Diversity and Quality of Institutions: Fostering Prosociality toward Outgroup Members

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ABSTRACT:

International migration is at an all-time high (Dumont & Bovy, 2013); as the prevalence of interactions with different others rises, institutions may be able to play a role in fostering cooperation in contexts of diversity and uncertainty. Previous research by Stagnaro et al. (2016) finds that experience with high quality institutions, i.e. those that incentivize cooperative behavior, supports prosociality even in novel contexts in which there are no incentives for cooperation. Extending this research, the present study (N = 260) investigates the potential for an interaction between group heterogeneity and institutional quality on fostering prosocial behavior toward novel individuals of different ethnicities. We predicted that experiencing heightened cooperation under high quality institutions would lead to more prosociality in novel contexts, possibly due to the formation of a social heuristic which reduces the cost of deliberation over whether to cooperate (thereby facilitating intuitive prosociality, Rand & Nowak 2014). We further predicted that the novel ethnicity of a new cooperation partner would not induce deliberation and reduce prosociality if the heuristic had been formed in a diverse context. We replicate the effect of institutional quality on prosocial giving in circumstances lacking incentives or consequences ($p = 0.028$), but find no effect or interaction due to diversity. The study sample was recruited and tested in Kenya, an environment in which participants are more likely to experience lower quality institutions (Transparency International, 2016). Our results show that the high quality institution significantly increased prosociality relative to baseline ($p = 0.007$) and low quality institutions ($p = 0.028$), which also produced significantly greater levels of prosociality than baseline ($p < 0.001$).

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INTRODUCTION

As our planet's population becomes increasingly dense and dynamic, the question of how we react to the new and different grows in salience. In particular, concerns about how we choose to interact in societies comprising heterogeneous beliefs, preferences, and behaviors dominate political discourse around the world in response to large-scale changes, such as the refugee and migrant crisis. Our governing institutions set the tone – in the form of rhetoric and policy – on how to live with one another, but can they help us learn to make moral decisions on our own? Can we learn to extend these lessons to people seemingly very different from ourselves?

Cooperation

Cooperation, or choosing to pay a cost to provide a benefit to another, can be sustained through many channels that encourage personal sacrifice by providing incentives. Cooperation incentives often invoke future reciprocation, e.g. cooperating to improve reputational benefits that will make one more attractive as a partner in future interactions (Rand & Nowak 2013). However, increased perceptions of various forms of diversity can evoke uncertainty about others' behaviors. Kin selection, one evolutionary mechanism for supporting reciprocity (Rand & Nowak 2013), entails a relationship between fitness and benefitting those with whom we share genetic material – a less likely circumstance in increasingly diverse groups. Another mechanism, network reciprocity (Nowak 2006), describes the development of prosociality among clusters of cooperators within larger networks; given our tendency for homophily, or association with similar others (Apfelbaum et al. 2014), which persists today, these evolutionary contexts are

likely relatively homogenous across many categories. Conversely, according to Apfelbaum et al. (2014), "Homogeneity encourages subjective responses that, if anything, are often further from an objective baseline than in diverse groups."

Yet if well functioning institutions properly incentivize cooperation and punish uncooperative behaviors, perhaps they can in fact move constituents to extend this heightened and sustained level of cooperation to novel individuals. The proportion of international migrants relative to global population continues to increase (though the rate of increase has slowed since 2007, Dumont & Hovy 2013), as does the role of migrants and refugees in political discourse; the prevalence of social interactions involving diverse, novel individuals is likely to continue growing. In order to understand how institutions might interact with diversity in guiding prosociality, several lines of research must intersect: social heuristics used to generalize cooperation, the effect of institutional strength on prosociality, and the challenges of encoding and reacting to diversity.

Cooperation and Heuristics

Cooperative behavior is, in part, determined by typical social interactions experienced in daily life. According to the Social Heuristics Hypothesis (SHH, Rand et al. 2014), our experiences with personally beneficial interactions shape our intuitions toward cooperation. If cooperating is regularly the optimal strategy, over time, an individual will be less inclined to pay the cost of deliberating whether or not to cooperation and instead simply choose to do so. These experiences eventually become internalized and automatized into a cooperative heuristic, generalized and applied in novel situations. This effect is particularly pronounced when deliberation is discouraged

or made difficult, through increasing cognitive load or ego depletion, introducing time pressure, or inducing intuition (Rand et al. 2014; Rand 2016).

Conversely, the SHH proposes that in an environment in which cooperation is generally a non-optimal strategy, individuals will intuitively choose not to cooperate, or to cooperate less generously. Peysakhovich and Rand (2015) report that when the probability of repeated interactions drives the desirability of cooperation[1], those who trained under the high probability condition were more prosocial in a subsequent one-shot interaction with a novel partner, were more likely to punish, and were more trusting. This result reflects the influence of a "culture of cooperation" on cooperation decisions, even when one is removed from the context in which cooperation is incentivized (i.e. in the one-shot interaction, which by definition presents no opportunity for repercussions).

Institutions and Incentivized Cooperation

Institutions have the power to shape environments conducive to cooperation. This power can exert itself by direct channels such as law enforcement, or indirect channels like the maintenance and availability of safe areas to start a business. A recent study by Stagnaro et al. (2016) highlights these dual influences through observational and experimental approaches. In Study 1, American participants played an anonymous one-shot dictator game[2] (DG) before completing a questionnaire about the quality of their

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[1] Repeated interactions create consequences for cooperation decisions: if the partner considers an interaction to be fair or beneficial, they will be less inclined to seek revenge in future opportunities for interaction.

[2] Participant A participant (Player A) is endowed with a certain number of points units and must decide how many, if any, of these points units to altruistically unalterably donate allocate to a recipient (Player B), keeping the rest for themselves. Player B has no choice but to accept the proposed split from Player A.

institutions (e.g. police and courts). Higher institutional faith (addressed directly in question such as "How much faith do you place in [police, courts, etc.]?") was positively associated with higher DG giving.

Study 2 experimentally manipulated institutional quality by introducing a centralized inspection mechanism in a multi-player cooperation game, the Public Goods Game (PGG). In a PGG, players in a fixed group receive a certain endowment of units per round and must independently decide how many (if any) of these units to contribute to the public good. The sum of all contributions in each round is multiplied by some factor and the product is evenly distributed to all group members; in order to maximize personal earnings, the player should not contribute and simply reap benefits of the shared product, but in order to maximize group earnings, all group members should contribute maximally. Across experimental conditions, participant groups had a 0.05, 0.10, 0.15, or 0.20 chance of punishment for non-maximal cooperation[3], with no chance of punishment in the control condition.

Those participants who experienced the stronger institutions in the experimental condition (non-zero inspection frequencies) chose to contribute significantly more often in a subsequent one-shot DG than those in the control condition. However, institutional strength did not predict the magnitude of the DG contribution, and the frequency of choosing to cooperate at all in the DG did not vary significantly within the experimental conditions (i.e. between the 0.05, 0.10, 0.15, or 0.20 chance of punishment conditions). Based on these results, institutions may incentivize cooperation by supporting the choice to "do the right thing" – to cooperate – in novel situations, while not necessarily

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[3] i.e. giving less than the full endowment per round of a Public Good's Game to the public good.

providing a norm or standard for what "doing the right thing" may look like – in this case, how much to contribute to the DG recipient. Most importantly, good, centralized institutions influence our willingness to "do the right thing" even in novel circumstances where our decision to be prosocial or to defect has no consequences.

Institutions and Cross-cultural Differences

Institutions have long played a role in the evolution of cooperation. As social groups grew from small nomadic communities to larger, multi-family societies, cooperation should no longer have been able to be sustained by the same types of reciprocity informed by individuals' relationships with one another (Burnham & Johnson 2005). Henrich et al. (2010) find a positive co-variation between market integration[4] and DG giving across a range of cultures, including the highly-integrated US as well as largely self-sufficient communities living in Tanzania. This result suggests that the degree of engagement with a centralized institution is related to one's intuitions about cooperation, but leaves the direction of causality undetermined (perhaps only in communities in which cooperation is a social norm would an institution be able to thrive and expand). Levels of prosociality as measured by various economic games differ across cultures (*dictator game,* Raihani et al. 2013; *costly sharing game,* House et al. 2013; *dictator game,* Henrich et al. 2010; *ultimatum game, dictator game, public goods game,* Henrich et al. 2005). If institutions have the power to incentivize cooperation, and previous results show that "cultures of cooperation" created with rules of interactions and centralized institutions can cause spillover of prosociality in novel situations (Stagnaro et

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[4] Market integration refers to the percentage share of one's diet consisting of calories purchased (as opposed to produced by the consumers themselves).

al. 2016, Peysakhovich & Rand 2014), then it is possible that cross-cultural differences in pure prosociality can in part be explained by differences in institutions.

On a smaller timescale, Stagnaro et al. (2016) show the power of institutions to affect prosociality in individuals over the course of a single experimental session. Though this study did not include a baseline for DG giving (without prior exposure to the PGG or any institution) against which to compare institutional effects on spillover prosociality, but the 0% chance of inspection condition presents an interesting pattern over the course of the 10 PGG rounds. While in all other conditions (i.e. in which the chance of inspection is > 0) the average amount contributed to the PGG remains relatively stable, this amount decreases over time in the 0% control condition. A more nuanced reading of this result would indicate that in this study, the lower quality institution decreases prosociality while the effect of the high quality institution cannot be qualified with regard to a baseline. In order to support the hypothesis that institutions can actually promote prosociality, further research must include participant pools whose daily experiences involve lower quality institutions and who therefore have a low baseline level of DG giving.

Another dimension omitted in previous work on institutions and prosociality is the fact that groups in the real world are often not homogenous. Heterogeneity, or diversity, may complicate the ability of an institution to affect one's willingness to do the right thing when it comes to individuals that are different. In order to establish the robustness of the spillover effect created by institutions, and the specificity of the context(s) in which one observes a spillover effect, salient types of heterogeneity must be considered.

Cooperation and Diversity

Institutions can serve to support the choice to cooperate, but an individual may not consider all opportunities and partners for cooperation the same way. Ingroup bias, or preferential social evaluations and behaviors benefiting individuals with whom we share some identity, is predicated on the ability to recognize ingroup members. Ingroup detection is a highly sensitive feature of human social cognition. Minimal group paradigm experiments – basing teams or groups on explicitly randomly assigned t-shirt color can trigger group bias, even in the absence of realistic conflicts of interest stemming from group identity (Otten 2016, Tajfel 1970).

In fact, Pietraszewksi et al. (2014) demonstrate that coalitional alliances can arise out of peaceful cooperative experiences (with or without an antagonizing coalition), without any sort of perceptually salient marker. Coalitional alliances can even override ingroup preferences based on race, a group dimension that is robust to age categorizations (age, along with race and sex, is one of the three most salient divisions elicited by the Who Said What paradigm, a difficult memory task that elucidates mental categorization through high frequency of errors in which one individual is misremembered as another individual belonging to the same category, Pietraszewski et al. 2014). According to the authors, the power of coalitional alliances to override racial categorization is due to the fact that racial categorization is "a reversible product of a cognitive system specialized for detecting alliance categories and regulating their use" (Pietraszewski et al. 2014). Nevertheless, race encoding based on facial features occurs automatically (Cosmides et al. 2003), suggesting the salience of race in the evolutionary history of intergroup

psychology, even if only as a proxy for coalitional alliances. Given that race, and ethnicity, engage our attention and cognition in relatively robust ways compared to other forms of categorization, it is important to test the robustness of institutionally supported social heuristics to differences in race and ethnicity in a novel outgroup member.

Several theories in the domain of intergroup bias address how we form and change our attitudes and behaviors toward outgroup members, including the contact hypothesis and a group-level form of attribution bias. The contact hypothesis, proposed by Gordon Allport (1954), describes specific conditions for and the process by which contact between separate groups can improve intergroup relations[5], but does not specify underlying mechanisms for this phenomenon. Gaertner et al. (1994) propose that intergroup contact facilitates the recognition of a superordinate, common identity between individuals belonging to different subordinate ingroups, "[transforming] members' cognitive representations of the memberships from two groups to one more inclusive social entity" (Gaertner et al. 1994). While the contact hypothesis may speak to experiences within the institution's reach, it does not make claims about how flexible the superordinate group designation might be when faced with novel, outgroup individuals. In other words, the contact hypothesis does not predict whether a more heterogeneous superordinate group would act with less ingroup bias toward a novel individual than a lower-order, more homogeneous group.

Attribution errors, or asymmetrical assumptions about underlying motivations for actions by different agents based on various biases, can influence the way we encode or frame interactions in social contexts. For example, a meta-analysis of intergroup

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[5] E.g. equal status between groups, opportunities for personal acquaintance between outgroup members, norms supporting egalitarian interaction.

attributions by Hewstone (1990) finds more internal attribution for positive acts by ingroup members and negative acts by outgroup members, and more external attribution for negative acts by ingroup members and positive acts by outgroup members. Thus, a highly cooperative yet homogenous (i.e. comprising only ingroup members) environment may create an expectation for high levels of cooperation that is *limited to interactions with ingroup members* in familiar or novel contexts. Yet this finding does not necessarily predict a change in cooperation with outgroup members relative to baseline, and more importantly, is based on *expectations of reciprocity,* which by definition are incompatible with spillovers in circumstances where there are no consequences for choosing to cooperate or defect. Even if one were to form an expectation for high rates of defection (as opposed to cooperation) specific to outgroup members, this mechanism alone cannot explain changes in prosociality in situations that are explicitly free of consequences, either positive or negative (e.g. a one-shot, anonymous DG).

Instead of activating intergroup biases, a novel individual may instead trigger uncertainty and thus deliberation about cooperation. Studies investigating the role of homogeneity in interpersonal interactions find that racial heterogeneity between evaluators and subjects facilitates more objective evaluations of others, while homogeneity is associated with more subjective – particularly more positive – judgments of others (Apfelbaum et al. 2014, Dovidio & Gaertner 2000). Group homogeneity is also associated with a heightened sense of cohesion and comfort (Apfelbaum et al. 2014). More deliberation tends to lead to less prosociality (Peysakhovich & Rand 2015). The specificity of the social heuristic can thus be understood as the range of all typical circumstances in which no deliberation is triggered when deciding whether to be

prosocial. If the heuristic is formed in a context with a high degree of ethnic or racial heterogeneity, then an individual's novel ethnicity should not be treated as "atypical" and present less cause for deliberation over choosing to be prosocial than if the heuristic had been learned in an ethnically homogeneous context. This would result in a higher degree of prosociality with novel outgroup members based on heuristics learned in diverse as opposed to homogeneous contexts.

The Present Study

The present study aims to provide a cross-cultural replication of Stagnaro et al.'s (2015) Study 2 in a novel culture with weaker institutions. The sample is drawn from the Busara Center for Behavioral Economics in Nairobi, Kenya – a country consistently rated among the top 25% for the world's most corrupt public sectors, according to Transparency International.[6] If participants from a low quality institutional environment experience a strong institution, then they will internalize a new heuristic promoting a higher level of prosociality in spillover situations.

