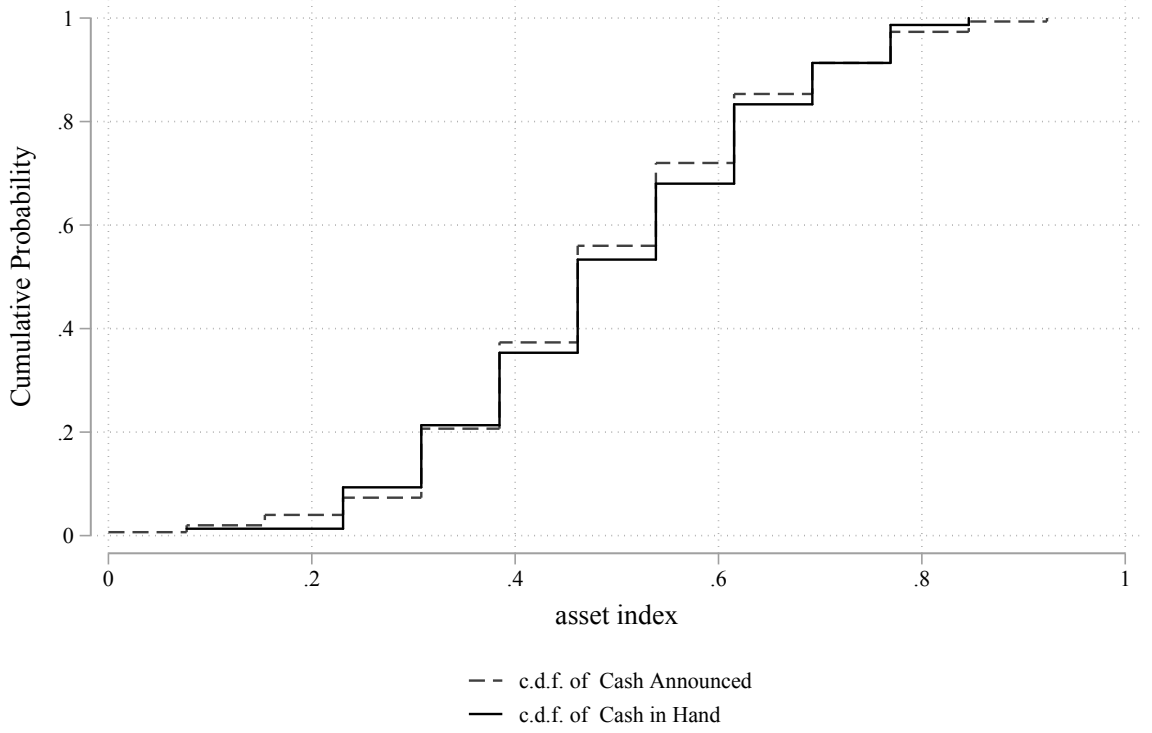


Figure C.2: CFD of Asset Index

The administrative data also provides a measure for poverty, the Progress out of Poverty Index (PPI).[36] Based on ten questions regarding household wealth, the PPI score is comparable to the asset index but cannot be influenced by my experiment, as it was measured prior to it. The PPI score also shows that in terms of wealth, *CiH* and *CA* are the same (means: *CiH* 43.9, *CA* 43.1; Wilcoxon rank-sum test, $p = 0.51$; Kolmogorov-Smirnov test, $p = 0.88$). I provide additional manipulation checks in Appendix C that suggest a more general tendency to over-report cash income in *CiH*.

Given successful randomization, the effect on *money today* is driven by the *CiH* manipulation. Individuals with cash in hand feel richer, i.e. they expect to take home more money than the control group.

The analysis is further supported by Table C.1 that shows the same effects plotted in Figure C.1 in a regression analysis of the mean effects.[37] The coefficient on the treatment dummy *CiH* in Column (1) shows that treated individuals report about 28 percent higher *money today* than in *CA*. This effect is robust to the inclusion of a set control variables in Column (2). Column (3) shows that in terms of assets, both groups are the same. Since this feeling richer might also be visible in other income questions, Columns (2) and (3) of Table C.2 provide suggestive evidence that *CiH* influences reporting behavior more generally: For cash income, a variable that pools all income that respondents report to receive in cash, the *CiH* dummy indicates somewhat higher reports (p=0.13), whereas in terms of non-cash income, participants appear to be the same (p=0.81).[38]

Given that participants with higher experimental income save more, does feeling richer in *CiH* lead to higher savings? Table C.3 shows that there is no statistically significant relationship between *money today* and savings, neither on aggregate, nor in either of the treatments. As discussed in Section 4.2, this is likely due to the fact that the savings decision is incentivized and high-stakes.

[36]The Progress out of Poverty Index (PPI) is a poverty measure ranging from $0 - 100$ that is managed by Innovations for Poverty Action (IPA). The PPI score can be translated into a country-specific probability of living below a given poverty line. For more information, see Appendix J and www.povertyindex.org.

[37]For regressions, I use log of money today as the variable is highly skewed.

[38]Given the relevance of cash, I ask for each income source how this income is received (in cash, via check/ deposit or wire transfer). All these questions are asked in Part 1. For more details, see also Appendix J.

Table C.1: Parametric Evidence For Feeling Richer with Cash in Hand

	(1) Money Today (ln)	(2) Money Today (ln)	(3) Assets	(4) Assets
CiH	0.279**	0.261**	0.00769	0.00504
	(0.128)	(0.0999)	(0.0143)	(0.0128)
	[0.0413, 0.526]	[0.0772, 0.447]	[-0.0190, 0.0346]	[-0.0187, 0.0285]
Constant	5.890***	5.786***	0.482***	0.246**
	(0.105)	(0.440)	(0.0160)	(0.0890)
	[5.690, 6.089]	[3.947, 5.569]	[0.451, 0.512]	[0.0476, 0.369]
Observations	266	266	300	300
Adj. R^2	0.014	0.238	-0.003	0.088
Clustered SEs	yes	yes	yes	yes
Controls		yes		yes

Notes: "Money Today" is the answer to the question: "How much money do you think you will take home at the end of the day?" 34 participants (14 in *CiH* and 20 in *CA*) stated that they do not know. OLS estimates, robust SE clustered on center level in parentheses, wild cluster bootstrapped 95% CIs accounting for small number of clusters (centers) in brackets. Controls: age, education, financial literacy, household size, business owner, money left, decision making power, time to center, travel cost to center, interviewer FE. *** p<0.01, ** p<0.05, * p<0.1.

Table C.2: Feeling Richer: Other Income Measures

	(1) Cash Income (ln)	(2) Non-Cash Income (ln)	(3) PPI Score
CiH	0.314	0.0853	0.367
	(0.201)	(0.351)	(1.861)
	[-0.0529, 0.693]	[-0.5778, 0.740]	[-3.141, 3.920]
Constant	7.521***	0.251	21.19**
	(1.506)	(1.925)	(9.623)
	[5.694, 10.90]	[-4.521, 2.346]	[5.675, 39.79]
Observations	300	300	296
Adj. R^2	0.205	0.111	0.121
Clustered SEs	yes	yes	yes
Controls	yes	yes	yes

Notes: "Cash Income" ("Non-Cash Income'") comprises all income that the respondent reports to receive in cash (other means of payment). OLS estimates, robust SE clustered on center level in parentheses, wild cluster bootstrapped 95% CIs accounting for small number of clusters (centers) in brackets. Controls: age, education, financial literacy, household size, business owner, money left, decision making power, time to center, travel cost to center, interviewer FE. *** p<0.01, ** p<0.05, * p<0.1.

