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Redistribution and Group Participation

Experimental Evidence from Africa and the UK

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Abstract

This paper investigates whether the prospect of redistribution hinders the formation of efficiency-enhancing groups. An experiment is conducted in a Kenyan slum, Ugandan villages, and a UK university town and used to test, in an anonymous setting with no feedback, whether subjects join a group that increases their endowment but exposes them to one of three redistributive actions: stealing, giving, or burning. Exposure to redistributive options among group members operates as a disincentive to join a group. This finding obtains under all three treatments—including when the pressure to redistribute is intrinsic. However, the nature of the redistribution affects the magnitude of the impact. Giving has the least impact on the decision to join a group, whilst forced redistribution through stealing or burning acts as a much larger deterrent to group membership. These findings are common across all three subject pools, but African subjects are particularly reluctant to join a group in the burning treatment, indicating strong reluctance to expose themselves to destruction by others.

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Redistribution and Group Participation: Experimental Evidence from Africa and the UK*

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I. Introduction

To the development practitioner observing local development failures, it is often frustrating that individuals do not cooperate to resolve them of their own accord. While some of these failures require financial means that local communities do not have, others are, at prima facie, amenable to collective action. Examples of local public goods relying on voluntary group participation include: parent-teacher associations (e.g., Coleman 1988, Pradhan et al. 2014); community-based organizations (e.g., Bernard et al. 2010); and farmers' marketing cooperatives (e.g., Cook 1995, Fafchamps and Hill 2005). Considerable attention and effort have been devoted to the provision of such public goods through community development and other cooperative ventures. Yet success has been limited. Similar difficulties have been noted in the micro-entreprise sector where lack of finance could be partially addressed through business partnerships, and where market infrastructure and institutions could be improved through collective action (e.g., Grossman 2017).

Building on the work of Olson (1971) and Ostrom (1990), a large literature has emerged that seeks to understand the root causes of the underprovision of beneficial local public goods. In this literature much attention has been devoted to certain possible causes, such as free-riding (e.g., Baland and Platteau 1995) and imperfect monitoring (e.g., Barr, Lindelow and Serneels 2009). The literature has also argued that equity considerations and redistributive pressures affect collective action in heterogeneous groups (e.g., Baland and Platteau 1995, Banerjee et al. 2005, Barr, Dekker and Fafchamps 2014), but this issue has received much less attention. This is the mechanism we focus on in this paper, drawing on the experimental literature on other-regarding preferences (e.g., Fehr and Schmidt 1999, Charness and Rabin 2002). In particular we ask whether people would choose to eschew the returns to joining a group because of redistributive pressures that arise once in the group. We also examine whether the nature of the redistributive pressure affects this decision.

We design an original laboratory experiment to investigate whether redistributive actions hinder the formation of Pareto-improving groups. The experiment is designed such that there is no room for free-riding, and imperfect monitoring is not an issue. Subjects derive a purely individual benefit from joining a group, but expose themselves to redistributive actions when they join. The experiment is designed to mimic, in a stylized way, the situation that arises when a small number of individuals join up to generate private benefits for them all, albeit not necessarily of equal magnitude. Examples include self-help schemes, producer and marketing cooperatives, and business partnerships. To focus on redistribution, we abstract from the incentive issues (e.g., free riding, imperfect monitoring) generated by the production of the public good itself, and assume that the group generates material benefits for all those who join.

Redistributive pressures in groups can take various forms. Requests for gifts and transfers first come to mind as they have been extensively discussed in the development literature. If these requests cannot be turned down,[1] they operate as an informal tax (e.g., Jakiela and Ozier 2016). We capture this possibility with a reverse dictator game: individual i can take some of the endowment of individual j. Alternatively, it is possible that requests for gifts can be turned down but individuals feel an obligation to give to others in the group. We capture this with a generalized dictator game: individual i can give some of his endowment to j, but at a given exchange rate (e.g., Zizzo 2004, Fisman, Kariv and Markovits 2007, Fisman, Jakiela and Kariv 2015). Redistribution may also take a more destructive form driven by envy or spite, e.g., vandalism, sabotage, arson, or even witchcraft or poisoning. We capture this possibility by allowing individual i to destroy some of j's endowment (e.g., Zizzo 2003, Zizzo and Oswald

[1] E.g., because of sharing norms; or because of harrassment and (the threat of) other forms of retaliation.

2001, Kebede and Zizzo 2015).

In our experiment, these three types of redistribution are introduced as three different treatments, dubbed 'stealing', 'giving' and 'burning'. Subjects must pay a price to destroy or appropriate someone else's endowment, or to transfer part of their endowment to others. This price varies across treatments, as in a generalized dictator game. To eliminate reputational concerns and strategic considerations, play is anonymous throughout the experiment and subjects are not provided any feedback about others' play during or after the experiment. The purpose of the experiment is to elicit behavioral heuristics towards unidentified members of the same subject pool.

We wish to test whether group formation is hindered by the prospect of 'stealing', 'giving' and 'burning'. To improve the external validity of our findings, we use two different subject populations in Africa: small farmers in Uganda; and slum dwellers in Kenya. Furthermore, to verify that the results replicate across populations with potentially different norms and expectations about redistributive behavior, we include university students (in the United Kingdom), the type of subject population typically used for laboratory experiments.

