

## Follow the leader? A field experiment on social influence

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*Abstract.* We conduct an artefactual field experiment with farmers in endogenously formed groups in rural Malawi to investigate social influence in risk taking. Our experiment minimizes influence through social learning and social image channels. Treatments vary whether individuals observe the behavior of a formally elected leader, an external leader, or a random peer. Results show that peers are most influential, followed by formal leaders, and then external leaders. Exploratory analysis suggests that farmers follow peers because they extract information from their choices and share risks with them; while other forms of social utility are gained from following the example of leaders.

JEL Codes: C9, D8, O13, Q12

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## 1. Introduction

The study of how and why someone's choices are influenced by others has long been an important topic in economics. A large literature studies the role of peers in influencing behavior,<sup>1</sup> while other work focuses on the effectiveness of different types of leaders in social groups.<sup>2</sup> These two strands of research are particularly important in the developing world where policy makers want to understand the most effective ways to implement programs intended to raise living standards and reduce poverty. Many of these programs involve the adoption of new technologies designed to raise agricultural productivity. Such programs have often suffered from low uptake because the participants are hesitant to adopt new technologies that are seen as risky, highlighting the need for better understanding the best ways to encourage adoption. In this paper we conduct an artefactual field experiment that contributes to our understanding of how different types of actors influence risky decisions. The study takes place in existing, endogenously formed groups, allowing us to compare the influence of real-life peers to that of real-life leaders.

Our experiment is conducted in rural Malawi with 1,028 farmers organized in farmer clubs. The experiment provides individuals with a cash endowment and a profitable financial investment opportunity. Participants (second movers) decide how much of the endowment to invest after observing the choice made by another person (first mover). Treatments vary whether the first

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<sup>1</sup> Theoretical papers include Bikhchandani et al. (1992), Banerjee (1992), Jones (1984), and Bernheim (1994); an early overview of the literature is provided in Bikhchandani et al. (1998). Empirical papers have studied peer effects in a wide array of environments such as education (Sacerdote 2001, Duflo et al. 2011, Carrell et al. 2013), workplace productivity (Mas and Moretti 2009, Bandiera et al. 2010), crime (Glaeser et al. 1996), charitable giving (Frey and Meier 2004), financial decisions (Bursztyn et al. 2014), and technology adoption (Foster and Rozenzweig 1995, Conley and Udry 2010). Due to the challenges associated with identifying and measuring peer effects (Manski 1993), recent advances in the literature use experimental techniques to overcome these challenges. A comprehensive overview of studies using field experiments to study social spillover and network effects in developing countries is provided by Breza (2016). Lab experiments investigating peer effects, herding, and informational cascades include Cason and Mui (1997), Falk and Ichino (2006), Anderson and Holt (1997), and Celen and Kariv (2004, 2005).

<sup>2</sup> Different types of leaders have been shown to affect many types of decisions and outcomes at the local level. Examples include the voluntary provision of public goods (Beekman et al. 2014, Jack and Recalde 2015), the conservation of forest commons (Kosfeld and Rustagi 2015), technology adoption decisions (Miller and Mobarak 2014), and the diffusion of microfinance (Banerjee et al. 2013).

mover is a randomly selected individual (peer), the elected chair of the farmer club (formal leader), or a professional extension agent assigned to work with the club (external leader).<sup>3</sup> Comparing the responses of individuals to the example set by these three types of agents allows us to examine if leaders exert a different influence than peer group members.

Results show that individuals positively respond to the example set by others. They increase (decrease) their investment when they observe high (low) investments. Furthermore, differences in influence are observed across the three types of first movers. Peers are more influential than external leaders, who do not on average affect the decisions of others through the amount they invest. Formal leader influence lies between the two extremes but is not statistically distinct from either.

Many empirical measures of peer effects include social learning (Banerjee 1992, Bikhchandani et al. 1992), in which people learn about the decision environment or expected returns from others, and social image concerns (Bursztyn and Jensen 2017), where subjects imitate their peers because they feel a social pressure to do so. A principal contribution of our work is that the field experiment elicits choices in a private, perfect information environment that minimizes the role of social learning and social image. This isolates other mechanisms that can generate social conformity in behavior,<sup>4</sup> which include imitation due to social norms (Cialdini et al 1990, Kallgren et al. 2000, Krupka and Weber 2009, 2013), bounded rationality and heuristic thinking (Apesteguia et al 2007), preference conformism (Fatas et al 2018), and social comparison effects. The last include effects driven by payoff differentials such as social regret (Cooper and Rege 2011), envy

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<sup>3</sup> Extension agents are advisors typically employed by the government or large non-government organizations to provide agricultural assistance to households in rural areas.

<sup>4</sup> A large literature in psychology has studied social conformity and social influence. Important references include Asch (1956), Festinger (1954), and Sherif (1936, 1937). Broader overviews of the literature which include discussions of social norms, compliance, and obedience to authority (Milgram 1974) are provided by Cialdini (2007) and Cialdini and Goldstein (2004).

(Lahno and Serra-Garcia 2015), and a desire to “keep up with the Joneses” (Abel 1990, Gali 1994, Campbell and Cochrane 1999).<sup>5</sup>

An additional contribution of our work is that we directly compare peers to leaders, including extension service workers, whereas most papers focus on one or the other. Ben Yishay and Mobarak (2019) study a related question, also among farmers in rural Malawi, in a field experiment on agricultural extension. They find that peers trained in a new technology and incentivized to spread the word were more successful in increasing technology adoption than extension workers and lead farmers.<sup>6</sup> We also find that peers are the most influential agents. However, in Ben Yishay and Mobarak (2019) the intensity of influence is not equal across treatments; there are far fewer extension agents per farmer than there are peer farmers. Our design allows us to understand the differences in influence when the intensity of that influence is constant.

Our paper studies these questions in a context of high interest to policy makers. One of the principal reasons that development economists study peer effects and the influence of leaders is because new methods to increase technology adoption are key to increasing agricultural productivity. We work with a large number of endogenously formed groups whose main purpose is to facilitate information diffusion and technology adoption related to agriculture, and which contain both peers and formal and external leaders. As such, we are operating in a relevant real-world environment and leveraging actual interactions and relationships. Moreover, many of the recent advances in the empirical social learning literature have been made by studies that investigate technology adoption in agriculture in rural Malawi, using a similar sample of smallholder farmers and comparing the behavior of similar agents (Beaman et al. 2015; Ben

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<sup>5</sup> Another important channel of influence within the context of risk taking is risk sharing via resource transfers and income pooling (e.g., Angelucci et al 2012).

<sup>6</sup> Lead farmers are somewhat comparable to the club chairs in our sample, however they are typically systematically identified by the extension organization or government rather than elected by their peers.

Yishay et al. forthcoming; Ben Yishay and Mobarak 2019). These studies have found that traditional diffusion strategies such as targeting extension agents and lead farmers are not the optimal ways to diffuse technology in agriculture. Our results complement their findings by showing similar results in an environment where other barriers for diffusion, such as liquidity constraints, are absent and where social learning and social image concerns are minimized.

Finally, we show exploratory analysis that seeks to understand what drives the influence of the different movers. This analysis uses orthogonal variation in whether the first mover's choice is implemented (following the design of Bursztyn et al. 2014), and if it is, whether the second mover's outcome is determined by the same coin flip as the first mover or a different one. The treatment in which the first mover's choice is not implemented separates information effects from social utility effects comprised of joint decisions, risk, and payoffs, which require that choices are implemented. This includes risk sharing and social comparison incentives. When first mover choices are implemented, both information and social utility channels of influence are present. The results suggest that the influence of peers is driven by information effects and risk sharing, while the influence of external and formal leaders is driven by social comparison incentives.

This analysis contributes to a small literature that studies the channels underlying peer effects in risk taking in perfect information environments using lab experiments with anonymous peer interaction (e.g., Cooper and Rege 2011, Lahno and Serra-Garcia 2015)<sup>7</sup>. Most closely related

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<sup>7</sup> Cooper and Rege (2011) study the extent to which social regret or a taste for conformity drive peer effects in risk taking. Lahno and Serra Garcia (2011) tease apart envy from conformity by comparing behavior when peers are randomly allocated a choice to when they make it. Bernheim and Exley (2015) and Fatas et al. (2018) are related papers that tease apart mechanisms underlying peer effects in the laboratory, but do not focus exclusively on risk taking. Bernheim and Exley (2015) studies whether conformism is attributable to belief mechanisms of preference mechanisms. Fatas et al. (2018) study whether there are conformist types that imitate the behavior of others across decision environments. Goeree and Yariv (2015) study conformity in a setting where social learning plays a role and subjects can choose whether to receive an informative signal or receive information about the behavior of others. They find a large degree of preference conformism. All of these studies use university student samples in developed countries, and reveal the choices of peers anonymously. Other lab experiments that study peer effects in risk taking but do not tease apart mechanisms are Bougheas et al. (2013), and Gioia (2017).

to our work, Bursztyn et al. (2014) study the purchase of a financial asset in Brazil in a setting where social learning matters. They find that participants are more likely to purchase the asset when informed that a peer intended to purchase the asset, even if they were not allowed to, suggesting that social learning is important. Purchase is even higher when the peer's choice was carried out, showing that social utility motives are also at play. Our work builds on this paper by examining a different context, focusing on intensive margin adjustments, minimizing social learning, and comparing across first mover types. Additionally, the variation in risk structure allows us to explore whether risk sharing plays a role.

The paper proceeds as follows. Section 2 presents the experimental design. Section 3 describes the data and Section 4 presents the main results. Section 5 describes the exploratory analysis on mechanisms and Section 6 concludes.

## **2. Background and experimental design**

Our experiment is designed to study how individual investment decisions are influenced by peers and leaders. A conceptual framework that guides this work is provided in Appendix A. The timing of the experiment is summarized in Figure 1, and additional experimental details are in Appendix B.

### *2.1 Background*

Our study sample is composed of smallholder farmers that were part of a randomized control trial (RCT) conducted with the National Smallholder Farmers' Association of Malawi (NASFAM) to study the impacts of cash and input transfers and agricultural extension on agricultural production (Ambler, de Brauw and Godlonton 2018b). The area in which we work is characterized by high poverty rates and reliance on rain-fed maize farming, though the farmers

with whom we work all engage in some cash-cropping.<sup>8</sup> Potential gains from the adoption of new technologies are high, making this an important context to understand how best to influence decision making.

NASFAM farmers self-organize into clubs which range in size from 3 to 15 members. Within these farmer clubs there are two natural sets of leaders. First, each club elects a club chair to coordinate crop sales and extension assistance, and more generally act as the club's representative for all NASFAM activities. Second, as part of the RCT, each club received agricultural assistance from one NASFAM extension agent explicitly tasked with providing advice to farmers.<sup>9</sup> Additionally, the other club members provide a natural set of peers with whom farmers interact regarding agricultural matters.

## *2.2. Investment decision*

Participants in the study were classified either as first movers or second movers. First movers are those who set an example and had their behavior observed by others. Second movers are participants who observed a choice made by a first mover. Participants of both types received a 1,000 MWK endowment in cash in ten 100 MWK notes and had to decide how much, if any, of that endowment to invest in an account that paid four times the amount invested half of the time and zero half of the time.<sup>10</sup> The decision is meaningful: a 1,000 MWK endowment was roughly equivalent to the daily wage in the study area at the time we conducted the experiment. Participants were provided full information about payoffs and probabilities when they made their decision. We used scripted protocols and visual aids with menu choices to explain the payoff consequences of

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<sup>8</sup> To see how our sample compares to households in the area more generally, refer to Ambler, de Brauw, and Godlonton (2018a).

<sup>9</sup> As part of the RCT some farmers received standard extension services and some received intensive services. These services were provided by 15 extension agents, each assigned to a geographical cluster of clubs.

<sup>10</sup> This investment decision is a modification of Gneezy and Potters (1997). A similar setup is used by Jakiela and Ozier (2016) to study the social pressure to share income with kin and neighbors in rural villages in Kenya.

every possible amount invested and minimize the role of confusion and error in the study.<sup>11</sup>

We elicited two decisions from participants using a procedure that was slightly different for first and second movers. Figure 2 outlines the structure of this procedure. Both first and second movers make an initial private investment decision. They are then offered the opportunity to revise their decision as a surprise. Before they revised their decision, *first movers* were informed that their revised decision would be shared with some members of their club. Depending on their treatment group, *second movers* were provided with information about a certain first mover decision prior to revising their choice. All participants knew that their revised decision was the final one that would determine earnings. The first mover choice was revealed to second movers using the first name and last name of individuals, without labels indicating treatment status.

A chronology of the elicitation of decisions is presented in Figure 1. First mover decisions were elicited first, enumerators then met to share the information on first mover choices, and then the second mover decisions were elicited.<sup>12</sup> Second movers learned the outcome of the coin flip that determined the return on their investment immediately following their revision decision and were subsequently paid. Finally, first movers learned their return on investment and were paid.<sup>13</sup> Each interview took between 20-30 minutes to complete. Appendix B provides additional implementation details.

### 2.3. *First mover type treatments*

The goal of this paper is to understand whether and how people are differently influenced by peers, leaders from within the community, and external leaders. To address this question, we

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<sup>11</sup> Refer to Appendix C for the experimental scripts we used and to Appendix D for the visual aids.

<sup>12</sup> Our enumerators accidentally mixed up the first mover amounts in 3 clubs (12 cases). This resulted in 12 second movers being shown the wrong amount. Our results are consistent if we drop these 12 respondents from our analysis.

<sup>13</sup> Because Okeke and Godlonton (2014) find, in the context of a field experiment in Nigeria, that pro-social preferences led enumerators to deviate from field protocols relying on the roll of a die to determine treatment assignment, the coin toss used to determine return on investments was simulated electronically and could not be manipulated by the enumerator.

varied the identity of the first mover using a between-subject design with three treatments.

- *Peer treatment:* Second movers learned the choice made by a randomly selected peer from their club (who was never the club chair).
- *Formal leader treatment:* Second movers learned the choice made by their club chair.
- *External leader treatment:* Second movers learned the choice made by the extension agent who worked with them on a regular basis as part of NASFAM activities. Extension agents made a separate revised choice for each club with which they worked. The choices of extension service workers were elicited first, in a meeting organized for this purpose.

Treatment randomization was conducted by a computer prior to implementation of the experiment. All treatment assignments were preloaded into the tablets used to conduct the experiments. Second movers were randomized into a treatment group, stratified by second mover gender and club.

Some of the first movers were unavailable when we visited them to conduct the experiment. To address this, we randomly selected a replacement first mover peer at the randomization stage. A replacement peer made decisions as a first mover if the original peer could not be located. In the cases where no first mover information was available, we simply allowed farmers to revise their decision without providing any additional information. These cases provide us with a quasi-random control group that can be used in our analysis.<sup>14</sup>

The randomization of first mover type allows us to test the null hypothesis that farmers respond equally to social influence from different types of actors. We can examine whether revision decisions and the response to the first mover decision vary across different types of first

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<sup>14</sup> Although one might worry about selection problems affecting the types of first movers we observe in our data, the fact that second movers were randomized into the first mover type treatments in advance ensures that this quasi-random control treatment is free of selection problems for second movers.

movers.<sup>15</sup> The quasi-random control group also allows us to differentiate social influence of any type (peer effects) from revision due to something else, such as deliberation. A second orthogonal randomization, affecting the risk structure experienced by second movers will allow for exploratory analysis of the channels of social influence and will be described in Section 5.

### **3. Data**

#### *3.1. Sample description*

All farmers who were registered members of the 122 clubs participating in the RCT at the time of the first project follow-up survey are included in our sample.<sup>16</sup> A total of 1,028 individuals participated in our experiment: 110 peer first movers, 94 formal leaders, 14 external leaders, and 810 second movers. Among the second movers, 349 are in the peer group, 260 in the external leader group, 303 in the formal leader group, and 116 in the quasi-random control group. There were two types of treatment reassignment. The first type occurred when a first mover could not be interviewed and second movers matched to that first mover could not be treated, resulting in the administration of the control treatment.<sup>17</sup> The second source of treatment reassignment occurred when a peer first mover could not be interviewed and a replacement peer who was initially intended to be a second mover became a first mover. This occurred in 29 cases.<sup>18</sup>

Table 1 presents the mean characteristics of first and second movers. Column 1 shows

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<sup>15</sup> We hypothesize that influence will vary across first mover types but remain agnostic as to the direction. Based on Ben Yishay and Mobarak (2019) we would expect peers may be more influential than extensions agents. However, based on the literature on the importance of leaders and their location in the social network (e.g. Banerjee et al. 2013, Miller and Mobarak 2014), we may expect peers to be less influential than leaders. A more in-depth discussion of why influence may vary across treatments is provided in Appendix A.

<sup>16</sup> Additional details pertaining to the sample frame and attrition are discussed in Appendix E.

<sup>17</sup> One extension worker did not want to make revised decisions, so all the members of their assigned clubs are in the control group, accounting for the smaller size of the external leader group.

<sup>18</sup> Appendix Table 1 tests whether the replacement peer first movers are systematically different with respect to observable characteristics from those peer leaders who were initially assigned as first movers and were interviewed. Replacement peer first movers are similar to the peer first movers though they are less likely to be female. Our main results are robust to excluding second movers that observed a decision made by a replacement peer first mover.

summary statistics for all second movers, and columns 2 through 4 for first movers by type. Because external leaders are not part of the RCT sample, they were interviewed separately using an abbreviated survey instrument. We also include the p-value associated with the test that group means of second movers and peer first movers are equal. Across all characteristics second movers and peer first movers are similar. By design, external and formal leaders are different than second movers and peers. External leaders are less likely to be female, are younger, more educated, have smaller households, and own less land than peers and second movers. Formal leaders are older than peers and second movers, are more educated, have larger households, and own more land and assets. Formal leaders also produce more, a pattern driven by land holdings, not productivity.

In Table 1 we also report measures of first mover social status and social network centrality, collected in a survey conducted one year after this experiment. Participants ranked all club members (including the extension agent) by: (1) who is most highly regarded in the community (social status); and (2) who is their closest friend (network centrality). Average rankings provided by other club members are computed for each first mover and are normalized by club size. We also collect a self-reported history of past leadership positions (social status), and club members were asked how frequently they see other members and the extension agent (network centrality).

Examining the measures of social status, formal leaders occupy more leadership positions than peers. Additionally, formal and external leaders rank higher than peers in terms of their social status: formal leaders are ranked in the top 19.9 percent of club members in terms of how highly regarded they are by club members, external leaders in the top 24.2 percent, and peers on average in the middle of the distribution. The two measures of network centrality show that formal leaders are more central in the social network than peers, who are in turn more central than external leaders. This is expected given that extension service workers do not live in the same communities

as the club members they work with. In sum, the survey data shows that formal leaders have higher social status than peers and are more central in their networks. External leaders also have higher status based on the one measure that is relevant for them (status rank).

Appendix Table 2 provides evidence that second mover characteristics are largely balanced across treatments. Even though we find no evidence that group means systematically differ, our analysis of results will present estimates with and without individual-level controls.

### *3.2 Investment decisions*

Before moving to our main empirical models, we summarize the investment decisions made by both first and second movers, presenting cumulative distribution functions in Figure 3. Panel A shows the initial (first) decision made by second movers, separately by treatment group. As expected, there are no differences in initial investment decisions by first mover type. Second movers invest on average 456 MWK (median 400 MWK) in their initial decision. Panel B presents the distribution of the revised (second) investment decisions made by first movers and observed by second movers. The observed decisions were largest in the external leader treatment, followed by the formal leader treatment, and finally the peer treatment (mean external=623 MWK, mean formal=548 MWK, mean peer=514 MWK). Panel C shows the distance of the observed decision from the second mover initial decision by treatment group. Second movers are responding to decisions which are both below, equal to, and above their initial choices. The average distance is 55 MWK in the peer group, 82 MWK in the formal leader group, and 179 MWK in external leader group. The averages of the absolute value of these differences are 315 MWK, 349 MWK, and 380 MWK in the peer, formal leader, and external leader groups respectively. This data indicates that controlling for the first mover choice is important if we want to understand how and why second movers respond to the observed choice made by first movers.

Panel D plots the CDF of the second mover revision (revised decision minus initial decision) in each treatment. This figure shows that a large fraction of second movers do not revise their decision in the experiment (60% in the control treatment and 48% in the three other first mover treatments). The CDF also shows that exposure to the behavior of others causes second movers to revise their investment decisions up in all first mover treatments (mean revision control=31.03 MWK, mean revision all first mover treatments=66.57 MWK). The behavior observed in the three first mover type treatments cannot be explained by the fact that participants make two decisions in our experiment, otherwise, we should not see differences between the distribution of revisions for first mover type treatments and the control treatment.

## 4. Results

### 4.1 Empirical strategy

We now turn to the regression analysis that we will use to examine our primary research questions. To compare the behavior of second movers in the randomly assigned first mover type treatments to the quasi-random control treatment, we estimate the following model using ordinary least squares:

$$revision_{ic} = \beta_0 + \beta_1 Peer_{ic} + \beta_2 External_{ic} + \beta_3 Formal_{ic} + \beta_4 d_{ic} + \gamma_e + \delta_c + X' \theta_{ic} + \epsilon_{ic} \quad (1)$$

where  $i$  indexes individuals,  $c$  indexes clubs and  $e$  indexes enumerators. Our primary outcome is the revision, defined as the revised investment decision minus the initial investment decision of second mover  $i$  in club  $c$ .  $Peer_{ic}$ ,  $External_{ic}$ , and  $Formal_{ic}$  are indicator variables for the different treatment groups.  $d_{ic}$  is the initial decision made by each second mover,  $\gamma_e$  are enumerator fixed effects and  $\delta_c$  are RCT treatment fixed effects. We present results with and without controls, represented by vector  $X$  including indicator variables for gender, level of completed schooling, age, and household size. Standard errors are clustered at the club level. Our

preferred outcome of interest is the revision, because it captures the size of the response to the information provided through the revelation of the first movers' investment decision. We also present results for two alternative outcomes: the revised decision itself and an indicator variable equal to 1 if the second mover's second decision is different from their first decision.