Table C.3: Effect of Money Today

	Panel A: Amount Saved					
	(1) All	(2) CiH	(3) CA	(4) All	(5) CiH	(6) CA
Money Today (ln)	9.120	10.85	8.356	10.06	13.67	17.02
	(8.614)	(11.48)	(12.33)	(9.857)	(15.22)	(13.34)
	[-6.833, 25.19]	[-10.69, 33.05]	[-16.05, 31.42]	[-8.311, 28.25]	[-14.70, 41.78]	[-7.773, 40.74]
Constant	112.8**	99.31	120.3	-15.31	66.47	-207.6
	(52.12)	(68.87)	(75.59)	(94.02)	(130.9)	(129.6)
	[15.25, 210.9]	[-31.87, 229.6]	[-21.58, 267.9]	[-166.2, 175.8]	[-188.7, 307.8]	[-348.8, 65.17]
Observations	266	136	130	266	136	130
R^2	0.006	0.008	0.005	0.091	0.073	0.189
	Panel B: Share Saved					
Money Today (ln)	0.0164	0.0144	0.0186	0.0150	0.0104	0.0395
	(0.0179)	(0.0268)	(0.0247)	(0.0204)	(0.0378)	(0.0286)
	[-0.0174, 0.0503]	[-0.0362, 0.0653]	[-0.0287, 0.0666]	[-0.0235, 0.0528]	[-0.0581, 0.0789]	[-0.0126, 0.0919]
Constant	0.326***	0.336**	0.315*	-0.00916	0.265	-0.487*
	(0.113)	(0.163)	(0.157)	(0.179)	(0.316)	(0.274)
	[-0.0174, 0.0503]	[0.0218, 0.643]	[0.0132, 0.613]	[-0.334, 0.386]	[-0.385, 0.826]	[-0.785, 0.143]
Observations	266	136	130	266	136	130
R^2	0.003	0.002	0.005	0.088	0.079	0.163
Clustered SEs	yes	yes	yes	yes	yes	yes
Controls				yes	yes	yes

Notes: OLS estimates, robust SE clustered on session level in parenthesis, wild cluster bootstrapped 95% CIs accounting for small number of clusters (centers) in brackets. Controls: age, education, financial literacy, household size, business owner, money left, decision making power, time to center, travel cost to center, interviewer FE. *** p<0.01, ** p<0.05, * p<0.1.

D Factors reducing savings

Based on the factors contributing to undersavings reviewed by Karlan et al. (2014), I discuss which other effects, in addition to cash in hand, might lead to a reduction in savings in my experiment in general and in the *CiH* treatment in particular.

Transaction costs Transaction costs have been shown to be an important factor inhibiting savings (e.g. Dupas and Robinson 2013a; Prina 2015). In my setting, marginal transaction costs for saving are zero since individuals are required to take part in the center meeting for their loan repayment and there are no account opening or withdrawal fees. In addition, travel time to the meeting is low (mean=6 minutes, SD=6) and costs are negligible (mean=₱0.77, SD=3.88). Both variables are balanced across treatments (see Table 2) and *CiH* does not alter transaction costs beyond the psychological costs of making the physical transaction. Transaction costs thus do not play a role in the experimental savings decision.

Lack of trust and regulatory barriers Since my sample consists of clients of one MFI, regulatory barriers to savings are constant. Mistrust in banks in general is quite high, but 93 percent consider savings with the MFI safe. Both trust variables are balanced across treatments (see Table 2). Differential trust in the banking system therefore should not lead to savings differences across treatments in my setting.

However, since, in *CiH*, earnings have already been handed over, the treatment might increase the credibility of and thus the trust in the interviewer. It is unclear how lower trust in receiving the money in *CA* would affect savings. Possibly, it would increase the variance in the savings. The standard deviations of both savings measures, however, are similar in *CiH* and *CA* (0.31 vs 0.30 for share of earnings saved and 125 vs 126 for amount saved). In addition, the fact that participants in *CA* react to the variation in experimental payments by saving more with higher income, indicated that all participants trust in receiving the cash. Moreover, the procedures have been designed to foster credibility and trust: An announcement letter was sent a week in advance, the sessions took place as announced, and the cash to be earned was publicly displayed in front of all the clients and the loan officer before starting with the interviews. In addition, the receipts and vouchers were shown during the explanations and handed out after the decisions were made. It is thus unlikely that trust differentially affected the savings decisions.

Information and knowledge gaps As shown by the LASSOplus estimation, high financial literacy is generally related to higher savings, but the former does not appear to interact with *CiH*. Both financial literacy and education are balanced across treatments (see Table 2).[39] Since *CiH* does not alter information and all the questions regarding savings were only asked after the decision to save, information and knowledge gaps did not influence savings differently across treatments.

Social constraints Especially in developing countries, where informal risk-sharing plays an important role, both intra- and inter-household claims can result in substantial constraints on savings. In my sample, both claims from family members (in particular, the husband) and friends are balanced across treatments (see Table 2). The same holds true for decision making power within the household, the levels of which are comparable to the decision making power of females in a different study in the Philippines (Ashraf et al. 2010).[40] Since all transactions in this MFI are public, depositing savings can also lead to requests from other clients to help out with loan repayments. While this is an important factor and 66 percent would like to have a private account, this is also balanced across treatments. Moreover, participation in the study as well as earnings are common knowledge in centers, so that neither saving nor keeping the money provides an opportunity to hide money. Lastly, four weeks after the savings decision, only five percent reported having given (some of) their non-saved experimental earnings to relatives (see Table G.1). Social constraints thus do not lead to differential savings in the *CiH* treatment.

Behavioral biases The literature has highlighted several behavioral biases associated with low savings, the most prominent one being present bias (Karlan et al. 2014). I argue that time preferences and in particular temptation should not differentially affect the experimental savings decision. Although holding cash could increase temptation, spending the cash during the experiment was not possible and the later use of the cash was not made salient. To further reduce the potential influence of present bias, savings during the experiment were incentivized, offering a lucrative interest rate of 20 percent for the first month. Moreover, present bias is balanced across treatments and has not been selected by LASSOplus as a significant determinant

[39] While CA_{500} appears to be positively related to financial literacy when considering $\alpha = 0.1$, its coefficient is not statistically different from that of CiH_{300} or CiH_{500}. This is reflected in the insignificant F-test. Adjusting significance levels for multiple testing would render the coefficient insignificant.

[40] While CiH_{500} appears to be a negatively related to decision making power when considering α=0.1, its coefficient is not statistically different from CA_{500}. Considering the coefficients of the two *CiH* treatments jointly, they become statistically indistinguishable from zero.

of the savings decision. The second most researched bias in the savings literature is inattention, both to savings and emergencies that could require savings. I elicited attention to household finances and show that both attention to short run (day-to-day) and medium run finances are balanced (see Table 2). Attention to decision making more generally is addressed by incentivation, making the savings decision high-stake (median experimental deposit: ₱100; median real life deposit: ₱30).[41] The match, high stakes and successful randomization thus rule out that other biases led to differentially lower savings.

Interviewer demand effects Especially in a culture in which keeping face is important, participants might want to save just to please the interviewer. Although the instructions make it clear that any amount from zero up to the full earnings amount can be saved, the match could be interpreted as a signal that the interviewer or the experimenter values savings. However, it is unclear whether and how interviewer demand would interact with *CiH*. One could imagine the demand effects to be stronger in *CiH*, e.g. due to positive reciprocity. This would lead to larger savings in *CiH*. Alternatively, actively stating 'I don't want to save anything' might be harder than just not handing over any money, which would reduce savings in *CiH*. Further, participants in *CA* might overstate their true desire for savings to please the experimenter and to make sure they will receive their earnings. Overall, it is unlikely that demand effects affect savings differently in *CiH* than in *CA*. Moreover, as discussed in Section 3.5, the experimental decision is related to pre-experimental savings behavior. The correlation coefficients for experimental savings and the pre-experimental savings balance in *CiH* ($\rho = 0.1573$) and *CA* ($\rho = 0.1190$) are not statistically significantly different from each other, further reducing concerns of differential experimenter demand. Relatedly, differential demand effects across interviewers are ruled out by balancing *CiH* and *CA* within each interviewer. Lastly, a demand effect stemming from an interaction of enumerator presence and comparatively large incentives is unlikely given similar shares of earnings saved in *₱300* and *₱500*.[42]

The combination of sample balance on all relevant observables and design features that prevent the differential influence of trust and temptation on the savings decision allows me to

[41] This might lead to an estimation of the lower bound for the cash in hand effect. For instance, if the bias is comparatively small it might only exist when impulsive, less important decisions are made (e.g. (over)reporting *money today* in the survey). For incentivized, rather high-stakes decisions (the savings decision in my experiment), individuals might be able to override this bias.

[42] From a theoretical perspective, one might expect smaller experimenter demand effects with larger incentives given that it is more costly to distort behavior (De Quidt et al. 2018).

rule out any reduction in savings in the *CiH* treatment other than the pain of handing over cash effect of cash in hand.

E Comparison of effect sizes

E.1 Comparison to laboratory studies

To put the magnitude of my minimal detectable effect (MDE) sizes into perspective, I compare them to related studies. Since stake sizes and decision differ across studies, I calculate Cohen's d

$$d = \frac{m_1 - m_2}{\sigma} \tag{1}$$

where $m_{1(2)}$ is the mean of the treatment (control) group and σ is the pooled standard deviation,

$$\sigma = \sqrt{(\sigma_1^2 + \sigma_2^2)/2}. \tag{2}$$

Taking the MDE of 41 ₱ for mean amounts saved into account, I set the effect size in the treatment group to 127 ₱ and assume that the SD would be the same as the observed one. In Table E.1, I include all endowment effect studies (excluding surveys) cited in this paper that provide the necessary information to calculate Cohen's d.