We predict an interaction between the effects of institutional quality and group diversity on spillover prosociality. While the low quality institution will not foster higher levels of cooperation, the high quality institution will support cooperation and thus produce a more prosocial heuristic for novel situations; under a high quality institution, the heuristic developed in a more diverse group should be robust to novel ethnicities

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[6] Transparency International's Corruption Perceptions Index explicitly measures perceived corruption as opposed to corruption itself (a notoriously difficult quality to measure), and can so only be considered a proxy for institutional quality. However, in 2016 Kenya was in rank 146 – 176 being the most corrupt country in the index – compared to the US at rank 18.

whereas a novel ethnicity will induce deliberation and reduce prosociality by those individuals trained in a homogeneous PGG group.

By using a similar institutional quality paradigm as Stagnaro et al. (2016) – repeated PGG trials with a centralized inspection mechanism[7] – and cueing ethnicity of PGG group members, the study allows for the investigation of an interaction between institutional quality and group diversity in the production of a spillover effect. This spillover effect will, as in the previous paper, be measured using a one-shot DG. However, in the present study, the DG recipient will be of a novel ethnicity (i.e. not included in any of the PGG groups). If the specificity of a heuristic can be widened through cooperation experience in a diverse group, increased ethnic diversity (signaled through surnames) of the PGG group should result in higher levels of prosociality in a spillover DG with a novel outgroup member.

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[7] Given that significant differences in PGG contributions and in DG spillover only arise between the control and experimental groups (i.e. 0% chance of inspection vs. 5-20% chance), the present study will only compare one low- and one high-quality institution.

METHODS

PARTICIPANTS:

Two hundred and sixty participants were recruited by the Busara Center for Behavioral Economics, located in Nairobi, Kenya, for an in-person lab study run on z-Tree on interconnected computer terminals. Seven participants were excluded from the experimental conditions on the basis of self-reporting a different ethnicity than was listed in the Busara database.[8] The Busara subject pool comprises upwards of 10,000 individuals recruited by field officers and community mobilizers in Kibera, the large informal settlement in the southern part of Nairobi (population ~170,000, 1km from the Busara laboratory in Ngong Lane, for further details see Haushofer et al. 2014). The age and gender distribution of our sample as it compares to that of Stagnaro et al. (2016) and the general Busara subject pool is summarized in **Table 1**.

Table 1: Comparing age and gender distributions in current and previous samples

	Age (average)	Gender
Overall study (n = 260)	34	59.2% female
Control (n = 80)	35, range: 20-70	58.7% female
Experimental (n = 180)	33, range: 20-64	59.5% female
Stagnaro et al. (2016)	32, range: 18-71	48.4% female
Busara subject pool	31, range: 18-93	54.5% female

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[8] A Kenyan Busara staff member coded the ethnicities corresponding to the names of participants reporting mismatched ethnicities (five reported "Other", one reported "Nubian", and one reported "Kisii"). The coder was blind to the experimental condition and ethnicity the participant was recruited under; all ethnicities matched those in the Busara database. Given that their names communicated the intended ethnicity to PGG group members despite conflicting self-report, only the 7 individuals were excluded and not their PGG group members.

The Busara subject pool is slightly less educated, slightly younger (particularly more men in 21-30 range), more female, and slightly less ethnically varied than the population of Nairobi and Kenya more generally (Haushofer et al. 2014). Participation in any study through Busara is recorded and participants who had prior exposure to cooperation games were excluded from this study. In order to limit attrition due to failing the numeracy test, recruitment was limited to participants who had at least some primary schooling (this criterion excludes 3% of the participant pool).

DESIGN:

The study follows a two-by-two design, based on two levels of institutional quality, high or low quality of institutions (HQI and LQI) and either an ethnically heterogeneous (Het) or ethnically homogenous (Hom) group of participants, resulting in four experimental conditions: HQI-Het, HQI-Hom, LQI-Het, and LQI-Hom. Sessions were conducted for one experimental condition at a time, counterbalancing time of day and day of the week across conditions. Participants' specific roles in gameplay were predetermined in order to maximize usable decision data.

Table 2: Sample sizes within conditions

	HQI	LQI
Homogeneous	N = 40	N = 41
Heterogeneous	N = 41	N = 51
Control	N = 69	

As in the original study, the institutional quality (HQI vs. LQI) was experimentally manipulated through an inspection mechanism that monitored contributions in a Public Goods Game (PGG) and spillover effects were tested through a

DG. The ethnic makeup of the PGG groups could either be Homogeneous (i.e. all three participants belonging to the same ethnicity, either Kikuyu, Luo, or Luhya) or Heterogeneous (i.e. one participant of each aforementioned ethnicity). In this study, the DG used to test for spillover effects always involved a DG recipient of a different ethnicity (Kisii, cued by the last name "Nyanchama").

The TPPG was removed as no evidence was found in the previous study (Stagnaro et al., 2016) for effects on punishment behavior. Instead three Allocation Games (AGs) followed the DG to directly assess coethnic bias. A demographics survey administered after the allocation games included questions adapted to the Nairobi context from the questionnaire from the observational Study 1 of Stagnaro et al. (2016).

Fig. 1: The three stages in all experimental conditions

The instructions on screen were in English, but lab staff read instructions aloud in Swahili to ensure comprehension. Instructions were given at the beginning of each stage in the experiment, and participants knew the total number of stages from the beginning, but nothing about the content of each stage until completion of the previous stage. In order to maintain engagement and concentration throughout the study, participants were told in the introduction that one of the games would be selected randomly for payout, thus incentivizing high performance on each game.

The present study takes advantage of real ingroup-outgroup dynamics by using surnames to cue participants' ethnicities to one another. In Kenya, as in many other

cultures, surnames are a highly reliable and familiar indicator of ethnicity or tribe. Ethnicity, or tribal affiliation (often also referred to in terms of "mother tongue"), is a multivalent identifier in Kenya, with six ethnicities each representing over 10% of the population.[9] Despite its ubiquity, particularly in a cosmopolitan area such as Nairobi, ethnicity does not appear to be a dominating social identifier.[10] In terms of group preferences expressed through economic gameplay, Berge et al. (2015) found no conclusive evidence for co-ethnic preference in economic games, except in those participants who have only lived in Nairobi for a short time. Nairobi is a very diverse city with regard to tribal affiliation, and we selected the three most represented ethnicities (in Kenya as well as in the Busara subject pool) for recruiting participants for this study: Kikuyu (17.15% in Kenya), Luhya (13.83%), and Luo (10.48%). Kikuyus have long commanded dominant political representation (the first president of Kenya, Jomo Kenyatta, was Kikuyu) (Lynch 2011), but within the Busara subject pool, participants of these three ethnicities represent similar ranges on a variety of metrics relevant to economic gameplay (income, education, household size, etc., Haushofer et al. 2014).

To create ethnically heterogeneous and homogeneous conditions, Busara lab staff recruited participants according to the ethnicities specified for this study (Kikuyu, Luo,

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[9] Kenya has an ethnolinguistic fractionalization score of 0.89, which represents the likelihood that two Kenyans selected at random will come from different ethno-linguistic groups (Dunning & Harrison 2010).

[10] The political party system is closely tied to tribal affiliation (Lynch 2011), and parties engage in tense and sometimes violent conflict leading up to presidential and parliamentary elections – so presumably ethnicity could become an important identifier during these periods. The next election is scheduled for August 2017, or six months after the conclusion of data collection for this study. However, according to Afrobarometer (a research network surveying public attitudes across 35 African countries), only 10% of respondents ranked ethnicity as a more important identifier than being Kenyan, while 35% ranked them equally, leading up to the 2007 presidential election (Eifert et al. 2010).

Luhya). For Homogeneous sessions, participants would be recruited exclusively from one of these ethnic groups, while on Heterogeneous days participants would be recruited from all three. In order to form groups of three participants – one of each of the aforementioned groups – required in the Heterogeneous conditions, we over-recruited for each session. Prior to each session, a spreadsheet with a random number generator was populated with participants who attended the session to create groups of three based on punctual arrival (and a proper balance of the three ethnicities for Heterogeneous sessions). The random number generator created three-digit ID codes for each participant, which they were instructed to enter on the first computer screen; participants were asked to verify that their correctly spelled last name appeared on the screen after entering the code.

After creating PGG groups, those participants who could not be included in the study received compensation for their transportation costs (300 KSh ≈ 3 USD) and a punctuality bonus when applicable (50 KSh). Participants who did complete the study were paid additional earnings based on performance during the experiment (usually between 300-400 additional KSh). It was possible to make decisions about keeping points for oneself during two of the games, and participants were informed during the introduction that their earnings would be based on one of the two games, chosen randomly (20 points = 1 KSh). Experimental condition sessions (n = 180) lasted up to two hours and thirty minutes, while the control condition sessions (n = 80) lasted about one hour. As all instructions were read aloud (as well as presented on-screen), all groups participating in a given session belonged to the same experimental condition.

Public Goods Game

The study consisted of three stages. The first stage included 40 rounds of a public goods game (PGG) played in groups of three participants with an endowment of 150 points per round, in sessions of between one and five groups (on average, 3.9 groups per session). Participants decided how many points to contribute to the public good in each round, and the group's total contribution was multiplied by 1.5 and distributed evenly among the participants, regardless of individuals' contributions (leading to a 0.5 marginal per capita return). After viewing instructions, successful completion of comprehension questions was required in order to begin game play (participants had an unlimited number of tries, and were instructed to raise their hand for help if needed). This both ensured that those who participated in the study understood the game instructions and incentive structure, as well as prevented selection in who made it into the actual experiment.

This stage experimentally manipulates institutional strength by introducing an inspection mechanism in the high quality institution condition (HQI) with a one-in-four chance of punishment for contributions below the maximum amount of 150 points. This acts as a top down incentive enforcing the interests of the group, a point that was highlighted in the comprehension questions (see **Appendix B**). In the low quality institution group, participants are instead reminded that the only factors determining personal earnings are the contributions made by all group members, with no chance of punishment (see **Appendices B and C**).

In the case of punishment in the HQI conditions, the participant is fined twice the number of points withheld from that round's endowment (i.e. 2 x (150 – contribution)). In order to familiarize participants with the contribution entry screen, a sample entry was

prompted directly following the instructions, on an identical screen to actual gameplay but showing "Player A" and "Player B" instead of surnames of group members, and the contributions reported in the payout screen were fixed for all participants. The 1-in-4 probability was demonstrated to participants in HQI groups using a bag containing four balls, of which one was red and the rest blue. The session lead would pull out one ball at a time, replacing it each time, and explain that on each draw she had some chance of pulling out the red ball but that this did not happen all the time.

Fig. 2: The last names of the two other members of the PGG group were displayed prior to gameplay (top), and on the decision screen used for all 40 rounds (below).

The same three participants played together for all 40 rounds, and each participant's last name was displayed on the screen before the first round of the game, as well as on all subsequent decision screens. After each round, a results screen would display the participant's own contribution, group and personal earnings from the round, and total earnings so far. In the event of punishment in the HQI conditions, the participant's own penalty was displayed in red text, but participants were not notified of other group members' punishment.

Fig. 3: The feedback screen following each of the 40 PGG rounds summarized the participants' contribution and earnings as well as the contributions of the other (nonspecific) group members, and notified the participant only in the event of themselves undergoing inspection.

Period	
1 out 40	

Your partner's contribution this round:	0
Your other partner's contribution this round:	150
Your contribution this round:	150
Total contribution this round:	300
You were not inspected this round	0
Your earnings for this round:	150
Your earnings so far:	150

OK

Dictator Game

The second stage tested for spillover effects from the institutional strength manipulation through a single Dictator Game (DG) played by each participant. The participant received 6000 points to allocate between themselves and a partner with a Kisii name – a novel ethnicity that is not included in the three ethnicities we recruited from[11]. This is a departure from the previous study (Stagnaro et al., 2016), in which the DG recipient's identity was not available to the participants. The number entry was prompted using the same setup as in the PGG, so participants did not practice the DG contribution.

Consistent with each of the other stages, participants completed a comprehension test prior to gameplay, which required all correct responses before continuing. However, the DG also included a separate numeracy test prior to gameplay, which Busara staff noted may not be as universally understood within the participant pool, even when screening for at least basic levels of education (Haushofer et al. 2014). Participants' responses to each of the four questions (see **Appendix B**) were recorded without providing feedback as to whether they were correct, and thus provided a metric for gauging numeracy for each participant[12].

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[11] Kisiis represent 5% of the population of Kenya (8.2% of the Busara subject pool).

[12] When constraining for perfect numeracy scores, the total sample size is reduced from 260 to 139, and numeracy is not associated with ethnicity ($R^2 < 0.001$, $p = 0.65$).

Fig. 4: The participant used a number pad to enter the contribution amount. The recipient's name (always "Nyanchama" across experimental conditions and the first DG in the control condition) was displayed on the decision screen.

Allocation Games

The third stage tested for spillover effects using a series of three allocation games. In the allocation game, a participant is given an endowment of 6000 points per round to distribute between two other players (the participant may not keep any points in this game). This game was not included in the previous institutional quality study (Stagnaro et al. 2016), but was included as an exploratory stage providing an alternate way to gauge coethnic preference: in this game there is no opportunity to act selfishly by keeping a large number of points (therefore the importance of reputation management may not be as salient as in other cooperation games), and a single decision can be made with regards to both an ingroup and an outgroup member (as opposed to two separate dictator games

that may be subject to other sources of noise). The AG was preceded by a set of comprehension questions to clarify that the total number of points to be allocated between players was fixed and could not be reduced for personal gain. Participants also made a practice AG decision on a decision screen identical to the actual decision screen (except that no names were displayed).

In order to directly test ingroup preferences, in every AG one of the three players was always of the same ethnicity as the participant (consistent across Homogeneous and Heterogeneous conditions), while the second player changed each round to represent the other ethnicities in the study (e.g. a Kikuyu participant would allocate points between a Kikuyu and a Luo player, then a Kikuyu and a Luhya player, and finally between a Kikuyu and a Kisii player, the ethnicity not represented in the PGG but who was always present in the DG). The order ethnicity was presented in the first two rounds was counterbalanced, with Kisii always pitted against an ingroup member in the third game.

The AG involved a slider along a number line with the co-ethnic surname on the left end and the alternating surname on the right, with respective contribution amounts displayed and updating in real time directly below the names (so, tapping at the far left of the slider would indicate giving all 6000 points to the ingroup recipient, with 0 displayed below the name on the right). Once participants settled on their allocation amounts they would press a confirmation button to finalize their decision.

