Pre-Analysis Plan for Hypothetical Social Norms

Joshua Hill*& Paul Clist†

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Abstract

Social norms have been shown to be a central part of a wide range of decision making, including cooperation. Social norms have also been shown to be highly susceptible to context, which acts to cue or prime a specific mental mode. Despite recent methodological improvements in eliciting social norms, this has not been extended to 'hypothetical' social norms. This study investigates whether 'hypothetical' social norms can be reliably determined by 'actual' social norms across subjects in a framed Public Goods Game. The primary contributions of this study is methodological.

Keywords: Hypothetical Social Norms, Cooperation, Empirical Expectations, Normative Beliefs, Lab-in-the-Field
JEL Codes: C71, C91, C92

This Pre-Analysis Plan extends and supplements a previously registered study: Clist, Paul and Joshua Hill. 2019. "Pre-Analysis Plan for A Public Goods Game in Urban Uganda." AEA RCT Registry. August 2019. https://doi.org/10.1257/rct.4616-1.0

*joshua.hill@uea.ac.uk: Joshua Hill is a postgraduate researcher at the University of East Anglia, UK
†paul.clist@uea.ac.uk, `https://paulclist.github.io/` is an Associate Professor at the University of East Anglia, UK

Contents

Part I
Introduction

1 Introduction

Norms are ubiquitous at all levels of human social interaction, from the mundane to the profound. When obeyed, norms permit predictable behaviour and social order which are essential for large scale contemporary societies (Elster, 1989). The importance of norms in decision making illustrates the need to include social determinants of decision making within theories of choice, moving beyond the standard model of economics. Research in *behavioural economics* has shown that the context of the moment of decision can affect choice (Cialdini et al., 2006; Kremer and Levy, 2008; Herbst and Mas, 2015; Thaler and Sunstein, 2008).

Social norms govern behaviour in interactions that have multiple equilibria and thus are by definition highly susceptible to context. This means that social norms can cue or prime a specific mental mode in the moment, or directly inform the mental modes with increased exposure. By nature a normative standard is commonly known by all group members, where group membership is finite (Fehr and Schurtenberger, 2018). Thus, an individual can have membership to multiple 'sets' of social norms, some of which will overlap and be contrary. Social norms can be further broken down into constituent components. We adapt the terminology applied in Bicchieri (2010) and use *expectations* to refer to empirical expectations and *norms* to refer to normative beliefs. This distinction permits an investigation into the impact of norm adherence; an individual may be aware that different norms exist across contexts, but that doesn't mean that they adhere to both norm sets equally.

Norms are typically self-enforcing at a group level and evolve over time through a course of experimentation and adaptation (Young, 2015). Several types of psychological and social mechanisms support the emergence and maintenance of norms. Social pressure, reference points and symbolism all contribute to supporting behavioural norms. Conversely while norms are typically persistent, occasional bursts of change reform old norms into new (the "punctuated equilibrium" effect − see Young (1998). An important feature here is local conformity and the resulting global diversity, particularly when communities interact only very occasionally, norms may follow very different trajectories of evolution. Thus, individuals are likely to be aware of and encounter scenarios where norms are contrary.

Like norms, cooperation is often present in almost every form of human interchange. Social dilemmas pervade a myriad of social scenarios, both for our ancestors and modern humans. Understanding why individuals cooperate (as oppose to free-ride) is a central question in within social sciences, particularly in addressing market failure. There is a large literature linking cooperation to social norms (Fehr and Schurtenberger, 2018; Krupka and Weber, 2013; Kimbrough and Vostroknutov, 2016; Bicchieri, 2005), but more limited experimental research exploring whether individuals house multiple sets of social norms which are context dependent.

The primary contribution of this study is the exploration of hypothetical norm elicitation. This extends the Krupka and Weber (2013) methodology by introducing frames (Community/Wall Street - Liberman et al. 2004) to the extensively adopted one-shot Public Goods Game, which measures cooperation (Zelmer, 2003; Cardenas and Carpenter, 2008; Levitt and List, 2007). Across two treatments (population split evenly), players will first play the Wall Street [Community] Game and elicit norms and expectations. They will then 'hypothetically' play the Community [Wall Street] Game by imagining that they and other players in the room are now playing the game for the first time, but under the new frame. The hypothetical component is also incentive compatible.

First, we measure whether there are significant differences within treatment (*actual* Wall Street [Community] Game vs *hypothetical* Community [Wall Street] Game), as shown in Liber-

man et al. (2004). Second, we explore whether *hypothetical* responses can predict *actual* responses in both the Wall Street and Community Games. These tests will be repeated across contributions, norms and expectations.

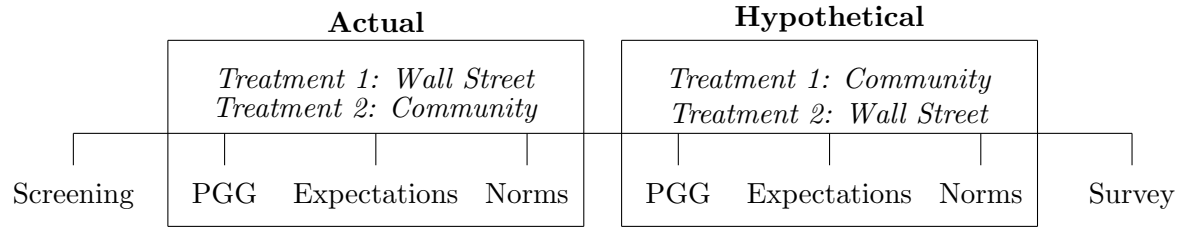
The remainder of this pre-analysis plan is organised as follows: section II sets out the research design and section III explains the empirical model and specifications. Section IV presents the statistical specifications and Stata code. Appendix V includes the full experimental script and Appendix VI the supporting power calculations for each family.

Part II
Research design

2 Research design

Figure 1 summarises the elements of the experiment. The experimental script included in appendix V supports two pre-analysis plans; the first being this study, in addition to "Pre-Analysis Plan for Social Norms, Values and Misperception". Both will be registered by the lead author with the ARA RCT Registry (`https://www.socialscienceregistry.org/`). Stage 2, Phase 2 'Experiment' (within the script), is specific to this study, though all of stage 2 is relevant.

Figure 1: Experimental Design



2.1 Screening & Sampling

This study will be conducted using a lab-in-the-field approach, running approximately 15 sessions of around 20 participants, with a target sample size of N=300. This experiment will be conducted in Uganda, using the Gisu as the cultural group of focus. This group is well known to both authors, as is Uganda. The Gisu are typified by an out-group bias and low in-group cooperation, which provides fertile opportunity to explore the affect of applying different frames in a Public Goods Game (Hargreaves Heap et al., 2012; D'Exelle and Verschoor, 2015).

Thus, this experiment will only require ethnic Gisu participants, recruited in or near to Mbale (in Eastern Uganda, homeland of the Gisu). In order to investigate the underlying mechanisms, it is important that all subjects have similar cultural identities/exposures. Recruitment is expected to adopt the following process, to be facilitated by The Field Lab (https://thefieldlabuganda.com), who have expertise and local connections in the region, as well as being connected to the authors:

a) Identify a suitable research site and identify appropriate parishes (in the Bugisu Region).

b) Obtain a sampling frame (electoral register or similar).

c) Randomly select participants from the sampling frame.

d) Visit these with the help of the LC1 chairperson (a local elected leader) or somebody nominated by the LC1 chairperson and elicit willingness to participate.

e) If the selected individual is willing to participate TFL would provide the individual with the details of the lab-in-the-field session, including time and location.

f) If they are unwilling or unavailable to participate, then TFL would randomly replace them with somebody else on the sampling frame. All participants will be >18 years old and have multiple opportunities to express if they are unwilling/uncomfortable to participate. Though the local elected leader will support, they will not coerce participation; this will be solely the individual's choice. All participants will sign a written local language consent form prior to any participation, as well as having this explained verbally.

All subjects will need to be screened for language proficiency and to ensure they are an ethnic Gisu (a fundamental part of identity - see Clist and Hill (2021). The following questions will be asked prior to candidates being invited to participate:

1. Which tribe/ethnic group do you most identify with?
2. Where were you born?
3. Are you fluent in Lugisu?

Enumerators will assess this evidence, coupled with spoken language proficiency, to determine whether the individual is an ethnic Gisu.

2.2 Controls and 'Actual' Public Goods Game (PGG) - Community [Wall Street] Game

As per the script in appendix V, a participation fee of UGX 1,500 will be paid to participants irrespective of how many questions are answered. This is in addition to any payout relating to the Public Goods Game (initial endowment UGX 8,000) and a potential bonus payout of UGX 3,000 for the norms and expectations elicitation. Note, these amounts may be amended following the pilot, depending on uptake.

We employ a standard linear one-shot two player PGG, which captures each participant's preference for cooperation, across two treatments: the 'Community Game' or the 'Wall Street Game'. All participants will play both games, with the treatment determining the order. In treatment 1, participants will play the Community game, providing responses to the PGG (contribution), expectations and norms. They will be asked to visual instead that they are playing a Wall Street Game. They are then asked to re-answer the questions 'hypothetically'. In both cases norms and expectations are incentivised. Treatment 2 is identical, but participants start with the Wall Street Game, and then visualise the Community Game. Exploring whether the visualised 'hypothetical' treatments can be accurately predicted is the primary focus of this study.

Considering the mechanics of the PGG, participants must trade off their own payoff and the social benefit, which is explained to subjects as a choice of how much to allocate to the 'common basket' and 'private envelope'. Both individuals in the pair are endowed with 8,000 Ugandan Shillings. At the time of the experiment this is equivalent to around £1.70 or $2.20, about half a days income for an average Ugandan. The experiment lasts approximately an hour. Player 1's payoff (V_1) is calculated as:

$$V_1 = 8,000 - C_1 + 0.75(C_1 + C_2) \tag{1}$$

where C_1 is their contribution to the joint fund and C_2 is the contribution from player 2. Each player can earn between 6,000 and 14,000 Ugandan Shillings, with the minimum and maximum pay out per pair totalling 16,000 and 24,000 Ugandan Shillings respectively. The 'common basket' represents the group fund, (C_1 + C_2) multiplied by 1.5. 'Private envelopes' represent the amount of the initial endowment retained (8,000 — C_1).

In order to ensure subjects have fully understood instructions, the three corner solutions are used as the basis for control questions (C_1/C_2: 8,000/8,000, nil/nil and 8,000/nil). The first two control questions are solved jointly to aid understanding, and the third individually. Incorrect responses to the control question will be excluded from the analysis. On completion of the control questions, subjects make their contribution decision: splitting 8,000 between their private envelope and a common basket (in an increment of 2,000).