E.2 Comparison to field experiments

While the treatment is close to laboratory studies, the setting is closer to field experiments on savings behavior in developing countries. I therefore also benchmark my MDE to such experiments. Since measures of earnings in the field tend to be noisy, I interpret my MDE in terms of change in actual deposits for this comparison. The MDE of 41 pesos and the average deposits of 165 pesos imply that my experiment would be able to detect a 25 percent change in savings deposits. While this appears to be a rather large effect, many recently published field experiments report much larger effects.

Paper	Change in savings (in %)
Karlan et al. (2016)	6
Blumenstock et al. (2018)	17
Batista and Vicente (2020)	32
Ashraf et al. (2006a)	40
Dupas and Robinson (2013b)	66
Seshan and Yang (2014)	72
Ashraf et al. (2010)	81
Ashraf et al. (2006b)	82
Brune et al. (2017)	85
Somville and Vandewalle (2018)	131

Table E.1: Comparison of Effect Sizes in Endowment Effect Experiments

		Control (WTP)			Treatment (WTA)			
	Comparison	Mean	SD	N	Mean	SD	N	Cohen's d
Svirsky (2014)	Money holding in baseline and money	6.56	2.17	21	5.43	2.53	18	-0.48
	Money holding in money and chocolate	4.55	3.07	40	5.43	2.53	18	0.31
Bateman et al. (2005)	WTA/WTP chocolate with money	4.66	2.82	40	9.95	4.58	40	1.43**
	WTP and equivalent gain, chocolate with money	4.66	2.82	40	8.17	5.05	40	0.89**
Morewedge et al. (2009)	Owner-buyers vs. nonowner-pair buyers	2.22	1.7	22	4.52	2.8	22	1.02**
Plott and Zeiler (2005)	Replication of Kahneman et al. (1990)	1.74	1.46	29	4.72	2.17	29	1.64***
	Pooled data from WTA/WTP mugs	6.62	4.2	36	5.56	3.58	38	-0.27
Isoni et al. (2011)	Replication Plott and Zeiler (2005) (Panel B)	3.70	1.53	33	2.75	1.76	33	-0.58
	WTA/WTP for large stakes lottery (Panel C)	4.86	1.59	36	4.81	1.48	36	-0.032***
Bushong et al. (2010)	Bid in picture vs. real	0.71	0.53	17	1.13	0.61	20	0.74***
Strahilevitz and Loewenstein (1998)	Those with always mug to those who receive it later	4.32	0.41	37	5.26	0.39	48	2.35*
	Those with always mug to those who had it	3.36	0.27	34	5.26	0.39	48	5.76
This study	Amount saved in *CiH* vs. *CA*	168	126	150	127	125	150	-0.33

Notes: *** p<0.01, ** p<0.05, * p<0.1 denote significance of the treatment difference as tested in the paper.

F Classification of saver types

Types of savers are classified along three dimensions that reflect different aspects of savings behavior as pre-specified: First, making regular or irregular deposits, depositing large or small amounts and depositing equally-sized or variable amounts. Data come from all centers of the three study branches and comprises weekly deposits (and withdrawals) of savings, starting from July 2016 up to and including the week in which the first announcement letters were sent (the last day included is February 17, 2017).[43] This leaves me with 4749 clients (300 sample clients, 676 clients from the same centers, but not participating and 3773 clients from different centers).[44]

Regular deposits averages the number of positive net deposits (deposits - withdrawals) within each client and compares this average to the median value of all clients' averages. The dummy variable regular deposits equals one if a given client's average is the same or above the median value of making positive deposits in 84.4 percent of weeks.

Large deposits indicates above median deposit sizes (₱33.13). In this calculation, I only include positive net deposits to avoid the influence of weeks in which no deposit was made or money was withdrawn, as no (or negative) deposit is already accounted for in regular deposits.

Equally-sized deposits indicates a below median value of the deposit variance to average deposit ratio (1.03).[45] The variance is standardized with the average deposit to take care of the size of deposits, which is already measured in large deposits.

[43] Excluding all later sessions prevents any spill-over effects from the experiment on subsequent savings behavior. In addition, using deposits rather than the savings stock accounts better for behavior than the stock as the latter is highly correlated with membership length.

[44] Some clients joint later than July 2016, for them, fewer weekly observations are available. To account for this, I use within-client averages before computing median values.

[45] An alternative measure would be to count the number of weeks in which the same amount was deposited as in the previous week.

Table F.1: Saver Types

	% in Sample N=300	% in same Center N=676	% in same Branches N=3773
Irregular-small-variable	9.67	10.64	7.05
Irregular-small-equal	13.00	10.78	12.25
Irregular-large-variable	11.00	20.24	20.92
Irregular-large-equal	12.67	9.31	7.32
Regular-small-variable	12.00	12.11	11.77
Regular-small-equal	12.00	13.00	18.37
Regular-large-variable	12.67	9.765	11.93
Regular-large-equal	17.00	14.18	10.39

Notes: Regular vs. irregular deposits; small vs. large deposits; equally-sized vs. variable deposits (all based on median sample splits). "Sample" comprises all interviewees, "in same Center" are non-participants in sample centers and "in same Branches" are non-sample centers in the study branches.

Table F.2: Balance of Saver Types in Experimental Sample

	$\mathbf{CA}_{300}$	$\mathbf{CiH}_{300}$	$\mathbf{CA}_{500}$	$\mathbf{CiH}_{500}$	R^2	F-test
Saver Types						
Regular deposit	0.452	0.110*	0.119	-0.123	0.009	0.331
Large deposit	0.479	0.0411	0.0660	-0.00213	0.006	0.606
Equally sized deposits	0.589	-0.0685	-0.0566	0.0815	0.003	0.833
Irregular-small-variable	0.178	-0.0959**	-0.113	0.0959*	0.025	0.133
Irregular-small-equal	0.178	-0.0548	-0.0742	0.0678	0.007	0.430
Irregular-large-variable	0.0548	0.0822	0.0621	-0.0692	0.011	0.313
Irregular-large-equal	0.137	-0.0411	0.00587	0.0281	0.003	0.795
Regular-small-variable	0.0822	0.0274	0.0737	-0.0534	0.007	0.657
Regular-small-equal	0.0822	0.0822	0.0477	-0.108	0.009	0.408
Regular-large-variable	0.0959	0.0548	0.0340	-0.0548	0.003	0.777
Regular-large-equal	0.192	-0.0548	-0.0359	0.0938	0.004	0.631

Notes: Mean of the CA_{300} group and coefficients from OLS regressions with treatment dummies as independent variables and clustered SE (not shown) at the center level. The last column shows p-values of the F-test of joint significance of the treatment dummies. *** p<0.01, ** p<0.05, * p<0.1.

G Match and follow-up

Four weeks after the respective session, each center was visited again to deposit the match for eligible participants. Moreover, participants were briefly surveyed regarding i) whether they wish that they had saved a different amount and ii) what they did with their experimental earnings if they did not save the full amount.

Table G.1: Four weeks after the savings decision

	Cash Announced	Cash in Hand
Match		
Received match (0/1)	0.787 (0.411)	0.826 (0.380)
Wish saved more (0/1)	0.410 (0.494)	0.407 (0.493)
Wish saved less (0/1)	0.566 (0.498)	0.558 (0.499)
Would now save (₱)	128.2 (177.0)	134.3 (178.5)
Use of earnings not saved		
Groceries	32	20
Education	11	11
Medicine/emergencies	13	9
Business	12	16
Other savings	13	10
Lending	2	2
Relatives	9	4
Payoff debt	3	7
Bills	6	13
Other	3	2
n/a (saved everything)	22	24

Notes: Upper panel: means of raw data, SD in parentheses. Lower panel: number of participants stating the respective reason as the main use of their experimental earnings (open ended question). N=244 (126 *CA* and 118 *CiH*).

H Reliability of survey responses

The reliability of participants' responses during the interview ("interview data") can be evaluated based on administrative data that cover savings, characteristics of the person (e.g. age) and the house (e.g. connected to running water). While reports of age in the administrative and the interview data should be highly correlated, the correlation might be weaker for savings reports due to e.g. inattention or social concerns when reporting. Indeed, as Table H.1 shows, age is nearly perfectly correlated in self-reported and administrative data. Reports of savings in the account (interview data) are also positively correlated with actual savings (administrative data). Being composed of ten questions regarding household wealth, the PPI score from the administrative data is comparable to the asset index in the interview data and the two are positively correlated. Comparing single questions that are part of both indices, however, I find significantly higher asset possessions in the interview data (electricity, running water and landline phones).[46] Overall, it seems that participants respond consistently regarding the most important aspects of this study.