Equation 1 allows us to analyze whether second mover decisions are differentially impacted by receiving information about first mover choices, relative to the quasi-random control group and to one another. However, these comparisons do not hold constant the information provided to second movers across the different treatment groups because the distributions of investment decisions made by first movers differs (Figure 3B and 3C). Instead, they capture the combination of differential response per additional dollar invested by the first mover and the higher or lower average investment decisions made by first mover types. Thus, we additionally analyze how individuals respond to the amount invested by first movers across the different treatment arms, holding constant the average level of investment. This specification does not allow us to use the control group but does allow us to compare how farmers would respond to the same investment decision if it were made by a peer, formal leader, or external leader. Specifically, we estimate the following model separately for each first mover type:

$$revision_{ic} = \beta_0 + \beta_1(obs_{FM} - d)_{ic} + \beta_7 d_{ic} + \gamma_e + \delta_c + X'\theta_{ic} + \epsilon_{ic} \quad (2)$$

$(obs_{FM} - d)_{ic}$  measures the difference between the decision second mover  $i$  observes and their initial investment decision. All other notation is as in equation 1. For this set of results, we restrict our analysis to the revision as our outcome of interest.<sup>19</sup>  $\beta_1$  is thus a measure of how the second mover's decision changes with the distance from the observed decision. Our analysis will also test for equality of  $\beta_1$  across first mover types, obtained from running a fully interacted pooled model.

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<sup>19</sup> Results are similar when using the revised decision as the outcome variable.

## 4.2 Regression results

We first examine whether and to what extent each of the three types of first movers influence the decisions of others, estimating equation 1. The results are presented in Table 2. Three outcomes are considered: do individuals revise their decision (columns 1 and 2), the revised investment decision made by individuals (columns 3 and 4), and the size of the revision (columns 5 and 6). Columns 1 and 2 show that participants are more likely to revise their decisions in all three treatment groups than in the control group, which is the omitted category. This allows us to reject the possibility that revisions are due only to the fact that participants make two consecutive decisions. At the bottom of the table, we present the p-values for the tests that the coefficients on the different first mover types are equal. Across all three comparisons we find no economically or statistically significant differences in the probability of revision.

Columns 3 and 4 show how the revised second mover decision varies by first mover type. Second movers in the peer treatment group invest approximately 40 MWK more than the control group, which represents an 8 percent relative increase. The external leader treatment generates a similar response, the coefficient is 46 MWK (9 percent relative to the control treatment), while the formal leader treatment generates a smaller response of 4 percent that is not statistically different from the amount invested by participants in the control treatment.

Columns 5 and 6 present the results using the size of the revision as the outcome. Because the specification controls for the first decision, the estimated coefficients are the same as in columns 3 and 4. However, the coefficients on the first mover types in these regressions represent the difference in the average revision in that group relative to the average revision in the control group. We find that the size of the revision increases relative to the control treatment by 133 percent in the peer treatment, 152 percent in the external leader treatment, and by 62 percent in the

formal leader treatment (not statistically significant from zero). Nevertheless, the Wald tests presented at the bottom of Table 2 show that the differences between first mover treatments are not statistically distinguishable in any specification.

We next examine how individuals respond to the distance between their initial decision and the observed choice of the first mover. This allows us to examine the relative influence of the first mover types for the same investment decision. Table 3 presents estimates of equation 2 by first mover type. Estimates for peers are in columns 1 and 2, external leaders in columns 3 and 4, and formal leaders in columns 5 and 6. P-values for the test that the response to this distance is equal across treatment groups are reported at the bottom of the table. In the peer group, we find that, on average, for every 100 MWK increase in the difference between the second mover's initial decision and the investment decision of the first mover, second movers increase their investment by 24.6 MWK in the specification with control variables. Columns 3 and 4 show that second movers do not respond to the observed decision in the external leader treatment, coefficients are small and not statistically different from zero. Finally, we find that second movers respond to the decisions made by formal leaders; they increase their investment by approximately 16 MWK for every 100 MWK increase in the difference variable (Column 5 and 6). This response is smaller than the response in the peer group, but the difference is not statistically significant. The response to peers is however statistically different than the response to external leaders. The difference in response between external and formal leaders is economically significant, but not statistically significant at conventional levels (p-value = 0.185 or 0.219 depending on the specification).

These results show that peer first movers appear to be the most influential, followed by formal leaders (though we cannot reject that they are equal). The influence of external leaders is not statistically distinguishable from zero in this specification. These results vary from the results

presented in Table 2 which suggest that external leaders are *more* influential than formal leaders. This difference highlights the importance of incorporating the first mover decision into our analysis. Because the distance between the first decision and the observed decision is on average greater for the external leader treatment group, the larger revision observed in Table 2 does not translate to the distance between the second mover decision and the observed choice falling as much as it does for the formal leaders and peers.<sup>20</sup>

In our setting peer effects can play an important role in investment decisions, even when the social learning and social image channels of influence are minimized. Importantly for policy makers we find that peers appear to be the most influential, while external leaders, whose job it is to provide advice to farmers, are the least. Formal leaders fall in between, and we cannot reject that they are equal to peers or external leaders. This is consistent with Ben Yishay and Mobarak (2019), who find that peers are more influential than extension agents and lead farmers when they receive incentives spread the word, but is extended to an environment where social learning and social image concerns are minimized and the intensity of influence is equalized. Our work suggests that looking within communities for people, and not necessarily leaders, to spread advice may be the most effective strategy to promote technology adoption, particularly when information about the technology is widely available.

## **5. Channels of social influence**

Though our study design limits social learning and social image concerns, two different channels may still drive peer effects, and these channels may vary by first mover type.<sup>21</sup> The first

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<sup>20</sup> These results are robust to the inclusion of club fixed effects. We do not include club fixed effects in our preferred specifications because there is orthogonal variation in channel treatments (discussed and analyzed in section 5). In Appendix F we briefly describe how results vary by gender and exposure to intensive extension. We find few differences.

<sup>21</sup> See Appendix A for a theoretical exposition of these channels and possible confounders.

is information; people observe the actions of others and may condition their behavior on that information. The second is social utility, or effects that are driven by preferences over joint decisions, risk, and payoffs. Social utility includes both risk sharing and social comparison incentives. Due to sample size limitations, this analysis is considered exploratory.<sup>22</sup>

### *5.1 Experimental variation in risk structure*

We implemented three treatments designed to differentiate between these channels of influence:

- *Pure information*: First movers made an investment decision, but their choice was not carried out (by chance) and they instead kept their endowment. Second movers in this treatment learned both the intended choice of the first mover, and that the choice was not realized. This treatment follows the methodology used in Bursztyn et al. (2014). Second movers extract information from the intended choice of another person but cannot derive utility from experiencing the same risk or outcome, isolating information effects as the only channel of social influence.
- *Idiosyncratic risk (IID)*: The investment made by the first mover was carried out. Second movers learned the first mover investment choice and were informed that different coin flips would determine the outcome for the second mover and the first mover. Social utility motives are present through social comparison incentives, because second movers can derive social utility by experiencing the same risk and/or outcome as the first mover.
- *Perfectly correlated risk (PCR)*: The investment made by the first mover was carried out. Second movers learned the first mover investment choice and were informed that the same coin flip would determine the outcome for the first mover and the second mover. In addition to the presence of social comparison incentives, the PCR treatment also allows us to

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<sup>22</sup> There was a high degree of attrition relative to the randomization sample. See Appendix E.

identify if risk sharing is an important form of social utility underlying first mover influence. If second movers share risks with the first mover, they may insure against the possibility that both movers receive a negative shock by negatively responding to the example set by first movers in the PCR treatment.<sup>23</sup>

We test for the differences between these channel treatments by estimating equation 2 separately for each channel treatment and first mover type. If the response to first mover decisions is positive in the pure information treatment, then information effects are important. If the response in the IID treatment is larger (smaller) than that in the pure information treatment, then there is a positive (negative) social utility effect present when risk is idiosyncratic. Finally, if the second mover response in the PCR treatment is positive and larger than in the IID treatment, we ascribe that to stronger positive social utility from social comparisons generated by the perfectly correlated risk structure. If, however, the response in the PCR treatment is smaller than in the IID treatment, we take that as evidence that risk sharing is important.

First movers (including the extension officers) were randomized into a channel treatment, stratified by first mover type and treatment group from the RCT. Extension workers received a different channel treatment assignment for each club for which they made a revision decision. Second movers experience the channel treatment of their assigned first mover.

## *5.2 Results*

The results are presented in Table 4, with peer first movers in Panel A, external leaders in Panel B, and formal leaders in Panel C. The first two columns show results for the pure information group, columns 3 and 4 for the IID group, and columns 5 and 6 for the PCR group. P-values testing

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<sup>23</sup> Since social utility from social comparisons is likely stronger in the PCR than in the IID treatment, given that second movers experience the same luck as first movers, risk sharing is identified only if it outweighs any positive social utility effects generated by the perfectly correlated risk structure.

for differences between the channel treatments are also reported at the bottom of each panel.

Panel A shows that the positive influence of peers is driven by information. We observe a strong, similarly sized response to the distance from the observed decision in the pure information treatment and the IID treatment. Because the information channel operates in both treatments, while social utility is present in the IID treatment only, this suggests that information is the important channel for the influence of peers. In the PCR group there is no statistically significant response to peer first movers, and this coefficient is statistically different from the coefficients in the other groups. This suggests that risk sharing also matters in the peer first mover treatment. In sum, the results for peer first movers suggest that information is their primary channel of positive influence, but that there is also a negative response driven by risk sharing in the PCR treatment.

Panel B shows different results for external leaders. The amount invested by external leaders in the pure information treatment and the IID treatment does not affect the decisions of second movers. Instead, we find suggestive evidence that second movers positively respond to the behavior of extension service workers in the PCR treatment. This pattern of results suggests that participants do not act on the information provided by the external leader's choice. However, the coefficients in the PCR treatment provide evidence that a positive social utility channel may be important. It is important to add the caveat that we are unable to reject that the coefficients in the three treatment groups are equal, and as such the patterns must be interpreted as suggestive.

The results in Panel C for formal leaders are similar. The coefficients on the distance variable in the pure information treatment are not statistically significant. The coefficients are larger (and statistically significant) for the IID treatment, and larger still in the PCR treatment. As for external leaders this pattern suggests that social utility is the primary channel of influence for the club chairs. However, due to the small sample, we again cannot definitively reject that these

coefficients are equal across treatment groups.

These results provide evidence that is useful for those designing social programs that promote the flow of information and the adoption of new technologies or behaviors. Programs that rely on peers can focus on the information channel, while those employing leaders must be cognizant of social comparison effects. It may not be enough for leaders to provide information, people must see that they have actually done something or possess something in order for the influence to be effective. At the same time, it is important to note that peers may not always be well placed as purveyors of information, especially if they themselves are not well informed or trained. Similarly, when considering risky decisions, the role of risk sharing in social influence must not be ignored.

## **6. Conclusion**

This paper carefully investigates social influence in risk taking in an experiment that studies the influence of three types of agents (peers, external leaders, and formal leaders), while minimizing the role of social learning and social image. Results show that peers are the most influential, while extension agents are the least, with formal leaders falling suggestively in between. This complements the similar findings of Ben Yishay and Mobarak (2019) and Beaman et al (2015), who study technology adoption in agriculture in a comparable sample of farmers, but in a setting where social learning and liquidity constraints play a major role. We also find suggestive evidence that farmers follow their peers because of information effects, while they follow external and formal leaders because they derive social utility from imitating their actions. Risk sharing additionally appears to influence the responses of those second movers who observe randomly selected peers.

These results illustrate the importance of carefully considering the identity of the opinion

leaders used to influence farmers to adopt new technologies and behaviors. Despite the fact that extension officers occupy positions created for the transmission of information, peers and formal leaders may in fact be the most trusted agents. However, the exploratory analysis of mechanisms suggests that while peers may be more influential than formal and external leaders in the pure information and the IID risk channel treatments, they are less influential in the perfectly correlated risk scenario. Leaders may be the optimal agents to target in environments where risk taking involves common risk scenarios such as insurance products for extreme weather events, while peers may be the ideal injection points for other types of information and technologies that deal with idiosyncratic risks.

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Figure 1. Implementation timeline

Date	Activity
1 year prior	RCT baseline survey conducted
2 months prior	Randomization (using club membership listings)
5-45 days prior	External leader choices elicited
2-11 days prior	RCT follow-up survey 1 (FU1) conducted
1-3 days prior	Schedule visit
Day of	<ol style="list-style-type: none"> <li>1. Arrival to community</li> <li>2. Simultaneous interview of first movers (peer + club chair)</li> <li>3. Enumerators meet to share first mover decisions</li> <li>4. Simultaneous interview of second movers</li> <li>5. Payment of first movers</li> </ol>
1 year after	RCT follow-up survey 2 (FU2) conducted

Note: RCT surveys took approximately 3 hours to complete and included questions on many topics and modules. Club visits were scheduled via phone calls with club chairs and mentioned only a follow-up survey. No information about the artefactual field experiment or incentives was provided to respondents prior to each private one-on-one interview.

Figure 2. Structure of the incentivized decision

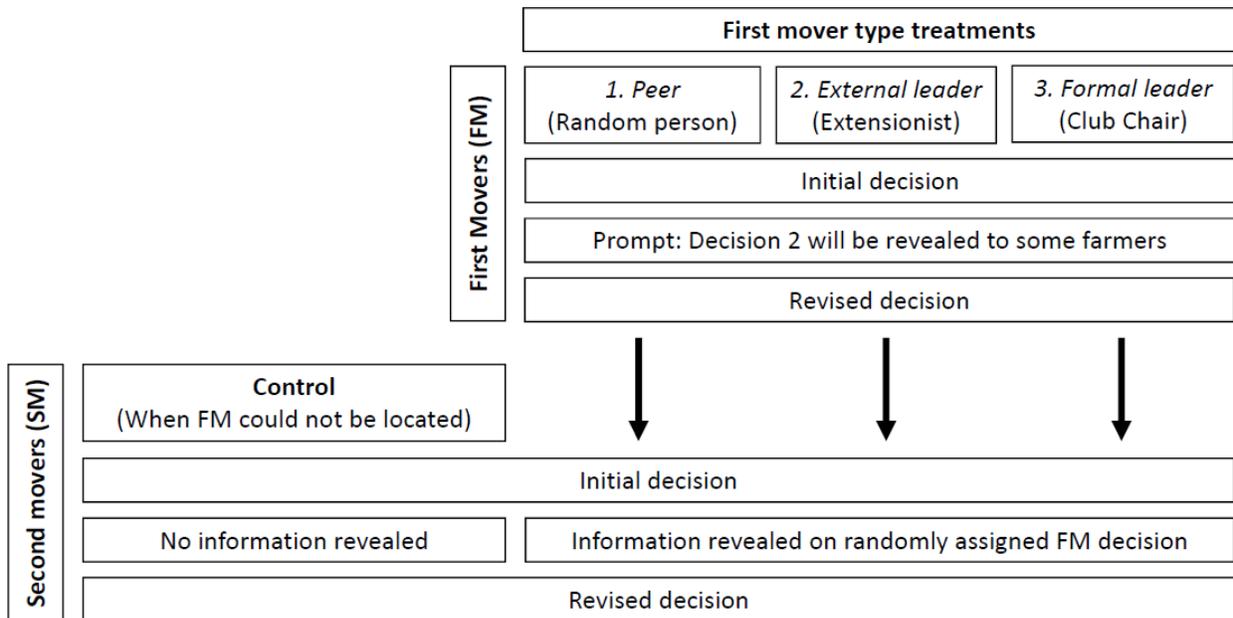


Figure 3. CDFs of investment decisions

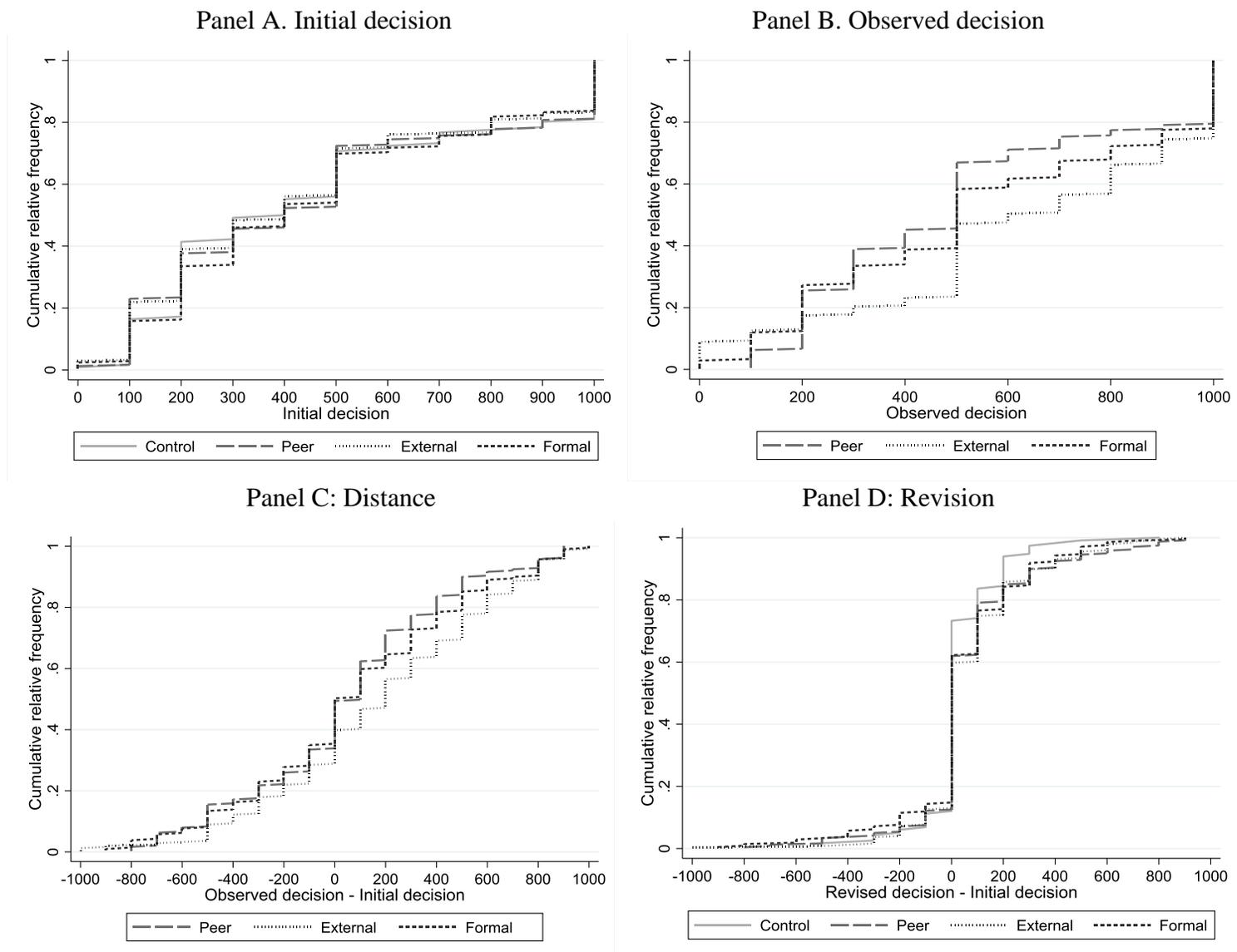


Table 1. Differences in participant characteristics

	Second Movers	<i>First Movers</i>			F-test p-value: (1)=(2)
		Peer	External leader	Formal leader	
	(1)	(2)	(3)	(4)	
<i>Demographics and Household Characteristics</i>					
Female	0.663	0.591	0.429	0.516	0.137
Age	42.019	40.818	26.429	44.077	0.402
No schooling	0.189	0.173	0.000	0.099	0.681
Some primary schooling	0.563	0.509	0.000	0.495	0.282
Completed at least primary schooling	0.248	0.318	1.000	0.407	0.111
Household size	5.630	5.427	1.692	6.000	0.353
Land owned	3.781	3.724	1.104	4.200	0.861
GVAO (in USD)	576.480	526.619		624.909	0.676
GVAO p/acre (in USD)	127.338	122.210		119.871	0.803
Value of assets (in USD)	118.389	118.098		187.171	0.989
<i>Social Status</i>					
Absolute status rank*		0.503	0.242	0.199	
Number of leader positions		0.491		1.277	
<i>Social Network Centrality</i>					
Absolute friend rank*		0.430	0.586	0.273	
Frequently see*		1.963	3.957	1.733	
Number of Observations	810	110	14	94	

Notes: GVAO stands for gross value of agricultural output. \*indicates that a variable is constructed using answers provided by members of the NASFAM club. Ranks are normalized by club size such that values range from 0 to 1, where a lower value indicates a higher ranking. "Frequently see" use a scale ranging from 1 to 6, where 1=every day, 2=multiple times per week, 3=once per week, 4=several times per month, 5=once per month, 6=less than once per month.