2.3 'Actual' expectations & norms - Community [Wall Street] Game

After the contribution selection, the expectations and norms for each contribution level are measured. Subjects are incentivised in both instances, being able to earn a bonus 3,000 Ugandan Shillings if their answer is correct. Before answering the survey (section 2.5), a random question from the expectation/norm sections is selected to determine which question is used for payment.

For the expectation question, subjects are asked to guess the percentage of people in their session that gave the various amounts (UGX 0 to UGX 8,000 in UGX 2,000 increments) to the common basket. Subjects earn the bonus if that question was selected and their guess was within 10% of the actual answer. For norms, subjects are asked to rank how socially acceptable each of the contributions are, using the now standard Krupka and Weber (2013) method. We employ a four-point scale; very socially unacceptable (- -), somewhat socially unacceptable (-), somewhat socially acceptable (+) and very socially acceptable (++). We use the whole distribution of possible choices. Subjects earn the bonus if they choose the most popular option. Note that while Krupka and Weber (2013) uses distinct samples, we follow d'Adda et al. (2016) and Erkut et al. (2015) in using the same sample for norms and contribution decisions, as they show an insignificant difference in outcome. Subjects are only eligible for this bonus if they only select one option for each scenario.

2.4 'Hypothetical' PGG, expectations & norms - Wall Street [Community] Game

This section repeats the actual game, but instead asks participants to visual the alternative treatment, and to re-answer as though there were playing for the first time. Again all choices are incentivised. Participants will be informed that either the actual or hypothetical PGG will be used to determine payouts. Additionally, the bonus question selected will be across both actual and hypothetical expectations and norms; one of twenty questions selected.

2.5 Survey

Before answering the survey, the PGG and bonus responses applicable for payout will be randomly selected by one of the participants to determine the bonus payouts.

Subjects are then asked to complete an exit survey. The questions, as well as their intended use in the empirical analysis, are set in table 1. Each question is read aloud, giving time for subjects to write their answers. The entire experiment will be conducted in Lugisu, the tribal language of the Gisu. Payment is made to subjects after completion of the survey and marks the end of the experiment. A full English script, answer sheet and survey questions are included in Appendix V.

Table 1: Survey questions

Question	**Nature**
How old are you?	Control variable
What is your gender?	Control variable
What is your highest education level?	Descriptive
Are you a member of any political party?	Descriptive
If so, which?	Descriptive

Part III
Model and empirical considerations

3 Model and empirical considerations

3.1 Theoretical framework and model

There are two key strands of the theoretical literature which support this study. The first strand is evolutionary game theory, which provides models which help to explain norm dynamics by reference to how individuals update their expectations (see Young (2015) for review). These models reveal that norm dynamics are inherently stochastic, even when individuals share socioeconomic characteristics. Social pressure, symbolism and bench-marking are key mechanisms in supporting norms, but there are inevitably 'tipping points' which lead to a global diversity of norms, despite local conformity. The second strand is summarised by Hoff and Stiglitz (2016), who note the importance of exposure to environment in shaping the behaviour of encultured actors. Specifically, social context creates the set of mental models available to the individual, and affects the scenarios that prime alternative mental models.

The key link here is the we expect individuals to have multiple sets of social norms by context, as social norms evolve differently in each context, and individuals are exposed and have an awareness of these different contexts. Thus our model is intuitive - we expect individuals to have different social norm sets based on context (in our study, the Community / Wall Street Game frame), which remain consistent, irrespective of whether or not this is actualised or hypothesised. We dis-aggregate social norms using the distinction applied in Bicchieri (2010), using expectations to refer to empirical expectations and norms to refer to normative beliefs.

The primary contribution of this study is to the empirical experimental literature, namely through the use of hypothetical conditions to elicit social norms. This involves asking participants to rate actions 'as if' they and the others in their session were operating in a different context. This will be achieved by introducing different frames (Community/Wall Street Game) in the context of a single shot Public Goods Game (Liberman et al., 2004; Zelmer, 2003; Cardenas and Carpenter, 2008; Levitt and List, 2007). Under both the 'actual' and 'hypothetical' frame, we will measure actual and 'hypothetical' contributions, norms and expectations. If successful, this would be a powerful method for eliciting norms under different conditions and remains incentive compatible.

3.2 Hypotheses and Family-Wise Error Rate (FWER) strategy

The family groups have been set out below, referencing the specific hypothesis to which they relate. Each family group (contributions, norms and expectations) are comprised of four distinct specifications, accompanied by a separate robustness check. The regressions, as set out, are stand alone and thus we do not propose any Family-Wise Error Rate correction.

	Treatment 1		**Treatment 2**	
	Wall Street	*Community*	*Community*	*Wall Street*
Contributions	Actual	Hypothetical	Hypothetical	Actual
Expectations	Actual	Hypothetical	Hypothetical	Actual
Norms	Actual	Hypothetical	Hypothetical	Actual

3.2.1 Group 1: Contributions

H1.1: Actual and Hypothetical contributions (within Treatment 1).

- **Family 1.1:** Test within a regression framework such that H_0 is that contributions for both the Wall Street and Community Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

H1.2: Actual and Hypothetical contributions (within Treatment 2).

- **Family 1.2:** Test within a regression framework such that H_0 is that contributions for both the Community and Wall Street Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

H1.3: Actual & Hypothetical contributions for Wall Street Game (comparing treatment 1 & 2).

- **Family 1.3:** Test within a regression framework such that H_0 is that contributions for both the hypothetical and actual Wall Street Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

H1.4: Actual & Hypothetical contributions for Community Game (comparing treatment 1 & 2).

- **Family 1.4:** Test within a regression framework such that H_0 is that contributions for both the hypothetical and actual Community Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

3.2.2 Group 2: Expectations

H2.1: Actual and Hypothetical expectations (within Treatment 1).

- **Family 2.1:** Test within a regression framework such that H_0 is that expectations for both the Wall Street and Community Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

H2.2: Actual and Hypothetical expectations (within Treatment 2).

- **Family 2.2:** Test within a regression framework such that H_0 is that expectations for both the Community and Wall Street Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

H2.3: Actual & Hypothetical expectations for Wall Street Game (comparing treatment 1 & 2).

- **Family 2.3:** Test within a regression framework such that H_0 is that expectations for both the hypothetical and actual Wall Street Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

H2.4: Actual & Hypothetical expectations for Community Game (comparing treatment 1 & 2).

- **Family 2.4:** Test within a regression framework such that H_0 is that expectations for both the hypothetical and actual Community Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

3.2.3 Group 3: Norms

H3.1: Actual and Hypothetical norms (within Treatment 1).

- **Family 3.1:** Test within a regression framework such that H_0 is that norms for both the Wall Street and Community Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

H3.2: Actual and Hypothetical norms (within Treatment 2).

- **Family 3.2:** Test within a regression framework such that H_0 is that norms for both the Community and Wall Street Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

H3.3: Actual & Hypothetical norms for Wall Street Game (comparing treatment 1 & 2).

- **Family 3.3:** Test within a regression framework such that H_0 is that norms for both the hypothetical and actual Wall Street Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

H3.4: Actual & Hypothetical norms for Community Game (comparing treatment 1 & 2).

- **Family 3.4:** Test within a regression framework such that H_0 is that norms for both the hypothetical and actual Community Game are equal against H_a that they are not. Wilcoxon rank-sum test also run as a robustness test, but no correction for multiple hypotheses testing.

Part IV
Statistical specifications & Stata Code

4 Group 1: Contributions

The first family of tests explores whether differences exist between hypothetical and actual contributions, both within treatments (H1.1 - Treatment 1 and H1.2 - Treatment 2) and then across treatments, but within each game: Wall Street Game (H1.3) and Community Game (H1.4). Throughout, contributions refer to either actual or hypothetical contributions made to the common pot in the PGG, between UGX 0 and UGX 8,000, in multiples of 2,000.

Families 1.1 and 1.2: Actual vs Hypothetical (within treatment)

The specification will be a regression, with $\beta_1 ActHyp$ being the coefficient of interest to test *H1.1 - Treatment 1* and *H1.2 - Treatment 2*. A significant result would mean that the H_0 is rejected, meaning (within the same treatment) there is evidence to support H_a that actual and hypothetical contributions do differ. Note, within treatment means that responses to *different* frames (in addition to one being actual and the other hypothetical).

Standard errors will be clustered at the participant level, as each participant provides both an actual and hypothetical response for contributions. The target number of participants is expected to be 300 in total, split evenly (N=150) across each treatment. The regression will use the basic set up:

$$Y_i = \alpha + \beta_1 ActHyp_i + controls + \epsilon_i \tag{2}$$

where Y_i is the contribution level in multiples of UGX 2,000 to the common pot in the PGG, by participant *i*. $\beta_1 ActHyp_i$ is coded 0 = actual and 1 = hypothetical. Additionally, a Wilcoxon rank-sum test will also be run as a robustness check, simply testing whether contributions are equal across $ActHyp_i$. We do not propose a multiple hypothesis correction for this robustness test. Note, for stata code, $TreatDummy$ is coded 0 = treatment 1 and 1 = treatment 2. Controls will comprise of age and gender.

Stata code - Families 1.1 and 1.2

Below is the complete Stata code for Families 1.1 and 1.2:

```
//// FAMILIES 1.1 & 1.2 - Contributions: Within Treatment ////

*   H1.1: Actual and Hypothetical contributions Treatment 1

*   act_hyp is variable of interest here:

reg contribution act_hyp age female if treat_dummy==0, vce(cluster part_id)

*   For robustness:

ranksum contribution if treat_dummy==0, by (act_hyp)

*   H1.2: Actual and Hypothetical contributions Treatment 2

reg contribution act_hyp age female if treat_dummy==1, vce(cluster part_id)

*   For robustness:

ranksum contribution if treat_dummy==1, by (act_hyp)
```

Family 1.3: Actual vs Hypothetical: Wall Street Game (between treatments)

The specification will be a regression, with $\beta_1 ActHyp$ being the coefficient of interest to test *H1.3*. Note, for this specification, only Wall Street Game responses are being included, meaning N=150 in total (using actual responses from treatment 1 and hypothetical responses from treatment 2). A significant result would mean that the H_0 is rejected, meaning there is evidence to support H_a that actual and hypothetical contributions do differ for the Wall Street Game. The regression will use the basic set up:

$$Y_i = \alpha + \beta_1 ActHyp_i + controls + \epsilon_i \tag{3}$$

where Y_i is the contribution level in multiples of UGX 2,000 to the common pot in the PGG, by participant i. $\beta_1 ActHyp_i$ is coded 0 = actual and 1 = hypothetical. Controls will comprise of age and gender. Additionally, a Wilcoxon rank-sum test will also be run as a robustness check, simply testing whether contributions are equal across $ActHyp$ for the Wall Street Game only. We do not propose a multiple hypothesis correction for this robustness test.