Table H.1: Correlation of Self-Reported and Administrative Data

	Self-reported Data	Administrative Data	Correlation
Savings balance	767.4 (1494)	790.3 (1230)	0.734***
Total savings/savings balance (₱)	6108.7 (11175)	790.3 (1230)	0.454***
Age	43.57 (12.35)	43.94 (12.31)	0.979***
Assets/PPI score	0.486 (0.166)	43.53 (19.65)	0.370***
Electricity	0.95 (0.218)	0.468 (0.499)	0.047
Landline	0.056 (0.232)	0.00676 (0.082)	-0.020
Water	0.69 (0.463)	0.158 (0.366)	0.072

Notes: Means of raw data, SD in parentheses and Spearman's ρ. *** p<0.01, ** p<0.05, * p<0.1.

[46] This could either be due to at least two reasons. First, living conditions might have improved since that the administrative data was last collected. Second, participants might underreport their assets vis-à-vis the MFI in order to appear "needy". In theory, the organization committed to only serving the very poor as assessed by a progression out of poverty index. However, from discussions with the management, it appears that this rule is not strictly enforced, especially once the member has been accepted as a borrower.

I Instructions

I.1 Announcement Letter

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

CHAIR FOR BEHAVIORAL AND EXPERIMENTAL ECONOMICS

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Ludwig-Maximilians-Universität
München
Chair for Behavioral and
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Giselastr. 10
D-80802 Munich
GERMANY

Munich, February 1, 2017

Dear ASHI member,

You are cordially invited to take part in a survey on household finances.

We are a team of independent researchers from the University of Munich in Germany and we would like to learn more about your needs and the way you use microfinance products. As a member of ASHI, you can provide us with valuable information that might help improve existing microfinance products.

We would like to interview several members of ASHI individually. The involvement in the interview will require about 30 minutes and interviews will be in Tagalog. Interview participants will receive at least 300 pesos as a token of appreciation and every member of the center has the same chance to participate in an interview.

The interviews will take place during the center meeting on [DATE] and all answers will be treated confidentially, i.e. we will not share your answers with ASHI. All interviews will be conducted in private by the team of independent researchers.

We would be very happy if many of you were interested in taking part in the survey and came to the center meeting on that day.

I am looking forward to meet you soon.

Lisa Spantig
Researcher at the University of Munich, Germany

The announcement letter was distributed via the loan officer one week before the session. The loan officer announced the visit and each member received her individual copy.

I.2 Interview Questionnaire

The survey was implemented in zTree (Fischbacher 2007) and run on tablets. The formatted questionnaire thus only serves to display all questions in this document. Before each interview, I set the parameter of the zTree program such that all instructions would be shown according to the pre-determined treatment allocation. This enabled all surveyors to interview in both *CiH* and *CA* treatments without confusion, as the program would give detailed instructions on what to do and when.

Oral Informed Consent (survey)

My name is _____ and I work with a research team from the University of Munich in Germany. The University of Munich is a public university and one of the leading research universities in Europe.

1. **Purpose:** We are conducting a research study to learn about financial products in Laguna province, Philippines. The purpose of this study is to better understand how people manage their household finances and what could help them to make managing household finances easier. We will put the collected information you give us to good use for improving existing microfinance products as best as possible.
2. **Invitation and Procedures:** I'd like to ask you some questions about your financial experiences. We anticipate that your involvement will require about *30 mins*.
3. **Compensation**: As a small token of appreciation, you will receive 300/500 pesos.
4. **Confidentiality**: All of your responses will be kept confidential. Only the university researchers involved in this study and those responsible for research oversight will have access to all the information you provide.
5. **Voluntary Participation:** Participation in this study is completely voluntary. You are free to decline to participate, to end participation at any time for any reason, or to refuse to answer any individual question without penalty or loss of compensation. We will still give you the 300/500 pesos even if you don't want to answer some questions. However, if you decide to terminate the interview early, we might not be able to give you the money.
6. **Contact**: If you have any questions or concerns about this study, you may contact the researcher Lisa Spantig 09952305531.
7. **Agreement to Participate:** By agreeing to participate, you agree that all information which you voluntarily share may be used purely for research purposes by the research team or other researchers. This includes financial information you provide and information that ASHI shares with us. All data is confidential and none of the information you provide will be used in connection with your name. Your decision to participate does not affect your ASHI membership in any way, because we do not work for ASHI. We are independent researchers.

Are you willing to participate? ____YES

____NO

IF NO: You decided not to participate. If you decide to confirm this choice we will not ask you any questions, but you will also not receive the participation fee. What will be your decision?

IF YES: Thank you for agreeing to participate.

TREATMENT: You will receive the 300/500 pesos for your participation now. [COUNT THE MONEY AND HAND IT OVER].

V0: WHERE DID THE PARTICIPANT PUT THE MONEY? IN HER POCKET; 2 – IN HER BAG/PURSE; 3 – KEEPS IT IN HER HAND, 4 – OTHER, SPECIFY: ____.

CONTROL: You will receive the 300/500 pesos for your participation later during the survey.

Let's start with the survey. Most of the questions can be answered with 'Yes' or 'No' and you do not need to give an explanation.

Survey

I - Identification

I1. What is your name? [FIRST, MIDDLE, LAST] _____

I2. Did you receive an announcement letter that this interview would take place?

1 Yes	2 No

I3. Are you single, married/living with partner, separated or widowed?

1 Single	2 Married/living with partner
3 Separated/divorced	4 Widowed
5 DON´T READ: REFUSED	

I4. How many persons including yourself live in your household? (exclude guests, visitors, household members who do not sleep at home at least once a week) _____

I5. How many persons in your household including yourself earn money? _____

I6. How many persons in your household are currently attending school? _____

The following questions are about yourself.

I7. How old are you? _____

I8. What is the highest formal education level you have completed? _____

Education codes

0 No schooling	1 Grade 1	2 Grade 2	3 Grade 3	4 Grade 4
5 Grade 5	6 Elementary Graduate	7 High school 1	8 High school 2	9 High school 3
10 High school 4	11 High school graduate	12 Vocational Incomplete	13 Vocational Complete	14 Some College
15 College graduate or higher				

H - Household income

1 Government official	2 Professional or technical (non-production)
3 Administrative or clerical (public)	4 Administrative or clerical (private)
5 Sari-sari store owner	6 Tricycle, jeepney, taxi, or other transport
7 Farmers, fisherman, hunters, loggers and related workers	8 Miners, quarrymen and related workers
9 Craftsman or production-process	10 Plant and machine operators and assemblers
11 Wage laborers	12 Entrepreneur (>5 employees): Service
13 Entrepreneur (>5 employees): Buy/Sell	14 Microentrepreneur (>5 employees): Service
15 Microentrepreneur (>5 employees): Buy/Sell	16 Retired personnel (GO & private org)
17 Houseworker (without wage), student unemployed	18 Other
19 No household income at all	

H1. What is your household's main source of income? [SOURCE THAT GIVES THE MOST INCOME]

H2a.Please let me know, does your household have any income from the following sources?

1 Yes	2 No

Net business income	
Farm income	
Labor wages	
Pension	
Remittances	
Government aid/income subsidy	
Rental	
Other income source (specify)	

[IF H2a = YES, PROCEED WITH H2b FOR THIS CATEGORY]

	H2b. Amount	**H2c.** Time unit 1 – Daily 2 – Weekly 3 – Monthly 4 – Other specify	**H2d.** How is this income received? 1 – Cash 2 – Check 3 – Deposit 4 – Other, specify	**H2e.** Is it easy to estimate how much income you will receive in the next month? 1 – Yes 2 – No 3 – DON´T READ: DON´T KNOW 4 – DON´T READ: REFUSED
Net business income				
Farm income				
Labor wages				
Pension				
Remittances				
Government aid/income subsidy				
Rental				
Other income source (specify)				

H3a. This next question is about household budgets. A household budget is used to decide what share of your household income will be used for spending, saving or paying bills.
Does your household have a budget?

1 Yes	2 No

H3b. [If H3a. = yes]: Do you usually stick to the budget?

1 Yes	2 No
3 DON´T READ: REFUSED	

H4. All in all, how much money will you personally be able to take home at the end of today?

_____

E - EXPENDITURES

Now I`ll ask you some questions about your expenses.