Table 2. Second mover decisions by first mover type treatment

	<i>Revised</i>		<i>Dependent variable = Revised decision</i>		<i>Revision</i>	
	( 1 )	( 2 )	( 3 )	( 4 )	( 5 )	( 6 )
Peer	0.125** (0.013)	0.115** (0.023)	41.510* (0.091)	40.332* (0.084)	41.510* (0.091)	40.332* (0.084)
External	0.148*** (0.006)	0.148*** (0.006)	44.431* (0.058)	46.121** (0.041)	44.431* (0.058)	46.121** (0.041)
Formal	0.138** (0.017)	0.133** (0.021)	17.965 (0.494)	19.096 (0.449)	17.965 (0.494)	19.096 (0.449)
Decision 1	-0.000*** (0.000)	-0.000*** (0.000)	0.739*** (0.000)	0.737*** (0.000)	-0.261*** (0.000)	-0.263*** (0.000)
<i>P-values from the following tests:</i>						
Peer=External	0.609	0.462	0.888	0.782	0.888	0.782
Peer=Formal	0.735	0.660	0.351	0.401	0.351	0.401
External=Formal	0.849	0.762	0.264	0.252	0.264	0.252
Mean control	0.379	0.379	490.517	490.517	31.034	31.034
N	810	810	810	810	810	810
<i>Includes:</i>						
Enumerator dummies	Yes	Yes	Yes	Yes	Yes	Yes
RCT controls		Yes		Yes		Yes
Individual controls		Yes		Yes		Yes

Note: Revision=revised decision – initial decision. P-values from tests between treatments are obtained by estimating a fully interacted, pooled model. P-values in parentheses. \*p<.10, \*\*p<0.05, \*\*\*p<0.01.

Table 3. Second mover response to observed decisions by first mover type

	<i>Dependent variable = Revision</i>					
	Peer		External		Formal	
	(1)	(2)	(3)	(4)	(5)	(6)
Distance from observed decision	0.233*** (0.000)	0.246*** (0.000)	0.045 (0.347)	0.054 (0.258)	0.156*** (0.006)	0.160*** (0.004)
Decision 1	-0.107* (0.094)	-0.106 (0.104)	-0.193*** (0.001)	-0.195*** (0.001)	-0.163*** (0.006)	-0.138** (0.024)
<i>P-values from the following tests:</i>						
Peer X dist. = Ext X dist.			0.021	0.012		
Peer X dist. = Formal X dist.					0.319	0.214
Ext X dist. = Formal X dist.					0.188	0.217
N	239	239	246	246	209	209
<i>Includes:</i>						
Enumerator dummies	Yes	Yes	Yes	Yes	Yes	Yes
RCT controls		Yes		Yes		Yes
Individual controls		Yes		Yes		Yes

Note: Revision = revised decision - initial decision. P-values from tests between treatments are obtained by estimating a fully interacted, pooled model. P-values in parentheses. \*p<.10, \*\*p<0.05, \*\*\*p<0.01

Table 4. Second mover response to the observed decision by channel treatment

<i>Dependent variable = Revision</i>						
<i>Panel A - Peer</i>	Pure Information		IID		PCR	
	(1)	(2)	(3)	(4)	(5)	(6)
Distance from observed decision	0.292** (0.030)	0.244 (0.146)	0.326*** (0.001)	0.362*** (0.001)	0.058 (0.488)	0.061 (0.444)
Decision 1	-0.083 (0.507)	-0.145 (0.355)	-0.193 (0.116)	-0.133 (0.235)	-0.114 (0.218)	-0.099 (0.284)
<i>P-values from the following tests:</i>						
Info X dist. = IID X dist.			0.444	0.534		
Info X dist. = PCR X dist.					0.036	0.318
IID X dist. = PCR X dist.					0.001	0.018
N	82	82	68	68	89	89
<i>Panel B - External leader</i>						
	Pure Information		IID		PCR	
	(1)	(2)	(3)	(4)	(5)	(6)
Distance from observed decision	-0.009 (0.866)	0.021 (0.669)	0.044 (0.669)	0.079 (0.421)	0.168** (0.025)	0.102 (0.218)
Decision 1	-0.279*** (0.002)	-0.233*** (0.008)	-0.143 (0.167)	-0.141 (0.169)	-0.110 (0.122)	-0.201* (0.079)
<i>P-values from the following tests:</i>						
Info X dist. = IID X dist.			0.847	0.592		
Info X dist. = PCR X dist.					0.237	0.392
IID X dist. = PCR X dist.					0.243	0.855
N	85	85	85	85	76	76
<i>Panel C - Formal Leader</i>						
	Pure Information		IID		PCR	
	(1)	(2)	(3)	(4)	(5)	(6)
Distance from observed decision	0.075 (0.468)	0.088 (0.472)	0.133* (0.096)	0.121* (0.094)	0.268** (0.024)	0.219* (0.080)
Decision 1	-0.135 (0.338)	-0.094 (0.565)	-0.302*** (0.001)	0.314*** (0.002)	-0.029 (0.678)	-0.071 (0.413)
<i>P-values from the following tests:</i>						
Info X dist. = IID X dist.			0.156	0.817		
Info X dist. = PCR X dist.					0.256	0.447
IID X dist. = PCR X dist.					0.935	0.481
N	71	71	62	62	76	76
<i>Includes:</i>						
Enumerator dummies	Yes	Yes	Yes	Yes	Yes	Yes
RCT controls		Yes		Yes		Yes
Individual controls		Yes		Yes		Yes

Note: Revision = revised decision – initial decision. P-values from tests between treatments are obtained by estimating a fully interacted, pooled model. P-values in parentheses. \*p<.10, \*\*p<0.05, \*\*\*p<0.01

Appendix Table 1. Are replacement peers similar to the original sample of peer first movers?

	Peer first movers N=122 (1)	Peer FMs interviewed N=100 (2)	Replacement peer FMs interviewed N=12 (3)	F test p- value: (2)=(3) (4)
Female	0.582	0.630	0.333	0.056
Age	39.680	40.380	41.167	0.834
No schooling	0.156	0.150	0.333	0.283
Some primary schooling	0.549	0.560	0.250	0.123
Completed at least primary schooling	0.123	0.130	0.167	0.747
Completed more than primary schooling	0.172	0.160	0.250	0.252
Household size	5.525	5.390	5.000	0.524
Land owned	4.529	4.548	4.125	0.566
GVAO (in USD)	539.488	524.557	437.817	0.811
GVAO p/acre (in USD)	118.551	117.618	103.273	0.819
Total value of assets (in USD)	125.470	114.842	171.525	0.689

Note: FM indicates first movers. GVAO stands for gross value of agricultural output.

Appendix Table 2: Balance of second mover characteristics by leader type and channel treatment

	<i>First mover type treatments</i>				F-test p- value: (2)=(3)=(4) (5)	<i>Channel treatments</i>			F-test p- value: (6)=(7)=(8) (9)
	Control (1)	Peer (2)	External (3)	Formal (4)		Information (6)	IID (7)	PCR (8)	
Female	0.621	0.647	0.683	0.681	0.551	0.651	0.664	0.693	0.614
Age	42.647	42.714	41.539	41.430	0.735	42.009	41.836	41.903	0.991
No schooling	0.138	0.176	0.206	0.213	0.299	0.179	0.206	0.206	0.803
Some primary schooling	0.621	0.601	0.527	0.531	0.221	0.594	0.542	0.529	0.374
Completed at least primary schooling	0.241	0.223	0.267	0.256	0.608	0.226	0.252	0.265	0.640
Household size	5.595	5.582	5.535	5.816	0.575	5.660	5.653	5.597	0.954
Land owned	3.480	3.878	3.889	3.711	0.626	4.158	3.766	3.608	0.461
GVAO (in USD)	524.808	599.360	558.582	600.030	0.903	565.372	521.380	666.890	0.603
GVAO p/acre (in USD)	123.511	127.443	123.706	133.652	0.958	122.272	113.813	147.230	0.450
Value of assets (in USD)	143.039	125.820	112.359	103.463	0.572	107.157	110.926	124.196	0.731

Note: GVAO stands for gross value of agricultural output. Omnibus tests of whether the baseline variables presented in this table jointly predict the first mover type treatment or the channel treatment generate F-test p-values greater than 0.1.

## Appendix A: Conceptual framework

Section A1 provides a simple model to illustrate how behavior may change across first mover type treatments. Section A2 compares behavior across three orthogonal channel treatments discussed in section 5. Section A3 provides a discussion of additional channels of influence not captured by the model. Section A4 outlines the hypotheses we test.

### A1. Model

Let the preferences of second mover  $i$  depend on her income, investment choice, and the income and choice of the first mover  $j$ . Assume further that preferences are given by

$$U_i(x_i, x_j, I_i, I_j) = u(I_i(w_i, x_i) + A_{ij}I_j(w_j, x_j)) - C_{ij,T}(x_i - x_j)^2$$

$I_k$  represents the income of person  $k$  which depends on endowment  $w_k$  and investment  $x_k$ . Function  $u(\cdot)$  represents the utility derived from income/consumption. Parameter  $A_{ij} \in [0, 1]$  is a constant that captures risk-sharing between  $i$  and  $j$  via income pooling or one way transfers, which occur outside of our experiment. Function  $C_{ij,T}(x_i - x_j)^2$  captures a social comparison cost that can vary across channel treatments  $T$  and can be motivated via social norms and/or via social conformity.<sup>1</sup> Assume further that constant  $C_{ij,T}$  is non-negative<sup>2</sup> and that  $u(\cdot)$  is continuous, strictly increasing, and strictly concave in income such that individuals are risk averse and there is a unique solution to the utility maximization problem.<sup>3</sup>

Since  $x_k$  increases by  $R$  when the return is high, and is lost otherwise, income  $I_K(w_k, x_k)$  is

$$I_k(w_k, x_k) = \begin{cases} w_k + Rx_k & \text{if Success} \\ w_k - x_k & \text{if Failure} \end{cases} \text{ for } k = i, j$$

The first order condition of second mover  $i$ 's utility maximization problem is given by

$$E \left[ \frac{\partial u(I_i(w_i, x_i) + A_{ij}I_j(w_j, x_j))}{\partial x_i} \right] = 2C_{ij,T}(x_i - x_j) \quad (1)$$

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<sup>1</sup>There are several ways to model social comparison costs. This functional form is assumed for illustrative purposes only. See the discussion provided in section A.3.

<sup>2</sup>Allowing  $C_{ij,T}$  to be negative captures non-conformism. Our assumption is based on the many papers that have documented positive peer effects in risk taking even when social learning channels of influence are absent (e.g., Cooper and Rege 2011, Lahno and Serra-Garcia 2015). The comparative static predictions across channel treatments derived in this appendix would not change if  $C_{ij,T} < 0$ . The sign of the peer effect, however, would change since social comparison incentives would push  $x_i$  away from  $x_j$ .

<sup>3</sup>Under risk neutrality, risk sharing of the form included in this model predicts no relationship between  $x_i$  and  $x_j$ .

The left hand side of equation (1) represents the expected marginal benefit from investing. The right hand side represents the marginal cost from social comparisons. While social comparison costs will always push  $x_i$  towards  $x_j$  when  $C_{ij} > 0$ , the expected marginal benefit may push  $x_i$  away from  $x_j$ . In particular, when  $A_{ij} > 0$  and the risk is perfectly correlated, risk sharing will push  $x_i$  away from  $x_j$ . Whether the optimal response function  $x_i^*(x_j)$  has a positive, negative, or null slope will therefore depend on the sign and relative size of the risk-sharing and social comparison effect. That is, on  $i$ 's preferences, the degree of income pooling between  $i$  and  $j$ , and the structure of the underlying risk.

What may change across first mover type treatments  $j \in \{Peer, External, Formal\}$  is  $A_{ij}$  and  $C_{ij,T}$ . For example, holding other factors constant, a larger  $A_{ij}$  will strengthen the risk-sharing incentive. Since second movers are likely in the same risk-sharing networks as peer first movers and formal leaders, we would expect risk sharing to matter more for them than for external leaders. A larger  $C_{ij,T}$ , on the other hand, will strengthen the social comparison cost which pushes  $x_i$  towards  $x_j$ . It is unclear how  $C_{ij,T}$  varies across first mover treatments.  $C_{ij,T}$  may be higher for peers than external or formal leaders if peers are the relevant reference group for second movers.  $C_{ij,T}$  may be lower for peers than external or formal leaders if the latter are the relevant reference group for second movers rather than peers, or if individuals look up to formal and external leaders and derive utility from following their behavior.

## A.2 Channels of social influence

### *Pure information treatment*

Let  $p$  represent the probability that the return is high and  $\bar{x}_j$  the intended choice of person  $j$  which is not implemented (by chance). In the pure information treatment, equation 1 becomes

$$Rpu_i(w_i + Rx_i + A_{ij}w_j) - (1 - p)u_i(w_i - x_i + A_{ij}w_j) = 2C_{ij,Inf}(x_i - \bar{x}_j) \quad (2)$$

Let  $x_{i,Inf}^*(\bar{x}_j)$  represent the optimal investment that satisfies equation 2. Equation 2 implies that  $x_{i,Inf}^*(\bar{x}_j)$  is weakly increasing in  $\bar{x}_j$ . The existence of a social comparison cost driven by information, therefore predicts a positive relationship between the decisions of  $i$  and  $j$  in this treatment.

### *Perfectly correlated risk treatment (PCR)*

When  $i$  observes the realized choice of person  $j$  and the same coin flip determines the return for  $i$  and  $j$ , the first order condition of the utility maximization problem becomes

$$Rpu_i(w_i + Rx_i + A_{ij}w_j + RA_{ij}x_j) - (1 - p)u_i(w_i - x_i + A_{ij}w_j - A_{ij}x_j) = 2C_{ij,PCR}(x_i - x_j) \quad (3)$$

Let  $x_{i,PCR}^*(x_j)$  represent the optimal investment that satisfies equation 3. Equation 3 implies that the sign of first mover influence is indeterminate. As  $x_j$  increases the right hand side of equation 3 decreases, as does the left hand side due to the concavity of  $u(\cdot)$ . How  $x_i$  adjusts in response to the change in  $x_j$  depends on which side decreases more rapidly. If the expected marginal benefit from investing falls faster than the marginal cost from social comparisons, then the risk-sharing effect dominates. If the marginal cost from social comparisons falls faster than the expected marginal benefit from investing, then the social comparison effect dominates. If the two effects exactly offset each other, then  $x_i$  will not change as a function of  $x_j$ . This implies that  $x_{i,PCR}^*(x_j)$  will be decreasing (increasing) in  $x_j$  when the risk-sharing (social comparison) incentive dominates.

The difference between the influence predicted here and in the pure information treatment is driven by two elements of social utility: (1) risk sharing, which is captured by  $A_{ij}x_j$ , and (2) any change in social comparison costs captured by  $\Delta C_{ij,PCR} = C_{ij,PCR} - C_{ij,Inf}$ . When  $\Delta C_{ij,PCR} > 0$ , the two social utility effects will go in opposite directions.<sup>4</sup> The aggregate social utility effect present in this treatment may therefore be positive, negative, or null depending on the relative importance of each element of social utility.

#### *Idiosyncratic risk treatment (IID)*

When  $i$  observes the realized choice of person  $j$  and independent coin flips determine the return for  $i$  and  $j$ , the first order condition of the utility maximization problem is given by

$$Rp \left[ pu_i(w_i + Rx_i + A_{ij}w_j + RA_{ij}x_j) + (1-p)u_i(w_i + Rx_i + A_{ij}w_j - A_{ij}x_j) \right] - \\ (1-p) \left[ pu_i(w_i - x_i + A_{ij}w_j + RA_{ij}x_j) + (1-p)u_i(w_i - x_i + A_{ij}w_j - A_{ij}x_j) \right] = 2C_{ij,IID}(x_i - x_j) \quad (4)$$

As in the PCR scenario, the sign of the first mover influence is indeterminate. Social utility in this treatment includes (1) risk-sharing captured by  $A_{ij}x_j$ , and (2) any change in social comparison costs captured by  $\Delta C_{ij,IID} = C_{ij,IID} - C_{ij,Inf}$ . Social utility may change in the IID treatment relative to the PCR treatment both because of the change in risk structure and because of differences in social comparison costs when  $\Delta C_{ij,IID} \neq \Delta C_{ij,PCR}$ . When  $\Delta C_{ij,IID} < \Delta C_{ij,PCR}$  the additional social utility effect from social comparisons present in the PCR treatment relative to the IID treatment pushes  $x_i$  towards  $x_j$ .<sup>5</sup>

<sup>4</sup>When  $\Delta C_{ij,PCR} < 0$ , the two social utility effects will push investment  $x_i$  away from  $x_j$ . It is unlikely that  $\Delta C_{ij,PCR} < 0$ , unless we model non-conformism and assume  $C_{ij,Inf} \leq 0$ .

<sup>5</sup>When  $\Delta C_{ij,IID} > \Delta C_{ij,PCR}$ , the additional social utility effect from social comparisons present in the PCR treatment relative to the IID treatment pushes  $x_i$  away from  $x_j$ . This scenario is unlikely, unless individuals are non-conformists and we assume that  $C_{ij,Inf} \leq 0$ .

### Comparison between channel treatments

Suppose social utility includes only risk sharing such that  $A_{ij} > 0$  and  $C_{ij,T} = C_{ij,Inf}$  in all channel treatments. Comparing equations 2, 3, and 4 we have that  $x_{i,Inf}^*(\bar{x}_j) \geq x_{i,PCR}^*(x_j)$  and  $x_{i,IID}^*(x_j) \geq x_{i,PCR}^*(x_j)$  when  $\bar{x}_j = x_j$ . The equality sign binds only when  $\bar{x}_j = x_j = 0$ . The slope of linear response of  $x_{i,T}^*$  with respect to  $x_j$  is thus smaller in value in the PCR treatment than in the IID and pure information treatments.<sup>6</sup> When  $A_{ij} = 0$ ,  $x_{i,T}^*(x_j)$  is weakly increasing in  $x_j$  and the slope of this response function is constant across channel treatments. When  $A_{ij} = 0$  and  $C_{ij,Inf} = 0$ , there is no first mover influence.

The comparison becomes less clear if there is social utility derived from social comparisons and  $C_{ij,T}$  varies across channel treatments. For example, let  $\Delta C_{ij,IID} < \Delta C_{ij,PCR}$  such that the social comparison cost is greater when the first mover's choice is realized, and greater in the PCR treatment than in the IID treatment. Now the optimal investment varies across channel treatments even when  $x_j = 0$  and  $A_{ij} = 0$ . In particular,  $x_{i,Inf}^*(x_j) > x_{i,PCR}^*(x_j)$  and  $x_{i,IID}^*(x_j) > x_{i,PCR}^*(x_j)$  for any  $\bar{x}_j = x_j$  and  $A_{ij}$ . It is no longer possible to draw conclusions about the slope of the linear response function across channel treatments without making further assumptions about preferences. The variation in  $C_{ij,T}$  has a level effect on  $x_i^*$  that is independent of  $x_j$ , and may also affect the slope of the response function of  $x_i^*$  with respect to  $x_j$ . With variation in  $C_{ij,T}$ , it therefore becomes an empirical question whether the responsiveness of  $x_{i,T}^*$  to  $x_j$  varies across channel treatments.

### A.3 Other channels of influence

*Imperfect understanding:* So far we have assumed that individuals perfectly understand our explanation of payoffs and probabilities and do not extract information about these parameters from the choices of others. Relaxing these assumptions activates other channels of influence. If individuals follow others because they learn information about payoffs and probabilities then  $x_j$  will signal information about  $p$  and/or  $E[u(I_i(w_i, x_i) + A_{ij}I_j(w_j, x_j))]$  and as such affect choices via standard social learning channels. This means that  $x_{i,Inf}^*$  can be increasing in  $\bar{x}_j$  even when  $C_{ij,Inf} = 0$ . Since this channel of influence will not vary across channel treatments, it will be captured by the pure information channel treatment.

*Imitation and preference conformism:* If individuals are confused, find it cognitively costly to make a decision, or derive utility from preference conformism they may use the behavior of others as a heuristic to make a decision. The fact that all participants make a decision in private without social information before making a revision decision, minimizes the extent to which confusion or

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<sup>6</sup>Note that the sign of this slope can be positive or negative depending on characteristics of  $u(\cdot)$ ,  $A_{ij}$ , and  $C_{ij,Inf}$ . Risk sharing alone predicts a negative relationship between  $x_i$  and  $x_j$  in the PCR treatment.

bounded rationality may drive the observed influence. Nevertheless, if influence due to bounded rationality and heuristic thinking, imperfect understanding, or preference conformism are present they would predict that  $x_{i,Inf}^*$  can be increasing in  $\bar{x}_j$  even when  $C_{ij,Inf} = 0$ . As before, since this effect does not vary across channel treatments, it will be captured by the pure information channel treatment.

*Social utility due to payoff differentials:* The model presented in section A1 introduces a social comparison cost that depends on the choices made by  $i$  and  $j$ . An alternative way to model social comparisons would be to let the cost depend on the payoffs of  $i$  and  $j$ . Since many of the studies that investigate what drives social utility (more commonly referred to as social interaction effects) in the laboratory model conformism using choices rather than payoffs, we take the same approach. See for example Cooper and Rege (2011) and Lahno and Serra-Garcia (2015). Note additionally that we assume an explicit social comparison cost function in section A1 for illustrative purposes only. Social utility in our experiment should be interpreted as the combined effect of joint payoffs, expected or experienced risk, and choices when the first mover's choice is realized. Note that this includes risk sharing and social comparisons costs not captured by the pure information channel treatment.

*Income hiding:* Another factor that may play a role and is relevant within the context of risk-sharing is the incentive to hide income that participants may experience due to a social pressure to share income (Jakiela and Ozier 2016). In particular, second movers may anticipate income hiding from first movers in the IID channel treatment, the only channel treatment in which first mover earnings are not indirectly revealed to second movers. Income hiding in the IID treatment can be modeled as a lower perceived likelihood that the return of  $j$  is high. As an extreme case, suppose that the first mover surely hides income in the IID treatment, then the first order condition becomes

$$Rpu_i(w_i + Rx + A_{ij}w_j - A_{ij}x_j) - (1 - p)u_i(w_i - x_i + A_{ij}w_j - A_{ij}x_j) = 2C_{ij,IID}(x_i - x_j) \quad (5)$$

Comparing equation 5 to 3 we have that  $x_{i,IID,Hiding}^*(x_j) > x_{i,PCR}^*(x_j)$ . Since the comparative static prediction does not change if we allow for full income hiding and income hiding is not possible in the Pure Information and PCR channel treatments, we do not make income hiding a central feature of the model we set out to test with the experiment. Note also that second mover decisions and payoffs are private, so second movers can always hide income in our experiment. Including a tax on second mover earnings generated by the social pressure to share income second movers may face would not change our results.