Stata code - Family 1.3

Below is the complete Stata code for Family 1.3:

```
//// FAMILY 1.3 - Contributions: Wall Street (across treatments) ////

* H1.3: Actual and Hypothetical contributions for Wall Street Game

reg contribution act_hyp age female  if WSG_CG==0

* For robustness:

ranksum contribution if WSG_CG==0, by (act_hyp)
```

Family 1.4: Actual vs Hypothetical: Community Game (between treatments)

The specification will be a regression, with $\beta_1 ActHyp$ being the coefficient of interest to test *H1.4*. Note, for this specification, only Community Game responses are being included, meaning N=150 in total (using hypothetical responses from treatment 1 and actual responses from treatment 2). A significant result would mean that the H_0 is rejected, meaning there is evidence to support H_a that actual and hypothetical contributions do differ for the Community Game. The regression will use the basic set up:

$$Y_i = \alpha + \beta_1 ActHyp_i + controls + \epsilon_i \tag{4}$$

where Y_i is the contribution level in multiples of UGX 2,000 to the common pot in the PGG, by participant *i*. $\beta_1 ActHyp_i$ is coded 0 = actual and 1 = hypothetical. Controls will comprise of age and gender. Additionally, a Wilcoxon rank-sum test will also be run as a robustness check, simply testing whether contributions are equal across $ActHyp_i$ for the Community Game only. We do not propose a multiple hypothesis correction for this robustness test.

Stata code - Family 1.4

Below is the complete Stata code for Family 1.4:

```
//// FAMILY 1.4 - Contributions: Community Game (across treatments) ////

* H1.4: Actual and Hypothetical contributions for Community Game

reg contribution act_hyp age female  if WSG_CG==1

* For robustness:

ranksum contribution if WSG_CG==1, by (act_hyp)
```

5 Group 2: Expectations

The second family of tests explores whether differences exist between hypothetical and actual expectations, both within treatments (H2.1 - Treatment 1 and H2.2 - Treatment 2) and then across treatments, but within each game: Wall Street Game (H2.3) and Community Game (H2.4). Throughout expectations are between 0% and 100%, with the percentage representing the expected in session contribution made at each of the five contribution levels (UGX 0 - UGX 8,000, in UGX 2,000 intervals). Thus, for each participant, there are ten responses (five for actual and five for hypothetical). Therefore, in total N=3,000, halved for each specification (thus N=1,500). Note, the power calculations in appendix VI show the number of observations required on the x axis.

Families 2.1 & 2.2: Actual vs Hypothetical (within treatment)

The specification will be a regression, with $\beta_1 ActHyp$ being the coefficient of interest to test *H2.1* and *H2.2*. A significant result would mean that the H_0 is rejected, meaning (within the same treatment) there is evidence to support H_a that actual and hypothetical expectations do differ. Note, within treatment means that responses to *different* frames (in addition to one being actual and the other hypothetical).

Standard errors will be clustered at the participant level, as each participant provides five actual and five hypothetical responses for expectations. N is expected to be 3,000 in total, split evenly (N=1,500) across each treatment. The regression will use the basic set up:

$$X_i = \alpha + \beta_1 ActHyp_i + \beta_2 Level_i + controls + \epsilon_i \quad (5)$$

where X_i is the expectation between 0% and 100%, by participant i, with data long. $\beta_1 ActHyp_i$ is coded 0 = actual and 1 = hypothetical. $\beta_2 Level_i$ is coded 0 = UGX 0, 1 = UGX 2,000, 2 = UGX 4,000, 3 = UGX 6,000 and 4 = UGX 8,000. Controls will comprise of age and gender. Additionally, a Wilcoxon rank-sum test will also be run as a robustness check, simply testing whether expectations are equal across $ActHyp_i$. We do not propose a multiple hypothesis correction for this robustness test. Note, for stata code, $TreatDummy$ is coded 0 = treatment 1 and 1 = treatment 2.

Stata code - Families 2.1 & 2.2

Below is the complete Stata code for Families 2.1 & 2.2:

```
//// FAMILIES 2.1 & 2.2 - Expectations: Within Treatment ////

*   H2.1: Actual and Hypothetical expectations Treatment 1

*   act_hyp is variable of interest here

reg expectations act_hyp age female if treat_dummy==0, vce(cluster part_id)

*   For robustness

ranksum expectations if treat_dummy==0, by (act_hyp)

*   H2.2: Actual and Hypothetical expectations Treatment 2

*   act_hyp is variable of interest here

reg expectations act_hyp age female if treat_dummy==1, vce(cluster part_id)

*   For robustness

ranksum expectations if treat_dummy==1, by (act_hyp)
```

Family 2.3: Actual vs Hypothetical: Wall Street Game (between treatments)

The specification will be a regression, with $\beta_1 ActHyp$ being the coefficient of interest to test *H2.3*. Note, for this specification, only Wall Street Game expectations are being included, meaning N=1,500 in total (using actual responses from treatment 1 and hypothetical responses from treatment 2), across the five possible contribution levels. A significant result would mean that the H_0 is rejected, meaning there is evidence to support H_a that actual and hypothetical expectations do differ for the Wall Street Game.

Standard errors will be clustered at the participant level, as each participant provides five actual and five hypothetical responses for expectations. As only half of these responses are being used to test the Wall Street Game, N = 1,500 (150 participants, 5 answers actual, 5 answers hypothetical, data long). The regression will use the basic set up:

$$X_i = \alpha + \beta_1 ActHyp_i + \beta_2 Level_i + controls + \epsilon_i \quad (6)$$

where X_i is the expectation between 0% and 100%, by participant i, with data long. $\beta_1 ActHyp_i$ is coded 0 = actual and 1 = hypothetical. $\beta_2 Level_i$ is coded 0 = UGX 0, 1 =

UGX 2,000, 2 = UGX 4,000, 3 = UGX 6,000 and 4 = UGX 8,000. Controls will comprise of age and gender. Additionally, a Wilcoxon rank-sum test will also be run as a robustness check, simply testing whether expectations are equal across $ActHyp_i$ for the Wall Street Game only. We do not propose a multiple hypothesis correction for this robustness test.

Stata code - Family 2.3

Below is the complete Stata code for Family 2.3:

```
//// FAMILY 2.3 - Expectations: Wall Street (across treatments) ////

* H2.3: Actual and Hypothetical expectations for Wall Street Game

reg expectations act_hyp level age female if WSG_CG==0, vce(cluster part_id)

* For robustness

ranksum expectations if WSG_CG==0, by (act_hyp)
```

Family 2.4: Actual vs Hypothetical: Community Game (between treatments)

The specification will be a regression, with $\beta_1 ActHyp$ being the coefficient of interest to test *H2.4*. Note, for this specification, only Community Game expectations are being included, meaning N=1,500 in total (using hypothetical responses from treatment 1 and actual responses from treatment 2), across the five possible contribution levels. A significant result would mean that the H_0 is rejected, meaning there is evidence to support H_a that actual and hypothetical expectations do differ for the Community Game.

Standard errors will be clustered at the participant level, as each participant provides five actual and five hypothetical responses for expectations. As only half of these responses are being used to test the Community Game, N = 1,500 (150 participants, 5 answers actual, 5 answers hypothetical, data long). The regression will use the basic set up:

$$X_i = \alpha + \beta_1 ActHyp_i + \beta_2 Level_i + controls + \epsilon_i \tag{7}$$

where X_i is the expectation between 0% and 100%, by participant i, with data long. $\beta_1 ActHyp_i$ is coded 0 = actual and 1 = hypothetical. $\beta_2 Level_i$ is coded 0 = UGX 0, 1 = UGX 2,000, 2 = UGX 4,000, 3 = UGX 6,000 and 4 = UGX 8,000. Controls will comprise of age and gender. Additionally, a Wilcoxon rank-sum test will also be run as a robustness check, simply testing whether expectations are equal across $ActHyp_i$ for the Community Game only. We do not propose a multiple hypothesis correction for this robustness test.

Stata code - Family 2.4

Below is the complete Stata code for Family 2.4:

```
//// FAMILY 2.4 - Expectations: Community Game (across treatments) ////

* H2.4: Actual and Hypothetical expectations for Community Game

reg expectations act_hyp level age female if WSG_CG==1, vce(cluster part_id)

* For robustness

ranksum expectations if WSG_CG==1, by (act_hyp)
```

6 Group 3: Norms

The third family of tests explores whether differences exist between hypothetical and actual norms, both within treatments (H3.1 - Treatment 1 and H3.2 - Treatment 2) and then across treatments, but within each game: Wall Street Game (H3.3) and Community Game (H3.4). Throughout norms coded on a four point scale, as set out in Krupka and Weber (2013): -1 for very socially unacceptable, -1/3 for socially unacceptable, 1/3 for socially acceptable and 1 for very socially acceptable. Thus, for each participant, there are ten responses (five for actual and five for hypothetical norms, all on the four point scale, across the five contribution levels). Therefore, in total N=3,000, split evenly across the two treatments (thus N=1,500).

Families 3.1 & 3.2: Actual vs Hypothetical (within treatment)

The specification will be a regression, with $\beta_1 ActHyp$ being the coefficient of interest to test *H3.1* and *H3.2*. A significant result would mean that the H_0 is rejected, meaning (within the same treatment) there is evidence to support H_a that actual and hypothetical norms do differ. Note, within treatment means that responses to *different* frames (in addition to one being actual and the other hypothetical).

Standard errors will be clustered at the participant level, as each participant provides five actual and five hypothetical responses for norms. N is expected to be 3,000 in total, split evenly (N=1,500) across each treatment. The regression will use the basic set up:

$$Z_i = \alpha + \beta_1 ActHyp_i + \beta_2 Level_i + controls + \epsilon_i \tag{8}$$

where Z_i is norms coded between -1 and 1, in 2/3 intervals as set out in Krupka and Weber (2013), by participant i, with data long. $\beta_1 ActHyp_i$ is coded 0 = actual and 1 = hypothetical. $\beta_2 Level_i$ is coded 0 = UGX 0, 1 = UGX 2,000, 2 = UGX 4,000, 3 = UGX 6,000 and 4 = UGX 8,000. Controls will comprise of age and gender. Additionally, a Wilcoxon rank-sum test will also be run as a robustness check, simply testing whether norms are equal across $ActHyp_i$. We do not propose a multiple hypothesis correction for this robustness test. For stata code, $TreatDummy$ is coded 0 = treatment 1 and 1 = treatment 2.