Fig. 5: The decision screen for the AGs (practice round shown below) shows a blank number line until the participant taps the screen along the line, at which point the **V** marker appears and the amounts below each player's name update.
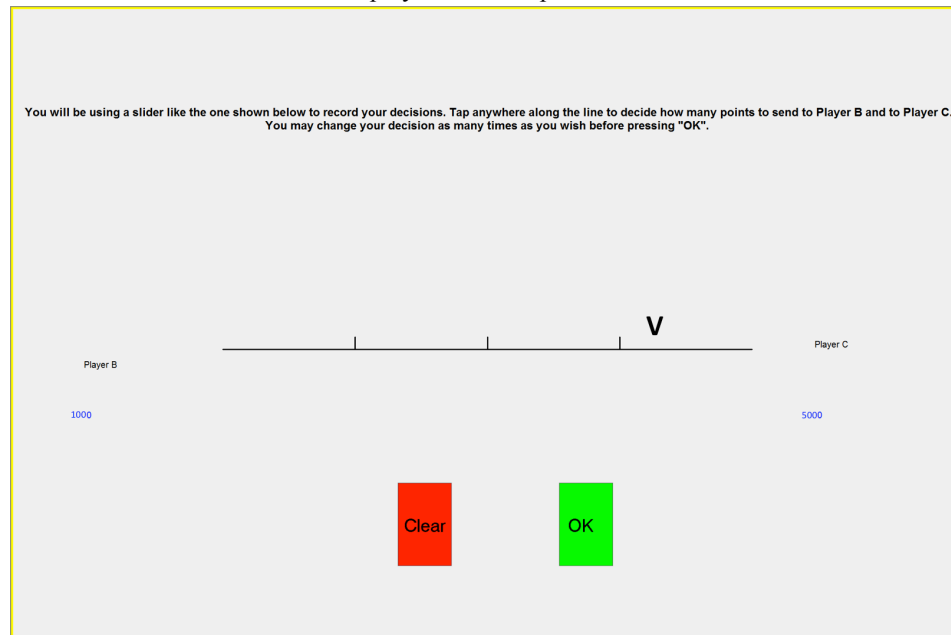
Control

The control condition consisted of three stages as well. The first stage following the introduction was a single DG in which the recipient had a surname communicating they were of Kisii ethnicity (last name Nyanchama). The second stage comprised the same series of three AGs as in the experimental conditions, using the same ordering strategy as in the experimental conditions. The third stage was another DG, with an anonymous partner ("Player B") in order to allow for random selection of earnings between rounds, since participants do not earn any points in the AGs.

Fig. 6: The three stages in the control condition

PROCEDURE

The experiment was performed using the computer program z-Tree, in the Busara Center's lab facility featuring 26 computer stations linked to one master computer, all separated by opaque dividers (screenshots of games are included in **Appendix C**). Busara staff confirmed identities of recruited participants upon arrival at the lab through the usual method of asking each individual to confirm a random selection of personal data (e.g. phone number, household size) – though in this case including ethnicity in the set of identifiers asked in random order.

After completing the AGs in the experimental condition and second DG in the control condition, participants completed a demographics questionnaire (e.g. education and income), questions from the institutional faith measure used in Study 1 by Stagnaro et al. (2016), and questions aimed at gauging ethnic closeness (see **Appendix D**). Upon all participants' completion of the demographics questionnaire, the round selected for payout as well as the amount earned in the selected round were displayed on the screen. Participants were paid in cash (Ksh) at the end of each session at the front desk of the testing room.

## RESULTS

Public Goods Game (PGG)

The 40 PGG contributions provide a manipulation check for the four experimental conditions: HQI-Hom, HQI-Het, LQI-Hom, and LQI-Het. Institutional quality levels and Diversity levels of PGG groups both produced a significant effect on average PGG contribution (See **Fig. 7**: HQI mean = 98.7, LQI mean = 47.6, $p < 0.001$, $b = 0.392$; see **Fig. 8**: Homogeneous mean =78.4, Diverse mean = 68.3, $p < 0.001$, $b = 0.100$). The institutional quality effect remains significant when clustering on PGG group and individual subjects ($p < 0.001$), but the effect of diversity does not ($p = 0.223$).

Within institutional quality, Diversity levels also produce a highly significant effect on contributions (within HQI, $p < 0.001$, $b = 0.116$; within LQI, $p = 0.003$, $b = 0.049$). However, when clustering on PGG groups, the differences within institutional quality levels do not reach significance (within HQI, $p = 0.190$; within LQI, $p = 0.524$).

Fig. 7: PGG contributions across HQI and LQI
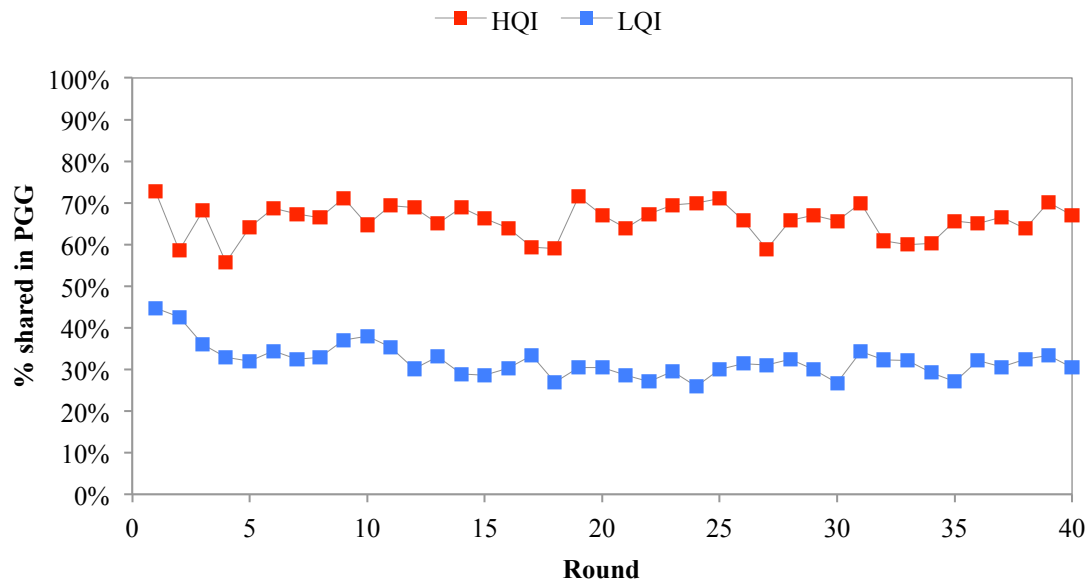
Fig. 8: PGG contributions across Homogeneous and Heterogeneous
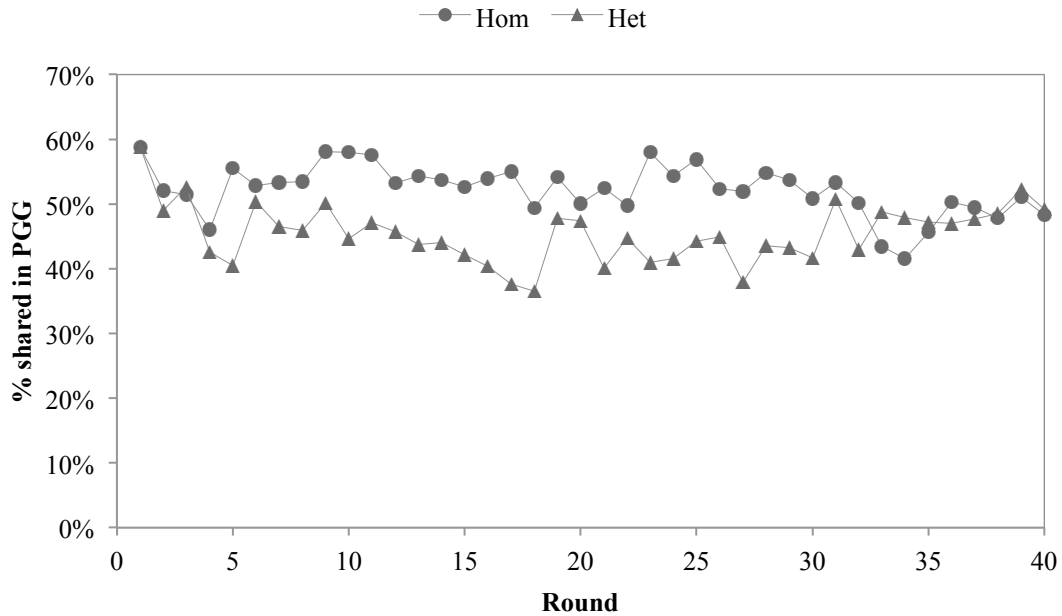
Both the average level of contributions a participant experienced throughout the 40 rounds (averaging across both partners' contributions) and the quality of the institution significantly predict the participant's PGG contributions (average cooperation $p < 0.001$, $b = 0.226$; HQI/LQI $p < 0.001$, $b = 0.245$; significant both with and without cluster analysis of PGG group and individual fixed effects). However, when constraining for perfect numeracy scores (based on the numeracy test administered prior to the DG), the average amount of cooperation experienced is no longer a significant predictor (average cooperation: $p = 0.23$; HQI/LQI: $p = 0.021$, $b = 0.290$).

From these results, it is evident that participants use information about inspection mechanisms when deciding how much to contribute to creating profits for the group overall as opposed to for themselves. It cannot be determined from these results whether participants take into account any information about their group members beyond their

contributions in the game. Participants contributed at significantly different levels across all four experimental conditions (see **Table 3**).

Table 3: Average PGG contributions (out of 150 points) across four experimental conditions, across all 40 rounds

Condition	N	Mean	SD
HQI-Het	1640	92.490	65.113
HQI-Hom	1600	106.187	61.076
LQI-Het	2040	45.723	55.378
LQI-Hom	1640	51.736	57.957
Total	6920	72.211	65.088

Fig. 9: Average percentage share of points (out of 150 possible points) contributed to the public good in each round of PGG gameplay, by experimental condition.
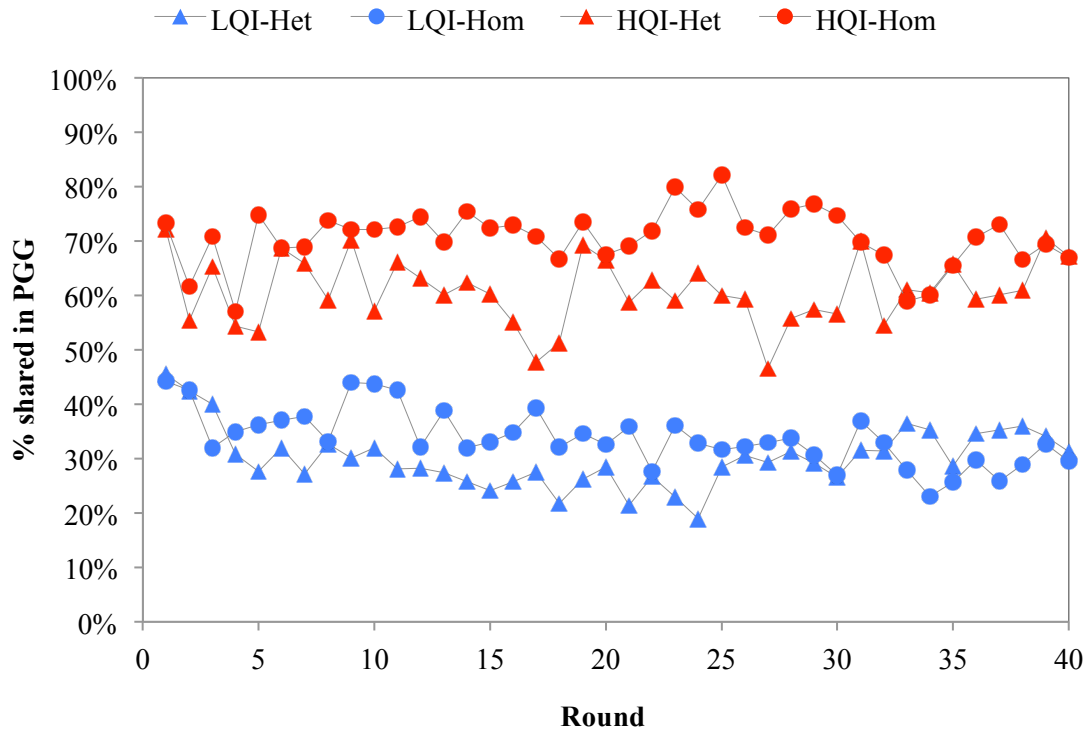
Dictator Game (DG)

The DG provides a measure for spillover effects based on the PGG training period – an opportunity for social heuristics to be expressed in generalizations to novel contexts, with novel partners. We find a significant increase in DG giving with the HQI conditions compared to LQI conditions (HQI mean = 1311.2, LQI mean = 873.3, p = 0.023, b = 0.170), replicating the results of Study 2 by Stagnaro et al. (2015) (see **Fig. 10**). The spillover effect of institutional quality on novel ethnic outgroup DG giving is robust to clustering on PGG group and individual fixed effects (p = 0.028, t = 2.21, b = 0.185), as is consistent with the previous institutional quality analysis (Stagnaro et al. 2016). Excluding all subjects who did not receive a perfect score on the DG numeracy test, the sample size is reduced to 92 and the HQI/LQI effect is even more significant when clustering on PGG group and individual fixed effects (p = 0.004, b = 0.312).

Relative to baseline DG giving in the control condition, participants in both the HQI and LQI conditions gave significantly more to their DG targets when clustering on PGG group and individual fixed effects (HQI vs. control: p = 0.007, b = -0.210; LQI vs. control: p < 0.001, b = -0.044). This result indicates that while the high quality institution increased prosociality in the spillover context, we cannot conclude that the strength of the institution was the only factor behind this increase; some aspect of the LQI condition also had a small effect on those participants' spillover prosociality.

The difference between DG giving across diversity levels does not reach significance within institutional quality levels, nor when collapsing across HQI and LQI (within HQI, p = 0.80; within LQI, p = 0.70; collapsing across institutional quality, p = 0.55). Unlike the previous study, the institutional quality did not significantly predict a

participant's choice to contribute, i.e. the first-order decision of whether to give any points to the recipient in a DG (homogenous vs. heterogeneous, p = 0.17; HQI vs. LQI, p = 0.210).

Using the same experience-based variable from the PGG analysis (average amount of cooperation experienced in the PGG group) in a DG giving regression, this variable is a highly significant predictor for DG giving (p = 0.008, b = 0.261) while institutional quality becomes insignificant (p = 0.875). This result is consistent when clustering on PGG group and fixed effects (average cooperation: p = 0.012; HQI/LQI: p = 0.843). This result holds when constraining for perfect numeracy scores (average cooperation: p = 0.020, b = 0.294; HQI/LQI: p = 0.173).

No general demographic factors (age, gender, ethnicity, income, education, time lived in Nairobi) proved to be significant in predicting DG giving, while religion of the participant was a significant predictor factor in PGG contributions (p = 0.018, b = -0.158; for more information on correlations between institutional faith measures and both DG and PGG contributions, see **Appendix A)**.