E1. About how much did you and your household spend on everything in the last 7 days? Please think about all bills such as rent, loan payments, utility and other bills, as well as all expenses such as food, clothing, transportation and any other expenses you and your household may have. _____ pesos

E2. In a typical week, how much of your own money do you spend food and beverages? _____ pesos

E3. In a typical week, how much of your own money do you spend on non-food items such as personal products, cleaning products or textiles? _____ pesos

E4. In a typical month, how much of your own money do you spend on bills? _____pesos

E5. In a typical month, how much of your own money do you spend on medicine and medical equipment? _____ pesos

E6. In a typical month, how much of your own money do you spend on education? _____ pesos

E7. During the last week, how much of your own money did you spend on something and afterwards regretted spending the money? _____ pesos

E8. Which ONE of the following best describes the extent to which you personally monitor your regular expenses? [READ OUT ALL OPTIONS]

1 I don't keep an eye on expenses at all	2 I keep my eye on expenses a bit
3 Without keeping written records, I keep a fairly close eye on expenses	4 I use written records to keep a close eye on expenses
5 DON´T READ: REFUSED	

A - Assets

A1. Please let me know whether *your household* has the following

1 Yes	2 No

A1a. Electricity		**A1h.** Refrigerator/freezer	
A1b. Running water		**A1i**. Washing machine	
A1c. Radio/radio cassette		**A1j.** CD or VCD or DVD player	
A1d. Television		**A1k.** Bicycle or trisikad/pedicab	
A1e. Landline telephone		**A1l.** Motorcycle or tricycle	
A1f. Cellular phone		**A1m.** Animal-drawn cart/sledge	
A1g. Personal computer or laptop			

A2. Who in the household makes the following decisions, you, your husband/partner or you and your husband/partner jointly?

0 Husband	1 Joint
2 Self	4 Others make the decision

A2a. What to buy at the market	
A2b. Whether to make an expensive purchase such as TV	
A2c. Whether to give assistance to family members	
A2d. The recreational use of money	
A2e. How the money you personally earned will be used	
A2f. Put money aside for savings	
A2g. Number of children	
A2h. Schooling of children	

O - Own business

I will now ask you some questions regarding your own business.

O1. Do you currently run your own business? [IF NO -> SKIP TO NEXT SECTION]

1 Yes	2 No
3 DON´T READ: REFUSED	

O2a. Do you plan your business cash flow?

1 Yes	2 No
3 DON´T READ: REFUSED	

O2b. IF O2a=yes: On which basis do you plan your business cash flow?

1 Daily	2 Weekly
3 Bi-weekly	4 Monthly
5 Bi-monthly	6 I don't plan
7 Other, specify:	8 DON´T READ: REFUSED

O3. How much do you agree or disagree with the following statements?
1 strongly agree, 2 agree, 3 neither agree nor disagree, 4 disagree, 5 strongly disagree
[SHOW SCALE]

O3a. It is easy to plan how much money I can make in one week from my business. [USE SCALE]

O3b. What do you think: How high will your personal gross business income in the next week be?

O3c. It is easy to plan how much money I will need to spend on my business in one week. [USE SCALE]

O3d. What do you think: During the next week, how high will the expenditures for your business be? _____ pesos

O4. How much cash do you typically need to hold for your business to run smoothly? For example, if you have a sari-sari store, how much money do you need to hold?
_____ pesos

M - Misc

Now, I have some very general questions for you.

M1. Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? [READ OUT OPTIONS AND ENTER 1 OR 2]

1 Most people can be trusted	2 Need to be very careful

M2. How long does it take you to get to the ASHI center meeting? (one-way, in minutes)
_____ minutes

M3. How much does it cost you (e.g. fares) to get to the ASHI center meeting?
(one-way, in Peso) _____ pesos

D - Decision

TREATMENT: For participation in this survey, you have received 300/500 pesos. If you decide to save some of this money now in your ASHI personal savings account and the amount you deposited today is still in your account in four weeks' time, I will add 20% of this amount to your savings account. For example, if you decide to save 100 pesos and in four weeks you still have at least 100 pesos in your savings account, I will add 20 pesos in four weeks' time to your account. This additional payment is guaranteed and you will receive this confirmation [SHOW CONFIRMATION SHEET]. If, instead, there is less than the 100 pesos you decided to save today in your savings account in four weeks, I will add nothing to your savings account. If you want to save some money, you hand it to me and I will put it in this envelope and seal the envelope. We will give the envelope to the DO still during the center meeting once we have finished all interviews. You can save any amount you want between 0 and 300 pesos in multiples of 1 peso.
You keep all the money that you do not want to save. Do you have any questions? [IF YES, CLARIFY]. Please now hand me the money you want to save. [DO NOT PRESSURE HER TO GIVE YOU ANY MONEY. IF THE NANAY OFFERS YOU SOME MONEY, COUNT IT AND PLACE IT IN THE ENVELOPE, WRITE HER NAME ON THE ENVELOPE. NOTE THE AMOUNT SAVED ON THE SCREEN. IF SHE DECIDED TO SAVE: FILL IN ONE CONFIRMATION SHEET]

D: Amount Saved: _____

20 peso bills: _____

50 peso bills: _____

100 peso bills: _____

CONTROL: For participation in this survey, you will receive 300/500 pesos. If you decide to save some of this money now in your ASHI personal savings account and the amount you deposited today is still in your account in four weeks' time, I will add 20% of this amount to your savings account. For example, if you decide to save 100 pesos and in four weeks you still have at least 100 pesos in your savings account, I will add 20 pesos in four weeks' time to your account. If, instead, there is less than the 100 pesos you decided to save today in your savings account in four weeks, I will add nothing to your savings account. The additional payment after four weeks is guaranteed, you will receive this written confirmation [SHOW CONFIRMATION SHEET]. If you want to save some money, I will put it in this envelope and seal the envelope. We will give the envelope to the DO still during the center meeting once we have finished all interviews. You can save any amount you want between 0 and 300 pesos in multiples of 1 peso.
I will give you all the money that you do not want to save after preparing the envelope. Do you have any questions? [IF YES, CLARIFY] Please now tell me whether and if yes, how much money you want to save. [TAKE OUT ALL THE CASH, COUNT IT, PLACE THE SUM THE NANAY WANTED TO SAVE IN THE ENVELOPE, WRITE HER NAME ON THE ENVELOPE AND HAND THE REST OF THE MONEY TO HER. NOTE THE AMOUNT SAVED ON THE SCREEN. IF SHE DECIDED TO SAVE: FILL IN ONE CONFIRMATION SHEET]

D: Amount Saved: _____

PART 2: Experimental Preference

The following set of questions form part of a game in which you can earn additional money. Approximately 1 out of 6 people will actually be paid for one of these questions at the end of the interview. We will make a lucky draw at the end of the survey to determine whom of the participants will be paid. You don't know whether you will be one of the lucky ones and which question you might be paid for. Therefore, you should make all of your choices as if you are going to get each reward. So please really think about which reward you prefer for each question.

The following questions will ask you whether you want P50 now, or a different amount of money in two weeks. All amounts will be paid with mobile phone load. If you are paid, we will record your mobile phone number at the end of the survey. If you don't have a mobile phone, you can give us the number of a family member or friend.

If a question is selected where you chose P50 now, then we will transfer P50 of load today. If a question is selected where you choose an amount in 2 weeks, then we will transfer that amount in 2 weeks. This payment is guaranteed. We will also give you a paper voucher (SHOW VOUCHER) which states your name, the amount, and the date when we send the load. We will also give you a number you can contact if your phone number changes. Do you have any questions on this before I start?

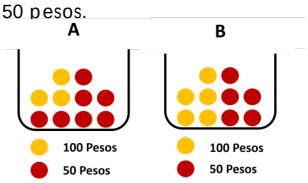
[INSTRUCTORS:
- ASK EACH QUESTION SEPARATELY. LET THEM THINK ABOUT EACH ONE.
- DO NOT SHORTEN OR ABBREVIATE THE QUESTIONS IN ANY WAY
- AVOID SWITCHING BACK AND FORTH. IF RESPONDENT SWITCHES BACK AND FORTH; CHECK THEY UNDERSTOOD THE QUESTION.]
Which option do you prefer?

1 Now	2 Later

Ex1a. Do you prefer P50 guaranteed today or P40 pesos in 2 weeks?	
Ex1b. Do you prefer P50 guaranteed today or P50 pesos in 2 weeks?	
Ex1c. Do you prefer P50 guaranteed today or P60 pesos in 2 weeks?	
Ex1d. Do you prefer P50 guaranteed today or P75 pesos in 2 weeks?	
Ex1e. Do you prefer P50 guaranteed today or P100 pesos in 2 weeks?	
Ex1f. Do you prefer P50 guaranteed today or P125 pesos in 2 weeks?	
Ex1g. Do you prefer P50 guaranteed today or P150 pesos in 2 weeks?	
Ex1h. Do you prefer P50 guaranteed today or P200 pesos in 2 weeks?	