Stata code - Families 3.1 & 3.2

Below is the complete Stata code for Families 3.1 & 3.2:

```
//// FAMILIES 3.1 & 3.2 - Norms: Within Treatment ////

*   H3.1: Actual and Hypothetical norms Treatment 1

reg norms act_hyp age female if treat_dummy==0, vce(cluster part_id)

*   For robustness

ranksum norms if treat_dummy==0, by (act_hyp)

*   H3.2: Actual and Hypothetical norms Treatment 2

reg norms act_hyp age female if treat_dummy==1, vce(cluster part_id)

*   For robustness

ranksum norms if treat_dummy==1, by (act_hyp)
```

Family 3.3: Actual vs Hypothetical: Wall Street Game (between treatments)

The specification will be a regression, with $\beta_1 ActHyp$ being the coefficient of interest to test *H3.3*. Note, for this specification, only Wall Street Game norms are being included, meaning N=1,500 in total (using actual responses from treatment 1 and hypothetical responses from treatment 2), across the five possible contribution levels. A significant result would mean that the H_0 is rejected, meaning there is evidence to support H_a that actual and hypothetical norms do differ for the Wall Street Game.

Standard errors will be clustered at the participant level, as each participant provides five actual and five hypothetical responses for norms. As only half of these responses are being used to test the Wall Street Game, N = 1,500 (150 participants, 5 answers actual, 5 answers hypothetical, data long). The regression will use the basic set up:

$$Z_i = \alpha + \beta_1 ActHyp_i + \beta_2 Level_i + controls + \epsilon_i \tag{9}$$

where Z_i is norms coded between -1 and 1, in 2/3 intervals as set out in Krupka and Weber (2013), by participant i, with data long. $\beta_1 ActHyp_i$ is coded 0 = actual and 1 = hypothetical. $\beta_2 Level_i$ is coded 0 = UGX 0, 1 = UGX 2,000, 2 = UGX 4,000, 3 = UGX 6,000 and 4 = UGX 8,000. Controls will comprise of age and gender. Additionally, a Wilcoxon rank-sum test will also be run as a robustness check, simply testing whether norms are equal across $ActHyp_i$ for the Wall Street Game only. We do not propose a multiple hypothesis correction for this robustness test.

Stata code - Family 3.3

Below is the complete Stata code for Family 3.3:

```
//// FAMILY 3.3 - Norms: Wall Street (across treatments) ////

* H3.3: Actual and Hypothetical norms for Wall Street Game

reg norms act_hyp level age female if WSG_CG==0, vce(cluster part_id)

* For robustness

ranksum norms if WSG_CG==0, by (act_hyp)
```

Family 3.4: Actual vs Hypothetical: Community Game (between treatments)

The specification will be a regression, with $\beta_1 ActHyp$ being the coefficient of interest to test *H3.4*. Note, for this specification, only Community Game norms are being included, meaning N=1,500 in total (using hypothetical responses from treatment 1 and actual responses from treatment 2), across the five possible contribution levels. A significant result would mean that the H_0 is rejected, meaning there is evidence to support H_a that actual and hypothetical norms do differ for the Community Game.

Standard errors will be clustered at the participant level, as each participant provides five actual and five hypothetical responses for norms. As only half of these responses are being used to test the Community Game, N = 1,500 (150 participants, 5 answers actual, 5 answers hypothetical, data long). The regression will use the basic set up:

$$Z_i = \alpha + \beta_1 ActHyp_i + \beta_2 Level_i + controls + \epsilon_i \tag{10}$$

where Z_i is norms coded between -1 and 1, in 2/3 intervals as set out in Krupka and Weber (2013), by participant i, with data long. $\beta_1 ActHyp_i$ is coded 0 = actual and 1 = hypothetical.

$\beta_2 Level_i$ is coded 0 = UGX 0, 1 = UGX 2,000, 2 = UGX 4,000, 3 = UGX 6,000 and 4 = UGX 8,000. Controls will comprise of age and gender. Additionally, a Wilcoxon rank-sum test will also be run as a robustness check, simply testing whether norms are equal across $ActHyp_i$ for the Community Game only. We do not propose a multiple hypothesis correction for this robustness test.

Stata code - Family 3.4

Below is the complete Stata code for Family 3.4:

```
//// FAMILY 3.4 - Norms: Community Game (across treatments) ////

* H3.4: Actual and Hypothetical norms for Community Game

reg norms act_hyp level age female if WSG_CG==1, vce(cluster part_id)

* For robustness

ranksum norms if WSG_CG==1, by (act_hyp)
```

7 Proposed timeline

The full experiment is currently scheduled to be run in August - September 2024. This will be run by the Field Lab (`https://thefieldlabuganda.com/`) with support from the authors.

8 Funding and Ethics

Funding for this study have been provided by the South East Network for Social Sciences (SeNSS) (`https://senss-dtp.ac.uk/`) as part of the author's SeNSS ESRC-funded doctoral studentship award. No other funding is attached to the project. Ethics approval for the study has been granted by the International Development Ethics Committee, University of East Anglia, and the Research Ethics Committee, Uganda.

Part V
Appendix 1 - Experimental Script

Stage 1 - Regional Survey

Instructions for enumerators in italics. Instructions to be read in normal font.

Locations: Mbale (Gisu; N=100), Jinga (Basoga; N=100), Kampala (Baganda, N=100), Kitgum (Acholi, N=100) and Soroti (Teso, N=100).

BRIEF EXPLANATION FOR EXPERIMENTERS ONLY:

This stage is a simple survey of five distinct 'groups': Gisu, Basoga, Baganda, Acholi and Teso. The survey will need to be conducted in the local language of each tribe and physically carried out in the appropriate geographical region. Local language scripts need to be back translated to ensure consistency between each survey. Recruitment should be random and restricted to consenting adults (over 18 years old). Participants should be made aware that all responses will be anonymised.

Pre-screening: For each 'group' we are aiming to collect 100 sets of responses, 500 sets in total. To ensure participants have the appropriate group membership, the following pre-screening questions should be asked (verbally) in the local language:

- *Which tribe/ethnic group do you most identify with?*
- *Where were you born?*
- *Are you fluent in [local language]?*

Enumerator(s) should assess this evidence, coupled with spoken language proficiency, to determine whether the individual is an ethnic Gisu, Basoga, Baganda, Acholi or Teso, as appropriate. Otherwise, we should thank the applicant for their interest and inform them that they do not meet the criteria.

PREPARATION OF THE SURVEY

Material needed:

- *Question Sheet (see below)*
- *Response Sheet (See below)*
- *Money*
- *Anonymous submission box*

FORMAL INTRODUCTION

Welcome. Thank you for taking the time to come today. *[Introduce Enumerators/Assistants].* We are from The Field Lab, Mbale and are here on behalf of researchers from a UK University to measure and better understand different groups in Uganda. We will ask you five brief questions, which should take about 5 minutes. For your time we will give you UGX 10,000. All questions are optional, you may choose not to answer the questions or withdraw at any time. This will not cost you anything, but you will only receive the UGX 10,000 if you answer all of the questions. All your responses will be anonymised. We will not observe you completing you form, and when you are finished, we ask that you place your responses in the box here *[indicate]* so that they remain anonymous.

THE SURVEY

Questions should be asked verbally, with the participant making responses on an answer sheet. Once the survey has been completed and the answer sheet added to the anonymous box, pay the participant UGX 10,000.

Questions:

Question	Range
QS.1 Do you think politics is important?	[1-10]
QS.2 Do you think religion is the most important aspect of identity?	[1-10]
QS.3 Do you think it is acceptable to deceive others?	[1-10]
QS.4 Do you think the use of violence is acceptable?	[1-10]
QS.5 Do you think cheating on your spouse is acceptable?	[1-10]

Stage 2 - Mbale Lab-in-the-Field

Locations: Mbale Region (Gisu, N=300)
Pre-screening: The sampling frame set out in section 2.2.1 of the "Pre-Analysis Plan for Social Norms, Values and Misperception" should be followed to select a sample, as discussed in planning meetings with The Field Lab.

Phase 1 - Survey

PREPARATION OF THE SURVEY

Material needed:

- *ID numbers for tables*
- *Question Sheet*
- *Answer Sheets 1.0, 1.1 and 1.2*
- *Handout 1.0*
- *Payout computation & data entry sheet (excel based)*
- *Bag with 50 pieces of paper with question numbers [1-5.2 and 1-5.4, across five cultures] for random participant to select bonus question*

BRIEF EXPLANATION FOR EXPERIMENTERS ONLY:

This stage is an incentivised survey which builds on Stage 1. Some of the questions ask the participant's own opinions, while others ask the participant to record their belief of 'others'. The 'other' (X) refers to the Gisu, Basoga, Baganda, Acholi and Teso (i.e. this will include their own group (Gisu), plus the other four). The answer sheets have been designed to make clearer which questions require a response relating to these groups.

All subjects will need to be screened for language proficiency/to ensure they are ethnic Bagisu – see questions in Stage 1. Prior to participant admittance, place ID numbers and answer sheet 1.0 and 1.1 on tables. Participants can select any seat randomly.

FORMAL INTRODUCTION

Welcome. Thank you for taking the time to come today [introduce Enumerators and Assistants]. Later, you can ask any of us questions during today's programme. For this raise your hand so that we can come and answer your question in private.

We are from The Field Lab, based here in Mbale. We have invited you here today, because we want to learn about the beliefs and decision making of different Ugandan groups. You are going to be asked to answer some questions, most of which could earn you money. This money will be yours to keep.

What you need to do will be explained fully in a few minutes. But first we want to make a couple of things clear. First of all, this is not our money. We are associated with a university in the UK, and this money has been given to us for research. Second, participation is voluntary. You may still choose not to participate in the exercise or withdraw at any time by simply leaving the room. If you choose to remain in the room, you are signalling to us your consent to participate in this experiment. Please raise your hand to confirm that you have understood this and that you wish to signal your consent.
If any participant does not raise their hand, an enumerator should privately discuss with the participant whether they understand or have concerns.

If you choose not to answer a question, you will still receive a flat participation fee of UGX 1,500, but you will not be eligible for the additional payouts associated with specific questions. This will become clearer as we explain the tasks. Third, this is research about your decisions and individual beliefs. Therefore, you cannot talk with others. This is very important. I'm afraid that if we find you talking with others, we will politely ask you to leave, and you will not be able to earn any money here today.

Of course, if you have questions, you can ask one of us. We also ask you to switch off your mobile phones. Make sure that you listen carefully to us. You will be able to make some money here today, and it is important that you follow our instructions and carefully consider your responses, as it will impact how much you will earn. During today's programme, you will be asked to answer some questions and make several decisions, which will be explained to you very clearly.

THE SURVEY

First, we are going to ask you some questions about your opinions and your perception of other groups. For ten of the questions (QE1-5.2 and QE1-5.4), we will ask you to try and guess what members of other groups answered. We recently interviewed 100 Gisu, Basoga, Baganda, Acholi and Teso and asked them to answer these questions anonymously (they were not being observed). For these questions, there is an opportunity to earn money. At the end of the survey, we will ask one of you to randomly select which one of these questions will be eligible for a 5,000 shilling bonus *[use QE1.2 as an example of how this works]*. If you have correctly guessed within 10 persons, either way, you will receive the payout. It is important that you use the correct range shown, otherwise you will not be eligible for the bonus payout.