Fig. 10: Percentage share of 6000 points sent to an unfamiliar, Kisii player in a one-shot Dictator Game (clustering on PGG group and individual).
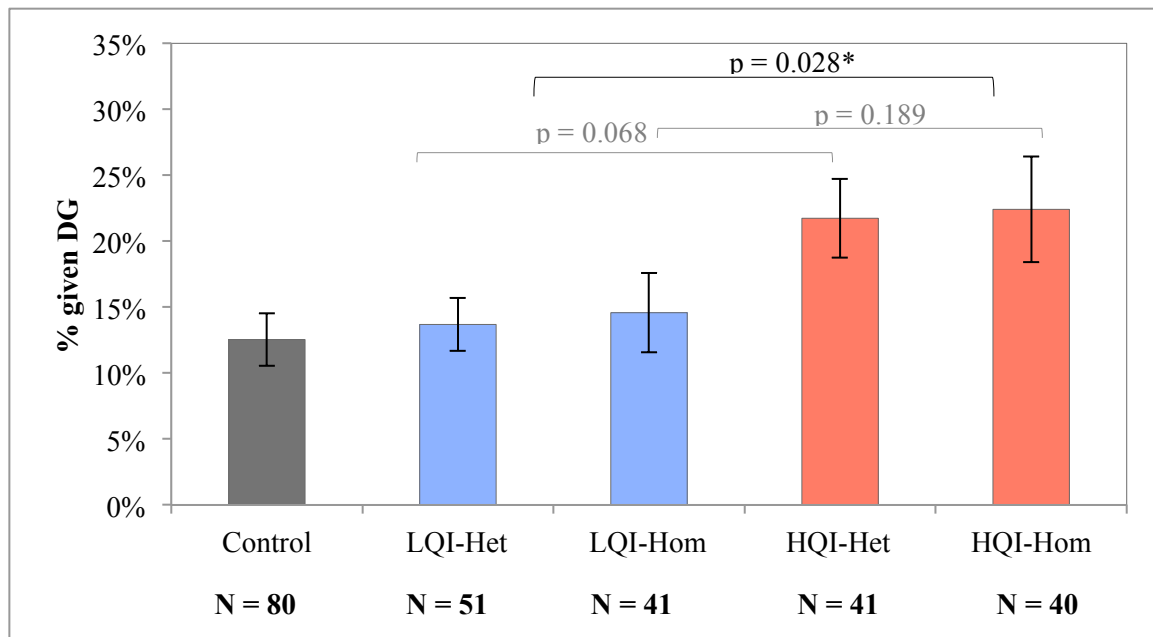
Allocation Game (AG)

The AGs did not present significant results in almost any sense. The three AGs always included a name corresponding to the participant's own ethnicity and another name belonging to the three other ethnicities featured in the study. If the participant did not express co-ethnic preference, then he or she would choose to share the 6000 points evenly between the two players in each round. The amount sent to the outgroup member was not significantly different from 3000 in any of the three rounds, across any of the four experimental conditions or in the control condition. However, when collapsing across experimental conditions, participants in the control condition allocated significantly more points to the non-coethnic player than did participants in experimental conditions in each of the three AG rounds (see **Appendix A**: AG1 $p = 0.001$; AG2 $p <$

0.001; AG3 p = 0.003). However, this amount was still not significantly different from 3000, or even distribution. When constraining for a perfect score on the numeracy test preceding the DG, the amount sent to the outgroup member is significantly below 3000 (average = 2811, one-sided p = 0.01) in AG1.

DISCUSSION

The present study replicates the effect of institutional quality on prosociality in contexts beyond the reach of institutions, as reported in Stagnaro et al. (2016). Thus, the significant main effect of institutional quality on DG giving provides evidence to support Hypothesis 1: that exposure to centralized institutions that incentivize cooperation leads to more prosociality, perhaps due to the generalized application of a newly learned heuristic. Though the mediation analysis based on the average level of cooperation experienced throughout the PGG was not explicitly part of our initial hypothesis, the crowding out of institutional effects by this exposure provides some insight into the mechanisms of the institutional quality effect. This mediating variable can be understood as a proxy for the effectiveness of the institution in actually encouraging participants to cooperate. In other words, the institution supports generalized prosociality (in the absence of incentives for cooperation) by facilitating experience with heightened levels of cooperation. Additionally, when constraining for numeracy, institutional quality was significant while average experienced cooperation was not – this contrast suggests the possibility those individuals who are most attuned to the centralized institution drive the behaviors of their peers, who are more focused on others's behaviors.

Participants in diverse PGG groups contribute significantly less on average than their ethnically homogenous counterparts ($p < 0.001$, $b = 0.092$), but this effect is not robust to clustering on PGG groups ($p = 0.223$). This cluster analysis is a necessary step given that the DG decision is non-independent insofar as it is affected by shared PGG group experience, which nevertheless reduces the study's statistical power with regard to testing the effect of diversity. Consequently, it is unsurprising that no significant

differences are observed in spillover effects as measured by DG giving; if no difference directly due to diversity was observed during the formation of the heuristic, the application of the heuristic in a novel context should not be differentially sensitive to diversity across experimental conditions. Hypothesis 2 cannot be confirmed with the results from this study.

While participants saw their PGG group members' surnames both before round 1 and in every subsequent round on the decision screen, we did not include an explicit manipulation check asking participants whether they attended to ethnicities included in their PGG group. Future studies should consider using stronger cues to ethnicity, and include a manipulation check after the final game.

While no interaction between institutional quality and diversity emerges in analyzing the DG, it is possible that the PGG experiences overpower the diversity effect in creating new social heuristics to inform DG choices. In other words, perhaps the decreased level of PGG contributions experienced by a participant in the HQI-Het condition as compared to the HQI-Hom condition is the reason why instead of being *more* prosocial to outgroup members in subsequent games, the HQI-Het participant contributes merely at the same level as their HQI-Hom counterpart.

Participants in LQI conditions gave significantly more than those in the control condition and significantly less than those in the HQI conditions, while participants in the HQI conditions gave significantly more than both groups (LQI vs. Control: $p < 0.001$, b = -0.044; HQI vs. Control: $p < 0.001$, b = -0.210; HQI vs. LQI: $p = 0.028$, b = 0.185). This result shows the power of a good institution to foster prosociality, above and beyond weak or absent institutions, but we cannot determine how much of the increase is due to

the HQI treatment itself as opposed to underlying factors shared with the LQI conditions and not the Control condition. This particular result serves to fill in some of the questions raised by previous work on the Social Heuristics Hypothesis, such as Stagnaro et al. (2016): "It is important for future work to explore the generalizability of our results using more real-world measures, such as natural experiments (exploiting variation in institutional quality across locations)." It further validates the SHH as a potential means to understanding cross-cultural differences.

In contrast to the results of the previous institutional faith study (Stagnaro et al. 2016), we find that institutional quality is significantly associated with higher levels of prosociality (i.e. more points shared in the DG), but not with the frequency of choosing to "do the right thing" by cooperating at all (i.e. sharing a non-zero amount). We cannot conclusively explain this reversal, but several differences between the two study samples point to possible explanations. First, the previous sample comprised Amazon Mturk users in the US, who may be more familiar with this type of task; consequently, and potentially for additional reasons aligned with ethnic groups, the prior sample may have more homogeneous norms about what a fair contribution might look like. Second, the US sample's experiences with stronger institutions may crowd out other factors that can contribute to determining a fair outcome in situations where an institution (i.e. a weak institution) cannot guide fairness. With the current sample, we do not have the power to compare fairness norms within ethnicity.

Perhaps the most surprising result is that, according to the institutional quality spillover effect, the best way to train individuals to be prosocial toward outgroup members is to teach them to cooperate among ingroup members, where they are likely to

experience the highest levels of cooperation. While the content of cooperative experiences can take many forms, this finding runs counter to the consensus view among organizational and intergroup psychologists (see Gaertner et al. 1994 for a review and the Contact Hypothesis).

The present study would benefit from an in-group dictator game, either performed as part of a control condition or experimental condition. This value would allow for direct comparison between institutional quality and diversity effects on overgeneralized social heuristics as they apply to ingroup and outgroup members. For example, Hewstone's (1990) attribution hypothesis predicts differential attribution based on ingroup membership, and so an additional ingroup DG would allow this differential encoding of positive and negative experiences to be expressed in social decision-making. Further, it would show whether the strong institution normalizes high levels of prosociality toward all individuals indiscriminately, or whether an HQI participant would give even more to an ingroup member in a subsequent DG.

Future studies should follow the above suggestions while perhaps addressing different, salient forms of heterogeneity (e.g. age, gender, political beliefs). Based on Henrich et al.'s (2010) finding that social group size is positively correlated with market integration, another avenue of research might look for an association between institutional quality effect size and PGG group size. The hypothesis here would be that the group has outgrown our capacity to manage cooperation through dyadic relationships, emphasizing the importance of the centralized institution and adherence to the norms it promotes. Finally, future studies could compare varying qualities of institutions with

corrupt institutions (e.g. a PGG game in which some players receive a larger share of the public good than others).

One condition build into this study's model of institutions is that the institution punishes all individuals equally, and participants are explicitly alerted to the random, fair procedure determining punishment. We can therefore expect relatively consistent perceptions of the institutions across participants. In reality, institutions are imperfect and often applied or even structured in differential ways with regard to different groups (e.g. differing frequency of lethal police activity toward unarmed civilians in the US according to race, Ross 2015, and varying rates of traffic stops and searches by race, see ACLU 2014). Experiences with inequality – whether social, economic, or political – complicate our experiences with institutions. Perhaps less intuitively, these experiences must not necessarily be firsthand encounters with low-quality or corrupt institutions. In a multilevel analysis of trust in the police across sixteen European countries (2007), Kääriäinen found that "the level of corruption in the system of government measured at the country-level affects trust in the police, independently of whether or not citizens themselves have experience of corruption among public officials." According to this result, the quality of a real world centralized institution can bleed into perception of its subparts. Further studies should address the practical consideration of heterogeneous incentives for cooperation across groups.

Conclusion

This study supports the hypothesis that centralized institutions that incentivize cooperation influence prosocial behavior, even in contexts beyond their reach. The cross-

cultural replication in a lower-quality institutional context further demonstrates that this experimental paradigm is not limited to populations governed by strong institutions. We do not find evidence that the spillover effect on prosociality is hampered when the target is of a minority outgroup. Based on our results, it appears that the most effective way to improve prosociality toward individuals different from ourselves is under an institution that incentivizes the highest possible level of cooperation.

ACKNOWLEDGEMENTS

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APPENDIX

CONTENTS

APPENDIX A: Supplementary Figures
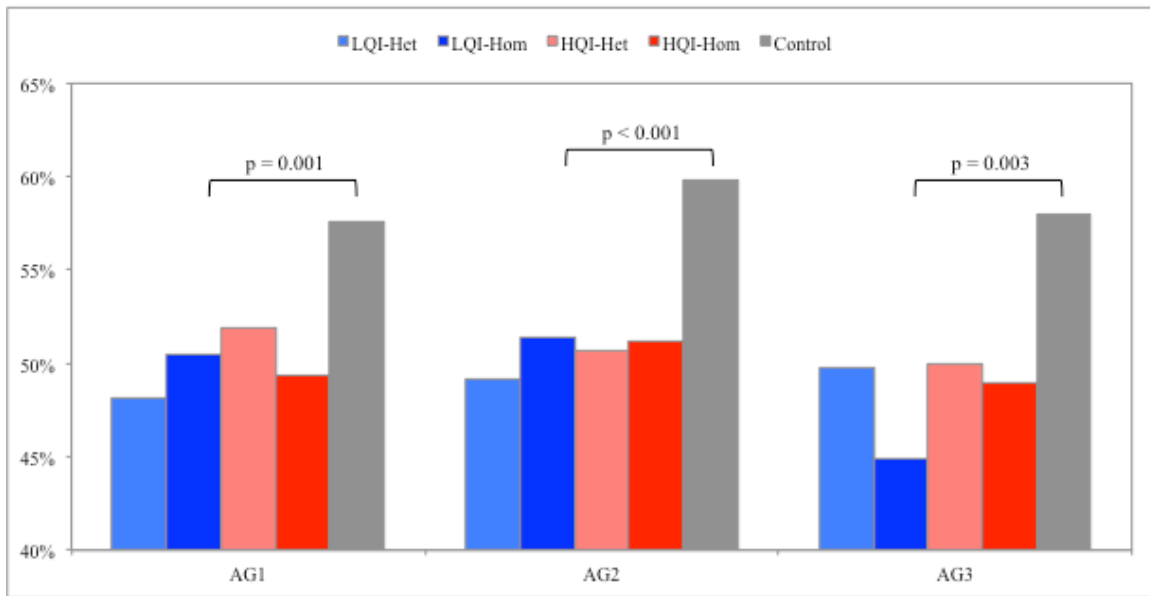
Fig. 11: Neither institutional quality nor diversity significantly altered AG distribution, measured in terms of percentage of endowment per game sent to the non-coethnic recipient. However, participants in the control condition allocated significantly more points to the non-coethnic recipient than did participants in the four experimental conditions (AG1: $p = 0.001$, $b = -0.202$; AG2: $p < 0.001$, $b = -0.311$; AG3: $p = 0.003$, $b = -0.186$).[13] In none of the games or conditions did participants' allocations differ significantly from an even distribution between the coethnic and non-coethnic recipient (specifically, 50% or 3000 points sent to both recipients).

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[13] One possible explanation for this result is a differential reaction to task demands – perhaps a control participant who has not sat through 40 rounds (often over one hour) of a PGG is in a better state to recognize that the AG is assessing coethnic bias and subsequently attempt to allocate more equally.
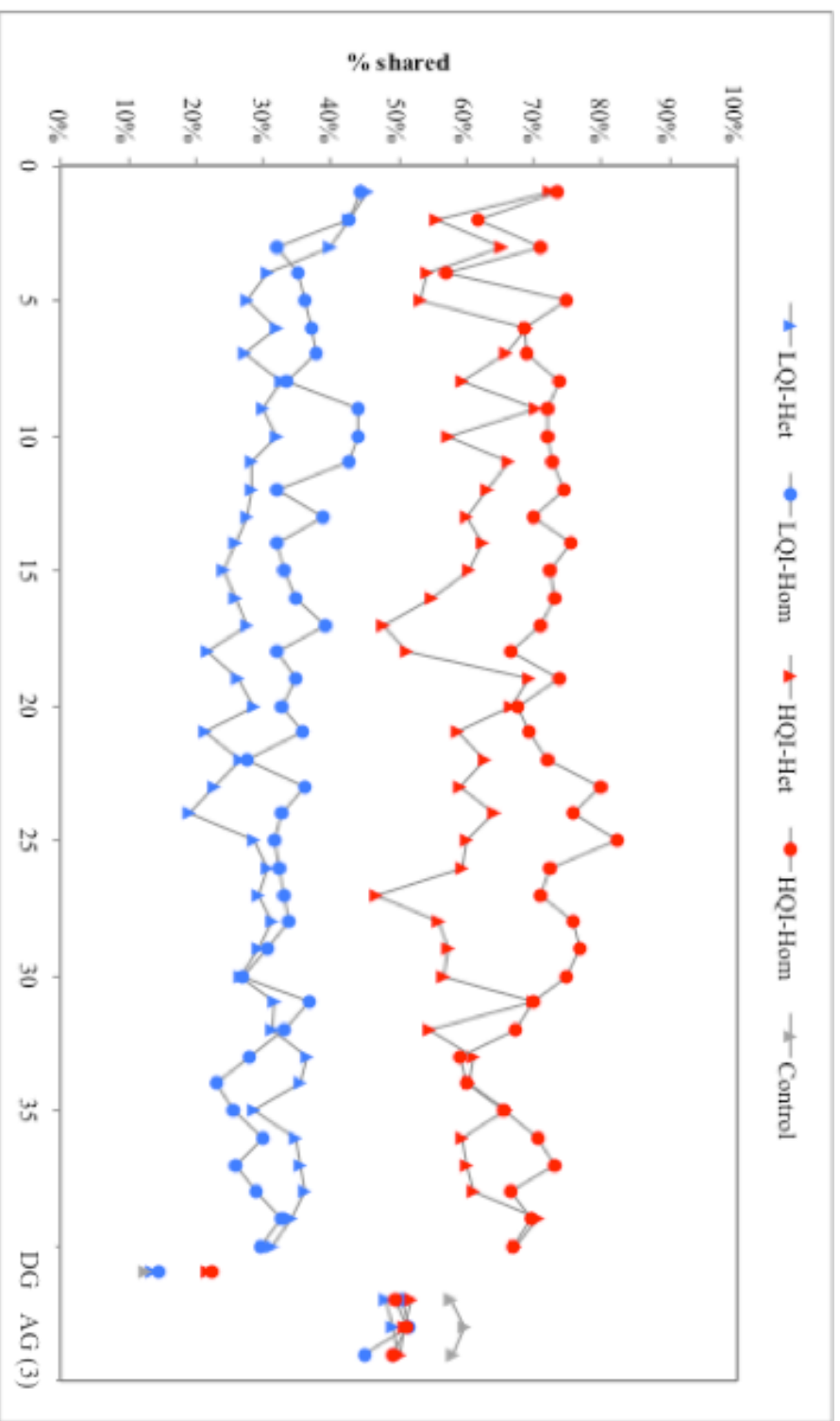
Fig. 12: The 40 rounds of PGG are followed by a single DG round and three rounds of the AG. Mean contributions to non-coethnic partners for participants in the control group are included for the DG and AG

```
Linear regression with 2D clustered SEs                  Number of obs =      173
                                                         F(  7,   172) =        .
                                                         Prob > F      =        .
Number of clusters (PGG_group) =     60                  R-squared     =  0.2582
Number of clusters (SubjectID) =    173                  Root MSE      = 53.3463

   Contribution |     Coef.   Std. Err.      t    P>|t|                     Beta
----------------+------------------------------------------------------------------
 otherHometown2_4 | -17.65335   5.178858   -3.41   0.001                -.2282315
 otherHometown4_4 |  13.93301   5.338294    2.61   0.010                 .1876587
        poliAct4_4 |  67.45606    7.95367    8.48   0.000                 .0847949
        poliAct6_4 |  22.44909   10.80298    2.08   0.039                 .1163912
     commInvolve5_4 |  27.97285   7.598442    3.68   0.000                 .2216129
     commInvolve7_4 |  63.38976   6.935543    9.14   0.000                 .1123612
              HFI |  37.02196   9.681716    3.82   0.000                 .3063234
        religion_4 | -9.973542   4.171675   -2.39   0.018                -.1580178
             _cons |   87.5586   18.55165    4.72   0.000                        .
```