I will now ask you to compare different kinds of lotteries. There will always be a lottery A and a lottery B. If you decide to play lottery A and this question is selected, we will actually play lottery A and you will win the money from that lottery. All lotteries can be selected for payment, so think hard about which lottery you prefer.
Let me give you an example of such a lottery. Here, you can see one lottery A. Each lottery will consist of 10 balls and balls can be of two different colors and of different value. Here, we have three yellow balls, that are each worth 100 pesos and seven red balls worth 50 pesos. So, the chance of winning 100 pesos is three in ten and the chance of winning 50 pesos is seven in ten. If this question is selected for payment and you want to play lottery A, then we will draw one ball from an opaque bag. If it is yellow, you will receive 100 pesos, if the ball is red, you will receive 50 pesos. Do you have any questions?

Now let's compare the first two lotteries. This is only for practice and there will be no payment for this comparison. Lottery A has a three in ten chance of winning 100 pesos and a seven in ten chance of winning 50 pesos. Lottery B has a five in ten chance of winning 100 pesos and a five in ten chance of winning 50 pesos.



Ex2a. Which lottery do you prefer? A or B

Now let's compare the first two lotteries that you may play at the end of the survey. Here, there is no right or wrong.

Lottery A has a one in ten chance of winning 150 pesos and a nine in ten chance of winning 100 pesos. Lottery B has a one in ten chance of winning 250 pesos and a nine in ten chance of winning 10 pesos.

Ex2b. Which lottery do you prefer? A or B

Now chances for winning the high price increase in both lotteries.

Lottery A has a two in ten chance of winning 150 pesos and an eight in ten chance of winning 100 pesos. Lottery B has a two in ten chance of winning 250 pesos and an eight in ten chance of 10 pesos.

Ex2c. Which lottery do you prefer? A or B

[CONTINUES UNTIL CHANCE OF WINNING THE HIGH AMOUNT IS 9 IN 10]

The following questions ask you to choose between 50 pesos now, and a different amount in 4 weeks from now. As before, you might get paid for one of these questions in load. The payment is guaranteed. So please really think about which reward you prefer for each question.

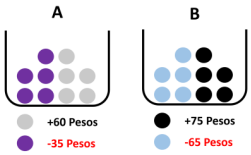
1 Now	2 Later

Ex3a. Do you prefer P50 guaranteed today or P40 pesos in 4 weeks?	
Ex3b. Do you prefer P50 guaranteed today or P50 pesos in 4 weeks?	
Ex3c. Do you prefer P50 guaranteed today or P60 pesos in 4 weeks?	
Ex3d. Do you prefer P50 guaranteed today or P75 pesos in 4 weeks?	
Ex3e. Do you prefer P50 guaranteed today or P100 pesos in 4 weeks?	
Ex3f. Do you prefer P50 guaranteed today or P125 pesos in 4 weeks?	
Ex3g. Do you prefer P50 guaranteed today or P150 pesos in 4 weeks?	
Ex3h. Do you prefer P50 guaranteed today or P200 pesos in 4 weeks?	

I will now ask you whether you are willing to play different kinds of lotteries. In each lottery, you can lose some money or you can win some money. If you decide for lottery A and this question is selected, we will play lottery A. If you win a lottery, I will give you the additional money. If you lose a lottery, I will ask you to pay for it from your participation fee. All lotteries can be selected for payment, so think hard which one you prefer.

Now let's compare the first two lotteries that you may play at the end of the survey. Again, there is no right or wrong.

Lottery A has a five in ten chance of winning 60 pesos and a five in ten chance of losing 35 pesos. Lottery B has a five in ten chance of winning 75 pesos and a five in ten chance of losing 65 pesos.



Ex4a. Which lottery do you prefer? A or B

Now the amounts that you can win or lose change. Chances stay the same as before.

Lottery A has a five in ten chance of winning 55 pesos and a five in ten chance of losing 35 pesos. Lottery B has a five in ten chance of winning 75 pesos and a five in ten chance of losing 65 pesos.

Ex4b. Which lottery do you prefer? A or B

[CONTINUES WITH

- LOTTERY A: +50, -35; LOTTERY B: +75, -65
- LOTTERY A: +45, -35; LOTTERY B: +75, -65
- LOTTERY A: +40, -35; LOTTERY B: +75, -50
- LOTTERY A: +40, -35; LOTTERY B: +75, -45
- LOTTERY A: +35, -35; LOTTERY B: +75, -40]

The following questions ask you to choose between 50 pesos in two weeks from now, and a different amount in 4 weeks from now. As before, you might get paid for one of these questions in load. The payment is guaranteed. So please really think about which reward you prefer for each question.

Which option do you prefer?

2 Weeks	4 Weeks

Ex5a. Do you prefer P50 guaranteed in 2 weeks or P40 pesos in 4 weeks?	
Ex5b. Do you prefer P50 guaranteed in 2 weeks or P50 pesos in 4 weeks?	
Ex5c. Do you prefer P50 guaranteed in 2 weeks or P60 pesos in 4 weeks?	
Ex5d. Do you prefer P50 guaranteed in 2 weeks or P75 pesos in 4 weeks?	
Ex5e. Do you prefer P50 guaranteed in 2 weeks or P100 pesos in 4 weeks?	
Ex5f. Do you prefer P50 guaranteed in 2 weeks or P125 pesos in 4 weeks?	
Ex5g. Do you prefer P50 guaranteed in 2 weeks or P150 pesos in 4 weeks?	
Ex5h. Do you prefer P50 guaranteed in 2 weeks or P200 pesos in 4 weeks?	

Part 3

EM - EXCESS MONEY

I will now ask you some questions about your household's finances, whether you sometimes encounter difficulties and how you deal with them.

EM1a. Does your household have money left over at the end of the week after you have paid for food and other necessities?

1 Yes, regularly	2 Yes, sometimes
3 No	4 DON´T READ: REFUSED

EM1b. IF YES: What does your household do with this left over money? [DON`T READ; MAX. 3 ENTER 1-3 IN ORDER OF MENTIONING]

1 Spend on utility bills	2 Spend on food
3 Spend on school fees	4 Spend on treats (sweets, Jollibee, toys)
5 Spend on appliances	6 Lend to relative
7 Lend to friend	8 Lend to neighbor
9 Donate to relative/friend/neighbor	10 Invest in business
11 Pay off loan	12 Save at home
13 Save in ASHI	14 Save in institution (other than ASHI)
15 Other, specify:	

EM2. Does your household ever run short of money for food or other necessary items?

1 Yes, regularly	2 Yes, sometimes
3 Seldom	4 No
5 DON´T READ: REFUSED	

EM3a. Do you believe that your household's day-to-day finances' (dealing with routine expenses for example for food and other necessities, loan repayment, school allowance, transportation etc.) would improve if your household paid more attention to them? [READ OUT ANSWER POSSIBILITIES]

1 Yes, and I/we often regret not paying greater attention	2 Yes, but paying more attention would require too much time/effort
3 No, my household finances are set up so that they don't require much attention	4 No, my household is already very attentive to these matters

EM3b. Do you believe that your household's *medium-run finances'* (dealing with periodic expenses like house repair, school fees etc.) would improve if your household paid more attention to them?

1 Yes, and I/we often regret not paying greater attention	2 Yes, but paying more attention would require too much time/effort
3 No, my household finances are set up so that they don't require much attention	4 No, my household is already very attentive to these matters

Q – QUESTIONS ON WINDFALL GAINS AND BRACKETING I

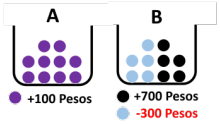
I will now ask you about different hypothetical situations and what you would do in these situations.

Q1. Imagine you have 3000php in cash. What would you do with the money? [DON`T READ; MAX. 3 ORDER 1-3 IN ORDER OF MENTIONING]

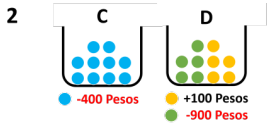
1 Spend on utility bills	2 Spend on school fees
3 Spend on food	4 Spend on treats (sweets, Jollibee, toys)
5 Spend on appliances	6 Lend to relative
7 Lend to friend	8 Lend to neighbor
9 Donate to relative/friend/neighbor	10 Invest in business
11 Pay off loan	12 Save at home
13 Save in ASHI	14 Save in institution (other than ASHI)
15 Other, specify:	

Q2. I will now ask you to make two decisions. There is no right or wrong and there is no payment involved. Please examine both decisions and then let me know which of the options you prefer.