Remember all of your answers are completely confidential. For each question, please use the answer sheet to mark your responses. Before you start to answer, please ensure you have written your ID number at the top of your answer sheet. We will not be able to calculate your payout without this.

We will now read each question in turn: *Enumerators verbally ask each question, making clear the response range. Refer to answer sheets which also contain this information and the number of responses required. Where shown, a response is required for all five (X) cultural groups. For Q.E.1-5.2, ask the participants to mark their answers on both Answer Sheets 1.0 and 1.1 (they will retain 1.1 after 1.0 has been collected).*

Question	Range
QE.1.1 Do you think politics is important?	[1-10]
QE.1.2 We asked 100 `X' "do you think politics is important?" on a scale 1-10. How many do you think answered 6 or higher? We will give you 5,000 shillings if you are within 10 people of the correct answer.	[0-100]
QE.1.3 Where 1 = not at all confident and 10 = completely confident, how confident do you feel about your answer to QE.1.2?	[1-10]
QE.2.1 Do you think religion is the most important aspect of identity?	[1-10]
QE.2.2 We asked 100 `X' "do you think religion is the most important aspect of identity?" on a scale 1-10. How many do you think answered 6 or higher? We will give you 5,000 shillings if you are within 10 people of the correct answer.	[0-100]
QE.2.3 Where 1 = not at all confident and 10 = completely confident, how confident do you feel about your answer to QE.2.2?	[1-10]
QE.3.1 Do you think it is acceptable to deceive others?	[1-10]
QE.3.2 We asked 100 `X' "do you think it is acceptable to deceive others?" on a scale 1-10. How many do you think answered 6 or higher? We will give you 5,000 shillings if you are within 10 people of the correct answer.	[0-100]
QE.3.3 Where 1 = not at all confident and 10 = completely confident, how confident do you feel about your answer to QE.3.2?	[1-10]

Question	Range
QE.4.1 Do you think the use of violence is acceptable?	[1-10]
QE.4.2 We asked 100 `X' "do you think the use of violence is acceptable?" on a scale 1-10. How many do you think answered 6 or higher? We will give you 5,000 shillings if you are within 10 people of the correct answer.	[0-100]
QE.4.3 Where 1 = not at all confident and 10 = completely confident, how confident do you feel about your answer to QE.4.2?	[1-10]
QE.5.1 Do you think cheating on your spouse is acceptable?	[1-10]
QE.5.2 We asked 100 `X' "do you think cheating on your spouse is acceptable?" on a scale 1-10. How many do you think answered 6 or higher? We will give you 5,000 shillings if you are within 10 people of the correct answer.	[0-100]
QE.5.3 Where 1 = not at all confident and 10 = completely confident, how confident do you feel about your answer to QE.5.2?	[1-10]
Where 1 = completely disagree and 10 = completely agree, as a Gisu how much do you agree the following statements reflect stereotypes of `X' (ask for each of the 5 cultures):	
QE.6.1 People from `X' are faithful?	[1-10]
QE.6.2 People from `X' are intelligent?	[1-10]
QE.6.3 People from `X' are stubborn?	[1-10]
QE.6.4 People from `X' are aggressive?	[1-10]
QE.6.5 People from `X' are efficient?	[1-10]
QE.6.6 People from `X' are very religious?	[1-10]
QE.6.7 People from `X' are arrogant?	[1-10]
QE.6.8 People from `X' are deceitful?	[1-10]
QE.6.9 People from `X' are straight forward?	[1-10]
QE.6.10 People from `X' are political?	[1-10]
QE.7 How well do you feel other Gisu understand you and your beliefs?	[1-10]

Confirm, by show of a raise of hands, whether participants would like more time or any or the questions repeating.

Now that you have completed your responses, please ensure that you have written your answers to Q1-5.2 on both Answer Sheets 1.0 and 1.1. Please also ensure that your ID number is written at the top of both pieces of paper. We are about to ask you the second set of incentivised questions. For these, you will need to refer to your answers to QE1-5.2 in order to win any potential bonus payout.

We will now collect your first answer sheet and give you the second response sheet and some additional information.

Collect Answer Sheet 1.0, ensuring responses are complete and consistent with Answer Sheet 1.1 for QE.1-5.2. Check that the participant's ID is written on both answer sheets correctly. Hand out Answer Sheet 1.2 and Handout 1.0 (this must be after Answer Sheet 1.0 has been collected).

We have now provided you with a further answer sheet and a handout which contains some additional information. Like QE1-5.2, these questions are eligible for the bonus payout, if you are within 10 of the actual answer. For these questions we are providing some additional information – the actual responses of 10% of those surveyed, shown in Handout 1.0.

QE.1.4 Go back to your answer to QE1.2. The handout provided shows the actual responses for a randomly selected 10% of all `X' who answered 6 or higher in QE.1.2. Given this additional information, what would your answer to QE.1.2 be now, for each group?	[0-100]
QE.2.4 Go back to your answer to QE2.2. The handout provided shows the actual responses for a randomly selected 10% of all `X' who answered 6 or higher in QE.2.2. Given this additional information, what would your answer to QE.2.2 be now, for each group?	[0-100]
QE.3.4 Go back to your answer to QE3.2. The handout provided shows the actual responses for a randomly selected 10% of all `X' who answered 6 or higher in QE.3.2. Given this additional information, what would your answer to QE.3.2 be now, for each group?	[0-100]
QE.4.4 Go back to your answer to QE4.2. The handout provided shows the actual responses for a randomly selected 10% of all `X' who answered 6 or higher in QE.4.2. Given this additional information, what would your answer to QE.4.2 be now, for each group?	[0-100]
QE.5.4 Go back to your answer to QE5.2. The handout provided shows the actual responses for a randomly selected 10% of all `X' who answered 6 or higher in QE.5.2. Given this additional information, what would your answer to QE.5.2 be now, for each group?	[0-100]

Would anyone like us to repeat any of the questions?
We will now collect your second answer sheet and give you the next response sheet.

Collect Answer sheets 1.1 and 1.2 (ensuring that the student ID is clearly written at the top) as well as handout 1.0. The participant is not allowed to retain any of the sheets. Hand out Answer Sheet 2.1.

CHOICE OF BONUS QUESTION

While sheets are being collected and handed out, ask a random participant to select the bonus question from bag while the answer sheets/handout are being collected. Ensure this is observable by the group for transparency.

Phase 2 - Experiment

PREPARATION OF THE SURVEY

Material needed:

- *Explanation wall charts*
- *Answer Sheets 2.1, 2.2 and 2.3*
- *Payout computation & data entry sheet (excel)*
- *Props for explanation: basket and envelope*
- *Post-it notes*
- *Bag with 20 pieces of paper with question numbers for random participant to select bonus question [5.1-5, 6-10, 11.1-5, 12-17]*

BRIEF EXPLANATION FOR EXPERIMENTERS ONLY:

We will play a public goods game using either a 'Community Game' (CG) or a 'Wall Street Game' (WSG) (randomly determined) treatment. Each participant will play either the CG or WSG first, and then hypothetically play the WSG or CG second (in that order). We need an

even number of players in each session as players are paired. It is important that subjects do not know who their partner is.

Participants will be told that they are playing a Community Game [Wall Street Game]. After the rules of the game have been explained, participants will be able to contribute either UGX 0, UGX 2,000, UGX 4,000 or UGX 8,000 to the common pot. This decision will attract a payout for the participant.

After this initial decision, we will ask the participants what percentage of participants in the session they think contributed to the common pot at each level. Next, we will ask them, on a four-point scale, how socially acceptable it is to contribute at each of the four levels. We will randomly select one of the eight questions here for a bonus UGX3,000 payout if participants are with +/- 10% of the actual answer for expectations and in the right category (one of four) for the norm questions. Need to be clear that this is different bonus and that this part of the experiment is separate to the previous survey. Lastly, we will ask participants to imagine they had never played the Community Game [Wall Street Game]. "Imagine you are seeing this for the first time, but it is instead called the Wall Street Game [Community Game]. What answers would you have given?" The expectations/norms questions here again attract a potential UGX3,000 bonus.

EXPLAINING THE GAME

We are now going to play a simple game about money called the Community Game [Wall Street Game]. Today, you have randomly been paired with someone else in this room. You will not find out the identity of your partner, and they will not find out any information about you. All decisions are anonymous. However, we can tell you that your partner is either a Mugishu or spent time in the Bugishu region.

I will explain all of the decisions required for the Community Game [Wall Street Game] slowly, and ask you to write down your answers on the paper in front of you. You cannot change your answers after they've been written down, so think carefully before you write anything. Any questions that you have can be answered privately.

Here use a physical basket and envelope to explain the game.

At the start of the Community Game [Wall Street Game] you will be given 8,000 Ugandan shillings, and you can decide what to do with it. First, we will demonstrate the decision using real money. You will make your choice on paper in front of you. You have two possible options: you can place money in either a private envelope (*show*) or a common basket (*show*). You can choose to put some of the money in the common basket, and the rest in the private envelope, but only in intervals of 2,000 Shillings. You can choose to keep this money for yourself, by placing it in the private envelope (*show*). This is your money to take home with you. There is also a common basket, which both you and you partner can put money in (*show*). We will add half of the money in the common basket (*show*). It will then be shared equally between the two players (*show*). Let's recap the Community Game [Wall Street Game] rules together: [*short, direct answers only*]:

- What happens with any money you decide to put in your private envelope? [*You take it home*]
- How much is added to any money you and your partner put in the common basket? [*Half*]
- And after half is added, how do we split the money in the common basket between you and your partner? [*Equally*]

CONTROL QUESTIONS

We will now check for your understanding of the Community Game [Wall Street Game], using 3 examples. Firstly, please put your ID numbers at the top of your answer sheet.

[Use an illustrative wall chart here to explain the game, using post it notes to show what would be written in each box in order to calculate the overall payout. Ensure actual wall chart being used has an UGX 8,000 endowment.