Table 4: Institutional faith measures predicting PGG contributions (clustering on PGG group and individual) finds the following significant predictors along with institutional quality (HFI), in order: 1) amount of confidence in NGOs in hometown, 2) amount of confidence in ROSCO/SACCO/chamas[14] in hometown, 3) participation in boycotts within the past six months, 4) participation in political campaigns within the past six months, 5) participation in sick visits, 6) participation in sack farming[15], and 6) voting, and 7) religion.

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[14] Small investment groups highly popular throughout East Africa, with varying levels of funding and formality (https://www.standardmedia.co.ke/lifestyle/article/2000018182/what-s-in-a-chama)

[15] A low-cost form of farming in dense and/or urban areas, using sacks of soil to grow crops, often involving resource-sharing among community members (Gallaher et al. 2013)

```
Linear regression with 2D clustered SEs            Number of obs =      173
                                                   F(  8,   172) =    10.99
                                                   Prob > F      =   0.0000
Number of clusters (PGG_group) =      60           R-squared     =   0.1264
Number of clusters (SubjectID) =     173           Root MSE      = 1.2e+03
```

DG_sent	Coef.	Std. Err.	t	P>|t|	Beta
otherNai2_4	-217.771	107.3283	-2.03	0.044	-.1372362
otherNai3_4	341.2324	136.7427	2.50	0.014	.1989566
integrate3_4	154.405	76.06186	2.03	0.044	.1329032
poliAct5_4	824.2331	384.1727	2.15	0.033	.0684939
poliAct6_4	-556.998	242.1013	-2.30	0.023	-.1353877
commInvolve3_4	-606.1299	174.3739	-3.48	0.001	-.1197175
commInvolve7_4	551.4801	142.9899	3.86	0.000	.0458281
HFI	495.1597	220.2587	2.25	0.026	.1920747
_cons	21.50686	399.9015	0.05	0.957	.

Table 5: Institutional faith measures predicting DG contributions (clustering on PGG group and individual) finds the following significant predictors along with institutional quality (HFI), in order: 1) amount of confidence in NGOs in hometown, 2) amount of confidence in schools in hometown, 3) participation in community activities with individuals of different chamas, 4) participation in petitions in the past six months, 5) participation in political campaigns in the past six months, 6) participation in barazas[16], and 7) participation in sack farming,

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[16] Community meetings involving community members and leaders popular in Kenya, convened to address many types of issues

APPENDIX B: Instructions Scripts

Note: Instructions were read aloud in Swahili and presented on-screen in English.
Jennifer Adhiambo and Irene Ngina of the Busara Center performed all translations
(instructions as well as demographics survey).

In the waiting room:
1. Instruct participants that now is a good time to use the bathroom as they will not be able to during the session (but only if they have already received their card).
2. When all subjects are ready:

Good day! A warm welcome to the Busara Center for Behavioral Economics. I see all participants are present. We'll soon go to the testing room, where I will give you exact information about the study. You will get paid Ksh 200 in cash for your participation and transport today; in addition, you can earn some extra money in the tasks you will do. This money will be transferred to the phone number you gave us when you registered by MPesa this afternoon.

Before we start, I request three things. First, please turn off you mobile phones now, and leave them turned off until the end of the session. This is so you are not distracted from doing the tasks. Second, due to the nature of the study, from now on you are not allowed to talk to other participants. If you talk to other participants, we will have to send you home and you cannot get paid. If you have questions, please raise your hand and one of the researchers will come and talk to you. Third, please do not touch the computers before we tell you to do so.

Are everyone's phones off? Ok. We will now go to the computer room, where I will give you more information about the study. Please find the computer with the number of your placecard, and sit down. Again remember that you are not allowed to speak to each other from now on, and please do not touch the computers until we tell you to do so.

In the testing room:
1. (Pre-session protocol: distribute a pen and consent form to each station)
2. After all participants are seated at their computer stations, read aloud:

Welcome again to Busara. You are about to participate in a research study which seeks to understand better how people make economic decisions and other kinds of decisions. In front of you there is a consent form that explains the purpose of this research and your rights. It says that this study is for research purposes only; your responses are strictly confidential and will not be shared along with your name with anyone other than the researchers. You have the right to leave at any time. We would like to ask for your consent to participate by signing at the back

---

of this form. So please look at the form now and sign.

Karibu tena Busara. Utashiriki kwa utafiti unaojaribu kuelewa vyema vile watu hufanya maamuzi ya kiuchumi na maamuzi mengine. Mbele yako kunayo "consent"inayoeleza madhumuni ya utafiti huu na haki zako. Inaeleza huu utafiti ni kwa madhumuni ya utafiti tu,majibu yako ni ya siri na haitaambiwa mwingine pamoja na jina lako ila tu watafiti.Uko na haki ya kutoka wakati wowote.Tungetaka kuomba kibali chako kwa kuweka sahihi nyuma ya hii "fomu".Tafadhali angalia fomu sasa na uweke sahihi upande wa nyuma.

Once everyone's name has been confirmed, look over the z-tree master list again to make sure that all names match the confirmed subjects for the session.

Run the first treatment (PGG). Open next treatment (DG) in the background).
Read aloud (and on-screen):

General Instructions:
This is a computerized experiment on decision-making. You will be paid for you participation and the amount you earn will depend on the decisions that you make. The full experiment should take about ____ hours. The money that you earn will be sent to you through your MPesa account.

Huu ni utafiti kupitia kompyuta kuhusu kufanya maamuzi. Utalipwa kwa kushiriki na kiwango utakachopata italingana na maamuzi unayofanya. Utafiti wote utachukua kama masaa__2___. Kiwango cha pesa utakacho jipatia itatumwa kwako kwa njia ya mpesa.

All information collected in this experiment will not be shared with anyone outside of this session except between the researchers. In order to maintain privacy, please do not reveal your decisions to other participants during or after the session.

Taarifa yote inayokusanywa kwa huu utafiti haitaambiwa mtu yeyote nje ya utafiti, tafadhali usifichue maamuzi yako kwa washiriki wengine wakati na baada ya utafiti.

We consider ourselves bound by the promises we are making to you; we will do everything we say and there will be no surprises or tricks. We are interested in individual choices so please remember that there are no right or wrong answers.

Tunajichukulia kufungwa na ahadi tunazowapea; tutafanya kila kitu tunachosema na hakutakuwa na mshangao au ujanja wowote.Tuna hamu ya kujua maamuzi ya mtu binafsi tafadhali kumbuka hakuna jibu sahihi au lisilo sahihi.

[OK]

Next screen:

This session includes three games, which you will be playing at the same time with other participants through your computer stations.

Kikao hiki kitahusisha michezo tatu,ambayo utakua ukicheza wakati moja na washiriki wengine kupitia stesheni zenu za kompyuta.

In the first few games, you have the opportunity to earn points. Twenty points is equal to 1 KES. At the end of the session, one of the games in which you can earn points will be randomly chosen and you will be paid a bonus for the points you earned in ONLY that game. This means that until the very end of the session, you will not know which game you will be paid your bonus for.It is possible to lose more points than you win in a game. If you finish a game with negative points, you will not get a bonus for the game.

Katika michezo chache ya kwanza,una nafasi ya kupata points.Points ishirini ni sawa na shilingi 1.Mwisho wa kikao, moja ya michezo ambayo unaweza kujipatia points itachaguliwa bila mpangilio wowote na utalipwa bonus ya points ambayo ulipata katika mchezo huo PEKEE. Hiyo ina maanisha ya kwamba hadi mwisho kabisa wa kikao, hautajua ni mchezo upi utalipwa bonus nayo. Kunawezekano kupoteza points nyingi kuliko unavyo shinda katika mchezo. Ukimaliza mchezo na points "negative" hautapata bonus ya mchezo.

After the games, you will be asked to answer a questionnaire about yourself, your interests, and your beliefs. When you have read these instructions, click OK to begin playing the games.

Baada ya michezo, utaulizwa kujibu questionnaire kukuhusu wewe binafsi, mapendeleo yako na imani yako. Ukishasoma maagizo,bonyeza OK kuanza kucheza michezo.

You will also see that your computer screen is asking for your ID number -- please enter the ID number on your place-card (this is different from your computer station number), press "OK", and confirm that the computer screen now shows your name. If the name is not correct, please enter your name and press "New Name". Again, if you have questions please raise your hand and someone will come to assist you.

Utaona pia Komputa yako inaitisha nambari yako.Tafadhali weka nambari iliyo kwenye kadi yako(hii ni tofauti na nambari ya komputa unayotumia) bonyeza "OK" na uhakikishe kompyuta inaonyesha jina lako. Ikiwa jina si sahihi, tafadhali weka jina lako na bonyeze

"New Name". Tena,Kama unayo maswali tafadhali inua mkono na mmoja wetu atakuja kukusaidia.

[OK]

On-screen:

[PUBLIC GOODS GAME]

Enter code:
Please enter the participant ID number on your card:
Tafadhali ingiza nambari yako ya ushiriki uliyo andikiwa katika karatasi.

Please make sure that your code and last name are correct. If they are press "OK". If they are not correct, please raise your hand.
Tafadhali hakikisha yakua code na jina lako la mwisho ziko sawa.Ikiwa ziko sawa bonyeza 'OK'. Ikiwa haziko sawa, tafadhali inua mkono wako.

PGG Instructions 1:
In this game, you will each play with 2 other randomly assigned participants. You will play together for 40 rounds
In each round, each participant will receive 150 points.
Katika mchezo huu,kila moja wenu atacheza na washiriki wawili waliochaguliwa bila mpangilio wowote. Mtacheza pamoja katika raundi 40.
Katika kila raundi, kila mshiriki atapokea points 150.

PGG Instructions 2:
In each round, each participants decides how many (if any) of the 150 points to put in the public good -- the common project that benefits the group as a whole.
Katika kila raundi,kila mshirika anaamua ni ngapi(ikiwa kunayo) kati ya pointi 150 kuweka katika kikapu cha kikundi. Huu ni mradi wa pamoja unao faidi kikundi kwa pamoja.

PGG Instructions 3:
In this example, all of the players decide to contribute all 150 points.
Katika mfano huu,wachezaji wote wameamua kuchanga pointi zote 150.

PGG Instructions 4:
Once all players have made their decisions, the total amount contributed is multiplied by 1.5.
Mara tu wachezaji wote wanapofanya maamuzi yao,jumla ya pesa inagawanywa na kuwa

multiplied by 1.5.

PGG Instructions 5:
The new amount in the public good is split evenly among participants (so, each player gets the same share).
Idadi mpya ya pesa katika kikapu cha kikundi inagawanywa kwa usawa miongoni mwa washiriki (kwa hivyo washiriki wote wanapata mgao sawa).

PGG Instructions 6:
In this example, each player ends up with 1.5 times their original number of points.
Katika mfano huu,kila mchezaji anamalizia kuwa na mara 1.5 ya points zake za awali.

PGG Instructions 7:
In this second example, each player again receives 150 points.
Katika mfano huu wa pili,kila mchezaji tena anapokea points 150.

PGG Instructions 8:
In this example, only two players decide to contribute points to the public good.
Katika mfano huu,wachezaji wawili tu ndio wameamua kugawanya points kwa kikapu cha kikundi.

PGG Instructions 9:
The other player decides to keep their 150 points.
Mchezaji huyo mwingine ameamua kujiwekea points zake 150.

PGG Instructions 10:
The total number of points contributed to the public good is then multiplied by 1.5.
Jumla ya nambari ya points zilizochangishwa kwa kikapu cha kikundi zinakuwa mutiplied na 1.5.

PGG Instructions 11:
The new amount is evenly distributed among the players.
Kiasi hicho kipya kinagawanywa kwa usawa kati ya wachezaji wote.

PGG Instructions 12:
In addition to the points earned from the public good, each player earns the points that they decide to keep for themselves.
So, the player who did not contribute any points in this round ends up with all 150 points, plus their share of the public good.

Kuongezea kwa points alizopata kwa kikapu cha kundi,kila mchezaji anapata points alizo amua kujiwekea.

Hivyo,mchezaji ambaye hakugawa points zozote katika raundi hii atamalizia kuwa na points zote 150,pamoja na mgao wake wa kikapu cha kundi.

Intro Punishment:

HFII Group

There is also a one-in-four chance in each round that you will be inspected.

If you are inspected, you will be fined 2 points for every 1 point that you decided to keep for yourself in that round.

This means that anyone who does not contribute all 150 points will be fined -- if they are inspected.

Example: If you contributed 50 points and are inspected, you would be fined 200 points because you kept 100 out of 150 points in that round.

Please press the 'OK' button to continue.

Probability

In this bag there are four balls, three black and one red. There is a 1:4 chance of grabbing a red ball – pulling one ball out, stating the color, replacing the ball and the "institution" was essentially doing the same thing – selecting whether to audit, or not, the participant's contributions with 1:4 chances.

Pia kunalo uwezekano wa moja- juu ya-nne katika kila raundi yakua utachunguzwa. Ukichunguzwa,uta fainiwa points 2 kwa kila point ambayo uliamua kujiwekea katika raundi hiyo.

Hii ina maanisha mtu yeyote ambaye hatachangia points zote 150 atafainiwa---ikiwa atachunguzwa.

Mfano:Ikiwa ulichangia points 50 na ukachunguzwa,utafainiwa points 200 kwa sababu uliweka 100 kutoka kwa pointi 150 katika raundi hiyo.

Tafadhali guza 'OK' kuendelea.