Decision 1: A winning 100 for sure OR B a 5 in 10 chance of losing 300 and a 5 in 10 chance of winning 700

1 

Decision 2: C losing 400 for sure OR D a 5 in 10 chance of losing 900 and a 5 in 10 chance of winning 100



Q2a. Decision 1: A or B **Q2b.** Decision 2: C or D

SI - SAVINGS INVENTORY

The next set of questions will concern your savings, where and how much you save.

SI1. Do you have cash savings held at home for safe keeping? If yes, how much do you have in savings right now in the form of cash at home? [WRITE 00 IF NONE]
_____ pesos

SI2. Do you keep money with your friends/family or employer for safekeeping? If yes, how much? [WRITE 0 IF NONE]
_____ pesos

SI3. Do you currently have any money lent out to others? If yes, how much? [WRITE 0 IF NONE, DO NOT COUNT MONEY GIFTS TO FRIENDS/FAMILY IF THE WILL NOT GET IT BACK. DO NOT COUNT MONEY GIVEN TO OTHERS ONLY FOR SAFEKEEPING]
_____ pesos

SI4a. How much money do you currently have in your AHSI personal savings?
_____ pesos

SI4b. How much money from your last loan do you still have in your electronic card?
_____ pesos

SI5. Do ho have savings at a bank, MFI, coop or other formal institution other than ASHI? If yes, how much?
_____ pesos

SI6. Are you currently a member of any savings organization with member coming from your church, neighbors, or friends? If yes, how much money do you currently have in savings in these organizations? [WRITE 0 IF NONE]
_____

SI7. Do you have savings in the form of gold (or jewelries made of gold) at home?

1 Yes	2 No
3 DON´T READ: DON´T KNOW	4 DON´T READ: REFUSED

SI9. If you want to save at home or at your place of work, do you have a safe place where no one will take it away?

1 Yes	2 No
3 DON´T READ: REFUSED	

SI10. In general, are you able to save as much as you want?

1 Yes	2 No
3 DON´T READ: REFUSED	

SG - SAVING GOALS & BRACKETING II

SG1a. Do you currently save money?

1 Yes	2 No
3 DON´T READ: REFUSED	

SG1b. If SG1a=Yes: What is the main reason you save? [MAX 3, RANK 1-3]

1 Capital for business	2 Christmas, birthdays (regular celebrations)
3 Weddings, baptisms, town fiestas, and functions	4 Unexpected Emergencies (illness, sudden loss of income etc)
5 Repay another debt	6 School fees/education
7 Personal use (entertainment, clothes, etc)	8 Health/Medical Costs
9 Cell phone, appliance, TV, etc	10 Utility bills (gas, water, electricity etc)
11 Future needs, e.g. retirement	12 For natural disaster (e.g. typhoon)
13 House Construction/repair	14 Other (specify):

If SG1a=NO: Why don't you safe? [MAX 1-3, RANK 1-3]

1 Not enough money to save	2 I don't need it
3 There are too many documentary requirements	4 I had a bad experience in the past
5 It is too expensive	6 I don't have knowledge about savings
7 Other, specify:	

SG2. I will now ask you to make two decisions. There is no right or wrong and there is no payment involved. Please examine both decisions and then let me know which of the options you prefer.
Decision 1: winning 850 for sure OR a 5 in 10 chance of winning 100 and a 5 in 10 chance of winning 1600
Decision 2: losing 650 for sure OR a 5 in 10 chance of losing 1550 and a 5 in 10 chance of winning 100

SG2a. Decision 1: A or B **SG2b.** Decision 2: C or D

AS - ATTITUDE TOWARDS SAVINGS

I will now ask you a set of questions concerning your opinion and experiences with savings.

Please let me know how much you agree or disagree with the following statements and questions. Do you fully agree, agree, neither agree nor disagree, disagree or fully disagree?

[CODE: 1 FULLY AGREE, 2 AGREE, 3 NEITHER AGREE NOR DISAGREE, 4 DISAGREE, 5 FULLY DISAGREE]

AS1. Keeping money aside for a purpose is important for me	
AS2. Saving at home is not safe	
AS3. Banks cannot be trusted	
AS4. If I have savings with ASHI, I will need to spend it on abonohan for others.	
AS5. Savings are not useful	
AS6. Saving at ASHI is not safe	
AS7. I would save more but my husband needs the money	
AS8. I would like to save more but cash creates needs	
AS9. I would like to save but I forget to keep money aside	
AS10. I would like to save but then unforeseen expenditures are needed	
AS11. I would save more if my ASHI group members saved more	
AS12. Using my ASHI savings account takes too much time	
AS13. I have experienced problems with my savings in ASHI	

AS14. If I have savings with ASHI, I will not receive abonohan from others.	
AS15. I cannot access my savings when I need them as the center meeting is only once a week.	
AS16. If I save, I will only end up giving the money to my family and friends.	
AS17. When I have some savings, I will to soon take the money and spend it.	
AS18. If I have cash, I think about what I can buy but I don't think about savings.	
AS19. I wish I had a savings account where I could hide my money from others	
AS20. I always think I would save the next week, but then I keep postponing it.	

KS - KNOWLEDGE ABOUT SAVINGS

K1. What is the safest place to keep your savings?

1 At home	2 With friends/family	3 With employer
4 At ASHI	5 At Bank	6 Savings are never safe

K2. What is the most profitable place to keep your savings?

1 At home	2 With friends/family	3 With employer
4 At ASHI	5 At Bank	6 Savings are never profitable

K3. How large is this interest rate you can get in your AHSI personal savings account?
_____ %

K4. How much money do you need to keep in your ASHI personal savings account to receive some interest?
_____ pesos

K5. How many people in your ASHI group save? _____

K6. How many people in your AHSI center save? _____

K7. In the last four weeks, how often were savings used for abonohan in your center?

1 Never	2 Once	3 Twice
4 Three times	5 Four times	6 More than four times
7 Don´t know	8 DON´T READ: REFUSED	

K8. Do your group members know how much money you currently keep in your AHSI personal savings account?

1 They do not now	2 They have a vague idea	3 They know exactly
4 DON´T READ: REFUSED		

FL - FINANCIAL LITERACY

The next set of questions concern different financial concepts that you migh be familiar with. Please take your time to think about each question.

FL1. Imagine that five brothers are given a gift of 1,000 PHP. If the brothers have to divide the money equally, how much does each one get? _____

FL2. Now, imagine that the five brothers have to wait for one year to get their part of the 1,000 PHP and inflation stays at 10%. In one year's time will they be able to buy:

1 More with their share of money than they could today	2 The same amount
3 Less than they could buy today	4 It depends on the types of things that they want to buy [DO NOT READ OUT THIS OPTION]
5 DON`T READ: EXPLAIN INFLATION	6 DON`T READ: REFUSED

[IF FL2="EXPLAIN INFLATION", READ "INFLATION MEASURES THE AVERAGE PRICE INCREASE OF COMMODITIES", THEN ASK THE QUESTION AGAIN]

FL3. Suppose you put 100 PHP into a savings account with a guaranteed interest rate of 2% per year. You don't make any further payments into this account and you don't withdraw any money. How much would be in the account at the end of the first year, once the interest payment is made? _____

FL4. Which of the following statements best describes the primary purpose of insurance products?

1 To accumulate savings	2 To protect against risks
3 To make payments or send money	4 Other
5 DON´T READ: DON´T KNOW	6 DON´T READ; REFUSED

FL5. How high is inflation currently in the Philippines? _____%

This is the end of the survey. We will now determine whether you receive additional payment for one of your paid game choices in the survey. Please roll this die. If it shows a "6", you will be paid for one of your choices. [ENTER NUMBER IN SCREEN AND FOLLOW INSTRUCTIONS]

[IF SELECTED FOR PAYMENT] We will now decide which one of the paid game questions we will pay you for. Please draw a number from this bag. [ENTER NUMBER IN SCREEN AND FOLLOW INSTRUCTIONS] Your [xth] question has been selected. The questions was [READ FROM SCREEN] and you selected [READ FROM SCREEN].

[IF SELECTED LOTTERY]: we will now play the lottery you have selected. I place [X] white chips in this bag, symbolizing the [COLOR1] balls and [Y] blue/red chips to symbolize the [COLOR2] balls. Please now draw a chip from the bag. [ENTER CHIP COLOR] you win an additional [X] pesos/ you lose [X] pesos.