#### A.4. Hypotheses

The main hypothesis that we test with our experimental design is whether  $j$ 's influence on  $i$ 's decision varies across the first mover type treatments.

$$\text{Hypothesis 1: } x_i^*(x_{Peer}) \neq x_i^*(x_{External}) \neq x_i^*(x_{Formal})$$

There is reason to believe that first mover influence will be positive in the pooled sample of channel treatments (e.g. based on Bursztyn et al 2014, Lahno and Serra-Garcia 2015) and that the size of the peer effect could vary with the identity of the first mover. For example, based on Ben Yishay and Mobarak (2019) we would expect peers to be more influential than external leaders. However, based on the literature on the importance of leaders and their (central) location in the social network (e.g. Banerjee et al. 2013) it may be that peers are less influential than formal leaders. Outside of the risk-taking context, several papers have shown that leaders are more influential than other agents (e.g. Miller and Mobarak 2014) therefore it could be that peers are less influential than external and formal leaders.

The second hypothesis we designed our experiment to test is whether  $j$ 's influence on  $i$ 's decision varies across channel treatments (within first mover type treatments). Due to sample size limitations generated by higher than expected attrition rates discussed in Appendix E, we consider the analysis of these second set of hypotheses as exploratory in the paper.

$$\text{Hypothesis 2: } x(\bar{x}_j) \neq x_{i,IID}^*(x_j) \neq x_{i,PCR}^*(x_j) \text{ for } \bar{x}_j = x_j$$

Since channel treatments identify the importance of the different channels of influence, there are specific theoretical predictions associated with each channel of influence.

If  $\frac{\partial x_{i,Inf}^*(\bar{x}_j)}{\partial x_j} > 0$ , there is a pure information effect. Note that this effect includes learning about social comparison costs, about payoffs and probabilities (if there is misunderstanding of payoffs and probabilities), and imitation due to bounded rationality and/or preference conformism.

If  $x_{i,Inf}^*(\bar{x}_j) \neq x_{i,IID}^*(x_j)$  and/or  $x_{i,Inf}^*(\bar{x}_j) \neq x_{i,PCR}^*(x_j)$ , social utility defined as effects that come from joint payoffs, decisions, and/or outcomes when the first mover's choice is implemented, plays a role. Note that aggregate social utility effects can be positive or negative, include risk sharing as well as social utility from social comparisons, and may vary across the IID and PCR treatments.

If  $x_{i,IID}^*(x_j) > x_{i,PCR}^*(x_j)$  risk sharing matters and dominates any additional positive social utility effect from social comparisons present in the PCR treatment relative to the IID treatment.<sup>7</sup>

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<sup>7</sup>These predictions assume that pure information and social utility effects from social comparisons, if they exist, drive  $x_i$  towards  $x_j$ . Under non-conformism,  $x_{i,Inf}^*(\bar{x}_j)$  could be weakly decreasing in  $\bar{x}_j$  and  $x_{i,IID}^*(x_j) > x_{i,PCR}^*(x_j)$  need not identify risk sharing as a channel of influence.

## **Appendix B: Additional experimental design details**

### **B1. Two-step investment decision**

The two-step procedure was used to elicit decisions for several reasons. First, the initial decision provides a benchmark for what investment would look like in the absence of any revision or information about other participants. Second, there is a large degree of heterogeneity in risk preferences that should determine how responsive people are to the example set by others. Third, this design choice maximizes statistical power (McKenzie 2012).<sup>1</sup>

### **B2. First mover decisions**

As outlined in Figure 2, all first movers made an initial decision. Thereafter, they were informed that their revised investment decision would be revealed to some of the members of their club. First movers were not informed which group members would see their investment choice but knew that not all group members would see their decision. First movers in the formal leader and peer treatments knew that this revised decision would determine their final investment choice and therefore their earnings from the investment decision. The revision decision made by external leaders was implemented in a slightly different manner because we only had 15 extension agents in our sample, each one working with several clubs.<sup>2</sup> We elicited several revision decisions from

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<sup>1</sup> It is a priori unclear whether two consecutive decisions provide a lower or upper bound of the social influence we can observe in this experiment. If participants anchor their choices based on their first decision, then they may be less influenced than they would be if we had provided the information before they made a first decision. On the other hand, if experimenter demand effects are present and participants think that we want them to be influenced by others, they may overreact to social information. We did everything possible to minimize experimenter demand effects in the study, but nevertheless assume that any anchoring or experimenter demand effects present are constant across treatments and do not affect the internal validity of our results.

<sup>2</sup> One extension service worker withdrew from participation after making the first investment decision, which is why we have only 14 extension workers in our data. This extension service worker terminated their participation because they refused to make a decision that would be observed by others, and was the only person who chose not to participate in the study after the decision and incentives were explained. They were allowed to keep their endowment.

extension agents, one for each of the clubs they worked with. Clubs were presented in random order, and one revised choice was randomly selected to be paid.<sup>3</sup>

We chose to conduct the experiment in this way to avoid using deception and to inform first movers that their actions would be observed by others. Indeed, a situation in which first movers are aware that their choices and actions are observed is most relevant to situations when technology adoption is easily observable or advice is directly given.

Each extension worker was interviewed in private by one enumerator. Communication between extension service workers was prevented before they made their decisions. Extension service workers were not immediately paid after they made their decisions. They were contacted to be paid after decisions from all individuals in the study were elicited, and were informed of this delay in payment before they made their decisions. When they were paid, they learned the outcome of the coin flip and which revision decision was randomly selected to count for payment.

As is described in section 5 of the main text, first movers were randomized into three different channel treatments that varied whether their choice was implemented and the structure of the underlying risk. Whether or not the first mover's choice was realized was implemented through the roll of a die. First movers were informed that the roll of a die would determine whether their choice could be carried out or not. If the outcome of the die roll was 1 or 2, the money invested was returned to the first movers and their investment choice was not carried out. If the outcome was between 3 and 6, then the choice was carried out.<sup>4</sup>

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<sup>3</sup> Clubs have names that are used for various NASFAM activities, so it was easy to explain to extension agents that they could adapt their revision decision according to the audience that would see their choice.

<sup>4</sup> First movers were informed that the die roll would determine whether their choice was realized or not. They were not informed that the roll of the die would also determine the structure of the underlying risk. We chose not to provide first movers this information to keep first mover behavior comparable across risk treatments. Like coin flips, die rolls were executed electronically on the tablets used for data collection.

### **B3. Additional implementation details**

We rotated which enumerator was assigned to elicit the choices made by the different first and second movers to ensure that enumerator fixed effects could be used in our analysis of results. We also controlled the flow of information during interviews in several ways. First, we elicited decisions simultaneously and in private at each participants' home. Second, we collected data from an entire club in a few hours, and targeted several clubs located in close geographical proximity during the same day. Third, we had a field coordinator present in a centrally located village to provide logistical support and avoid any interview interruptions that may otherwise have happened. Fourth, opportunity for cell phone communication was limited due to poor signal, and low ownership and phone use.

## Appendix C. Scripts

This appendix includes the scripts used to elicit decisions in each of the different treatment conditions. Scripts were programmed in Survey CTO, where enumerators also recorded decisions. The text in Chichewa was read aloud by experimenters during interviews. We provide both the English and Chichewa versions.

Acronyms AFO and IDM are used throughout the scripts. AFO stands for Association Field Officer (the local name of NASFAM extension workers), and IDM stands for incentivized decision-making survey. Text inside  $\{\}$  denotes a variable name in the program.

### C.1. Second mover script (all treatments)

Please enter the surveyor's ID

---- [ *New Screen* ] ----

Please enter the ID of the survey respondent's household. For AFO surveys, please enter the AFO's ID.

---- [ *New Screen* ] ----

Please re-enter the ID.

---- [ *New Screen, if respondent is replacement random leader* ] ----

Is  $\{\text{name}\}$  acting as a replacement for  $\{\text{randomLeaderName}\}$ ?

---- [ *New Screen* ] ----

Is  $\{\text{name}\}$  the person you are about to survey?

---- [ *New Screen* ] ----

Is the person's name spelt correctly? [ $\{\text{name}\}$ ]

---- [ *New Screen, if NO* ] ----

Please re-enter the name

---- [ *New Screen* ] ----

Will the IDM specified on the tracking sheet be conducted?

---- [ *New Screen, if NO* ] ----

*\${nonR4Name} (ID# \${idm\_id}) will receive the CONTROL IDM. Is this correct?*

*---- [ New Screen, if receiving IDM specified on tracking sheet or control IDM ] ----*

### Consent/ Chilorezo

A member of our team visited you some days ago. The study is on-going which is why we still have your information. In this survey round, we will now give YOU the opportunity to make a decision. This decision will be in exchange for money. The money you will make will be determined by the decision that you make. There is no right or wrong decision. We only ask that you think carefully about the decision that you want to make and choose what is best for you.

M'modzi wa gulu lathu anakuyenderani masiku angapo apitawa. Kafukufukuyu akupitilirabe nchifukwa chake tikudziwa za inu. M'chigawo chino cha kafukufuku, tsopano tikupatsani mwayi oti INU muthe kupanga chiganizo. Kupanga chiganizoku kudzakhala mosinthana ndi ndalama. Chiganizochi ndichimene chingatidziwitse ndalama zimene mungathe kupeza. Palibe chiganizo cholondola kapena cholakwika. Chomwe tingakupempheni ndi chakuti muganizire mofatsa pa chiganizo chimene mungapange ndipo musankhe zimene zili zofunikira kwa inu.

We will give you more specific information about how the decision you will make will determine the amount of money that you will earn soon.

Tikufotokozerani bwinobwino momwe chiganizo chimene mupangechi chingatidziwitse kuti mwapata ndalama zingati posachedwapa.

<< Respondents might ask more details about the decision they will make. Explain to them that those details will be explained in detail once you have explained what they need to know first before they take part in the next part of the survey. >>

You are free to decide whether or not you want to participate in this decision. Even if you agree to participate now, you can end your participation at any time. If you choose not to participate or end your participation at any time you will not be eligible to receive a payment. Payments will be distributed privately today.

Muli ndi ufulu kusankha kutenga nawo mbali kapena kusatenga nawo mbali mukupanga chiganizochi.. Ngakhale mutavomera kutenga nawo gawo panopa, muli ndi ufulu osiya kutenga nawo gawo nthawi iliyonse imene mungakonde kutero. Mukasankha kusatenga nawo mbali mukupanga chiganizochi kapena kusankha kusiya kupanga chiganizochi mkatikati mwa kучезакu, simukhala ndi mwayi olandira ndalama zimene mumayenera kulandira. Ndalamazi ziperekedwa mwachinsisi lero.

The decision that you make today will be confidential. We will not tell anyone what decision you make. We will not tell anyone how much money you will earn.

Chiganizo chimene mupange lerochi chidzakhala chachinsinsi. Sitidzauza wina aliyense zachiganizo chanucho. Sitidzauza wina aliyense ndalama zimene mwapeza.

Would you like to participate in the next part of the survey and make a decision in exchange for money?

Mungakonde kutenga nawo mbali mu gawo lotsatira la kafukufukuyu ndikupanga chiganizo posinthana ndi ndalama?

<< If yes, proceed. If not, end survey. >>

---- [ *New Screen* ] ----

#### Decision [ 1 ]

You will now be given 1,000 MWK.  
Mupatsidwa ndalama yokwanira 1000 MWK.

<< HAND OUT MONEY. COUNTING THE 10 NOTES. >>

This 1,000 MWK is now YOURS. You can choose to place some, all or none of YOUR 1,000 MWK in an investment account.

1000MWK imeneyi ndi yanu. Mukhoza kuika zina mwa ndalama zanu kapena ndalama zanu zonse kapenanso kusaika ndalama zanu ku akaunti yochulukitsa ndalama.

Money in the investment account multiplies by a factor of 4 half of the time and pays nothing half of the time. Whether or not money in the investment account is multiplied by a factor of 4 or 0 will be determined by the flip of a coin. Investments into the investment account need to be made in 100 MWK increments.

Ndalama yanuyi idzachulukitsidwa ka 4 kapena idzachulukitsidwa ka 0 kochuluka mofanana. Kuti ndalama mu akaunti yichulukitsidwe ka 4 kapena ka 0 zitengera zotsatila za mayere oponya ndalama yachitsulo. Ndalama zoika mu akaunti yochulukitsa ndalama zikuyenera kukhala mmilingo ya ma 100MWK.

---- [ *New Screen* ] ----

<< SHOW VISUAL AID #1: ENDOWMENT and ICONS >>

You have been given 1000MWK in 10 100 MWK notes. You can chose to keep your money or invest your money. If you chose to invest your money in the investment account, you can chose to invest some of it or all of it. The amount you can invest in the account CANNOT EXCEED 1000MWK because the amount you are investing is being taken from the 1000MWK we have given you.

Mwapatsidwa ndalama yokwana 1000MWK yomwe ndima 100MWK okwana 10. Ndalama yanuyi mutha kusunga kapena kuika ku akaunti yochulukitsa ndalama. Mukasankha kuika ku

akaunti yochulukitsa ndalama, mutha kuikako zina kapena zonse mwa ndalama zanu. Ndalama zomwe muike mu akaunti yochulukitsa ndalamayi SIZINGADZOLE 1000 MWK chifukwa ndalama zomwe mudziika mu akauntizi mudzichotsera pa 1000 MWK yomwe mwapatsidwa ija.

---- [ *New Screen* ] ----

If the outcome of the coin flip is HEADS, money in the investment account will be multiplied by a factor of 4. If the outcome of the coin flip is TAILS, money in the investment account will pay nothing. You must decide how much, if any, of your 1,000 MWK to place in the investment account.

Tikaponya ndalama yachitsuloyi ndipo ngati zotsatira zake ndi MUTU, ndalama za mu akaunti yanu zidzachulukitsidwa ka 4. Koma ngati zotsatira zake ndi TAMBALA, mudzaluzza ndalama zonse za mu akaunti yochulukitsa ndalama. Mukuyenera kupanga chiganizo pa kuchuluka kwa ndalama zimene muyike ku akaunti yochulukitsa ndalama kuchokera pa 1,000MWK mwapatsidwa ija ngati mungakonde kuika ndalama mu akauntiyi.

---- [ *New Screen* ] ----

Screen 10 [ All participants ]:

<< VISUAL AID #2: INVESTMENT CHOICES AND RETURN >>

( GO OVER EXAMPLES 1-4, 11 )

If you decide not to invest any money into the investment account the outcome of the coin flip will NOT affect you in any way.

Mukapanda kuika ndalama iliyonse mu akaunti yochulukitsa ndalama zotsatira za mayere otembenuza ndalama ya chitsulo sizidzakukhudzani mu njira iliyonse.

If you chose to invest [X] MWK of the money you have received into your investment account, and the outcome of the coin flip is HEADS, your money will be [X] MWK. But if the outcome of the coin flip is TAILS your money will be [X] MWK.

Mukaika [X] MWK pa ndalama zanu mwapatsidwa mu akaunti yochulukitsa ndalama ndipo zotsatira za mayere otembenuza ndalama ya chitsulo ndi MUTU ndalama zanu za mu akaunti yochulukitsa ndalama zidzakhala [X] MWK koma ikagwera ku TAMBALA mudzapeza [X].

<< VISUAL AID # 3: INVESTMENT CHOICES AND PAYOFFS >>

If you decide not to invest any money into the investment account the outcome of the coin flip will NOT affect you in any way. You will keep the 1000 MWK you have received.

Mukapanda kuika ndalama iliyonse mu akaunti yochulukitsa ndalama pa ndalama zanu mwapatsidwa. Zotsatira za mayere otembenuza ndalama ya chitsulo sizidzakukhudzani mu njira iliyonse. Mudzalandira 1000MWK mwalandira ija.

If you chose to invest [X] MWK of the money you have received into your investment account, and the outcome of the coin flip is HEADS your money will be [X] MWK. We add the money in your account, which has been multiplied by 4 and the money you kept. But if the outcome of the coin flip is TAILS your money will be [X] MWK. This is the money that you kept.

Mukasankha kuti muyike [X] MWK pa ndalama zanu mwapatsidwa ku akaunti yanu yochulukitsa ndalama ndipo zotsatira za mayere otembenuza ndalama ya chitsuro ndi MUTU ndalama zanu zidzakwana [X] MWK. Tiphatikiza ndalama zanu za mu akaunti, zomwe zachulukitsidwa ka4, ndi zomwe munasunga. Koma ikagwera ku TAMBALA ndalama zanu zidzakhala [X] MWK. Izi ndi ndalama zomwe munasunga zija.

( KEEP VISUAL AID # 3 OPEN )

---- [ *New Screen* ] ----

Do you understand?  
Kodi mwamvetsetsa ndanenazi?

The decision that you make will be confidential. We will not reveal it to anyone. We will not tell anyone how much money you will earn.

Chiganizo chimene mupange chidzakhala chachinsinsi ndipo sitidzauza wina aliyense. Sitidzauza wina aliyense zachiganizo chanucho. Sitidzauza wina aliyense ndalama zimene mwapeza.

Please indicate on the poster how much, if any, of your 1,000 MWK you would like to place in the investment account.

Chonde lozani pa chithuzipa kuchuluka kwa ndalama zomwe muike mu ankaunti yochulukitsa ndalama kuchokera pa 1,000MWK ngati mungakonde kuika ndalama mu akaunti.

<< LET PARTICIPANT MAKE DECISION >>

Please put this amount into the investment account.  
Chonde ikani ndalamazi mu akaunti yochulukitsa ndalama.

---- [ *New Screen 1, Pure Information Treatment* ] ----

Decision [ 2 ]

We will now give you the opportunity to change or maintain your decision. It is entirely up to you whether you change or maintain your decision. This decision will determine the payment that you will receive.

Pano tikupatsani mwayi oti muthe kusintha kapena kusasintha chiganizo chanucho. Zili ndi inu kusintha kapena kusasintha chiganizo chanucho. Chiganizo chimene mupangechi ndi chomwe chidzagwiritsidwe powerengetsera ndalama zimene mulandire.

<< EMPTY BOX AND RETURN MONEY TO PARTICIPANT >>

Before you make this second decision we would like to provide you some information. Musanapange chiganizochi kachiwiri tikufuna tikudziwitseni zinthu zina.

When making this same decision  $\{sN\_FM\}$  wanted to place  $\{sN5\_wager\}$  MK in the investment account. It was, however, randomly determined that  $\{sN\_FM\}$ 's investment decision could not be realized.  $\{sN\_FM\}$  will receive the original 1,000 MWK as payment.

Popanga chiganizo ngati ichi a  $\{sN\_FM\}$  ankafuna kuika ndalama zokwana  $\{sN5\_wager\}$  MWK ku akaunti yochulukitsa ndalamayi. Patachitika mayere ena, zotsatira za mayere zinaonetsa kuti a  $\{sN\_FM\}$  sanaloledwe kuika ndalama ku akaunti yochulukitsa ndalamayi. A  $\{sN\_FM\}$  adzalandira 1,000MWK yoyambirira ija.

Even though  $\{sN\_FM\}$ 's decision was not realized, your decision will be carried out. There is no uncertainty regarding the fact that your decision will be realized.

Ngakhale a  $\{sN\_FM\}$  sanaloledwe kuika ndalama ku akaunti yochulukitsa ndalamayi, chiganizo chanu chikwaniritsidwabe. Palibe choletsa chilichonse kuti chiganizo chanu chisakwaniritsidwe.

---- [ *New Screen 2, Pure Information Treatment* ] ----

When making this same decision  $\{sN\_FM\}$  wanted to place  $\{sN5\_wager\}$  MK in the investment account. It was, however, randomly determined that  $\{sN\_FM\}$ 's investment decision could not be realized.

Popanga chiganizo ngati ichi a  $\{sN\_FM\}$  ankafuna kuika ndalama zokwana  $\{sN5\_wager\}$  MWK ku akaunti yochulukitsa ndalamayi. Patachitika mayere ena, zotsatira za mayere zinaonetsa kuti a  $\{sN\_FM\}$  sanaloledwe kuika ndalama ku akaunti yochulukitsa ndalamayi.

Please indicate on the poster how much, if any, of your 1,000 MWK you would like to place in the investment account.

Chonde lozani pa chithuzipa kuchuluka kwa ndalama zomwe muike mu ankaunti yochulukitsa ndalama kuchokera pa 1,000MWK ngati mungakonde kuika ndalama mu akaunti.

<< LET PARTICIPANT MAKE DECISION >>

Please put this amount into the investment account.  
Chonde ikani ndalamazi mu akaunti yochulukitsa ndalama.

---- [ *New Screen 1, IID Treatment* ] ----

### Decision [2]

We will now give you the opportunity to change or maintain your decision. It is entirely up to you whether you change or maintain your decision. This decision will determine the payment that you will receive.

Pano tikupatsani mwayi oti muthe kusintha kapena kusingintha chiganizo chanucho. Zili ndi inu kusingintha kapena kusingintha chiganizo chanucho. Chiganizo chimene mupangechi ndi chomwe chidzagwiritsidwe powerengetsera ndalama zimene mulandire.

<< EMPTY BOX AND RETURN MONEY TO PARTICIPANT >>

Before you make this second decision we would like to provide you some information.

Musanapange chiganizochi kachiwiri tikufuna tikudziwitseni zinthu zina.

When making this same decision  $\${sRI\_FM}$  placed  $\${sRI5\_wager}$  MWK in the investment account.

Popanga chiganizo ngati ichi a  $\${sRI\_FM}$  anaika ndalama zokwana  $\${sRI5\_wager}$  MWK ku akaunti yochulukitsa ndalamayi.

The outcome of DIFFERENT coin flips will determine if the investment is multiplied by a factor of 4 for you and  $\${sRI\_FM}$ .