Probability

Ndani ya hii kikapu kuna mipira nne, tatu za black na moja ya red. Kuna uwezekano wa 1:4 kuchukua mpira wa red- kuchukua mpira mmoja huku ukitaja rangi, kurudisha tena. "Shirika" pia inafanya jambo sawa na hili - kuchagua ikiwa itafanya uchunguzi/ukaguzi, mchango wa mshiriki kwa uwezekano wa 1:4

Probability: LFII

Remember, there is no chance of being penalized for contributing less than the full amount. Your group's contribution are the only thing that will affect your earnings in this stage.

Kumbuka, hakuna uwezekano wa kufainiwa kwa kuchangia chini ya pointi 150. Mchango wa kikundi ndio utaathiri malipo yako katika mchezo huu.

Comprehension:
Please answer the following questions to make sure that you have understood the instructions.
Tafadhali jibu maswali yafuatayo ili tuhakikishe kwamba umeelewa maagizo.

How much would you contribute to earn the most points for the group as a whole? [150 points or 0 points]
Ni kiwango gani utachangia ili upate points nyingi zaidi za kundi kwa ujumla? [pointi 150(mia na hamsini) au pointi 0(sufuri)].

How much would you contribute to earn the most points for yourself? [150 points or 0 points]
Ni kiwango gani utachangia ili upate points nyingi zaidi wewe binafsi? [pointi 150(mia na hamsini) au pointi 0(sufuri)].

HFII: Ask the questions below.
If you do *not* get inspected, what contribution amount earns the most for you, personally? [150 points or 0 points]
*Ikiwa *hujafanyiwa* ukaguzi, ni kiwango gani cha mchango kitakulipia zaidi, wewe binafsi? [pointi 150(mia na hamsini) au pointi 0(sufuri)]*

If you *do* get inspected, what contribution amount earns the most for you, personally? [150 points or 0 points]
*Ikiwa *umefanyiwa* ukaguzi, ni kiwango gani cha mchango kitakulipia zaidi, wewe binafsi? [pointi 150(mia na hamsini) au pointi 0(sufuri)]*

If you see a red box on your screen after submitting your responses, please raise your hand and someone will come to assist you.
Ukiona sanduku nyekundu kwenye skrini yako baada ya kuwasilisha majibu yako, tafadhali inua mkono wako and kuna mtu atakuja kukusaidia.

Intro:
In this experiment you will play 40 rounds of the game just explained.
You will see your group's inspection probability on your screen.
Please press the 'OK' button when you are ready to start.
Katika jaribio hili utacheza raundi 40(arobaini) za mchezo ulioelezewa. Utaona uwezekano wa ukaguzi wa kundi lenu katika skrini yako.
Bonyeza 'OK' ukiwa tayari kuanza.

Display Last Names Other:
You will now see the names of your two partners for this game on your screen. They will be your partners for all 40 round.
Kwa sasa utaona majina ya washiriki wenzako kwa mchezo huu kwa skrini yako. Watakua washiriki wenzako katika raundi zote 40(arobaini).

Contribution:
Please enter the number of points you would like to put in the public good out of your total 150 points.
Tafadhali ingiza idadi ya points ungependa kuweka kwenye kikapu cha kikundi katika pointi zako 150(mia na hamsini).

When all groups have reached the final earnings screen for the PGG, run the next treatment (DG). Load the following treatment (AG).

[DICTATOR GAME]
Mchezo wa kidikteta

Pre-Game Info:
You will now play a new game with a new, randomly chosen partner for one round.
There are two roles in this game, and you will see on your screen which role you will be playing.
Sasa utacheza mchezo mpya na mshiriki mpya aliyechaguliwa bila mpangilio wowote kwa raundi moja.kwa huu mchezo kuna majukumu mawili, utaona katika skrini ni jukumu gani utacheza.

DG Instructions 1:
In this game, you will receive 6000 points.
Katika mchezo huu, utapokea points 6000

DG Instructions 2:
Player B will not be making any decisions in this game, and can only earn points based on Player A's decision.
Player B hatafanya maamuzi yeyote katika huu mchezo na anaweza kupata points kulingana na maamuzi ya Player A.

DG Instructions 3:
You will choose how many (if any) of these 6000 points to send to your partner, Player B.
Utachagua ni ngapi (ikiwa kunayo) ya points hizi 6000 utamtumia mshiriki mwenzako,Player B.

DG Instructions 4:
You will earn only the points you keep, and Player B will earn only the points that you send to

him or her.
Once you make your decision in this game, you will not be interacting with your partner again.
Utapata points unazojiwekea tu,na Player B anapata points ambazo utamtumia tu.
Mara tu unapofanya uamuzi katika mchezo huu,hautashirikiana na mshirika mwezako tena.

Comprehension:
Please answer the following questions to make sure that you have understood the instructions.
Tafadhali jibu maswali yafuatayo kuhakikisha yakua umeelewa maagizo.

1.If you send your partner 1000 points, how many points will your partner earn? [1000 points or 5000 points]
1.Ukimtumia mshiriki mwenzako points 1000,atapata points ngapi?[1000 points or 5000 points]

If you send your partner 4000 points, how many points will you get for this round? [2000 points or 4000 points]
2. Ukimtumia mshiriki mwenzako points 4000,utapata points ngapi katika raundi hii?[2000 points or 4000 points]

If you see a red box on your screen after submitting your responses, please raise your hand and someone will come to assist you.
Ukiona sanduku nyekundu katika skrini yako baada ya kutuma majibu yako,tafadhali inua mkono na mtu atakuja kukusaidia.

Numeracy 1:
1.What is half of 6000? [free entry on numberpad]
1.Nusu ya 6000 ni? [free entry on numberpad]

2.Is 2000 bigger or smaller than 4000? [Bigger, Smaller, I don't know]
2.Je,2000 ni kubwa au ndogo kuliko 4000?[Bigger, Smaller, I don't know]

Numeracy 2:
How many 1000 points do you need to get to 6000 points? [free entry on numberpad]
1.Je, unahitaji points 1000 ngapi kufikia points 6000?[free entry on numberpad]

2.Is 250 most of 6000? [Yes, No, I don't know]
2.Je,250 ni zaidi ya 6000?[Yes, No, I don't know]

Input DG:
You have 6000 points available to you.
You can choose to send any amount between zero and 6000 to the receiver whose name is shown on your screen.

They cannot reject your offer.

Umepewa points 6000.
Unaweza ukaamua kutuma kiasi chochote kati ya sufuri na 6000 kwa mpokeaji ambaye jina lake limeonyeshwa kwenye skrini.
Hawawezi kukataa pendekezo lako

Payoff Screen:
You will now see your total earnings for this game.
Sasa utaona mapato yako ya jumla katika mchezo huu.

When all groups have reached the final earnings screen for the DG, run the next treatment (AG). Load the following treatment (Payout).

[ALLOCATION GAME]

Pre-Game Info:
You will now play a new game with new, randomly chosen partners for three rounds.
You will have new partners in each round.
This game does not include inspections.
 You must send all of your points to your partners, and your partners will earn only the points you send to them.
Once you make your decision in this game, you will not interact with your partners again.

When you are ready please press okay

Sasa utacheza mchezo mpya na washiriki wapya waliochaguliwa bila mpangilio wowote kwa raundi tatu.
Utakua na washiriki wapya katika kila raundi.
Mchezo huu hauhusishi uchunguzi.
Lazima utume points zako zote kwa washiriki wenzako,na washiriki wenzako watalipwa tu points ulizo watumia.
Mara tu unapofanya uamuzi wako katika mchezo huu,Hautashirikiana na washiriki wenzako tena.

Ukiwa tayari bonyeza okay

AG Instructions 1:
In this game, Player A (you) will receive 2000 points in each round.

Katika mchezo huu,Player A(wewe) atapokea points 2000 katika kila raundi.

AG Instructions 2:
Players B and C cannot make any decisions in this game, and must accept Player A's decision.

Players B na C hawawezi kufanya uamuzi wowote katika mchezo huu,na ni lazima wakubali uamuzi wa Player A

AG Instructions 3:
You will choose how many of the 2000 points to give to each player. You may not keep any points for yourself (this round will not be chosen for your final payment).

Utachagua ni ngapi kati ya pointi 2000 ya kumpa kila mchezaji.Haufai kujiwekea pointi yeyote(raundi hii haitachaguliwa kwa malipo yako ya mwisho).

AG Instructions 4:
The other players will only earn the points that you send to them.
You will not interact with Player B or C after making your decision, as you will be randomly assigned new partners for each round of this game.

Wachezaji wengine watalipwa tu points ambazo utawatumia.
Hautashirikiana na Player B au C baada ya kufanya uamuzi wako,kwani utapewa bila mpagilio wowote washiriki wengine wapya katika kila raundi ya mchezo huu.

Slider Instructions:
You will be using a slider like the one shown below to record your decisions. Tap anywhere along the line to decide how many points to send to Player B and to Player C. You may change your decision as many times as you wish before pressing "OK".

Utakua ukitumia slider kama iliyo onyeshwa hapo chini kurekodi uamuzi wako.Bonyeza mahali popote katika laini kuamua ni pointi ngapi utatumia Player B na kwa Player C.Unaweza kubadilisha uamuzi wako mara mingi utakavyo kabla ya kubonyeza "OK"

Comprehension:
We are now going to ask a few questions on the instructions to the game to check your understanding.
Please answer the following questions and then press Continue when you are happy with your answers.
You have decided to send Player B 800 points.
How many points will Player C receive? [1200 points or 800 points]
If you send Player C 1100 points, how many points will Player B receive? [900 points or 1100 points]

Tunaenda kukuuliza maswali machache juu ya maelezo ya mchezo kuangalia kuelewa kwako.

Tafadhali jibu maswali yafuatayo alafu boyeza Continue ukifurahishwa na majibu yako.
Umeamua kumtumia Player B pointi 800.
Player C atapokea pointi ngapi? [1200 points or 800 points]
Ukimtumia Player C pointi 1100,Player B atapokea pointi ngapi? [900 points

If you see a red box on your screen after you have submitted your responses, please raise your hand and you will be assisted.

Ukiona sanduku nyekundu katika skrini yako baada ya kuwasilisha majibu yako,tafadhali inua mkono wako na utasaidiwa.

Question 1 Allocation:
How much would you like to give to each participant? Tap anywhere along the slider.
Ungependa kumpa kila mshiriki pesa ngapi?Bonyeza mahali popote katika slider.

Question 2 Allocation:
How much would you like to give to each participant? Tap anywhere along the slider.
Ungependa kumpa kila mshiriki pesa ngapi?Bonyeza mahali popote katika slider.

Question 3 Allocation:
How much would you like to give to each participant? Tap anywhere along the slider.
Ungependa kumpa kila mshiriki pesa ngapi?Bonyeza mahali popote katika slider.

Run "Payout" treatment.

APPENDIX C: Z-tree games

General Introduction

Please enter the participant ID number on your card:

1 2 3   Clear
4 5 6
7 8 9   OK
0

Please make sure that your code and last name are correct. If they are press "OK". If they are not correct, please raise your hand.

Your code: 368

Your last name: KARIUKI

Cancel   Confirm

1 out 40

General Instructions:

This is a computerized experiment on decision-making. You will be paid for you participation and the amount you earn will depend on the decisions that you make. The full experiment should take about 2.5 hours. The money that you earn will be sent to you through your MPesa account.

All information collected in this experiment will not be shared with anyone outside of this session except between the researchers. In order to maintain privacy, please do not reveal your decisions to other participants during or after the session.

We consider ourselves bound by the promises we are making to you; we will do everything we say and there will be no surprises or tricks. We are interested in individual choices so please remember that there are no right or wrong answers.

OK

---

1 out 40

This session includes three games, which you will be playing at the same time with other participants through your computer stations.

In the first few games, you have the opportunity to earn points. Twenty (20) points is equal to One (1) KES. At the end of the session, one of the games in which you can earn points will be randomly chosen and you will be paid a bonus for the points you earned in ONLY that game. This means that until the very end of the session, you will not know which game you will be paid your bonus for.It is possible to lose more points than you win in a game. If you finish a game with negative points, you will not get a bonus for the game.

After the games, you will be asked to answer a questionnaire about yourself, your interests, and your beliefs. When you have read these instructions, click OK to begin playing the games.

OK

Public Goods Game:

**In this game, you will each play with 2 other randomly assigned participants. You will play together for 40 rounds
In each round, each participant will receive 150 points.**

OK

In each round, each participants decides how many (if any) of the 150 points to put in the public good -- the common project that benefits the group as a whole.

OK

In this example, all of the players decide to contribute all 150 points.

OK

Once all players have made their decisions, the total amount contributed is multiplied by 1.5.

x 1.5

OK

The new amount in the public good is split evenly among participants (so, each player gets the same share).

OK

In this example, each player ends up with 1.5 times their original number of points.

OK

In this second example, each player again receives 150 points.

OK

In this example, only two players decide to contribute points to the public good.

OK

The other player decides to keep their 150 points.

OK

The total number of points contributed to the public good is then multiplied by 1.5.

x 1.5

OK

The new amount is evenly distributed among the players.

OK

In addition to the points earned from the public good, each player earns the points that they decide to keep for themselves.
So, the player who did not contribute any points in this round ends up with all 150 points, plus their share of the public good.

OK

HQI Conditions:

There is also a one-in-four chance in each round that you will be inspected.

If you are inspected, you will be fined 2 points for every 1 point that you decided to keep for yourself in that round.

This means that anyone who does not contribute all 150 points will be fined -- if they are inspected.

Example: If you contributed 50 points and are inspected, you would be fined 200 points because you kept 100 out of 150 points in that round.

Please press the 'OK' button to continue.

OK

Please answer the following questions to make sure that you have understood the instructions.

How much would you contribute to earn the most points for the group as a whole?

150 points	0 points

If you do *not* get inspected, what contribution amount earns the most for you, personally?

0 points	150 points

If you *do* get inspected, what contribution amount earns the most for you, personally?

0 points	150 points

LQI Conditions:

There is no chance of being penalized for contributing below the maximum 150 points to the public good.

Your group's contributions are the only thing that will affect your earnings in this stage.

Example: If you contributed 50 points, you would keep 100 points of your endowment, plus the public good earnings for that round.

Please press the 'OK' button to continue.

OK

Please answer the following questions to make sure that you have understood the instructions.

How much would you contribute to earn the most points for the group as a whole?

150 points	0 points

How many points should you contribute to the public good in order to earn the most for yourself?

0 points	150 points

HQI and LQI Conditions:

Period

1 out 40

In this experiment you will play 40 rounds of the game just explained.

The inspection probability in your group is: 1 in 4

Please press the 'OK' button when you are ready to start.

OK

Period

1 out 40

Your partners for this game are:

Player B: NJIHIA

Player C: OCHIENG

OK

Period

1 out 40

Please enter the number of points you would like to put in the public good out of your total 150 points.

Your partners for this game are:
Player A: OCHIENG
Player B: NJIHIA

1	2	3	Clear
4	5	6	
7	8	9	OK
	0		

HQI Conditions:

Period

1 out 40

Your partner's contribution this round:	0
Your other partner's contribution this round:	150
Your contribution this round:	150
Total contribution this round:	300
You were not inspected this round	0
Your earnings for this round:	150
Your earnings so far:	150

OK

LQI Conditions:

Period

1 out 40

Your partner's contribution this round: 100

Your other partner's contribution this round: 0

Your contribution this round: 0

Total contribution this round: 100

Your earnings for this round: 200

Your earnings so far: 200

OK

All Conditions:

Period

1 out 1

You will now play a new game with a new, randomly chosen partner for one round.