Imagine two people are paired: person A and person B. They would not know who they are paired with. *[Demonstrate with real money and using the visual aid. Jointly solve 1 and 2 below, but 3 must be solved by the participant directly without aid. Read question number, pause with each instruction to write down, indicating where to write down.]*

1. Imagine that person A chooses to put nothing in the common basket, and everything in the private envelope. And imagine that person B chooses to put nothing in the common basket, and everything in the private envelope. Write on your paper, in the appropriate boxes, how much is in the common basket. How much is there after we have added half. And how much each player goes home with. *[Jointly solve this, asking for answers from the room]*

2. Imagine that person A chooses to put everything in the common basket, and nothing in the private envelope. And imagine that person B chooses to put everything in the common basket, and nothing in the private envelope. Write on your paper, in the appropriate boxes, how much is in the common basket. How much is there after we have added half. And how much each player goes home with. *[Jointly solve this, asking for answers from the room]*

3. Imagine that person A chooses to put everything in the common basket, and nothing in the private envelope. But, imagine that person B chooses to put nothing in the common basket, and everything in the private envelope. Write on your paper, in the appropriate boxes, how much is in the common basket. How much is there after we have added half. And how much each player goes home with. Please write your answers on your answer sheets. *[This must be completed by the participant without aid].*

Collect answer sheets 2.1 ensuring that the participant's ID number is populated. Hand out answer sheet 2.2.

PGG DECISION – CG [WSG]

Thank you. These are just examples, and for the real Community Game [Wall Street Game] you can decide what you prefer. When you make the decision, you can choose an amount, between 0 and 8,000 shillings, to put in the private envelope. You can choose an amount, between 0 and 8,000 shillings, to put in the common basket. Remember that we will pay you real money at the end of the experiment, depending on what you and your partner decide. Please make your choice now for the Community Game [Wall Street Game], by ticking once for question 4. *[Indicate where on an illustrative wall chart].*

EXPECTATIONS – CG [WSG]

We will now ask you questions 5-10 about behaviour in the Community Game [Wall Street Game]. Once you have made all of these decisions on this page, we will randomly pick one question. If you get the answer correct in the question we pick, we will give you another 3,000 shillings as a bonus. If one of the responses to question 5 is selected you will need to be within +/-10% of the actual answer to get the payout.

Let us remind you that it is very important that you do not talk during the experiment, and that you only mark one box per question. If you mark more than one box you will not be able to receive the bonus.

For question 5, there are five boxes, each showing difference scenarios.

[Use an illustrative wall chart to explain the question]:

- The left-hand box shows that the entire 8,000 shillings has been placed in the private envelope.
- The right-hand box shows that the entire 8,000 shillings has been placed in the common basket.
- In each of the boxes, in intervals of 10%, how many people in this room do you think contributed the amounts shown? For example, 0, 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100%?

NORMS– CG [WSG]

Now we will give a series of situations where someone made a decision. I will ask you to consider the different possible choices available and to decide, for each of the possible actions, whether taking that action would be "socially acceptable" and "consistent with moral or proper social behaviour" or "socially unacceptable" and "inconsistent with moral or proper social behaviour."

By socially acceptable, we mean behaviour that most people agree is the "correct" or "ethical" thing to do. Another way to think about what we mean is that if someone were to select a socially unacceptable choice, then someone else might be angry at them for doing so.

Remember, if this set of questions is chosen, you could earn another 3,000 shillings on top of what you earned in the first section of the experiment. You would earn that money if you give the same answer as the most popular choice. For these questions, we are not interested in your preferences. Rather, we are interested in what you think the most popular choice would be.

We will now go through an example. *[use an illustrative wall chart with post it notes to illustrate during explanation].*

Imagine someone is at a local coffee shop. While there, they notice that someone has left a wallet at one of the tables. Someone sees and must decide what to do. They have four possible choices, and you need to rate how socially acceptable, "correct" or "ethical" that action is. *[Read each choice out, ask 'how would you rate that action?' give the 4 possible ratings, and get an assistant experimenter to answer using the below scale. Use visual aid throughout].*

	Very socially unacceptable	Socially unacceptable	Socially acceptable	Very socially acceptable
	--	-	+	++
Take the wallet	X			
Ask others nearby if the wallet belongs to them			X	
Leave the wallet where it is		X		
Give the wallet to shop manager				X

[Assistant Experimenter:] I think most people in this room would say 'action' is 'rating'. So I would tick here *[mark on the visual aid].*

Now that we've gone through an example, we will turn to our questions. Remember that if you give the same answer as the most popular option, and if that question is randomly chosen, you could earn extra money.

We are now going to answer questions 6-10. Remember this is how socially acceptable or unacceptable people in this room playing the Community Game [Wall Street Game] believe, on

average, each contribution level to the common pot is. Imagine someone put nothing in the private envelope and everything in the common basket *[use an illustrative wall chart to support explanation].*

Please rate this as either very socially unacceptable (–), somewhat socially unacceptable (-), somewhat socially acceptable (+) or very socially acceptable (++) by ticking once in that row. You will see another four possible choices, where someone put either 2,000, 4,000, 6,000 or 8,000 in the private envelope. Please rate each choice as either very socially unacceptable (–), somewhat socially unacceptable (-), somewhat socially acceptable (+) or very socially acceptable (++). Remember, you can only get a bonus if you tick once per row.

REPEAT PGG, EXPECTATIONS & NORMS – WSG [CG]

Now imagine that you have just walked into this room. Instead of being told that you are going to be playing the Community Game [Wall Street Game] we told you that you will be playing the Wall Street Game [Community Game]. All of the conditions and rules are exactly as before. Take a moment to visualise this. Please mark what you would have contributed to the common pot in the Wall Street [Community] Game in question 11.

Now for question 12, in each of the boxes, in intervals of 10%, how many people in this room do you think would have contributed the amounts shown when hypothetically playing the Wall Street Game [Community Game]? As before there is a bonus 3,000 shillings if question 12 is selected at the end of session and you are within +/-10% of the actual answer.

Lastly, for questions 13 - 17, please mark how socially acceptable or unacceptable people in this room playing the Wall Street Game [Community Game] believe, on average, each contribution level to the common pot is. The 3,000 shilling bonus is also available for these questions. Remember, you can only get a bonus if you tick once per row.

CHOICE OF BONUS QUESTIONS

Collect participants Answer Sheets 2.2 ensuring their ID numbers are correctly written at the top of the page. Hand out Answer Sheet 2.3. As with stage 1, get a random participant to select one bonus questions blind from the bag.

Phase 3 - Survey

Please enter your ID number at the top of the new answer sheet. While we calculate your earnings, we'd like to ask a few general questions, to understand more about you. All information is anonymous, will not affect your earnings and is given voluntarily. If you wish not to answer a question, you are allowed to skip it.

- How old are you? [In years]
- What is your gender? [Male/Female]
- What is your highest educational qualification?
- How many people in this room do you know by name? [Please don't include the experimenter(s)]
- What is your religion?
- Do you have membership to any political parties? [Yes/No]
- If so, which parties?

FINAL INSTRUCTIONS

Thank you, you have now all completed all of the tasks. We now invite you to come forward, one by one, to collect up your earnings. Thank you for coming today, your participation has been greatly appreciated.

Stage 2: Experimental Answer Sheets & Handouts

ANSWER SHEET 1.0

ID No: _____

Question	*Range*	Participant	Gisu	Basoga	Baganda	Acholi	Teso
QE.1.1	*1-10*						
QE.1.2	*0-100*						
QE.1.3	*1-10*						
QE.2.1	*1-10*						
QE.2.2	*0-100*						
QE.2.3	*1-10*						
QE.3.1	*1-10*						
QE.3.2	*0-100*						
QE.3.3	*1-10*						
QE.4.1	*1-10*						
QE.4.2	*0-100*						
QE.4.3	*1-10*						
QE.5.1	*1-10*						
QE.5.2	*0-100*						
QE.5.3	*1-10*						
QE.6.1	*1-10*						
QE.6.2	*1-10*						
QE.6.3	*1-10*						
QE.6.4	*1-10*						
QE.6.5	*1-10*						
QE.6.6	*1-10*						
QE.6.7	*1-10*						
QE.6.8	*1-10*						
QE.6.9	*1-10*						
QE.6.10	*1-10*						
QE.7	*1-10*						

ANSWER SHEET 1.1

Question	*Range*	Gisu	Basoga	Baganda	Acholi	Teso
QE.1.2	*1-100*					
QE.2.2	*1-100*					
QE.3.2	*1-100*					
QE.4.2	*1-100*					
QE.5.2	*1-100*					

ANSWER SHEET 1.2

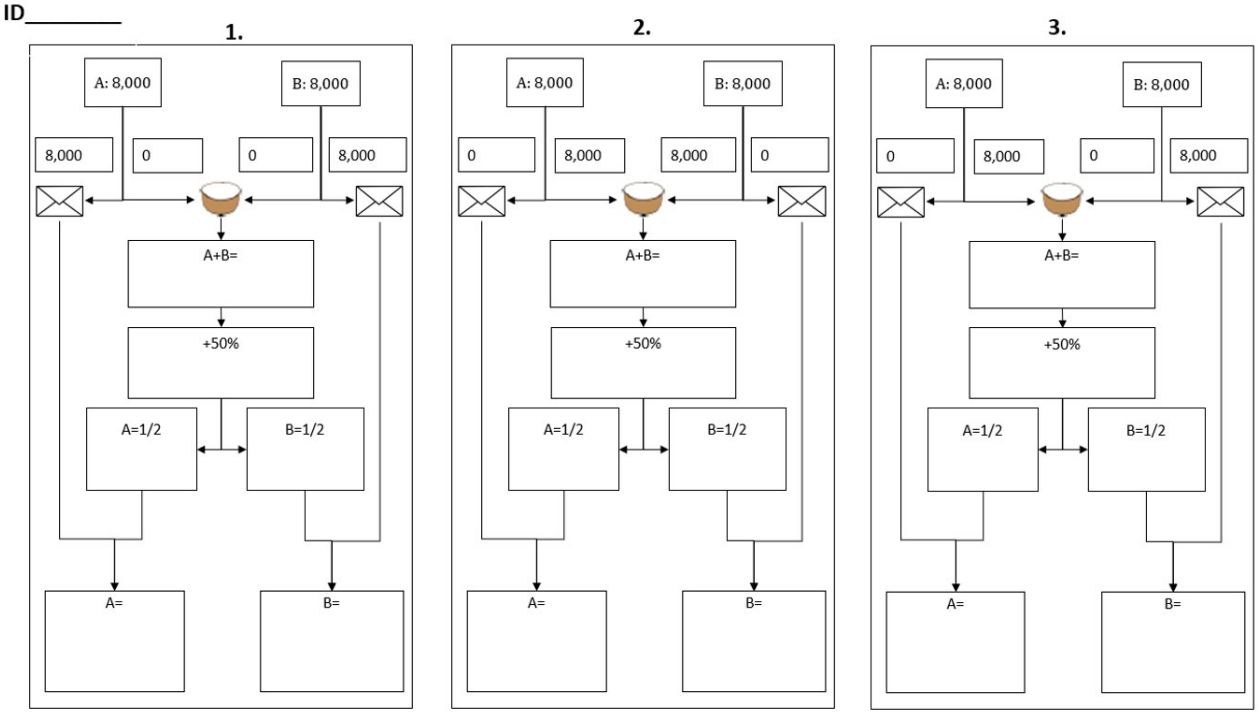
Question	*Range*	Gisu	Basoga	Baganda	Acholi	Teso
QE.1.4	*1-100*					
QE.2.4	*1-100*					
QE.3.4	*1-100*					
QE.4.4	*1-100*					
QE.5.4	*1-100*					

HANDOUT 1.0

Question	Gisu	Basoga	Baganda	Acholi	Teso
QE.1.2	XX	XX	XX	XX	XX
QE.2.2	XX	XX	XX	XX	XX
QE.3.2	XX	XX	XX	XX	XX
QE.4.2	XX	XX	XX	XX	XX
QE.5.2	XX	XX	XX	XX	XX

Illustrative purposes – ahead of stage 2, we will populate "XX" with the average actual responses of 10 randomly selected participants from stage 1 for each of the questions. This handout will need to be provided to participants in stage 2 after all responses have been entered, up to QE.7 (before QE1-5.4).