Zotsatira za mayere a ndalama yachitsulo zimene zitidziwitse ngati ndalama zomwe mwaika mu akaunti yochulukitsa ndalama zichulukitsidwe ka 4 kwa inu, SIZIMENE zigwiritsidwe ntchito kwa  $\${sRI\_FM}$ .

---- [ *New Screen 2, IID Treatment* ] ----

### << VISUAL AID #5 – COIN FLIPS, IID >>

Different coin flips will be used to determine whether YOUR investment and the investment of  $\${sRI\_FM}$  will be multiplied by a factor of 4.

Mayere a ndalama ya chitsulo osiyana agwiritsidwa ntchito kuti tidziwe ngati ndalama za ku akaunti yochulukitsa ndalama yanu komanso ku akaunti ya  $\${sRI\_FM}$  ichulukitsidwe ka 4.

Since there are different coin flips for you and  $\${sRI\_FM}$ .

Chifukwa pali mayere osiyana a ndalama yachitsulo achitika kwa inu ndi a  $\{sRI\_FM\}$

1. You can get HEADS while  $\{sRI\_FM\}$  gets TAILS.

Inu mukhoza kupeza kuti ndalama yachitsulo yagwera ku MUTU ndipo membala wina ikhoza kugwera ku TAMBALA

Or

Kapena

2. You can get TAILS while  $\{sRI\_FM\}$  gets HEADS.

Inu mukhoza kupeza kuti ndalama yachitsulo yagwera ku TAMBALA ndipo membala wina ikhoza kugwera ku MUTU

Or (page 2)

Kapena

3. You can both get HEADS.

Nonse mukhoza kupeza kuti ndalama ya chitsulo yagwera ku MUTU

Or

Kapena

4. You can both get TAILS.

Nonse mukhoza kupeza kuti ndalama ya chitsulo yagwera ku TAMBALA.

---- [ *New Screen 1, PCR Treatment* ] ----

Decision [2]

We will now give you the opportunity to change or maintain your decision. It is entirely up to you whether you change or maintain your decision. This decision will determine the payment that you will receive.

Pano tikupatsani mwayi oti muthe kusintha kapena kusasintha chiganizo chanucho. Zili ndi inu kusintha kapena kusasintha chiganizo chanucho. Chiganizo chimene mupangechi ndi chomwe chidzagwiritsidwe powerengetsera ndalama zimene mulandire.

<< EMPTY BOX AND RETURN MONEY TO PARTICIPANT >>

Before you make this second decision we would like to provide you some information.

Musanapange chiganizochi kachiwiri tikufuna tikudziwitseni zinthu zina.

When making this same decision  $\{sRP\_FM\}$  placed  $\{sRP5\_wager\}$  MWK in the investment account.

Popanga chiganizo ngati ichi a  $\{sRP\_FM\}$  anaika ndalama zokwana  $\{sRP5\_wager\}$  MWK ku akaunti yochulukitsa ndalamayi.

The outcome of the SAME coin flip will determine if the investment is multiplied by a factor of 4 for you and  $\{sRP\_FM\}$ .

Mayere AMODZI a ndalama yachitsulo ndi amene atidziwitse ngati ndalama za mu akaunti yochulukitsa ndalama ya inu komanso ya a  $\{sRP\_FM\}$  zichulukitsidwe ka 4.

---- [ *New Screen 2, PCR Treatment* ] ----

<< SHOW VISUAL AID # 4 – COIN FLIPS, PCR >>

The same coin flip will be used to determine whether YOUR investment and the investment of  $\{sRP\_FM\}$  will be multiplied by a factor of 4.

Mayere a ndalama ya chitsulo omwewo kapena kuti opanana agwiritsidwa ntchito kuti tidziwe ngati ndalama za ku akaunti yochulukitsa ndalama YANU komanso ku akaunti ya  $\{sRP\_FM\}$  ichulukitsidwe ka 4.

Since there is one coin flip:  
Chifukwa pachitika mayere amodzi a ndalama yachitsulo:

1. You wil both either get HEADS  
Nonse mukhoza kupeza kuti ndalama ya chitsulo yagwera ku MUTU

Or  
Kapena

2. TAILS  
ku TAMBALA

---- [ *New Screen 3, IID/PCR Treatment* ] ----

When making this same decision  $\{sRI\_FM\}$  placed  $\{sRI5\_wager\}$  MWK in the investment account.

Popanga chiganizo ngati ichi a  $\{sRI\_FM\}$  anaika ndalama zokwana  $\{sRI5\_wager\}$  MWK ku akaunti yochulukitsa ndalamayi.

Please indicate on the poster how much, if any, of your 1,000 MWK you would like to place in the investment account.

Chonde lozani pa chithuzipa kuchuluka kwa ndalama zomwe muike mu ankaunti yochulukitsa ndalama kuchokera pa 1,000 MWK ngati mungakonde kuika ndalama mu akaunti.

<< LET PARTICIPANT MAKE DECISION >>

Please put this amount into the investment account.  
Chonde ikani ndalamazi mu akaunti yochulukitsa ndalama.

---- [ *New Screen 1, Control Treatment* ] ----

Decision [ 2 ]

We will now give you the opportunity to change or maintain your decision. It is entirely up to you whether you change or maintain your decision. This decision will determine the payment that you will receive.

Pano tikupatsani mwayi oti muthe kusintha kapena kusingintha chiganizo chanucho. Zili ndi inu kusingintha kapena kusingintha chiganizo chanucho. Chiganizo chimene mupangechi ndi chomwe chidzagwiritsidwe powerengetsera ndalama zimene mulandire.

<< EMPTY BOX AND RETURN MONEY TO PARTICIPANT >>

Please indicate on the poster how much, if any, of your 1,000 MWK you would like to place in the investment account.

<< LET PARTICIPANT MAKE DECISION >>

Please put this amount into the investment account.  
Chonde ikani ndalamazi mu akaunti yochulukitsa ndalama.

Chonde lozani pa chithuzipa kuchuluka kwa ndalama zomwe muike mu ankaunti yochulukitsa ndalama kuchokera pa 1,000 MWK ngati mungakonde kuika ndalama mu akauntiyi.

---- [ *New Screen, All Channel Treatments + Control* ] ----

<<CLOSE AND REMOVE INVESTMENT BOX>>

---- [ *New Screen, All Channel Treatment + Control, Investment X=0* ] ----

Summary

You chose to place  $\${sN13}$  MWK in the investment account. You will earn  $\${sNWin}$  MWK if the outcome of the coin flip is HEADS and  $\${sNLoss}$  MWK if is TAILS.

Munasankha kuika  $\${sN13}$  MK mu akaunti yochulukitsa ndalama. Mulandira  $\${sNWin}$  MWK ngati zotsatira zoponya ndalama yachitsulo pamayere zikhale MUTU kapena  $\${sNLoss}$  MWK ngati ndi TAMBALA.

---- [ *New Screen, All Channel Treatment + Control, Investment X=0* ] ----

## End- Decision Making

We will deliver your payment now.  
Tsopano tikupatsani ndalama zanu.

The amount of money you placed in the investment account was: 0 MWK  
Ndalama zimene munaika ku akaunti yochulukitsa ndalama zinali: 0 MWK

Your earnings are: 1,000 MWK  
Ndalama zimene mwapata zakwana: 1,000 MWK

Please sign this receipt.  
Chonde lembani sayini yanu apa

<< HAVE PARTICIPANT SIGN THE RECEIPT >>

---- [ *New Screen, All Channel Treatments + Control, Investment  $X > 0$*  ] ----

### Summary

You chose to place  $\$N_{13}$  MWK in the investment account. You will earn  $\$N_{Win}$  MWK if the outcome of the coin flip is HEADS and  $\$N_{Loss}$  MWK if is TAILS.

Munasankha kuika  $\$N_{13}$  MK mu akaunti yochulukitsa ndalama. Mulandira  $\$N_{Win}$  MWK ngati zotsatira zoponya ndalama yachitsulo pamayere zikhale MUTU kapena  $\$N_{Loss}$  MWK ngati ndi TAMBALA.

Coin flips will be performed by members of our team electronically. We will use a computer program to generate coin flips in order to ensure that everything is done in a fair and unbiased manner. We will reveal the outcome of the coin flip that determines your payment confidentially now.

Mayere oponya ndalama ya chitsulo achitika pa kompyuta ndi ma mmodzi wa gulu lathu. Tigwiritsa ntchito makinawa ndi cholinga choti zonse zichitike mosakondera komanso mopanda chinyengo. Tikuuzani zotsatira za mayere oponya ndalama yachitsulo omwe atidziwitse ndalama zomwe mulandire kuchoka ku akaunti yochulukitsa ndalama mwachinsisi pano.

---- [ *New Screen, Pure Information & IID Treatments + Control, Investment  $X > 0$*  ] ----

### Coin flip

We will now conduct your coin flip using the computer.  
Tsopano tipanga mayere a ndalama yachitsulo pa kompyuta.

Flipping.../ Kutembenuza....



---- [ *New Screen, PCR Treatment, Investment  $X > 0$*  ] ----

### Coin flip

We will now reveal the outcome of the coin flip that determines your payment.  
Pano tikuzani zotsatila za mayere a ndalama ya chitsulo omwe atidziwitse ndalama zomwe mupeze.



---- [ *New Screen, shown to respondent* ] ----

The outcome of the coin flip is:  $\${\text{coinFlipText}}$   
Zotsatira za mayere a ndalama yachitsulo ndi:  $\${\text{coinFlipTextCh}}$



or

---- [ *New Screen, All Channel Treatments + Control, Investment  $X > 0$*  ] ----

### End- Decision Making

We will deliver your payment now.  
Tsopano tikupatsani ndalama zanu.



Please re-enter the name

---- [ *New Screen* ] ----

Will the IDM specified on the tracking sheet be conducted?

---- [ *New Screen, if YES* ] ----

#### Consent/ Chilorezo

A member of our team visited you some days ago. The study is on-going which is why we still have your information. In this survey round, we will now give YOU the opportunity to make a decision. This decision will be in exchange for money. The money you will make will be determined by the decision that you make. There is no right or wrong decision. We only ask that you think carefully about the decision that you want to make and choose what is best for you.

M'modzi wa gulu lathu anakuyenderani masiku angapo apitawa. Kafukufukuyu akupitilirabe nchifukwa chake tikudziwa za inu. M'chigawo chino cha kafukufuku, tsopano tikupatsani mwayi oti INU muthe kupanga chiganizo. Kupanga chiganizoku kudzakhala mosinthana ndi ndalama. Chiganizochi ndichimene chingatidziwitse ndalama zimene mungathe kupeza. Palibe chiganizo cholondola kapena cholakwika. Chomwe tingakupempheni ndi chakuti muganizire mofatsa pa chiganizo chimene mungapange ndipo musankhe zimene zili zofunikira kwa inu.

We will give you more specific information about how the decision you will make will determine the amount of money that you will earn soon.

Tikufotokozerani bwinobwino momwe chiganizo chimene mupangechi chingatidziwitse kuti mwapata ndalama zingati posachedwapa.

<< RESPONDENTS MIGHT ASK MORE DETAILS ABOUT THE DECISION THEY WILL MAKE. EXPLAIN TO THEM THAT THOSE DETAILS WILL BE EXPLAINED IN DETAIL ONCE YOU HAVE EXPLAINED WHAT THEY NEED TO KNOW FIRST BEFORE THEY TAKE PART IN THE NEXT PART OF THE SURVEY.>>

You are free to decide whether or not you want to participate in this decision. Even if you agree to participate now, you can end your participation at any time. If you choose not to participate or end your participation at any time you will not be eligible to receive a payment. Payments will be distributed privately by a member of our team today.

Muli ndi ufulu kusankha kutenga nawo mbali kapena kusatenga nawo mbali mukupanga chiganizochi. Ngakhale mutavomera kutenga nawo gawo panopa, muli ndi ufulu osiya kutenga nawo gawo nthawi iliyonse imene mungakonde kutero. Mukasankha kusatenga nawo mbali mukupanga chiganizochi kapena kusankha kusiya kupanga chiganizochi mkatikati mwa kucheza simukhala ndi mwayi olandira ndalama zimene mumayenera kulandira. Ndalamazi zidzaperekedwa mwachinsinsi ndi m'modzi wagulu lathu nthawi ina lero lomwe.

The decision that you make today may be revealed to others. Before you make the decision, we will let you know whether or not your decision will be revealed. We will not tell anyone how much money you will earn.

Chiganizo chimene mupange lerochi chikhoza kudzauliridwa kapena kuvumbulutsidwa kwa anthu ena. Musanapange chiganizocho, tidzakudziwitsani ngati chiganizocho chidzaululidwe kapena chidzavumbulutsidwe kwa ena. Sitidzauza wina aliyense ndalama zimene mwapeza.

Would you like to participate in the next part of the survey and make a decision in exchange for money?

Mungakonde kutenga nawo mbali mu gawo lotsatira la kafukufukuyu ndikupanga chiganizo posinthana ndi ndalama?

<< If yes, proceed. If not, end survey. >>

---- [ *New Screen* ] ----

#### Decision [ 1 ]

You will now be given 1,000 MWK.  
Mupatsidwa ndalama yokwanira 1000 MWK.

<< HAND OUT MONEY. COUNTING THE 10 NOTES. >>

This 1,000 MWK is now YOURS. You can choose to place some, all or none of YOUR 1,000 MWK in an investment account.

1000MWK imeneyi ndi yanu. Mukhoza kuika zina mwa ndalama zanu kapena ndalama zanu zonse kapenanso kusaika ndalama zanu ku akaunti yochulukitsa ndalama.

Money in the investment account multiplies by a factor of 4 half of the time and pays nothing half of the time. Whether or not money in the investment account is multiplied by a factor of 4 or 0 will be determined by the flip of a coin. Investments into the investment account need to be made in 100 MWK increments.

Ndalama yanuyi idzachulukitsidwa ka 4 kapena idzachulukitsidwa ka 0 kochuluka mofanana. Kuti ndalama mu akaunti ichulukitsidwe ka 4 kapena ka 0 zitengera zotsatila za mayere oponya ndalama yachitsulo. Ndalama zoika mu akaunti yochulukitsa ndalama zikuyenera kukhala mmilingo ya ma 100MWK.

---- [ *New Screen* ] ----

<< SHOW VISUAL AID #1: ENDOWMENT and ICONS >>

You have been given 1000MWK in 10 100 MWK notes. You can chose to keep your money or invest your money. If you chose to invest your money in the investment account, you can chose to invest some of it or all of it. The amount you can invest in the account CANNOT EXCEED 1000MWK because the amount you are investing is being taken from the 1000MWK we have given you.

Mwapatsidwa ndalama yokwana 1000MWK yomwe ndima 100MWK okwana 10. Ndalama yanuyi mutha kusunga kapena kuika ku akaunti yochulukitsa ndalama. Mukasankha kuika ku akaunti yochulukitsa ndalama, mutha kuikako zina kapena zonse mwa ndalama zanu. Ndalama zomwe muika mu akaunti yochulukitsa ndalamayi SIZINGADZOLE 1000 MWK chifukwa ndalama zomwe mudziika mu akauntizi mudzichotsera pa 1000 MWK yomwe mwapatsidwa ija.

---- [ *New Screen* ] ----

If the outcome of the coin flip is HEADS, money in the investment account will be multiplied by a factor of 4. If the outcome of the coin flip is TAILS, money in the investment account will pay nothing. You must decide how much, if any, of your 1,000 MWK to place in the investment account.

Tikaponya ndalama yachitsuloyi ndipo ngati zotsatira zake ndi MUTU, ndalama za mu akaunti yanu zidzachelukitsidwa ka 4. Koma ngati zotsatira zake ndi TAMBALA, mudzaluzana ndalama zonse za mu akaunti yochulukitsa ndalama. Mukuyenera kupanga chiganizo pa kuchuluka kwa ndalama zimene muyike ku akaunti yochulukitsa ndalama kuchokera pa 1,000MWK mwapatsidwa ija ngati mungakonde kuika ndalama mu akauntiyi.

---- [ *New Screen* ] ----

<< VISUAL AID #2: INVESTMENT CHOICES AND RETURN >>

( GO OVER EXAMPLES 1-4, 11 )

If you decide not to invest any money into the investment account the outcome of the coin flip will NOT affect you in any way.

Mukapanda kuika ndalama iliyonse mu akaunti yochulukitsa ndalama zotsatira za mayere otembenuza ndalama ya chitsulo sizidzakukhudzani mu nyira iliyonse.

If you chose to invest [X] MWK of the money you have received into your investment account, and the outcome of the coin flip is HEADS, your money will be [X] MWK. But if the outcome of the coin flip is TAILS your money will be [X] MWK.

Mukaika [X] MWK pa ndalama zanu mwapatsidwa mu akaunti ochulukitsa ndalama ndipo zotsatira za mayere otembenuza ndalama ya chitsulo ndi MUTU ndalama zanu za mu akaunti yochulukitsa ndalama zidzakhala [X] MWK koma ikagwera ku TAMBALA mudzapeza [X].

<< VISUAL AID # 3: INVESTMENT CHOICES AND PAYOFFS >>

If you decide not to invest any money into the investment account the outcome of the coin flip will NOT affect you in any way. You will keep the 1000 MWK you have received.

Mukapanda kuika ndalama iliyonse mu akaunti yochulukitsa ndalama pa ndalama zanu mwapatsidwa. Zotsatira za mayere otembenuza ndalama ya chitsulo sizidzakukhudzani mu nyira iliyonse. Mudzalandira 1000MWK mwalandira ija.

If you chose to invest [X] MWK of the money you have received into your investment account, and the outcome of the coin flip is HEADS your money will be [X] MWK. We add the money in your account, which has been multiplied by 4 and the money you kept. But if the outcome of the coin flip is TAILS your money will be [X] MWK. This is the money that you kept.

Mukasankha kuti muyike [X] MWK pa ndalama zanu mwapatsidwa ku akaunti yanu yochulukitsa ndalama ndipo zotsatira za mayere otembenuza ndalama ya chitsuro ndi MUTU ndalama zanu zidzakwana [X] MWK .Tiphatikiza ndalama zanu za mu akaunti, zomwe zachulukitsidwa ka 4, ndi zomwe munasunga. Koma ikagwera ku TAMBALA ndalama zanu zidzakhala [X] MWK. Izi ndi ndalama zomwe munasunga zija.

( KEEP VISUAL AID # 3 OPEN )

---- [ *New Screen* ] ----

Do you understand?  
Kodi mwamvetsetsa ndanenazi?

The decision that you make will be confidential. We will not reveal it to anyone. We will not tell anyone how much money you will earn.

Chiganizo chimene mupange chidzakhala chachinsinsi ndipo sitidzauza wina aliyense. Sitidzauza wina aliyense zachiganizo chanucho. Sitidzauza wina aliyense ndalama zimene mwapeza.

Please indicate on the poster how much, if any, of your 1,000 MWK you would like to place in the investment account.

Chonde lozani pa chithuzipa kuchuluka kwa ndalama zomwe muike mu ankaunti yochulukitsa ndalama kuchokera pa 1,000MWK ngati mungakonde kuika ndalama mu akaunti.

<< Let participant make decision >>

Please put this amount into the investment account.  
Chonde ikani ndalamazi mu akaunti yochulukitsa ndalama.

---- [ *New Screen* ] ----

## Decision [ 2 ]

The previous decision that you made was confidential.  
Chiganizo chimene munapanga poyamba chinali chachinsinsi.

We will now give you the opportunity to change or maintain your decision. It is entirely up to you whether you change or maintain your decision. This decision will determine the payment that you will receive.

Pano tikupatsani mwayi oti muthe kusintha kapena kusasintha chiganizo chanucho. Zili ndi inu kusintha kapena kusasintha chiganizo chanucho. Chiganizo chimene mupangechi ndi chomwe chidzagwiritsidwe powerengetsera ndalama zimene mulandire.

<< EMPTY BOX AND RETURN MONEY TO PARTICIPANT >>

This decision will be shown to at most 3 other members of your club before they make a decision.

Chiganizo chimene mupangechi chidzaonetsedwa kwa anthu ena osaposerera atatu a mu kalabu yanu iwowo asanapange chiganizo chawo.

Please indicate on the poster how much, if any, of your 1,000 MWK you would like to place in the investment account.

Chonde lozani pa chithuzipa kuchuluka kwa ndalama zomwe muike mu akaunti yochulukitsa ndalama kuchokera pa 1,000MWK ngati mungakonde kuika ndalama mu akauntiyi.

<< LET PARTICIPANT MAKE DECISION >>

Please put this amount into the investment account.

Chonde ikani ndalamazi mu akaunti yochulukitsa ndalama.

---- [ *New Screen* ] ----

<<CLOSE AND REMOVE INVESTMENT BOX>>

---- [ *New Screen* ] ----

Wait/ Dikirani

Whether or not your investment decision can be realized will be determined by rolling a stone with numbers. If the outcome of the roll is 3, 4, 5 or 6 your investment decision will be realized. If the outcome of the roll is 1 or 2, you will not be allowed to put any money in the investment account. You will receive a payment of 1,000 MWK if your investment decision cannot be realized.

Tiponya kamwala ka madontho-madontho kuti tidziwe ngati mwalorezedwa kuika ndalama ku akaunti yochulukitsa ndalama kapena ayi. Ngati zotsatira zake ndi 3, 4, 5 kapena 6 mudzaloredwa kuika ndalama ku akaunti yochulukitsa ndalamayi. Koma ngati zotsatira zake ndi 1 kapena 2, simudzaloredwa kuika ndalama ku akaunti. Mudzalandira ndalama zokwana 1,000 MWK basi ngati simukuloredwa kuika ndalama ku akaunti.

<< GIVE DIE TO RESPONDENT >>

The rolling of a stone with numbers that will determine whether or not your investment decision can be realized will be made electronically once you grant us permission to proceed with the survey. The computer will be used to generate the roll in order to ensure that everything is done in a fair and unbiased manner.