There are two roles in this game, and you will see on your screen which role you will be playing.
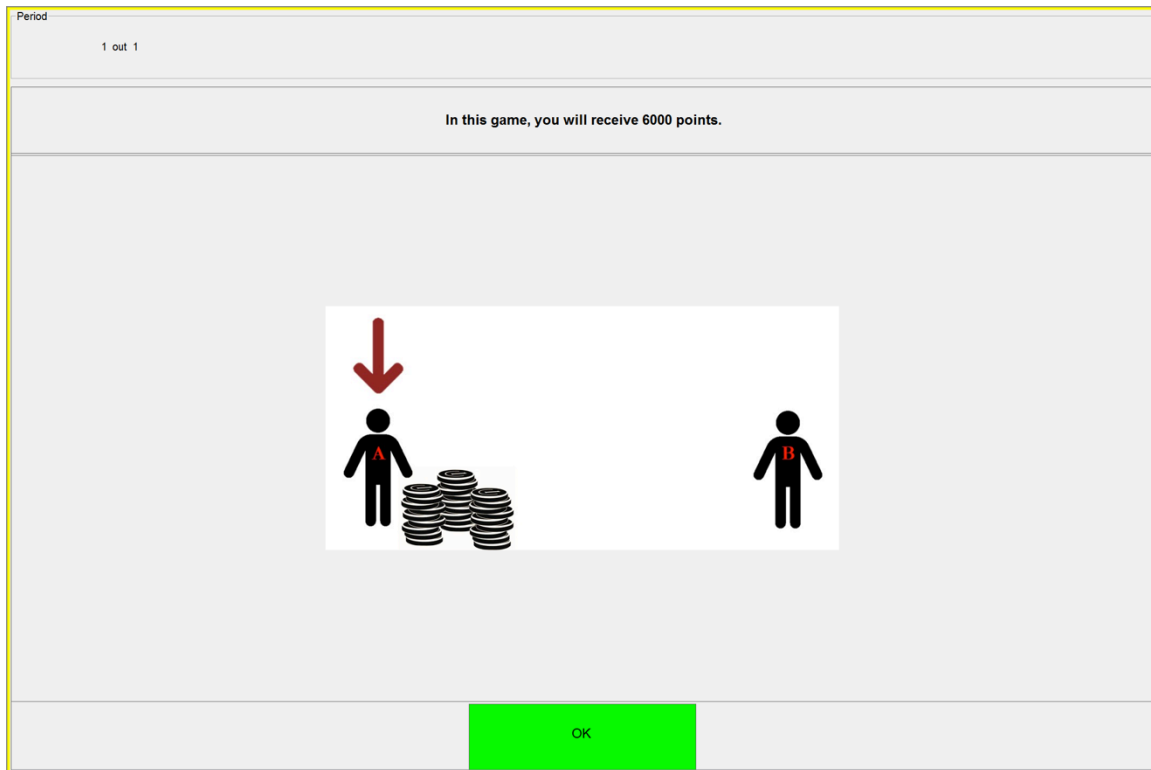
You are: Player A

When you are ready please press okay

OK

Dictator Game:
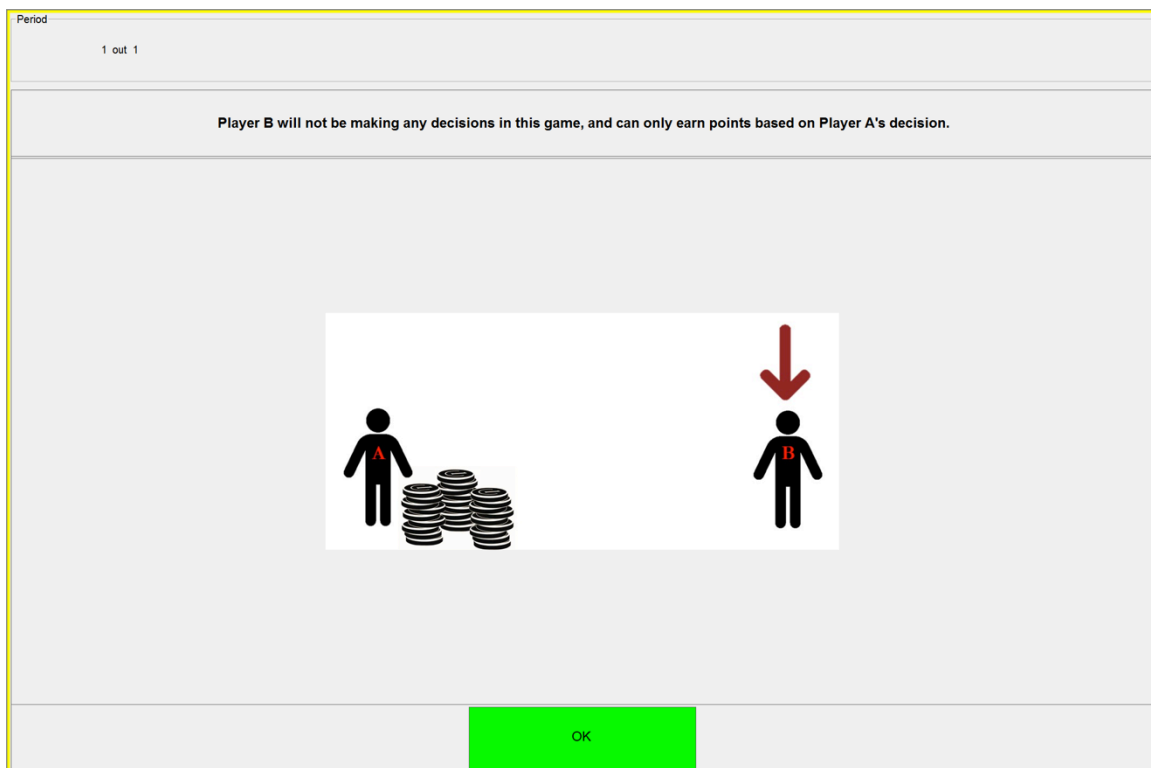
Period

1 out 1

You will choose how many (if any) of these 6000 points to send to your partner, Player B.

amount A
sends to B

OK

Period

1 out 1

You will earn only the points you keep, and Player B will earn only the points that you send to him or her.
Once you make your decision in this game, you will not be interacting with your partner again.

6000 minus amount A sent to B   amount A sent to B

OK

Period

1 out 1

Please answer the following questions to make sure that you have understood the instructions.

If you send your partner 1000 points, how many points will your partner earn?

5000	1000

If you send your partner 4000 points, how many points will you get for this round?

4000	2000

Period

1 out 1

Please answer the following questions to make sure that you have understood the instructions.

What is half of 6000?

1	2	3
4	5	6
7	8	9
	0	

Period

1 out 1

Please answer the following questions to make sure that you have understood the instructions.

Is 2000 bigger or smaller than 400?

| Bigger | Smaller | I don't know |

Period

1 out 1

Please answer the following questions to make sure that you have understood the instructions.

How many 1000 points do you need to get to 6000 points?

1	2	3
4	5	6
7	8	9
	0	

Fostering Prosociality toward Outgroup Members

Please answer the following questions to make sure that you have understood the instructions.

Is 250 most of 6000?

Yes	No	I don't know

You are about to make your actual decision.
Please press ok and read the instructions carefuly.

OK

Period

1 out 1

You have 6000 points available to you.
You can choose to send any amount between zero and 6000 to the receiver: Nyanchama.
They cannot reject your offer.

1	2	3
4	5	6
7	8	9
	0	

Period

1 out 1

Your total earnings for this game: 6000

OK

Allocation Game:

You will now play a new game with new, randomly chosen partners for three rounds. You will have new partners in each round.

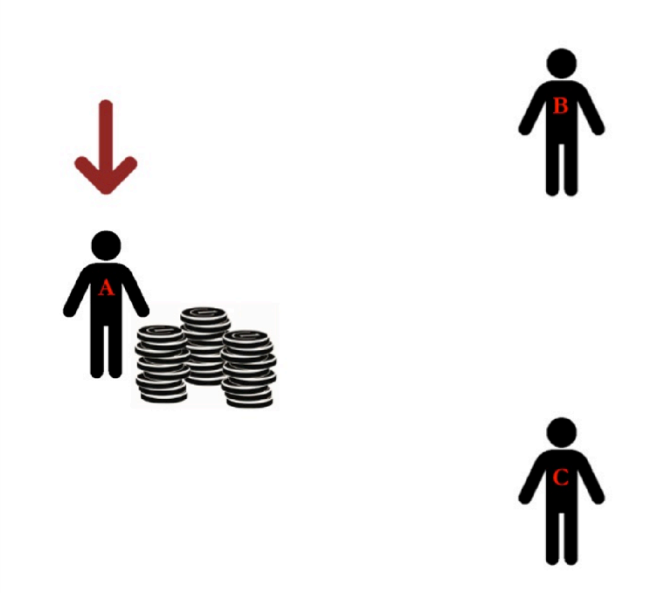**This game does not include inspections.**

You must send all of your points to your partners, and your partners will earn only the points you send to them.

Once you make your decision in this game, you will not interact with your partners again.

When you are ready please press okay

OK

In this game, Player A (you) will receive 2000 points in each round.

OK
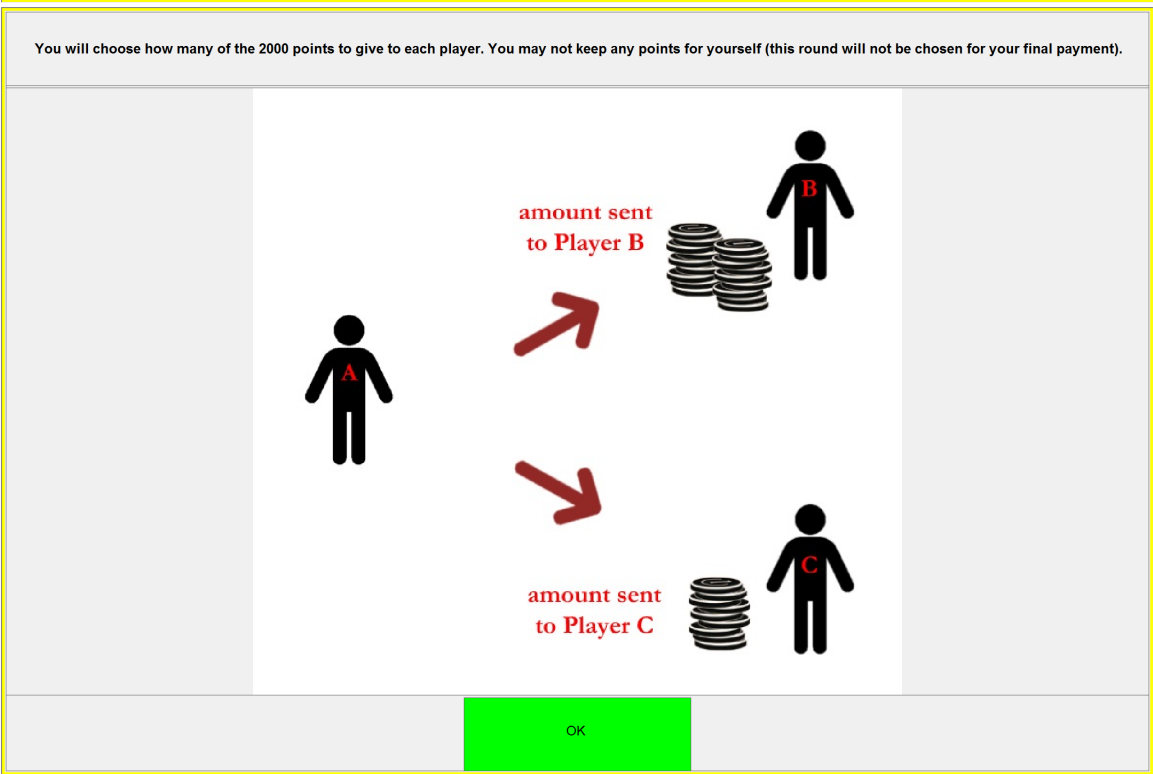
Players B and C cannot make any decisions in this game, and must accept Player A's decision.

OK

You will choose how many of the 2000 points to give to each player. You may not keep any points for yourself (this round will not be chosen for your final payment).

amount sent
to Player B

amount sent
to Player C

OK

The other players will only earn the points that you send to them.

You will not interact with Player B or C after making your decision, as you will be randomly assigned new partners for each round of this game.

amount sent
to Player B

B

A

0 points

2000 minus amount
sent to Player B

C

OK

You will be using a slider like the one shown below to record your decisions. Tap anywhere along the line to decide how many points to send to Player B and to Player C.
You may change your decision as many times as you wish before pressing "OK".