ANSWER SHEET 2.1



ANSWER SHEET 2.2

ID_____

4.

8,000	6,000	4,000	2,000	0	
☐	☐	☐	☐	☐	
0	2,000	4,000	6,000	8,000	

5.

 8,000  0	 6,000  2,000	 4,000  4,000	 2,000  6,000	 0  8,000
%	%	%	%	%

	--	-	+	++
6.  : 8,000  : 0				
7.  : 6,000  : 2,000				
8.  : 4,000  : 4,000				
9.  : 2,000  : 8,000				
10.  : 0  : 8,000				

11.

8,000	6,000	4,000	2,000	0	
☐	☐	☐	☐	☐	
0	2,000	4,000	6,000	8,000	

12.

 8,000  0	 6,000  2,000	 4,000  4,000	 2,000  6,000	 0  8,000
%	%	%	%	%

	--	-	+	++
13.  : 8,000  : 0				
14.  : 6,000  : 2,000				
15.  : 4,000  : 4,000				
16. : 2,000 : 8,000				
17. : 0 : 8,000				

ANSWER SHEET 2.3

ID:_____

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

Note: *Visual aids referenced in instructions for enumerator's reference only.*

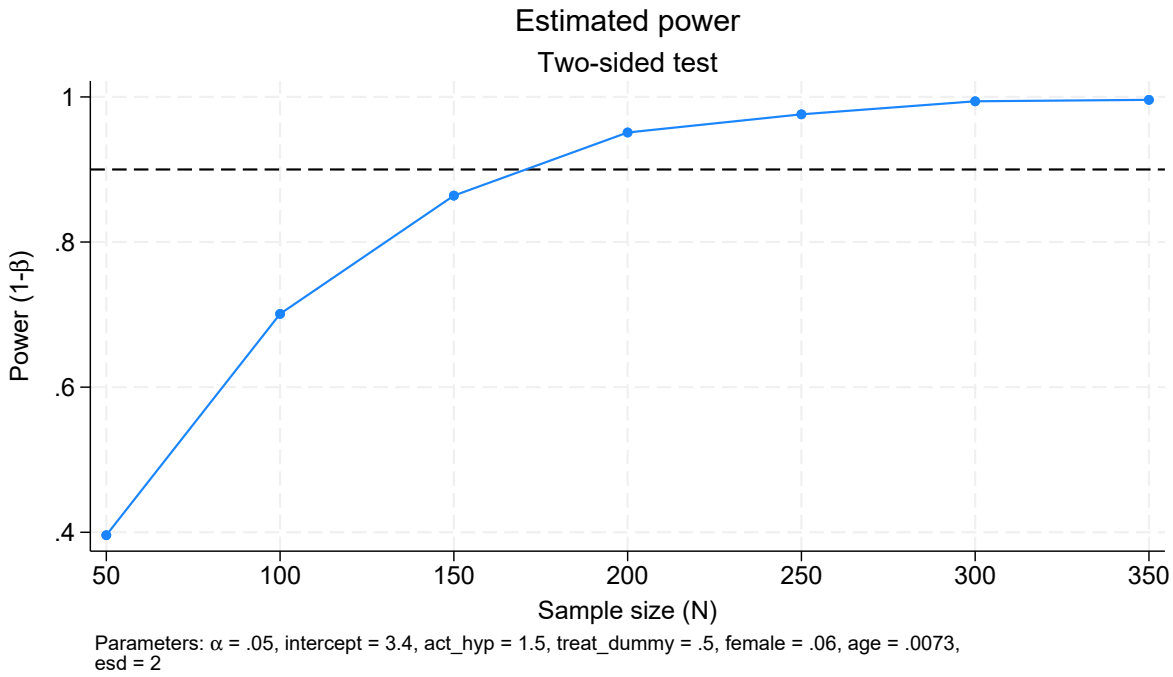
Part VI

Appendix 2 - Power Calculations

Below is the (long) code required to simulate power for family group 1: Contributions. All parameters were based on Clist and Hill (2021) (forthcoming), where possible, or decided conservatively if not. All specifications have sample and observation sizes of N=150, as only half of the data is used for each. For all four specifications, $ActHyp$ is the variable of interest and the anticipated effect size, based on available information, is expected to be consistent. Based on this, the analysis summarised in figure 2 shows that there is significant power for all specifications at N=150, with approximately 87% power.

Family Group 1: Contributions

Figure 2: Family 1 Contributions Power



Family Group 1 Stata Code - Contributions

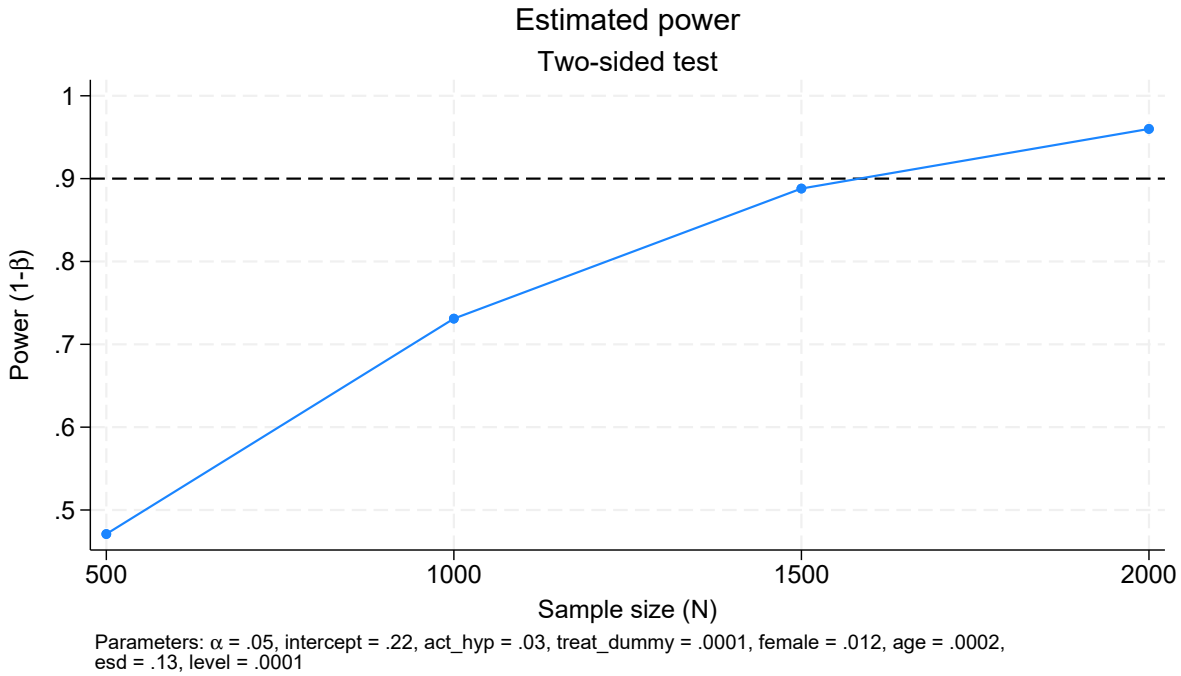
```
clear
set seed 092019
capture program drop simregress
program simregress, rclass
version 15.1

*DEFINE THE INPUT PARAMETERS AND THEIR DEFAULT VALUES

syntax, n(integer)[alpha(real 0.05) intercept(real 3.398) act_hyp(real 1.5)
treat_dummy(real 0.50) female(real 0.06) age(real 0.0073) esd(real 2.02)]

quietly { // GENERATE THE RANDOM DATA
clear
set obs `n'
generate  part_id = _n
generate act_hyp = rbinomial(1,0.5)
generate treat_dummy = rbinomial(1,0.5)
generate e = rnormal(0,`esd')
generate female = rbinomial(1,0.5)
generate age = runiformint(18,30)
generate contribution = `intercept' + `act_hyp'*act_hyp +
`treat_dummy'*treat_dummy + female*`female' + age*`age' + e

replace contribution =round(contribution ,1) // keep it in the 1 - 8 range
replace contribution=1 if contribution<1
replace contribution=8 if contribution>8

// TEST THE NULL HYPOTHESIS

reg contribution act_hyp age female if treat_dummy==0, vce(cluster part_id)

// RETURN RESULTS

local p1=r(table)[4,1]
return scalar pvalue = `p1'
return scalar reject = (`p1'<`alpha')
}
end

simregress, n(300)
simulate reject=r(reject) pvalue=r(pvalue), reps(1000) seed(1234): simregress,
n(300)
sum reject
```

```
capture program drop power_cmd_simregress
program power_cmd_simregress, rclass
version 15.1

*DEFINE THE INPUT PARAMETERS AND THEIR DEFAULT VALUES
syntax, n(integer)[alpha(real 0.05) intercept(real 3.398) act_hyp(real 1.5)
treat_dummy(real 0.50) female(real 0.06) age(real 0.0073) esd(real 2.02)
reps(integer 100)]

// TEST THE NULL HYPOTHESIS - USING SIMULATE
simulate reject=r(reject), reps(‘reps’) seed(1234): simregress, n(‘n’)
alpha(‘alpha’) intercept(‘intercept’) act_hyp(‘act_hyp’)
treat_dummy(‘treat_dummy’) female(‘female’) age(‘age’) esd(‘esd’)
quietly sum reject

// RETURN RESULTS
   return scalar power = r(mean)
   return scalar N = ‘n’
   return scalar alpha = ‘alpha’
   return scalar act_hyp = ‘act_hyp’
   return scalar treat_dummy = ‘treat_dummy’
   return scalar esd = ‘esd’
   return scalar intercept = ‘intercept’
   return scalar female = ‘female’
   return scalar age = ‘age’
  end
capture program drop power_cmd_simregress_init
program power_cmd_simregress_init, sclass
   sreturn clear
   sreturn local pss_numopts "alpha intercept act_hyp treat_dummy female age
   esd"
   sreturn local pss_colnames "alpha intercept act_hyp treat_dummy female age
   esd"
end
power simregress, n(50(50)350) reps(1000) graph(yline(0.9))
```

Family Group 2: Expectations

Below is the (long) code required to simulate power for family group 2: Expectations. All parameters were based on Clist and Hill (2021) (forthcoming), where possible, or decided conservatively if not. All specifications, have observations of N=1,500 from half (N=150) of the participants. For all four specifications, *ActHyp* is the variable of interest and the anticipated effect size, based on available information, is expected to be consistent. Based on this, the analysis summarised in figure 3 shows that there is significant power at N=1,500, approximately 89% power for all specifications.