Kuponya kwa kamwala ka madontho-madontho mwa mayere kuti tidziwe ngati mukuloredwa kuika ndalama ku akaunti yochulukitsa ndalama zanu kapena ayi kuchitika pa kompyuta ngati mutilore kuti tipitilize kafukufukuyu. Kompyuta idzagwiritsidwa ntchito kuti tichepetse zachinyengo zilizonse komanso kuti pasakhale kukondera.

Is it ok if we proceed?  
Tikhoza kupitiliza?

<< If yes, proceed. >>  
<<If no, NEW TABLET PAGE>>

---- [ *New Screen, if NO* ] ----

Do you have any questions?  
Muli ndi mafunso aliwonse?

<<EXPLAIN TO PARTICIPANT THAT HE OR SHE WILL NOT BE ALLOWED TO MAKE AN INVESTMENT DECISION. THEY CAN KEEP THE 1000 MWK, BUT NEED TO SIGN A RECEIPT>>

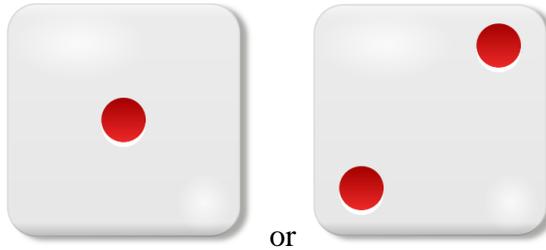
---- [ *New Screen, if YES* ] ----

We will now roll the die.  
Tsopano tipanga mayere a kamwala ka madontho-madontho.

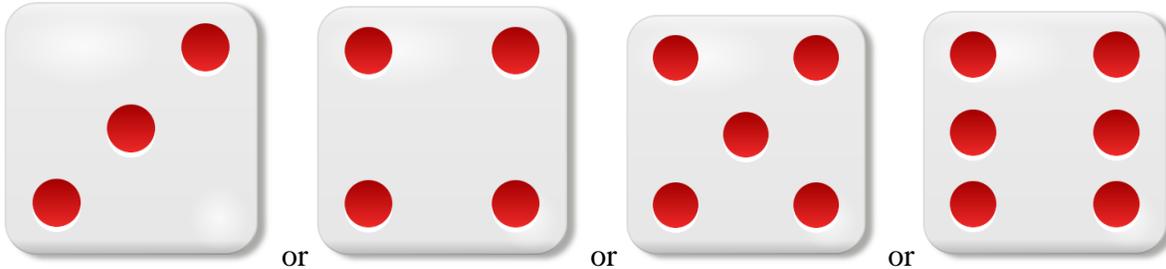
---- [ *New Screen, shown to respondent* ] ----



---- [ *New Screen, Pure Information Treatment, outcome shown to respondent* ] ----



---- [ *New Screen, IID/PCR Treatment, outcome shown to respondent* ] ----



---- [ *New Screen, Pure Information Treatment* ] ----

### Summary

The outcome of the roll of the stone with dots that determines whether or not your investment decision can be realized was  $\{diceRoll\}$ . You will NOT be allowed to place  $\{nonN12\}$  MWK in the investment account. The payment that you will receive will be 1,000 MWK.

Zotsatira za mayere oponya kamwala ka madontho-madontho omwe angakulorezeni kuyika kapena kusayika ndalama mu akaunti yochulukitsa ndalama ndi  $\{diceRoll\}$ . Simudzaloredwa kuika  $\{nonN12\}$  MWK mu akaunti. Ndalama zimene mudzalandire zidzakhala zokwana 1000MWK.

---- [ *New Screen, IID/PCR Treatment* ] ----

### Summary

The outcome of rolling a stone with dots that determines whether or not your investment decision can be realized was  $\{diceRoll\}$ . You will be allowed to place  $\{nonR12\}$  MWK in the investment account. You will earn  $\{nonRWin\}$  MWK if the outcome of the coin flip is HEADS and  $\{nonRLoss\}$  MWK if is TAILS.

Zotsatira za mayere oponya kamwala ka madontho-madontho omwe angakulorezeni kuyika kapena kusayika ndalama mu akaunti yochulukitsa ndalama anali  $\{diceRoll\}$ . Muloredwa kuika  $\{nonR12\}$  MK mu akauntiyi . Mudzalandira  $\{nonRWin\}$  MWK ngati zotsatira za mayere a ndalama yachitsulo ndi MUTU kapena  $\{nonRLoss\}$  MWK ngati zotsatira ndi TAMBALA.

Coin flips will be performed by members of our team electronically. We will use a computer program to generate coin flips in order to ensure that everything is done in a fair and unbiased manner. We will reveal the outcome of the coin flip that determines your payment confidentially today.

Mayere oponya ndalama ya chitsulo adzichitika pa kompyuta ndi ma mmodzi wa gulu lathu. Tidzagwiritsa ntchito makinawa ndi cholinga choti zonse zichitike mosakondera komanso mopanda chinyengo. Tidzakuuzani zotsatira za mayere oponya ndalama yachitsulo omwe adzatidziwitse ndalama zomwe mudzalandire kuchoka ku akaunti yochulukitsa ndalama mwachinsisi mmasiku lero

--- [ *Earnings Screen, Pure Information Treatment, All scenarios* ] ---

End – Decision Making

Your earnings are: 1,000 MWK  
Ndalama zimene mwapata zakwana : 1,000 MWK

Please sign this receipt.  
Chonde lembani sayini yanu apa

<< Have participant sign the receipt >>

---- [ *New Screen, IID/PCR Treatment, Investment  $X > 0$*  ] ----

End – Decision making

We will deliver your payment in person today, after every club member has had the opportunity to make an investment decision. In case we do not find you, we would like to know if it would be ok for us to deliver your payment in a sealed envelope to another person.

Tibwera kudzapereka malipiro kwa inu membala aliyense wa mkalabu mwanu akapanga chiganizo chake. Zitachitika kuti sitinakupezeni pakhomo kodi mungalore kuti munthu wina alandire katundu wanu mmalo mwanu. Ndalama zanu zizakhala mu envelopu yomata bwino.

Should we leave your payment with another person if you are not present when we distribute payments?

Kodi tidzasiye ndalama zanu ndi munthu wina ngati inuyo sitidzakupezani panthawiyi??

---- [ *Earnings Screen, IID/PCR Treatment, Investment  $X > 0$ , Authorize payment* ] ----

Authorization

Name of person authorized to receive payment:

Relationship to club member:

---- [ *Earnings Screen, IID/PCR Treatment, Investment  $X = 0$*  ] ----

End – Decision Making

The amount of money you placed in the investment account was: 0 MWK

Ndalama zimene munaika ku akaunti yochulukitsa ndalama zinali: 0 MWK

Your earnings are: 1,000 MWK

Ndalama zimene mwapata zakwana : 1,000 MWK

Please sign this receipt.

Chonde lembani sayini yanu apa

<< Have participant sign the receipt >>

---- [ *Last Screen, Pure Information, Formal Leader Treatment* ] ----

<< STOP: RECORD THE FOLLOWING INFORMATION ON YOUR SHEET >>

Name of club chair:  $\{\text{nonR4Name}\}$

Intended investment:  $\{\text{nonR12}\}$

<< THIS ENDS THE CURRENT INTERACTION. >>

Thank you for your time

Zikomo chifuka chanthawi yanu.

<< END >>

---- [ *Last Screen, Pure Information, Random Leader Treatment* ] ----

<< STOP: RECORD THE FOLLOWING INFORMATION ON YOUR SHEET >>

Name of random leader: \${nonR4Name}

Intended investment: \${nonR12}

<< THIS ENDS THE CURRENT INTERACTION. >>

Thank you for your time  
Zikomo chifuka chanthawi yanu.

<< END >>

---- [ *Last Screen, IID/PCR Treatment, Formal Leader Treatment* ] ----

<< STOP: RECORD THE FOLLOWING INFORMATION ON YOUR SHEET >>

Name of club chair: \${nonR4Name}

Amount invested: \${nonR12}

Authorized someone else to receive payment: Yes / No

Name of person authorized to receive payment: \${nonR15a\_1} [ Appears only if authorize ]

Relationship to participant: \${nonR15a\_2} [ Appears only if authorize ]

<< THIS ENDS THE CURRENT INTERACTION. >>

Thank you for your time  
Zikomo chifuka chanthawi yanu.

<< END >>

---- [ *Last Screen, IID/PCR Treatment, Random Leader Treatment* ] ----

<< STOP: RECORD THE FOLLOWING INFORMATION ON YOUR SHEET >>

Name of random leader: \${nonR4Name}

Amount invested: \${nonR12}

Authorized someone else to receive payment: Yes / No

Name of person authorized to receive payment: \${nonR15a\_1} [ Appears only if authorize ]

Relationship to participant: \${nonR15a\_2} [ Appears only if authorize ]

<< THIS ENDS THE CURRENT INTERACTION. >>

Thank you for your time  
Zikomo chifuka chanthawi yanu.

### **C.2.2 Payment script**

---- [ *New Screen* ] ----

Please enter/select the id of the first mover.

---- [ *New Screen* ] ----

Is \${name} the person you are supposed to pay?

---- [ *New Screen, if YES* ] ----

Is the person's name spelled correctly? [ \${name} ] [ YES /NO ]

---- [ *New Screen, if NO* ] ----

Enter the correctly spelled name

---- [ *New Screen* ] ----

Has \${nonName} [ID # \${idm\_id}] made an investment decision?

<< The first mover has to make a decision in order to be paid. Perform IDM.>>

---- [ *New Screen, if YES, Pure information treatment* ] ----

The choice made by \${nonName} was not realized.

\${nonName} should have received 1,000 MWK as payment.

Was \${nonName} paid? [YES/NO]

---- [ *New Screen, if YES, IID and PCR treatment* ] ----

Please enter the amount invested by \${nonName}:

---- [ *New Screen, IID and PCR treatment when investment=0* ] ----

\${nonName} did not place any money in the investment account.

$\{\text{nonName}\}$  should have received 1000 MWK as payment.

Was  $\{\text{nonName}\}$  paid? [YES/NO]

---- [ *New Screen, IID and PCR treatment when investment > 0* ] ----

### Summary

I have come to distribute your payment. You placed  $\{\text{n4b}\}$  MWK in the investment account and your choice was realized. You will earn  $\{\text{nWin}\}$  MWK if the outcome of the coin flip is HEADS and  $\{\text{nLoss}\}$  MWK if is TAILS.

Ndabwera kudzapereka ndalama zanu. Munaika  $\{\text{n4b}\}$  MK mu akaunti yochulukitsa ndalama ndipo munaloredwa kuchulukitsa ndalama . Mulandira  $\{\text{nWin}\}$  MWK ngati zotsatira za mayere a ndalama yachitsulo ndi MUTU kapena  $\{\text{nLoss}\}$  MWK ngati zotsatira ndi TAMBALA.

---- [ *New Screen, IID treatment when investment > 0* ] ----

### Coin flip

We will now conduct your coin flip using the computer.  
Tsopano tipanga mayere a ndalama yachitsulo pa kompyuta.

Flipping.../ Kutembenuza....



---- [ *New Screen, PCR treatment when investment > 0* ] ----

### Coin flip

We will now reveal the outcome of the coin flip that determines your payment.  
Pano tikuzani zotsatila za mayere a ndalama ya chitsulo omwe atidziwitse ndalama zomwe mupeze.



---- [ New Screen, IID and PCR treatment when investment > 0 ] ----

The outcome of the coin flip is: [HEADS/TAILS]  
Zotsatira za mayere a ndalama yachitsulo ndi: [MUTU/TAMBALA]



or

---- [ New Screen, IID and PCR treatment when investment > 0 ] ----

End

The amount of money you placed in the investment account was:  $\${n4b}$  MWK  
Ndalama zimene munaika ku akaunti yochulukitsa ndalama zinali:  $\${n4b}$  MWK

The outcome of the coin flip that determines your payment was:  $\${coinFlipText}$ .  
Zotsatira za mayere a ndalama yachitsulo zomwe zitidziwitse ndalama zomwe mwapata zinali:  
 $\${coinFlipText}$ .

Your earnings are:  $\${nPayout}$  MWK  
Ndalama zimene mwapata zakwana:  $\${nPayout}$  MWK

Please sign this receipt.  
Chonde lembani sayini yanu apa

<< Have participant sign the receipt >>

Thank you for your time.  
Zikomo chifukwa chanthawi yanu.

### **C.3. First mover script for external leaders**

#### **C.3.1 Decision scrip**

Please enter the surveyor's ID

---- [ *New Screen* ] ----

Please enter the ID of the survey respondent's household. For AFO surveys, please enter the AFO's ID.

---- [ *New Screen* ] ----

Please re-enter the ID.

---- [ *New Screen* ] ----

Is \${afoName} the AFO you are about to survey?

---- [ *New Screen* ] ----

Is the AFO's name spelt correctly? [ \${afoName} ]

---- [ *New Screen* ] ----

Please re-enter the name of the AFO

---- [ *New Screen* ] ----

#### **Consent/ Chilorezo**

We will now give YOU the opportunity to make a decision. This decision will be in exchange for money. The money you will make will be determined by the decision that you make. There is no right or wrong decision. We only ask that you think carefully about the decision that you want to make and choose what is best for you.

Tsopano tikupatsani mwayi oti INU muthe kupanga chiganizo. Kupanga chiganizoku kudzakhala mosinthana ndi ndalama. Chiganizochi ndichimene chingatidziwitse ndalama zimene mungathe kupeza. Palibe chiganizo cholondola kapena cholakwika. Chomwe tingakupempheni ndi chakuti muganizire mofatsa pa chiganizo chimene mungapange ndipo musankhe zimene zili zofunikira kwa inu.

We will give you more specific information about how the decision you will make will determine the amount of money that you will earn soon.

Tikufotokozerani bwinobwino momwe chiganizo chimene mupangechi chingatidziwitse kuti mwapata ndalama zingati posachedwapa.

[Interviewer: Respondents might ask more details about the decision they will make. Explain to them that those details will be explained in detail once you have explained what they need to know first before they take part in the next part of the survey.]

You are free to decide whether or not you want to participate in this decision. Even if you agree to participate now, you can end your participation at any time. If you choose not to participate or end your participation at any time you will not be eligible to receive a payment. Payments will be distributed privately by a member of our team [ 45 ] days from now.

Muli ndi ufulu kusankha kutenga nawo mbali kapena kusatenga nawo mbali mukupanga chiganizochi. Ngakhale mutavomera kutenga nawo gawo panopa, muli ndi ufulu osiya kutenga nawo gawo nthawi iliyonse imene mungakonde kutero. Mukasankha kusatenga nawo mbali mukupanga chiganizochi kapena kusankha kusiya kupanga chiganizochi mkatikati mwa kucezaku simukhala ndi mwayi olandira ndalama zimene mumayenera kulandira. Ndalamazidzaperekedwa mwachinsisi ndi mmodzi wa gulu lathu masiku [ 45 ] kuchokera lero.

The decision that you make today may be revealed to others. Before you make the decision, we will let you know whether or not your decision will be revealed. We will not tell anyone how much money you will earn.

Chiganizo chimene mupange lerochi chikhoza kudzauliridwa kapena kuvumbulutsidwa kwa anthu ena. Musanapange chiganizochi, tidzakudziwitsani ngati chiganizochi chidzaululidwe kapena chidzavumbulutsidwe kwa ena. Sitidzauza wina aliyense ndalama zimene mwapeza.

Would you like to participate in the next part of the survey and make a decision in exchange for money?

Mungakonde kutenga nawo mbali mu gawo lotsatira la kafukufukuyu ndikupanga chiganizo posinthana ndi ndalama?

<< If yes, proceed. If not, end survey. >>

---- [ *New Screen* ] ----

Decision [ 1 ]

You will now be given 1,000 MWK.  
Mupatsidwa ndalama yokwanira 1000 MWK.

<< DO NOT HAND OUT MONEY >>

This 1,000 MWK is now YOURS. You can choose to place some, all or none of YOUR 1,000 MWK in an investment account.

1000MWK imeneyi ndi yanu. Mukhoza kuika zina mwa ndalama zanu kapena ndalama zanu zonse kapenanso kusaika ndalama zanu ku akaunti yochulukitsa ndalama.

Money in the investment account multiplies by a factor of 4 half of the time and pays nothing half of the time. Whether or not money in the investment account is multiplied by a factor of 4 or 0 will be determined by the flip of a coin. Investments into the investment account need to be made in 100 MWK increments.

Ndalama yanuyi idzachulukitsidwa ka 4 kapena idzachulukitsidwa ka 0 kochuluka mofanana. Kuti ndalama mu akaunti ichulukitsidwe ka 4 kapena ka 0 zitengera zotsatila za mayere oponya ndalama yachitsulo. Ndalama zoika mu akaunti yochulukitsa ndalama zikuyenera kukhala mmilingo ya ma 100MWK.

---- [ *New Screen* ] ----

<< SHOW VISUAL AID #1: ENDOWMENT and ICONS >>

You have been given 1000MWK in 10 100 MWK notes. You can chose to keep your money or invest your money. If you chose to invest your money in the investment account, you can chose to invest some of it or all of it. The amount you can invest in the account CANNOT EXCEED 1000MWK because the amount you are investing is being taken from the 1000MWK we have given you.

Mwapatsidwa ndalama yokwana 1000MWK yomwe ndima 100MWK okwana 10. Ndalama yanuyi mutha kusunga kapena kuika ku akaunti yochulukitsa ndalama. Mukasankha kuika ku akaunti yochulukitsa ndalama, mutha kuikako zina kapena zonse mwa ndalama zanu. Ndalama zomwe muike mu akaunti yochulukitsa ndalamayi SIZINGADZOLE 1000 MWK chifukwa ndalama zomwe mudziika mu akauntizi mudzichotsera pa 1000 MWK yomwe mwapatsidwa ija.

---- [ *New Screen* ] ----

If the outcome of the coin flip is HEADS, money in the investment account will be multiplied by a factor of 4. If the outcome of the coin flip is TAILS, money in the investment account will pay nothing. You must decide how much, if any, of your 1,000 MWK to place in the investment account.

Tikaponya ndalama yachitsuloyi ndipo zotsatira zake ndi MUTU, ndalama za mu akaunti yanu zidzachulukitsidwa ka 4. Koma ngati zotsatira zake ndi TAMBALA, mudzaluzza ndalama zonse za mu akaunti yochulukitsa ndalama. Mukuyenera kupanga chiganizo pa kuchuluka kwa ndalama zimene muyike ku akaunti yochulukitsa ndalama kuchokera pa 1,000MWK mwapatsidwa ija ngati mungakonde kuika ndalama mu akaunti.

---- [ *New Screen* ] ----

<< VISUAL AID #2: INVESTMENT CHOICES AND RETURN >>

( GO OVER EXAMPLES 1-4, 11 )

If you decide not to invest any money into the investment account the outcome of the coin flip will NOT affect you in any way.

Mukapanda kuika ndalama iliyonse mu akaunti yochulukitsa ndalama zotsatira za mayere otembenuza ndalama ya chitsulo sizidzakukhudzani mu nyira iliyonse.

If you chose to invest [X] MWK of the money you have received into your investment account, and the outcome of the coin flip is HEADS, your money will be [X] MWK. But if the outcome of the coin flip is TAILS your money will be [X] MWK.

Mukaika [X] MWK pa ndalama zanu mwapatsidwa mu akaunti ochulukitsa ndalama ndipo zotsatira za mayere otembenuza ndalama ya chitsulo ndi MUTU ndalama zanu za mu akaunti yochulukitsa ndalama zidzakhala [X] MWK koma ikagwera ku TAMBALA mudzapeza [X].

<< VISUAL AID # 3: INVESTMENT CHOICES AND PAYOFFS >>

If you decide not to invest any money into the investment account the outcome of the coin flip will NOT affect you in any way. You will keep the 1000 MWK you have received.

Mukapanda kuika ndalama iliyonse mu akaunti yochulukitsa ndalama pa ndalama zanu mwapatsidwa. Zotsatira za mayere otembenuza ndalama ya chitsulo sizidzakukhudzani mu nyira iliyonse. Mudzalandira 1000MWK mwalandira ija.

If you chose to invest [X] MWK of the money you have received into your investment account, and the outcome of the coin flip is HEADS your money will be [X] MWK. We add the money in your account, which has been multiplied by 4 and the money you kept. But if the outcome of the coin flip is TAILS your money will be [X] MWK. This is the money that you kept.

Mukasankha kuti muyike [X] MWK pa ndalama zanu mwapatsidwa ku akaunti yanu yochulukitsa ndalama ndipo zotsatira za mayere otembenuza ndalama ya chitsuro ndi MUTU ndalama zanu zidzakwana [X] MWK .Tiphatikiza ndalama zanu za mu akaunti, zomwe zachulukitsidwa ka 4, ndi zomwe munasunga. Koma ikagwera ku TAMBALA ndalama zanu zidzakhala [X] MWK. Izi ndi ndalama zomwe munasunga zija.

( KEEP VISUAL AID # 3 OPEN )

---- [ *New Screen* ] ----

Do you understand?  
Kodi mwamvetsetsa ndanenazi?

The decision that you make will be confidential. We will not reveal it to anyone. We will not tell anyone how much money you will earn.

Chiganizo chimene mupange chidzakhala chachinsinsi ndipo sitidzauza wina aliyense. Sitidzauza wina aliyense zachiganizo chanucho. Sitidzauza wina aliyense ndalama zimene mwapeza.

Please indicate on the poster how much, if any, of your 1,000 MWK you would like to place in the investment account.

Chonde lozani pa chithuzipa kuchuluka kwa ndalama zomwe muike mu ankaunti yochulukitsa ndalama kuchokera pa 1,000MWK ngati mungakonde kuika ndalama mu akaunti.

<< Let participant make decision >>

---- [ *New Screen* ] ----

Decision [ 2 ]

The previous decision that you made was confidential.