V

Player C

Player B

1000

5000

Clear

OK
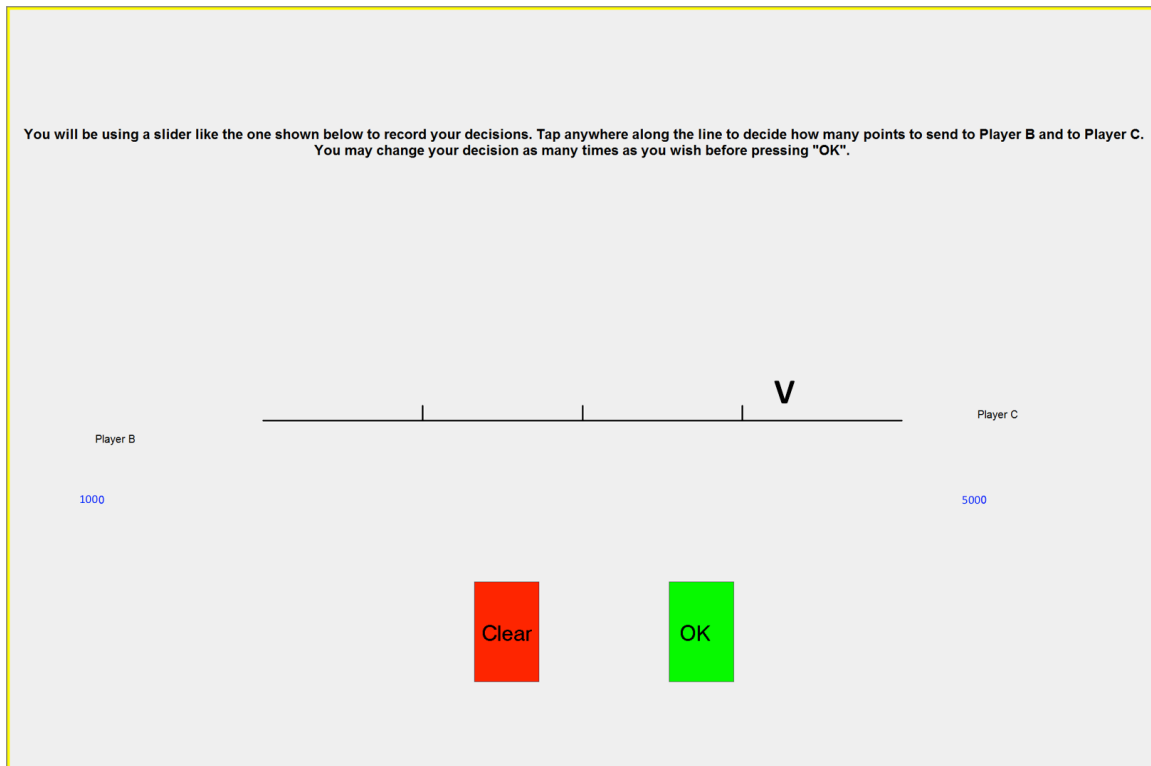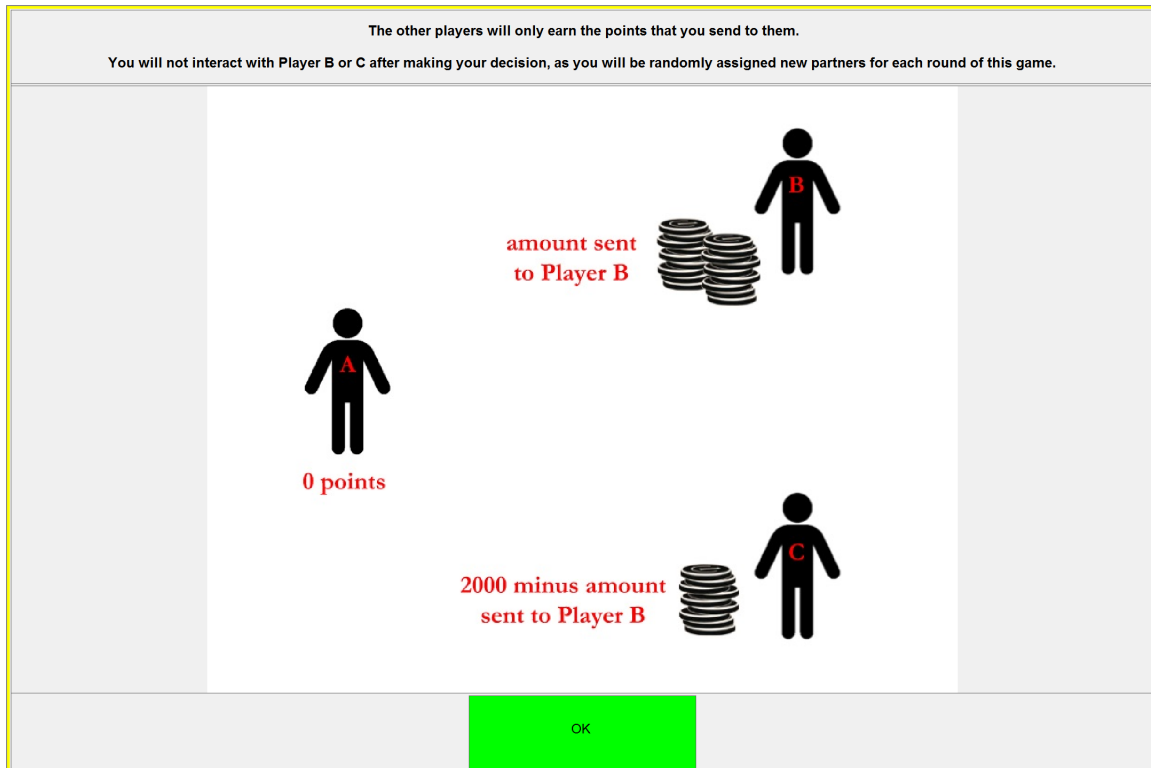
We are now going to ask a few questions on the instructions to the game to check your understanding.

Please answer the following questions and then press Continue when you are happy with your answers.

You have decided to send Player B 800 points.
How many points will Player C receive?

1200	800

If you send Player C 1100 points, how many points will Player B receive?

1100	900

How much would you like to give to each participant?How much would you like to give to each participant? Tap anywhere along the slider.

Wanyama   Kamau

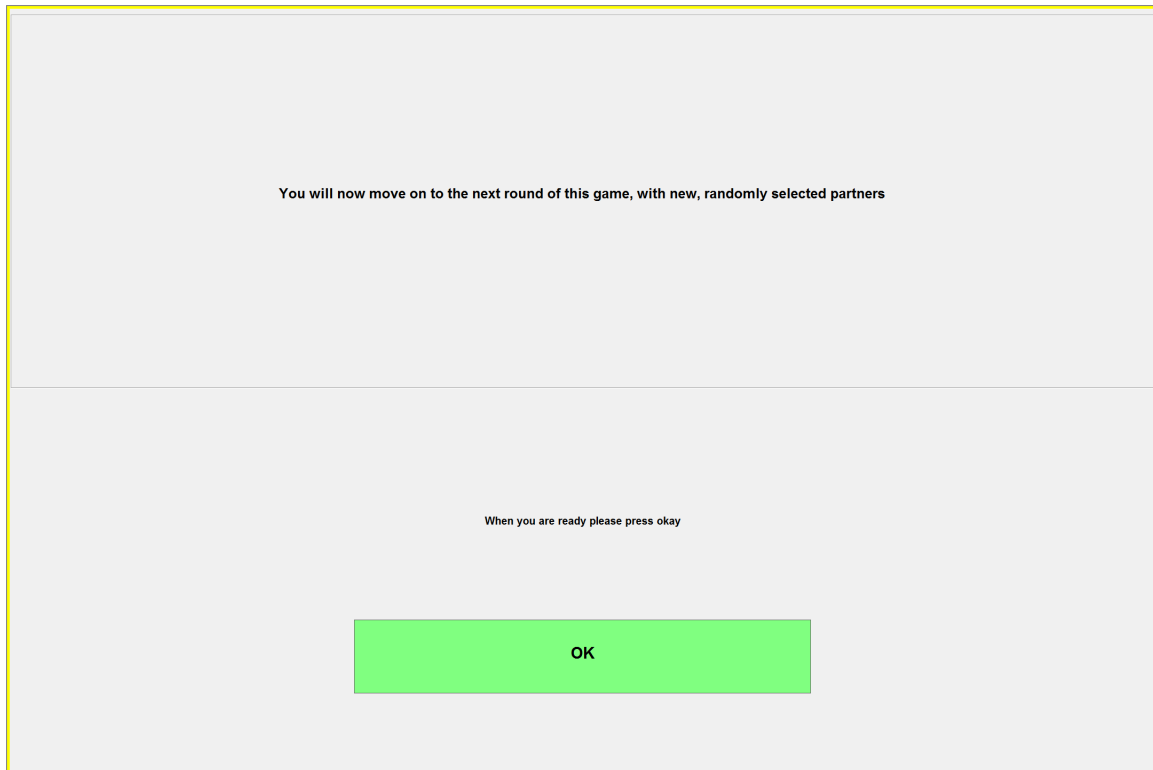0   0

Clear   OK

You will now move on to the next round of this game, with new, randomly selected partners

When you are ready please press okay

OK

(Repeated two more times for three rounds of AG)

APPENDIX D: Demographics Questionnaire

I. Basic Information and Community
1.   What is your age? // Umri wako ni upi?
        [Enter here:]
2.   What is your gender? // Jinsia yako ni ipi?
        [M] [F]
3.   What level of education have you completed? // Umekamilisha kiwango kipi cha masomo?
        [None] [hakuna] [Some primary school] [kiwango fulani cha shule ya msingi]
        [Primary school completed] [Umekamilisha shule ya msingi] [Some secondary
        school] [kiwango fulani cha shule ya upili] [Secondary school completed]
        [Umekamilisha shule ya upili] [Some tertiary school] [kiwango fulani cha chuo
        cha ufundi/chuo kikuu] [Tertiary school completed] [umekamilisha chuo cha
        ufundi/chuo kikuu]
4.   What is your weekly income? // Mapato yako ya kila wiki ni ngapi?
        [0-200 KES] [200-400 KES] [400-600 KES] [600-800 KES] [800-1000 KES]
                            [More than 1000 KES]
[shilingi0-200] [shilingi200-400] [shilingi400-600] [shilingi600-800] [shilingi800-1000]
                            [Zaidi y shilingi1000]
5.   What is your religion? // Dini yako ni ipi?
        [Christian, Catholic] [Christian, Protestant] [Seventh-Day Adventist] [Islam]
                    [Buddhism] [Hinduism] [Other: enter here]
6.   How often do you attend services or participate in events at your place of worship?
// Ni mara ngapi wewe huhudhuria ibada au kushiriki katika matukio katika mahali yako
ya ibada?
        [Never] [kamwe] [Once a year] [Mara moja kwa mwaka] [Couple of times a year]
[Once a month] [Mara moja kwa mwezi] [Every two weeks] [Once a week] [mara moja
kwa wiki] [Sever times a week][Every day]
7.   What is your mother-tongue? // Lugha yako ya mama ni ipi?
        [Luo] [Luhya/Luyia] [Nubian] [Kikuyu] [Kamba] [Kisii] [Other: enter here]
8.   How many years have you lived in Nairobi? // Umeishi miaka ngapi Nairobi?
        6-month increments, 0-10 years, [More than 10 years]
9.   Where were you born? // Ulizaliwa wapi??
[Nairobi] [Central] [North Eastern] [Nyanza] [Western] [Rift Valley] [Coast] [Eastern]
(9a. if not in Nairobi) How would you describe your hometown? // Kama sio
Nairobi,unaweza elezea vipi kuhusu mji wa kwenu nyumbani?
        [Urban] [Mjini] [Rural] [Mashinani]
10.   How important would you say politics is in your life? // Unaweza kusema siasa ni
ya umuhimu kiwango gani kwa maisha yako?

[Not at all important] [Si ya umuhimu kamwe] [Somewhat important] [kiasi fulani muhimu] [Very important] [muhimu sana] [Extremely important] [muhimu zaidi]

11. Which of these activities have you participated in during the past 6 months? Click all that apply. // Ni ipi kati ya shughuli hizi ulishiriki katika kipindi cha miezi 6 iliyopita? Bonyeza zote ulishiriki .

[Rallies] [mikutano ya kisiasa] [Discussions] [majadiliano] [Strikes] [migomo] [Boycotts] [kususia] [Petitions] [dua] [Campaigns] [kampeni] [Voting] [kupiga kura] [None]

12. Fill in the blank: "I would **NOT** be comfortable having _____ as a close neighbor". Choose as many options as you would like. // Jaza pengo "Siwezi kuwa na starehe kukuwa _____kama jirani wa karibu." Chagua mingi unavyopenda

[Christian, Catholic] [Christian, Protestant] [Seventh-Day Adventist] [Islam] [Buddhism] [Hinduism] [Other: enter here]

13. Fill in the blank: "I would **NOT** be comfortable borrowing money from, or lending money to ____". Choose as many options as you would like. // Jaza pengo "Siwezi kuwa na starehe kukopa pesa kutoka,ama kukopesha _____" Chagua mingi unavyopenda

[Luo] [Luhya/Luyia] [Nubian] [Kikuyu] [Kamba] [Kisii] [All of the above]

14. Please rate your agreement with the following statements // Tafadhali weka kiwango unachokubaliana na semi zifuatazo

[Strongly disagree] [sikubaliani kabisa] [Somewhat disagree] [sikubaliani kiasi] [Somewhat agree] [nakubaliana kiasi] [Strongly agree] [nakubaliana kabisa]

   a. The important decisions in the family should be made only by the men of the family. // Maamuzi muhimu kwa familia inafaa kufanywa na wanaume wa familia pekee
   b. The important decisions in the family should be made only by the women of the family // Maamuzi muhimu kwa familia inafaa kufanywa na wanawake wa familia pekee
   c. The wife has the right to express her opinion even when she disagrees with what her husband is saying. // mke ana haki ya kutoa maoni yake hata wakati hakubaliani na kile ambacho mume wake anachokisema.
   d. It is more important to send a son to school than it is to send a daughter. // Ni muhimu zaidi kupeleka mtoto kijana shule kuliko mtoto msichana
   e. A son and a daughter should perform the same number of chores. // Mtoto kijana na msichana wanafaa kufanya idadi sawa ya kazi za nyumbani.

15. How important are traditional, conservative values to you? // Maadili ya kitamaduni na ya kisasa ni ya umuhimu kiasi kipi kwako?

[Not at all important] [Si ya umuhimu kamwe] [Somewhat important] [kiasi fulani muhimu] [Very important] [muhimu sana] [Extremely important] [Muhimu zaidi]

16. How many of the following group activities do you participate in? // Ni ngapi kati ya kazi hizi za vikundi uashiriki?
[Sports] [Michezo] [Harambees] [Harambee] [Barazas] [Baraza] [Street cleaning, rebuilding] [kusafisha mitaa, ujenzi, etc.] [Sick visits] [kutembelea wagonjwa] [Electricity-sharing] [kugawana nguvu za umeme] [Sack farms] [kilimo cha gunia] [NYS projects][Miradi ya NYS]

17. To what extent do you do these activities with members of the same… // Ni kwa kiwango kipi unafanya hizi shughuli na wanachama wa vikundi vifuatavyo

   a.   ...religion? // dini?
   b.   ...ethnicity? // kabila?
   c.   ...chama? // chama
   d.   ...village? // kijiji

      [Only with same group] [Na wanachama wa kikundi sawa] [With few of different group] [na wachama wachache wa vikundi vingine]
      [With some of other groups] [na wanachama wengine wa vikundi vingine] [Mostly with other groups] [Na wanachama wengi wao kutoka vikundi vingine]

21. To what extent do you feel that you can contribute to the development of your community? // Ni kwa kiwango kipi unahisi unaweza kuchangia maendeleo kwa jamii yako?

      [Not at all] [Contribute a little] [Contribute a lot] [Contribute very much]
      [Kamwe] [naweza kuchangia kiasi] [naweza changia sana] [naweza changia kabisa]

II. Institutions:
   1.   How much confidence do you have in the following institutions in Nairobi? // Unayo imani kiasi gani na mashirika yafuatayo yaliyomo Nairobi?
 [A great deal of confidence] [Some confidence] [Very little confidence] [None at all]
 [Kiasi kubwa ya imani] [imani kiasi] [kiasi kidogo sana cha imani] [hamna imani kamwe]

      a) The police // polisi
      b) The courts // koti
      c) The government // serikali
      d) Political parties // Vyama vya kisiasa
      e) Civil services // utumishi wa uma
      f) Banks // Benki

2. How much confidence do you have in the following institutions in your hometown? // Unayo imani kiasi gani na mashirika ifuatayo **kwa mji wako wa nyumbani?**

      a) The police // polisi
      b) The courts // koti
      c) The government // serikali
      d) Political parties // Vyama vya kisiasa
      e) Civil services // utumishi wa uma
      f) Banks // Benki

2. How much confidence do you have in the following institutions in Nairobi? // Unayo imani kiasi gani na mashirika yafuatayo yaliyomo Nairobi?

      a) Churches // Kanisa
      b) NGOs
      c) Schools // shule
      d) Chamas, ROSCA, SACCO, etc. // chama, ROSCA, SACCO
      e) City Council // Halmashauri wa jiji
      f) Busara

2. How much confidence do you have in the following institutions in your hometown? // Unayo imani kiasi gani na mashirika ifuatayo **kwa mji wako wa nyumbani?**

      a) Churches // Kanisa
      b) NGOs
      c) Schools // shule
      d) Chamas, ROSCA, SACCO, etc. // chama, ROSCA, SACCO
      e) City Council // Halmashauri wa jiji
      f) Busara