Figure 3: Family 2 Expectations Power



Family Group 2 Stata Code - Expectations

```
clear
set seed 092019
capture program drop simregress
program simregress, rclass
version 15.1

*DEFINE THE INPUT PARAMETERS AND THEIR DEFAULT VALUES

syntax, n(integer)[alpha(real 0.05) intercept(real 0.2201959)
act_hyp(real .03) treat_dummy(real 0.0001) female(real 0.0124)
age(real 0.0002) esd(real 0.125) level(real 0.0001)]

quietly { // GENERATE THE RANDOM DATA
clear
set obs `n'
generate  part_id = _n
generate level = 0
replace level = 1 if _n>`n'*0.2
replace level = 2 if _n>`n'*0.4
replace level = 3 if _n>`n'*0.6
replace level = 4 if _n>`n'*0.8
generate act_hyp = rbinomial(1,0.5)
generate treat_dummy = rbinomial(1,0.5)
generate e = rnormal(0,`esd')
generate female = rbinomial(1,0.5)
generate age = runiformint(18,30)
generate expectations = `intercept' + `act_hyp'*act_hyp +
`treat_dummy'*treat_dummy + level*`level' + female*`female' + age*`age' + e
```

```
replace expectations = 0 if expectations<0
replace expectations = 1 if expectations>1
replace expectations=round(expectations, 0.1)

// TEST THE NULL HYPOTHESIS

reg expectations act_hyp level age female if treat_dummy==0,
vce(cluster part_id)
}

// RETURN RESULTS

local p1=r(table)[4,1]
return scalar pvalue = `p1'
return scalar reject = (`p1'<`alpha')
end
simregress, n(3000)
simulate reject=r(reject) pvalue=r(pvalue), reps(1000) seed(1234): simregress,
n(3000)
sum reject
```

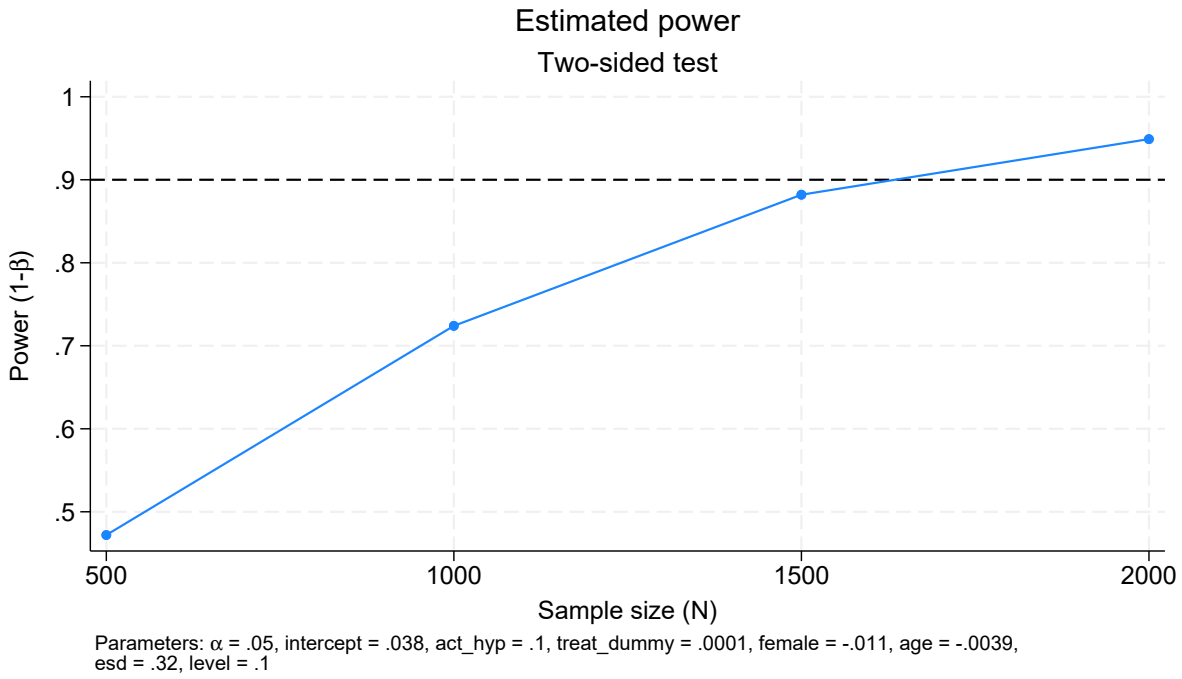
```
capture program drop power_cmd_simregress
program power_cmd_simregress, rclass
version 15.1

*DEFINE THE INPUT PARAMETERS AND THEIR DEFAULT VALUES

syntax, n(integer)[alpha(real 0.05) intercept(real 0.2201959)
act_hyp(real .03) treat_dummy(real 0.0001) female(real 0.0124)
age(real 0.0002) esd(real 0.125) level(real 0.0001) reps(integer 100)]

// TEST THE NULL HYPOTHESIS - USING SIMULATE

simulate reject=r(reject), reps(`reps') seed(1234): simregress, n(`n')
alpha(`alpha') intercept(`intercept') act_hyp(`act_hyp')
treat_dummy(`treat_dummy') female(`female') age(`age') esd(`esd')
level(`level')
quietly sum reject

// RETURN RESULTS
   return scalar power = r(mean)
   return scalar N = `n'
   return scalar alpha = `alpha'
   return scalar act_hyp = `act_hyp'
   return scalar treat_dummy = `treat_dummy'
   return scalar esd = `esd'
   return scalar intercept = `intercept'
   return scalar female = `female'
   return scalar age = `age'
   return scalar level = `level'
end
```

```
capture program drop power_cmd_simregress_init
program power_cmd_simregress_init, sclass
   sreturn clear
   sreturn local pss_numopts "alpha intercept act_hyp treat_dummy female
   age esd level"
   sreturn local pss_colnames "alpha intercept act_hyp treat_dummy female
   age esd level"
end

power simregress, n(500(500)2000) reps(1000) graph(yline(0.9))
```

Family Group 3: Norms

Below is the (long) code required to simulate power for family group 3: Norms. All parameters were based on Clist and Hill (2021) (forthcoming), where possible, or decided conservatively if not. All specifications have sample sizes of N=1,500, as only half of the data is used for each. For all four specifications, *ActHyp* is the variable of interest and the anticipated effect size, based on available information, is expected to be consistent. Based on this, the analysis summarised in figure 4 shows that there is significant power for all specifications, at approximately 89% power.

Figure 4: Family 3 Norms Power



Family Group 3 Stata Code - Expectations

```
clear
set seed 092019
capture program drop simregress
program simregress, rclass
version 15.1

*DEFINE THE INPUT PARAMETERS AND THEIR DEFAULT VALUES
syntax, n(integer)[alpha(real 0.05) intercept(real 0.0378) act_hyp(real 0.1)
treat_dummy(real 0.0001) female(real -0.0110) age(real -0.0039) esd(real 0.32)
level(real 0.1)]
quietly { // GENERATE THE RANDOM DATA

**TESTING OUTPUTS**
clear
set obs `n'
generate  part_id = _n
generate level = 0
replace level = 1 if _n>`n'*0.2
replace level = 2 if _n>`n'*0.4
replace level = 3 if _n>`n'*0.6
replace level = 4 if _n>`n'*0.8
generate act_hyp = rbinomial(1,0.25)
generate treat_dummy = rbinomial(1,0.5)
generate e = rnormal(0,`esd')
generate female = rbinomial(1,0.5)
generate age = runiformint(18,30)
generate norms = `intercept' + `act_hyp'*act_hyp + `treat_dummy'*treat_dummy
+ level*`level' + female*`female' + age*`age' + e
replace norms = -1 if norms<-0.6667
replace norms = -1/3 if norms>-0.6667 & norms<0
replace norms = 1/3 if norms>0 & norms<0.6667
replace norms = 1 if norms>0.6667

// TEST THE NULL HYPOTHESIS
reg norms act_hyp level age female if treat_dummy==0, vce(cluster part_id)
}

// RETURN RESULTS
local p1=r(table)[4,1]
return scalar pvalue = `p1'
return scalar reject = (`p1'<`alpha')
end

simregress, n(3000)
simulate reject=r(reject) pvalue=r(pvalue), reps(1000) seed(1234):
simregress, n(3000)
sum reject
```

```
capture program drop power_cmd_simregress
program power_cmd_simregress, rclass
version 15.1

*DEFINE THE INPUT PARAMETERS AND THEIR DEFAULT VALUES
syntax, n(integer)[alpha(real 0.05) intercept(real 0.0378) act_hyp(real 0.1)
treat_dummy(real 0.0001) female(real -0.0110) age(real -0.0039) esd(real 0.32)
level(real 0.1) reps(integer 100)]

// TEST THE NULL HYPOTHESIS - USING SIMULATE
simulate reject=r(reject), reps(‘reps’) seed(1234): simregress, n(‘n’)
alpha(‘alpha’) intercept(‘intercept’) act_hyp(‘act_hyp’)
treat_dummy(‘treat_dummy’) female(‘female’) age(‘age’) esd(‘esd’)
level(‘level’)
quietly sum reject

// RETURN RESULTS
   return scalar power = r(mean)
   return scalar N = ‘n’
   return scalar alpha = ‘alpha’
   return scalar act_hyp = ‘act_hyp’
   return scalar treat_dummy = ‘treat_dummy’
   return scalar esd = ‘esd’
   return scalar intercept = ‘intercept’
   return scalar female = ‘female’
   return scalar age = ‘age’
   return scalar level = ‘level’
end
```

```
capture program drop power_cmd_simregress_init
program power_cmd_simregress_init, sclass
   sreturn clear
   sreturn local pss_numopts "alpha intercept act_hyp treat_dummy female age
   esd level"
   sreturn local pss_colnames "alpha intercept act_hyp treat_dummy female age
   esd level"
end
power simregress, n(500(500)2000) reps(1000) graph(yline(0.9))
```

Part VII
References

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