Chiganizo chimene munapanga poyamba chinali chachinsinsi.

We will now give you  $\{\text{numClubs}\}$  different opportunities to change or maintain your decision. You will make one decision for each of the clubs you work with. It is entirely up to you whether you change or maintain your decision each of the  $Y$  times you are asked to make a choice.

Tikupatsani mwayi opanga ziganizo ka  $\{\text{numClubs}\}$  oti muthe kusintha kapena kusantha chiganizo mwapanga kale chija. Mupanga chiganizo pa kalabu iliyonse yomwe mumagwira nayo ntchito payokhapayokha. Zili kwa inu kuti musinthe kapena musasinthe chiganizo chanu mu maulendo  $\{\text{numClubs}\}$  omwe mupatsidwe mpata kuti mupange chiganizo.

One of the decisions that you make will be randomly selected to determine the payment that you will receive. The computer will make the selection to ensure that everything is done in a fair and unbiased manner. Every decision that you make will have an equal chance of counting for payment.

Chimodzi mwa ziganizo mupangezi chidzasankhidwa mwamayere kuti tigwiritse ntchito powerengetsera ndalama zomwe inu mwapata. Kompyuta idzachita chisankhochi kuti tionetsetse kuti zonse zikuchitika mosakondera ndiponso mopanda chinyengo. Ziganizo zanu zonse zili ndi mwayi ofanana kuti chimodzi mwa izo chikhoza kusankhidwa ngati chiganizo chogwiritsidwa ntchito powerengetsa ndalama.

Is it ok if we proceed?  
Tikhoza kupitiliza?

---- [ *New Screen, if NO* ] ----

Do you have any questions?

<< EXPLAIN TO THE PARTICIPANT THAT HE/SHE CAN MAKE THE SAME DECISION FOR ALL CLUBS AND THUS NOT CHANGE HIS/HER DECISION

IF THE PARTICIPANT AGREES TO MAKE A DECISION GO BACK AND CONTINUE WITH IDM.

IF THE PARTICIPANT STILL DOES NOT WANT TO MAKE A DECISION THAT WILL BE REVEALED TO OTHERS, THEN EXPLAIN THAT THEY WILL RECEIVE THE ORIGINAL ENDOWMENT OF 1000 MWK.>>

---- [ New Screen, if YES. Repeated N times, where N=clubs the extensionist works with] ----

Revised decision [\${iter1}]

The decision that you make NOW will be revealed to at most 3 members of club [\${clubNameA}].

Chiganizo chimene mupange panochi chidzaonetsedwa kwa mamembala ena osaposera atatu a mu kalabu ya [\${clubNameA}].

Please indicate on the poster how much, if any, of your 1,000 MWK you would like to place in the investment account.

Chonde lozani pa chithuzipa kuchuluka kwa ndalama zomwe muike mu ankaunti yochulukitsa ndalama kuchokera pa 1,000MWK ngati mungakonde kuika ndalama mu akaunti.

<< Let participant make decision >>

---- [ New Screen ] ----

Wait/ Dikirani

Whether or not each of your investment decisions can be realized will be determined by rolling a stone with numbers. If the outcome of the roll is 3, 4, 5 or 6 your investment decision will be realized. If the outcome of the roll is 1 or 2, you will not be allowed to put any money in the investment account. You will receive a payment of 1,000 MWK if the investment decision that is randomly selected to determine the payment that you will receive cannot be realized.

Pa chiganizo chilichonse chomwe mwapanga tiponya kamwala ka madontho-madontho kuti tidziwe ngati mwaloredwa kuika ndalama za mu chiganizochi ku akaunti yochulukitsa ndalama kapena ayi. Ngati zotsatira zake ndi 3, 4, 5 kapena 6 mudzaloredwa kuika ndalama ku akaunti yochulukitsa ndalamayi. Koma ngati zotsatira zake ndi 1 kapena 2, simudzaloredwa kuika ndalama ku akauntiyi. Mudzalandira ndalama zokwana 1,000 MWK basi ngati simukuloredwa kuika ndalama za mchiganizo chanu chimodzi chomwe chasankhidwa mwa mayere chija ku akaunti.

<< GIVE DIE TO RESPONDENT >>

The rolling of a stone with numbers that will determine whether or not each of your investment decisions can be realized will be made electronically once you grant us permission to proceed with the survey. The computer will be used to generate a die roll for each decision in order to ensure that everything is done in a fair and unbiased manner.

Kuponya kwa kamwala ka madontho-madontho mwa mayere kuti tidziwe ngati mukulorezedwa kuika ndalama ku akaunti yochulukitsa ndalama zanu kapena ayi kuchitika pa kompyuta pa chiganizo chilichose chomwe mupange mu ziganizo zija, ngati mutilore kuti tipitilize kafukufukuyu. Kompyuta idzagwiritsidwa ntchito kupanga mayere amodzi a kamwala kamadontho-madontho osiyana pa chiganizo chilichonse mupange kuti tichepetse zachinyengo zilizonse komanso kuti pasakhale kukondera.

Is it ok if we proceed?  
Tikhoza kupitiliza?

<< If yes, proceed. >>  
<<If no, NEW TABLET PAGE >>

---- [ *New Screen, if NO* ] ----

Do you have any questions?  
Muli ndi mafunso aliwonse?

<< Explain to participant that he or she will not be allowed to make an investment decision. They will receive the 1000 MWK as payment. >>

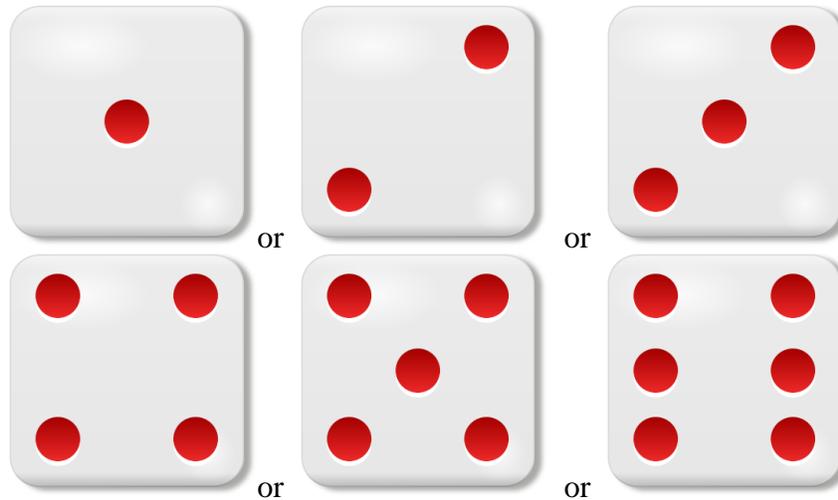
---- [ *New Screens, if YES. Repeated N times* ] ----

We will now roll the die for club [\${clubNameB}]  
Tsopano tipanga mayere a kamwala ka madontho-madontho pa kalabu ya [\${clubNameB}]

---- [ *Roll n, shown to respondent* ] ----



---- [ *Outcome n, shown to respondent* ] ----



---- [ New Screen ] ----

### Summary

The outcome of rolling a stone with dots that determines whether or not each of your investment decisions can be realized was:

Zotsatira za mayere a kamwala ka madontho-madontho zomwe zitidziwitse ngati chiganizo chilichonse mwa ziganizo mwapanga zija chaloredwa kuti mukhoza kuchulukitsako ndalama chinali.

$\{\text{clubRoll1}\}$  for Club  $\{\text{clubName1}\}$   
 $\{\text{clubRoll1}\}$  ku kalabu ya  $\{\text{clubName1}\}$

$\{\text{clubRoll2}\}$  for Club  $\{\text{clubName2}\}$   
 $\{\text{clubRoll2}\}$  ku kalabu ya  $\{\text{clubName2}\}$

$\{\text{clubRoll3}\}$  for Club  $\{\text{clubName3}\}$   
 $\{\text{clubRoll3}\}$  ku kalabu ya  $\{\text{clubName3}\}$

...  
 $\{\text{clubRoll11}\}$  for Club  $\{\text{clubName11}\}$   
 $\{\text{clubRoll11}\}$  ku kalabu ya  $\{\text{clubName11}\}$

Only one of your decisions will count for payment. Neither you nor I get to choose which of your decisions counts. The computer will randomly select the decision that will determine the payment that you will receive.

Chiganizo chimodzi chokha mwa ziganizo mwapanga zija chidzagwiritsidwa ntchito powerengetsera ndalama. Palibe angasankhe chiganizo chomwe chigwiritsidwe ntchito pakati pa

inu ndi ine. Kompyuta isankha yokha chiganizo chomwe tigwiritse ntchito powerengetsera ndalama mwamayere.

Coin flips will be performed by members of our team electronically. We will use a computer program to generate coin flips in order to ensure that everything is done in a fair and unbiased manner. We will reveal the outcome of the coin flip that determines your payment and the decision that is randomly selected to count for payment. We will reveal this when we come back to pay you confidentially [45] days from now.

Mayere oponya ndalama ya chitsulo adzichitika pa kompyuta ndi ma mmodzi wa gulu lathu. Tidzagwiritsa ntchito makinawa ndi cholinga choti zonse zichitike mosakondera komanso mopanda chinyengo. Tidzakuuzani zotsatira za mayere oponya ndalama yachitsulo omwe adzatidziwitse ndalama zomwe mudzalandire komanso tidzakuuzani chiganizo chomwe chasankhidwa pa ziganizo zanu mwamayere kuti chigwire ntchito powerengetsera ndalama. Izi tidzakuuzani mwachinsisi pobwera kudzakupatsani ndalama mmasiku [45]kuchoka lero.

---- [ *New Screen* ] ----

End – Decision making

We will deliver your payment in person [ 45 ] days from now, after every club member has had the opportunity to make an investment decision.

Tibwera kudzapereka malipiro kwa inu masiku [45] kuchoka lero, membala aliynse wa mkalabu mwanu akapanga chiganizo chake.

### **C.3.2 Payment script**

---- [ *New Screen* ] ----

Please enter/select the id of the first mover.

---- [ *New Screen* ] ----

Is  $\{afoName\}$  the person you are supposed to pay?

---- [ *New Screen* ] ----

Is the person's name spelled correctly? [ $\{afoName\}$ ] [ YES /NO ]

---- [ *New Screen, if NO* ] ----

Enter the correctly spelled name

---- [ *New Screen, if YES* ] ----

Has  $\{afoNameC\}$  [ID#:  $\{idm\_id\}$ ] made an investment decision? [YES/NO]

<< The first mover must have made a decision in order to be paid!>>

---- [ *New Screen* ] ----

### Summary

I have come to distribute your payment. You placed the following amounts in the investment account:

Ndabwera kudzapereka ndalama zanu. Munaika ndalama zotsatirazi mu akaunti yochulukitsa ndalama pa ziganizo zanu:

For Club 1 [ $\{clubName1\}$ ]:  $\{afoWager1\}$  MWK and your choice was  $\{clubOutcome1\}$

Pa kalabu 1 [ $\{clubName1\}$ ]:  $\{afoWager1\}$  MWK ndipo chisankho chanu  $\{clubOutcomeCh1\}$

For Club 2 [ $\{clubName2\}$ ]:  $\{afoWager2\}$  MWK and your choice was  $\{clubOutcome2\}$

Pa kalabu 2 [ $\{clubName2\}$ ]:  $\{afoWager2\}$  MWK ndipo chisankho chanu  $\{clubOutcomeCh2\}$

.  
.  
.

For Club 11 [ $\{clubName11\}$ ]:  $\{afoWager11\}$  MWK and your choice was  $\{clubOutcome11\}$

Pa kalabu 11 [ $\{clubName11\}$ ]:  $\{afoWager11\}$  MWK ndipo chisankho chanu  $\{clubOutcomeCh11\}$

We will now let the computer randomly select the decision that counts for payment.

Tsopano tilora kompyuta kuti isankhe mwamayere chiganizo chomwe chigwiritsidwe ntchito powerengetsera ndalama zomwe mwapata.

[ Note: N statements appeared, where N is the number of clubs the AFO works with ]

---- [ *New Screen, Choice Paid from Pure Information Treatment* ] ----

### Decision selection

The decision randomly selected to count for payment was: DECISION [ $\{selectedDecision\}$ ], for CLUB [ $\{selectedClub\}$ ]

Chiganizo chomwe chinasankhidwa mwamayere kuti tigwiritse ntchito powerengetsa ndalama ndi CHIGANIZO [ $\{selectedDecision\}$ ], ku KALABU ya [ $\{selectedClub\}$ ]

On this decision, the outcome of the roll of the stone with numbers for this choice was [\${selectedRoll}]. Your choice was NOT realized.

Pa chiganizo ichi, zotsatira za mayere a kamwala ka madontho-madontho pokhudzana ndi chisankho chanu zinali [\${selectedRoll}]. Chisankho chanu SICHINALOREDWE.

Your earnings are:	1,000 MWK
Ndalama zimene mwapata zakwana:	1,000 MWK

Please sign this receipt.  
Chonde lembani sayini yanu apa

<< Have participant sign the receipt >>

Thank you for your time.  
Zikomo chifukwa chanthawi yanu.

<< End >>

---- [ *New Screen, Choice Paid from the IID or PCR Treatments, when investment=0* ] ----

#### Decision selection

The decision randomly selected to count for payment was: DECISION [\${selectedDecision}], for CLUB [\${selectedClub}]

Chiganizo chomwe chinasankhidwa mwamayere kuti tigwiritse ntchito powerengetsa ndalama ndi CHIGANIZO [\${selectedDecision}], ku KALABU ya [\${selectedClub}]

On this decision, the outcome of the roll of the stone with numbers for this choice was: [\${selectedRoll}]. Your choice was realized.

Pa chiganizo ichi, zotsatira za mayere a kamwala ka madontho-madontho pokhudzana ndi chisankho chanu zinali [\${selectedRoll}]. Chisankho chanu CHINALOREDWA.

You did not place any money in the investment account on this decision.

Munasakha kusaika ndalama iliyonse mu akaunti yochulukitsa ndalama pa chiganizo ichi.

Your earnings are:	1000 MWK
Ndalama zimene mwapata zakwana:	1000 MWK

Please sign this receipt.  
Chonde lembani sayini yanu apa

<< Have participant sign the receipt >>

Thank you for your time.  
Zikomo chifukwa chanthawi yanu.

<< End program >>

---- [ *New Screen, Choice Paid from the IID or PCR Treatments, when investment>0* ] ----

#### Decision selection

The decision randomly selected to count for payment was: DECISION [\${selectedDecision}], for CLUB [\${selectedClub}]

Chiganizo chomwe chinasankhidwa mwamayere kuti tigwiritse ntchito powerengetsa ndalama ndi CHIGANIZO [\${selectedDecision}], ku KALABU ya [\${selectedClub}]

The outcome of the roll of the stone with numbers for this choice was: [\${selectedRoll}], so your choice was realized.

Pa chiganizo ichi, zotsatira za mayere a kamwala ka madontho-madontho pokhudzana ndi chisankho chanu zinali [\${selectedRoll}]. Ndipo chisankho chanu CHINALOREDWA.

You chose to place \${selectedWager} MWK in the investment account on this decision.

Munasankha kuika ndalama zokwana \${selectedWager} MWK mu akaunti yochulukitsa ndalama pa chiganizo ichi.

---- [ *New Screen, Choice Paid from the IID Treatment, when investment>0* ] ----

#### Coin flip

We will now conduct your coin flip using the computer.  
Tsopano tipanga mayere a ndalama yachitsulo pa kompyuta.

Flipping.../ Kutembenuza...



---- [ New Screen, Choice Paid from the PCR Treatment, when investment > 0 ] ----

### Coin flip

We will now reveal the outcome of the coin flip that determines your payment.

Pano tikuuzani zotsatila za mayere a ndalama ya chitsulo omwe atidziwitse ndalama zomwe mupeze.



---- [ New Screen, Choice Paid from the IID or PCR Treatments, when investment > 0 ] ----

The outcome of the coin flip is: [HEADS/TAILS]

Zotsatira za mayere a ndalama yachitsulo ndi: [MUTU/TAMBALA]



or

---- [ New Screen, Choice Paid from the IID or PCR Treatments, when investment > 0 and earnings > 0 ] ----

End

The decision randomly selected to count for payment was: Decision [\${selectedDecision}], for club [\${selectedClub}]

Chiganizo chomwe chinasankhidwa mwamayere kuti tigwiritse ntchito powerengetsa ndalama ndi CHIGANIZO [\${selectedDecision}], ku KALABU ya [\${selectedClub}]

On this decision, the amount of money you placed in the investment account: \${selectedWager} MWK

Pa chiganizo ichi, ndalama zimene munaika ku akaunti yochulukitsa ndalama zinali: \${selectedWager} MWK

The outcome of the coin flip that determines your payment was:  $\{\text{selectedFlipText}\}$ .  
Zotsatira za mayere a ndalama yachitsulo zomwe zitidziwitse ndalama zomwe mwapata zinali:  
 $\{\text{selectedFlipTextCh}\}$

Your earnings are:  $\{\text{aPayout}\}$  MWK  
Ndalama zimene mwapata zakwana:  $\{\text{aPayout}\}$  MWK

Please sign this receipt.  
Chonde lembani sayini yanu apa

<< Have participant sign the receipt >>

Thank you for your time.  
Zikomo chifukwa chanthawi yanu.

<< End program >>

---- [ *New Screen, Choice Paid from the IID or PCR Treatments, when investment>0 and earnings=0* ] ----

End

The decision randomly selected to count for payment was: Decision [ $\{\text{selectedDecision}\}$ ], for club [ $\{\text{selectedClub}\}$ ]

Chiganizo chomwe chinasankhidwa mwamayere kuti tigwiritse ntchito powerengetsa ndalama ndi CHIGANIZO [ $\{\text{selectedDecision}\}$ ], ku KALABU ya [ $\{\text{selectedClub}\}$ ]

On this decision, the amount of money you placed in the investment account: 1000 MWK  
Pa chiganizo ichi, ndalama zimene munaika ku akaunti yochulukitsa ndalama zinali: 1000 MWK

The outcome of the coin flip that determines your payment was: TAILS.  
Zotsatira za mayere a ndalama yachitsulo zomwe zitidziwitse ndalama zomwe mwapata zinali:  
TAMBALA

Your earnings are:  $\{\text{aPayout}\}$  MWK  
Ndalama zimene mwapata zakwana:  $\{\text{aPayout}\}$  MWK

Thank you for your time.  
Zikomo chifukwa chanthawi yanu.

<< End program >>

---- [ *New Screen, All treatments, when respondent refused to make an investment decision* ] ----  
Summary

I have come to distribute your payment.  
Ndabwera kudzapereka ndalama zanu.

You did not want to make an investment decision.  
Inu simudafune kupanga chisankho pa ndalama yoti muchulukitse.

Your earnings are: [1,000] MWK  
Ndalama zimene mwapata zakwana : [1,000] MWK

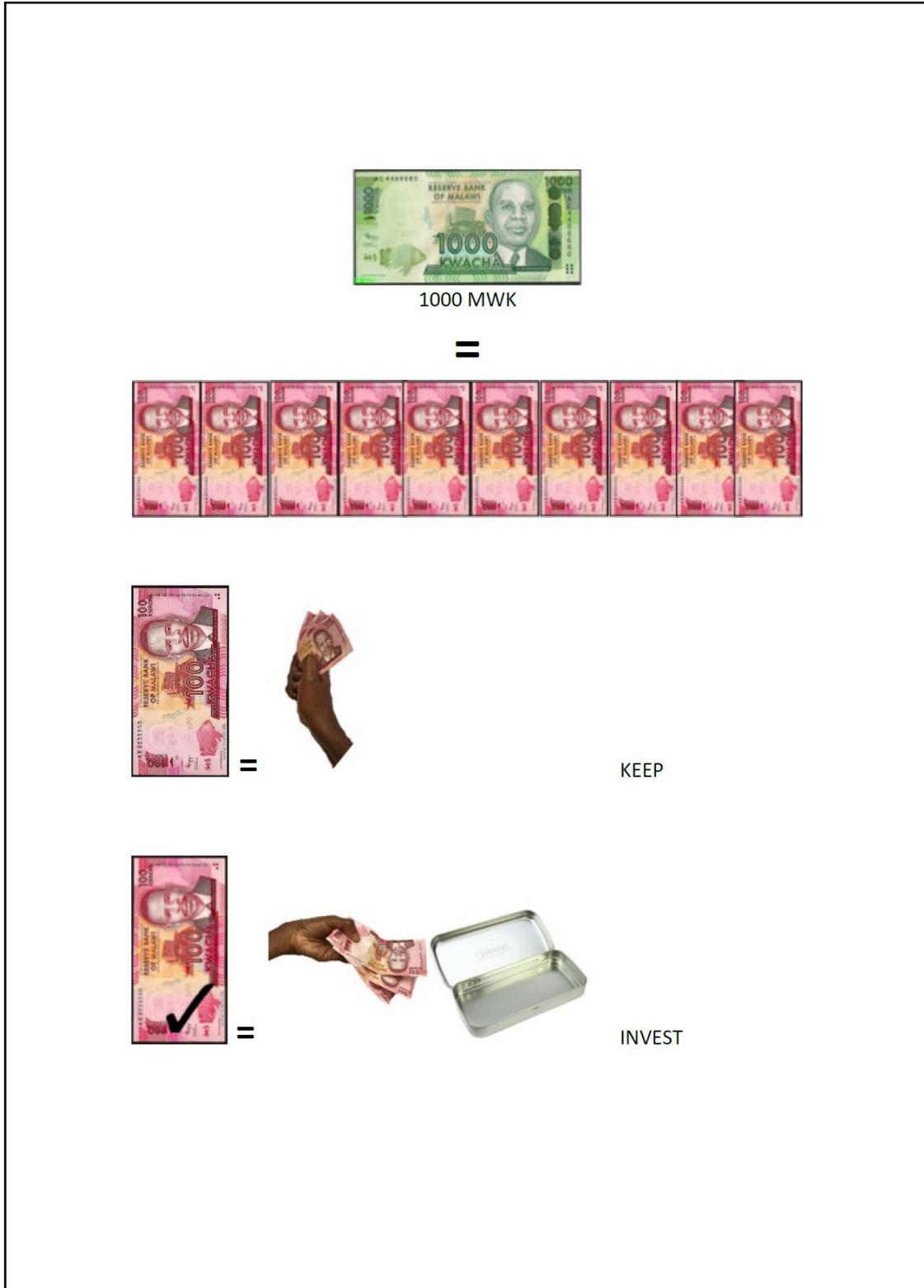
Thank you for your time  
Zikomo chifukwa chanthawi yanu.