[IF SELECTED LOAD QUESTION]: you will receive [x] pesos in load [now/in 2 weeks/in 4 weeks]. [FILL IN THE VOUCHER ACCORDINGLY, NOTE PHONE NUMBER IN TABLET]

[FOR EVERYONE] Your total earnings are [READ FROM TABLET], 300/500 pesos for your participation and [X] pesos from the games. Please sign here that you have received this amount [USE RECEIPT; EVERYONE NEEDS TO SIGN A RECEIPT, ALSO THOSE WHO DID NOT WIN ADDITIONAL MONEY].

We will now go back to the center meeting.

IF APPLICABLE: I will hand your envelope with your savings to Lisa who will give it to the DO once we have finished all interviews.

Please do not talk to any nanay about the survey before the end of the center meeting.

J Description of variables

Variables from the interview

- Part 1
  - *Cash income*: Sum of all income that respondents report to receive in cash, measured in ₱. This can include business income, farm income, labor wages, pension, remittances, government aid and other income.
  - *Non-cash income*: Sum of all income that respondents report to receive in means other than cash (e.g. transfer, check), measured in ₱. This can include business income, farm income, labor wages, pension, remittances, government aid and other income.
  - *Money today*: Answer to "All in all, how much money will you personally be able to take home at the end of today?", measured in ₱.
  - *Assets*: Equally weighted index ranging from zero to one and indicating whether the household has the following: electricity, running water, radio, television, landline telephone, mobile phone, personal computer, refrigerator, washing machine, CD/DVD player, bicycle, motorcycle and animal-drawn cart.
  - *Decision making power*: Similar to Ashraf et al. (2010), eight questions are asked regarding "who decides" in the following situations: What to buy at the market, making expensive purchases, giving assistance to family members, recreational use of money, personal use of money, saving, number of children, schooling of children. If the husband decides, the item takes the value of zero, one if it is a joint decision and two if the respondent decides herself. An index is constructed by using the equally weighted mean of all answers.
  - *Education*: Indicates the level of education completed. Ranging from zero (no formal education) to eleven (beyond high school education).
  - *Household size*: Number of persons living in the household.
  - *Business owner*: Indicator variable taking the value one if the respondent runs her own business.
  - *Time to center*: Travel time to center in minutes.
  - *Travel cost to center*: Amount in ₱ that is spent one-way to attend the center meeting.
  - *Duration of Part 1*: Duration of Part 1 measured in minutes from the first question to the last question before the savings decision.

- Part 2
  - *Present bias*: Indicator variable taking the value one if choices in the present (today vs. 2 weeks) are less patient than in the future (in 2 weeks vs. 4 weeks).
  - *Future bias*: Indicator variable taking the value one if choices in the present (today vs. 2 weeks) are more patient than in the future (in 2 weeks vs. 4 weeks).
  - *Risk aversion*: Index scaled on the interval [0,1] with higher values indicating higher risk aversion (higher risk aversion implies later switches from lottery A to B).
  - *Loss aversion*: Index scaled on the interval [0,1] with higher values indicating higher loss aversion (higher loss aversion implies later switches from lottery A to B).
- Part 3
  - *Money left*: "Does your household have money left over at the end of the week after you have paid for food and other necessities?" encoded as follows: 1-yes, regularly; 2-yes, sometimes; 3-no
  - *Attention to finances*: Two questions from Stango et al. (2017) whether finances would improve with more attention given to a) day-to-day finances, routine expenses such as food (short-run attention) and b) medium-run finances, periodic expenses such as school fees (medium-run attention). Binary indicators are constructed for short-run attention and medium-run attention that are one if the household is paying attention to the respective finances.
  - *Financial literacy*: Equally weighted index of correctly answered financial literacy questions (Questions 1, 2, 3 and 6 from the World Bank's Financial Literacy Quiz), scaled to the interval [0,1].
  - *Narrow bracketing*: Two questions adapted from Stango et al. (2017) that are coded as two indicator variables: "bracketing some" indicates narrow bracketing in at least one question and "bracketing both" indicates narrow bracketing in both questions.
  - *Total savings*: Sum of the following variables (all measured in ₱): savings at home, savings with the family, formal savings, saving by lending money, savings in the savings account, savings in the current account (money that remains because the loan has not yet been fully spent) and savings at cooperatives and other organizations.
  - *Savings in ASHI are safe**: Agreement to "Saving at ASHI is not safe".
  - *Banks untrustworthy**: Agreement to "Banks cannot be trusted".

- *Would like private account**: Agreement to "I wish I had a savings account where I could hide my money from other".
- *Saving less due to...**:
  - *...claims from husband*: Agreement to "I would save more but my husband needs the money."
  - *...claims from family & friends*: Agreement to "If I save, I will only end up giving the money to my family and friends."
  - *...claims from clients*: Agreement to "If I have savings with ASHI, I will need to spend it on abonohan [in-lieu payments] for others."
  - *...being over optimistic regarding saving*: Agreement to "I always think I would save the next week, but then I keep postponing it."

* denotes a five-point Likert scale agreement to a specific question. All answers have been recoded such that higher values represent higher agreement and lie in the interval [0,1].

Variables from administrative data

- *PPI score*: Ten questions that are being asked when applying for a new loan, e.g. "Do all children in the family of ages six to 14 go to school?" Answers are converted into points (e.g. no-0, yes-2, no children in this age range-4) and all points are added. The total score lies between zero and 100. Country-specific tables permit mapping the score to a probability of falling below a given poverty line. For instance, a PPI score of 47.5 (sample mean) indicates a 27 percent chance of being below the US$ 2.50/day/2005 PPP poverty line and a 77 percent chance of living with less than US$ 3.75 per day in 2005 PPP.
- *Main income: Enterprise*: Is an indicator variable that takes the value one if the main income source is an enterprise. Other income sources registered in the data are employment, farming and fishing.
- *House size*: is encoded as follows: 0-small, 1-medium, 2-large.
- *House strength*: is encoded as follows: 0-poor, 1-medium, 2-strong.

K Sample and Setting

K.1 Selection into the sample

Selection into the sample might occur on different levels. First, the participants might be different from those who were also present at the center meeting but did not participate. As everyone who was present volunteered to participate and the participants were randomly drawn from the volunteers, this should not be a problem. Second, as I sent announcement letters one week in advance, microfinance clients not interested in participating in the study might have decided not to attend the meeting during which the session took place. This is unlikely, as all clients are required to attend the meetings and non-attendance negatively influences their credit rating. In terms of savings balance, poverty, and age, I find that the non-participating clients from the sample centers are comparable to my sample (see Table K.1).

Table K.1: Representativeness

	Sample Mean	Non-Participant in Sample Center	Non-Participant in Non-Sample Center	R^2	F-test
Savings balance (₱)	782.7	-12.85	155.3	0.002	0.220
Loan amount (₱)	21,551	-3,098***	-1,905	0.002	0.001
PPI score (0-100)	43.53	-0.0249	-2.195	0.002	0.505
Main income: Enterprise	0.831	0.0102	-0.0324	0.002	0.272
Electricity (y/n)	0.463	-0.0135	0.0828	0.006	0.159
Water (y/n)	0.159	0.0537	0.0567	0.001	0.133
Landline (y/n)	0.00676	-0.000652	0.00449	0.000	0.343
House size (0-2)	0.527	0.0468	0.0585	0.001	0.411
House strength (0-2)	0.591	0.0523	0.0907*	0.002	0.131
Membership (months)	49.03	-7.193**	3.567	0.005	0.018
Age	43.94	-1.211	0.570	0.003	0.011
N	300	819	3735		

Notes: Mean of the sample and coefficients from OLS regressions (N= 4854) with dummies for non-participants and non-sample centers as independent variables and clustered SE (not shown) at the center level. The last column shows p-values of the F-test of joint significance of the non-participant dummies. *** p<0.01, ** p<0.05, * p<0.1.

However, it seems that non-participants are newer members and have smaller loans.[47] Given that all other characteristics, most importantly savings and poverty, do not differ, I argue that selection into the experiment is not a concern. Lastly, the selection of centers based on location and meeting times might have induced some bias. I therefore also compare my

[47]The MFI grants larger loans in later loan cycles (after the successful repayment of a smaller loan), therefore membership duration and loan amount are highly correlated (Spearman's $\rho = 0.790, p < 0.001$). The randomization was carried out at the beginning of the meeting. One reason for this difference between my sample and the non-participants could therefore be late arrivals at the center meeting if newer members are less disciplined and thus have a higher probability of being late.

participants with the remaining 3735 clients who are part of centers that are not in my sample, but of the three study branches. Overall, I do not find sizable differences between my sample and non-sample center clients (Table K.1). Participants were thus successfully selected as a random subset of the sample population with respect to observables.

References for Appendix

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