<< End program >>

## Appendix D. Visual Aid Material

This appendix provides the visual aid material used jointly with the script to elicit decisions. Enumerators carried visual aid material in a black labeled and laminated booklet.

Figure D1. Visual Aid # 1: Endowment and Icons (booklet page 1, size 8.5x11")



Note: The version in Chichewa replaces “KEEP” with “KUSUNGA” and “INVEST” with “KUIKA MU ACCOUNT YOCHULUKITSA NDALAMA”

Figure D2. Visual Aid #2: Investment Choices and Return (booklet page 2, size 8.5x11”)

	4X	0X
INVEST		
 0 MWK	0 MWK	0 MWK
 100 MWK	400 MWK	0 MWK
 200 MWK	800 MWK	0 MWK
 300 MWK	1200 MWK	0 MWK
 400 MWK	1600 MWK	0 MWK
 500 MWK	2000 MWK	0 MWK
 600 MWK	2400 MWK	0 MWK
 700 MWK	2800 MWK	0 MWK
 800 MWK	3200 MWK	0 MWK
 900 MWK	3600 MWK	0 MWK
 1000 MWK	4000 MWK	0 MWK

Figure D3. Visual Aid #3: Investment Choices and Payoffs (booklet page 3, fold-out menu)

Choice	Invest		Earnings if HEADS	Earnings if TAILS
1	0 MWK	→	 1000 MWK	 1000 MWK
2	 100 MWK	→	  1300 MWK	  900 MWK
3	 200 MWK	→	  1600 MWK	  800 MWK
4	 300 MWK	→	  1900 MWK	  700 MWK
5	 400 MWK	→	  2200 MWK	  600 MWK
6	 500 MWK	→	  2500 MWK	 500 MWK
7	 600 MWK	→	  2800 MWK	 400 MWK
8	 700 MWK	→	  3100 MWK	 300 MWK
9	 800 MWK	→	  3400 MWK	 200 MWK
10	 900 MWK	→	  3700 MWK	 100 MWK
11	 1000 MWK	→	 4000 MWK	0 MWK

Page 1

Page 2

Page 3

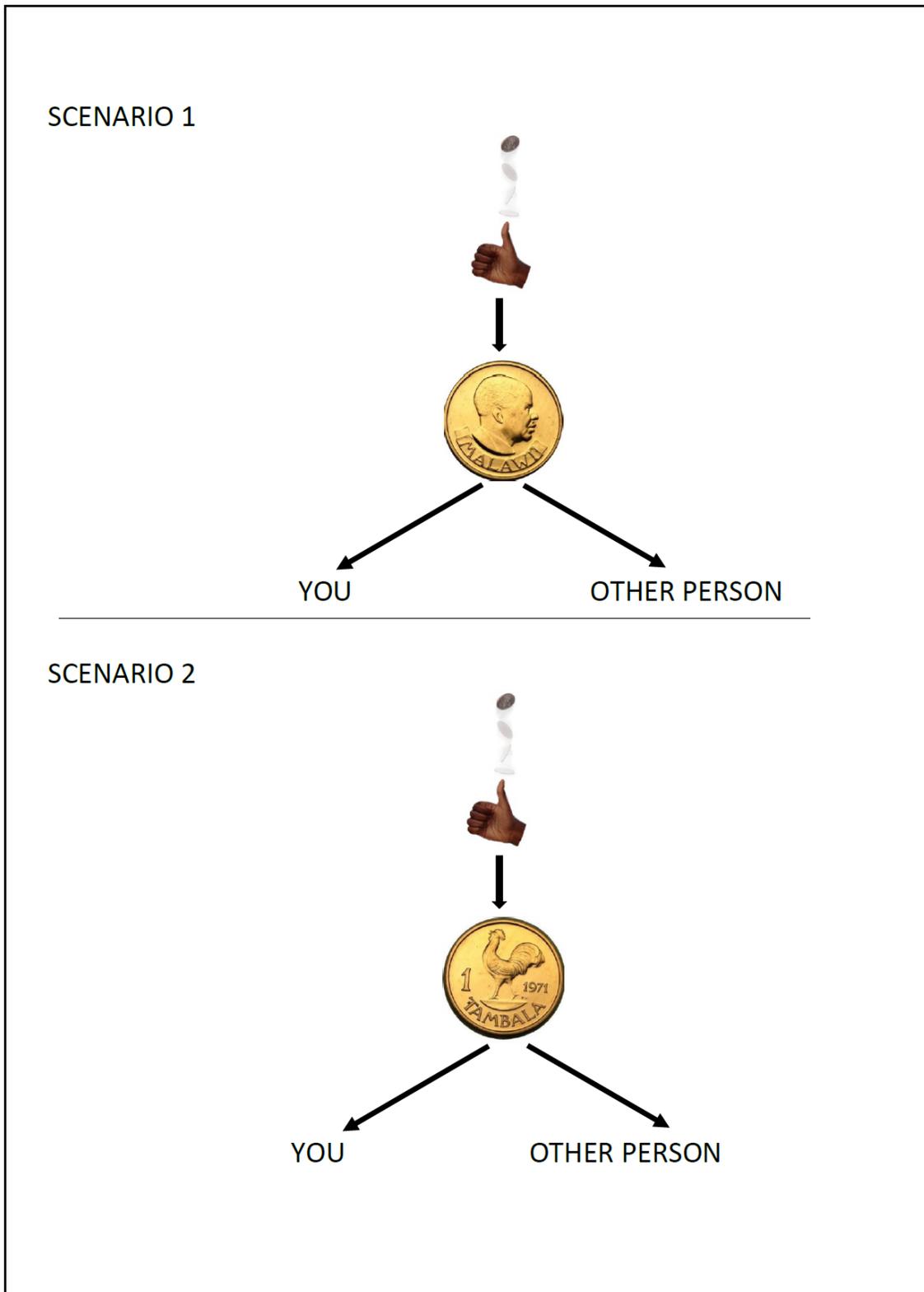
Page 4

Height: 26.3"

Width: 11"

Note: The version in Chichewa replaces “Choice” with “Chiganizo”, “Invest” with “Kuika”, and “Earnings if HEADS/TAILS” with “Zomwe mutapate ndi MUTU/TAMBALA”.

Figure D4. Visual Aid #4: Coin flips, PCR (booklet page 4, size 8.5x11")



Note: The version in Chichewa replaces “SCENARIO” with “ZOCHITIKA”, “YOU” with “INU”, and “OTHER PERSON” with “MUNTHU WINA” in pages 4-6 of the visual aid booklet.

Figure D5. Visual Aid #5: Coin flips, IID (booklet page 5, size 8.5x11")

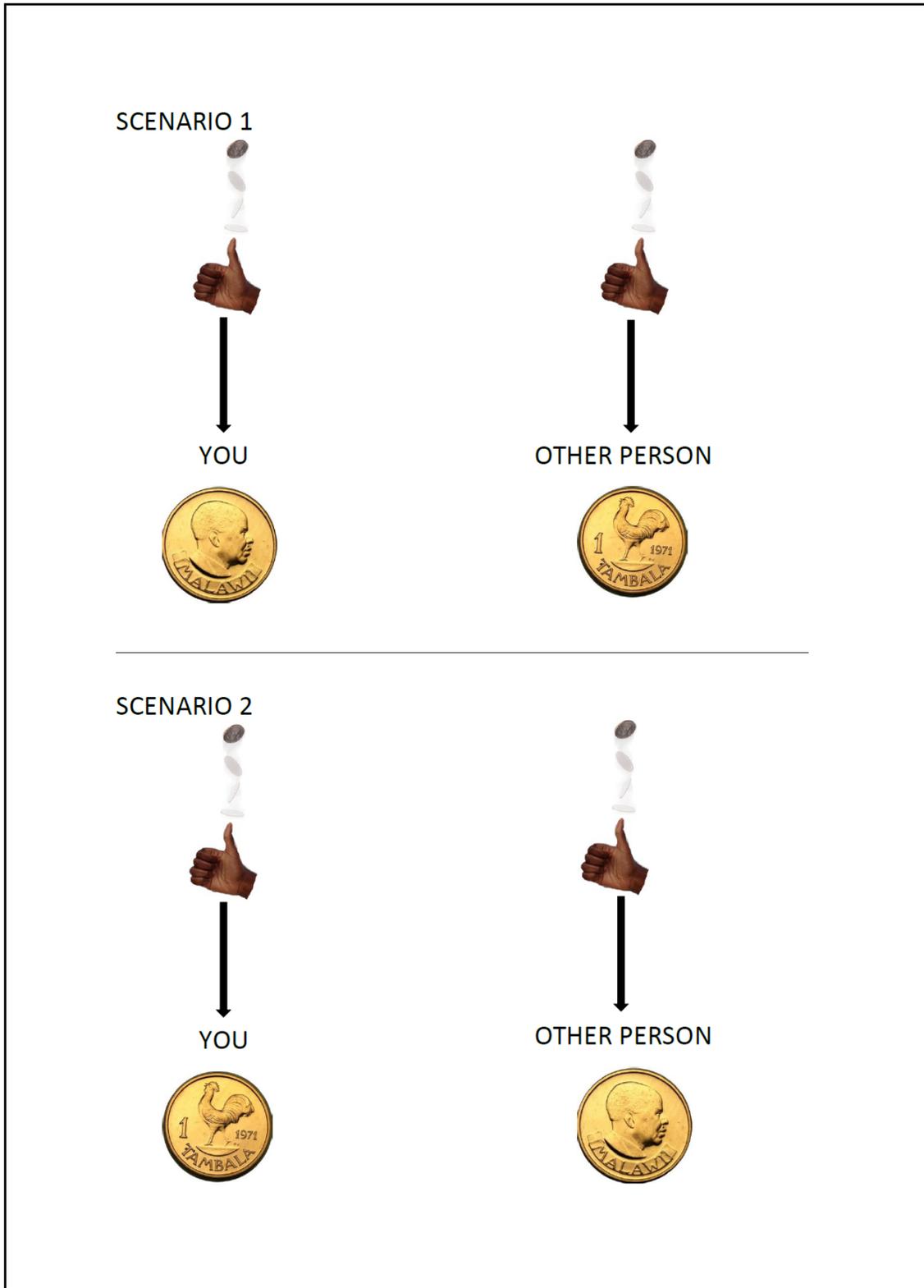


Figure D6. Visual Aid #5: Coin flips, IID (booklet page 6, size 8.5x11")

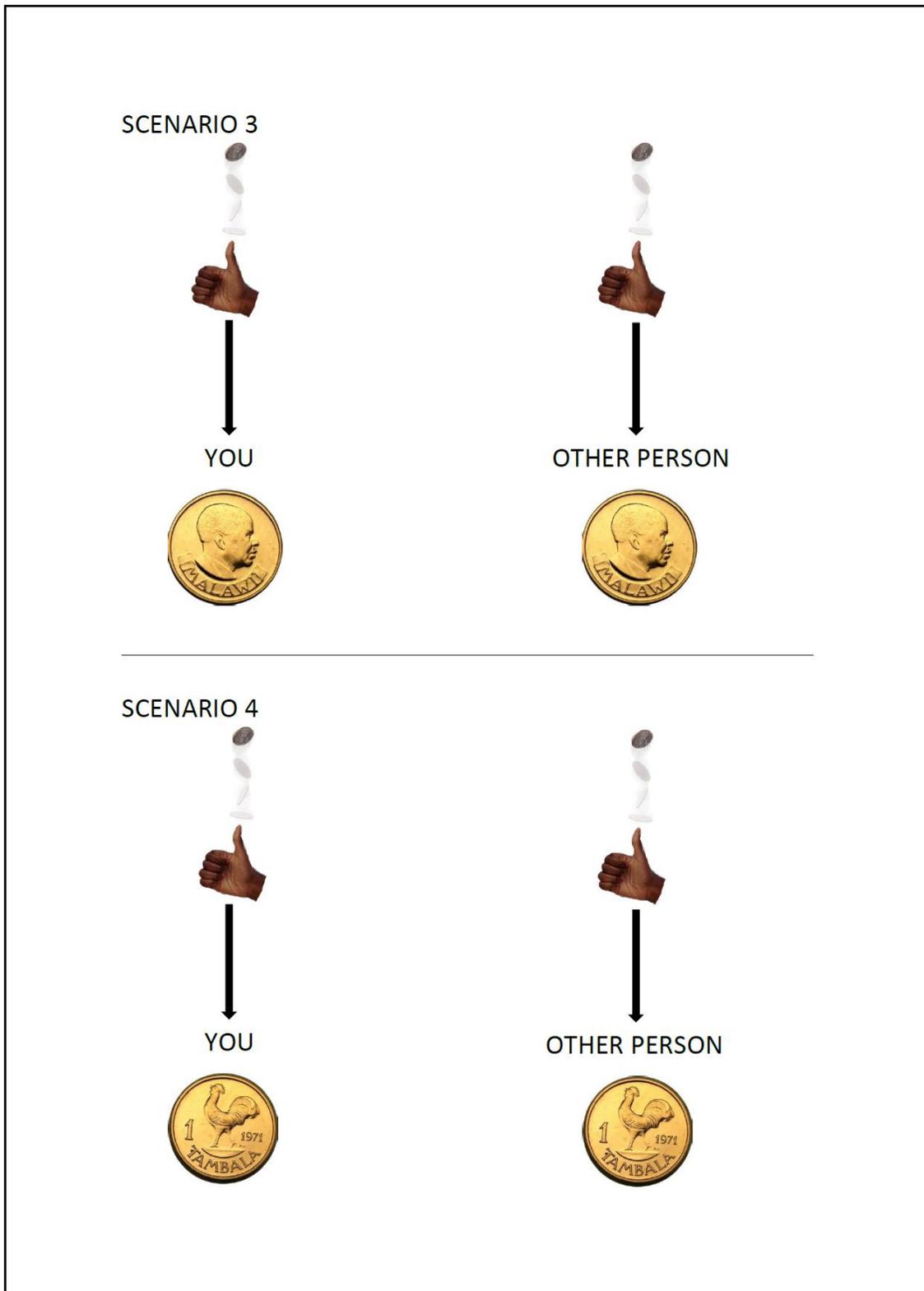
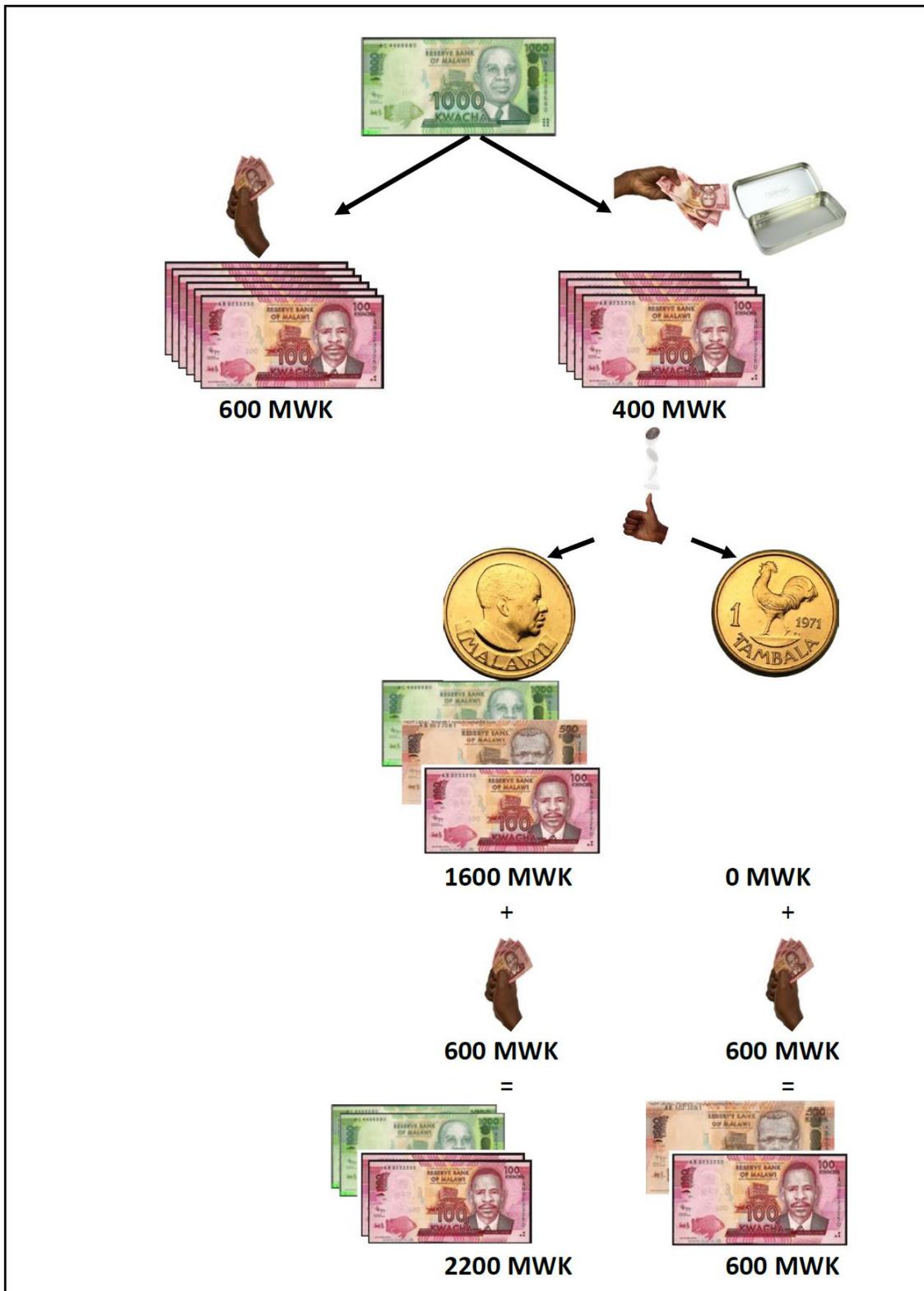


Figure D7. Visual Aid #6: Example (booklet page 7, size 8.5x11")<sup>1</sup>



<sup>1</sup> Use of this page of the booklet was not scripted. Enumerators were instructed to use it only if they needed to provide additional explanations.

## **Appendix E. Sample frame and resulting experimental sample**

This study uses the sample of smallholder farmers who, at the time of the first follow-up survey of the evaluation of the cash transfer and extension program, had been a registered member of the 122 participating farmer clubs at any point in the preceding two years. We refer to this sample frame as the “randomization sample.” We randomly assigned smallholder farmers to the first mover type treatments and the channel treatments using this sample. Appendix Table E.1 describes the allocation to the first mover treatment conditions for first movers (in Panel A) and second movers (in Panel B). Because we integrated this study into the impact evaluation RCT discussed in Section 2, we only attempted to conduct the artefactual field experiment with those smallholder farmers that the RCT field team was able to make contact with during the first follow-up survey (FU1). Because this experiment was conducted just a few days following FU1 (see Figure 1), it is unlikely we would have been able to locate additional farmers who were not surveyed in FU1. We refer to this sample as the “FU1 sample.”

As Appendix Table E.1 shows, our experimental sample includes a total of 218 first movers, and 810 second movers. Only 14 (5%) of first movers are extension service workers, because each extension worker employed by NASFAM works with multiple groups. Attrition relative to the randomization sample frame is quite high for several reasons. First, the randomization sample list included all farmers who had been listed as NASFAM members in the last two years, including those who had never been located by our team, even during the project baseline. Second, to ensure that this experiment did not interfere with standard NASFAM activities, we did not mention incentives when scheduling artefactual field experiment visits. Third, to prevent information sharing between participants across time, all participants in a club had to be located and interviewed in a short time horizon on the same day. Importantly, individual farmers and club chairs were not aware of their treatment status for this artefactual field

experiment. This leaves between 209 and 239 second mover observations in each first mover type treatment that we use to analyze the research questions investigated in this study.

Appendix Table E.1. Number of participants by first mover type treatment

Treatment	Control	Peer	External leader	Formal leader	All
<u>Panel A: First movers only</u>					
N in sample		122	15	122	259
N in FU1 sample		110	15	106	231
N in experiment		110	14	94	218
% of assigned sample		0.902	0.933	0.770	0.920
<u>Panel B: Second movers only</u>					
N in sample	0	353	353	360	1066
N in FU1 sample	0	313	304	310	927
N in experiment	116	239	246	209	810
% of assigned sample		0.677	0.697	0.580	0.760

## **Appendix F: Heterogeneity**

To further investigate the dynamics behind the results for the external leaders, we examine how our results differ for those exposed to an intensive extension program conducted in one of the RCT treatment arms (Ambler, de Brauw, and Godlonton 2018b). These second movers would have had much more one-on-one contact with the extensionist, which could impact the extent to which they are influenced by the first mover choice. In results not shown, we find little difference in influence in the external leader treatment among those who received the intensive extension and those who did not.

Because treatment assignment was stratified on the gender of the second movers, we also examine how results vary by gender. We find the women invest less than men, are more likely to revise their decisions, and the size of the revision is larger. However, there is no difference in the response to the first mover decision by gender in the peer or formal leader treatments. There is evidence that female second movers do not react to external leaders, while males do.