We find many commonalities in redistributive behavior across the three subject pools: only a few subjects give away part of their endowment; some subjects destroy the payoff of others; and many appropriate (part of) the endowment of others. There are also some differences: stealing is more prevalent among UK college students; giving is more common in the two African populations; and burning is least common among Nairobi slum dwellers.

Next we investigate how the burning, stealing and giving treatments affect group formation. We find that subjects are less likely to join a group under any of the three treatments than under a control without redistribution. We also find that the type of redistribution matters. On average joining is less frequent in the burning treatment, particularly when the cost of burning is low, and more frequent in the stealing and giving treatments. The similar rates of joining identified in the stealing and giving treatments suggests that it is not just the fear of taxation that prevents group formation. Furthermore, joining a group is not uniformly less common in subject populations that redistribute more. In the burning and stealing treatments, joining a group is *less* common among the Kenya and Uganda subjects even though they burn and steal (weakly) *less*. In the giving treatment, there is no difference in the propensity to join a group between sites even though giving is observed more often among African subjects. Although burning is uncommon in all three populations, a large proportion of African subjects refuse to join a group in the burning treatment – less so among UK subjects. In contrast, many UK subjects refrain from joining a group in the giving treatment, even though UK subjects on average give less.

Before revealing payoffs at the end of the experiment, participants are asked to estimate other players' propensity to burn, steal, and give. In the UK participants who expect others to burn more are less likely to join, whilst among African participants, those who burn more are more likely to join a group in the burning treatment, suggesting that some subjects join a group in order to burn.

Taken together, the results indicate that group formation is hindered by the prospect of within-group redistribution. Among the African subjects this effect is strongest for destructive redistribution induced by spite or envy. We also find that some people refrain from joining in the giving treatment, a finding that resonates with that of Lazear et al. (2012).

These findings complement the existing literature in several ways. Jakiela and Ozier (2016) use an experiment in rural Kenya to show that social pressure to share income causes individuals to forgo investment returns. This is consistent with our finding that individuals are more likely to forgo the return to joining a group when forced redistribution is perceived to be more likely.

Evidence from behavior outside the lab is also consistent with our findings. In Cameroon, 20 percent of borrowers state that they take on a costly loan in order to signal to others in their community that they do not have extra cash and cannot be asked for financial help (Baland et al. 2011). Goldberg (2016) finds that the impact of a commitment savings product on saving behavior in Malawi is related to the need to resist demands to give to others, suggesting that people seek to avoid redistributive pressures. Our paper complements these finding by showing that people also avoid situations where giving is unsolicited and anonymous. One possible explanation is that, as in Della Vigna et al. (2012), individuals face an internal pressure to give, and are willing to incur a reduction in payoff to avoid this internal pressure and, presumably, the associated guilt (e.g., Battigali and Dufwenberg 2009).

The paper is organized as follows. In Section II we present the experimental design in detail. A conceptual framework is introduced in Section III and is used to generate testable predictions about preference archetypes often used in economics. Experimental choices and joining decisions are analyzed in Section IV. Section V concludes.

II. Experimental Design

The objective of the experiment is to identify individual motivations when joining a group that raises individual payoffs but allows redistribution among group members. To focus on motivations, we opt for an experimental design that eschews externalities, strategic interactions, reputation, and feedback. We avoid contextualizing the choices people make so as to minimize framing effects. To minimize cognitive load, choices are presented in graphical form – e.g., sliders or buttons – and the implications of subjects' choices on payoffs are automatically calculated for subjects. A detailed description of the experimental design is presented in the supplemental appendix S1, together with various screen shots.

The experiment is divided into three parts summarized in Table 1.[2] Part 1 documents how subjects redistribute payoffs under three redistributive treatments – stealing, burning, and giving. The purpose of this Part is to measure redistributive actions in the absence of self-selection. In Part 2 subjects simply choose to join a group, thereby increasing their payoff. Its purpose is to document subjects' propensity to join a group in the absence of redistribution. It serves as benchmark for Part 3, which combines the choice to join a group with one of the redistributive treatments. If joining falls in Part 3 relative to Part 2, this constitutes evidence that the prospect of within-group redistribution discourages group formation. The three treatments are described below.

Parts 1 and 3 are divided into 5 rounds each. Part 2 consists of just one round. In each round of the game, subjects are assigned to a set of three subjects – a triplet. This triplet changes at the beginning of each round. To ensure this is well understood by participants, each subject is assigned a number at the beginning of the session and the number of matched players is displayed on the screen when making decisions about burning, giving, or stealing (see screen shots in appendix S1 for an illustration). There is no carry-over of earnings across rounds.

Part 1

In Part 1, each subject is given the choice to destroy, appropriate, or transfer endowments within their triplet as follows. At the beginning of each round t each subject i receives an endowment e_{it} for that round. The subject is informed both about the endowment they receive and the

[2] There were also three practice rounds (one for each treatment) in which individuals practiced the choices made in Part 1. These do not affect final payoffs. The experiment was coded in z-tree (Fischbacher 2007).

endowments of the two other triplet members. The distribution of income is believed to be an important determinant of redistributive actions. For this reason, we vary the endowment that subjects receive: one subject receives a low endowment; one receives a medium endowment (twice the low endowment); and one subject receives a high endowment (three times the low endowment). Who receives which endowment is varied randomly across rounds. This ensures that the value of endowments in previous rounds is orthogonal to play in the current round, and hence need not be controlled for in the analysis. We also include one round (out of five) in which all subjects receive the medium endowment.

After receiving their endowment for the round, each subject is informed about the redistribution opportunities for that round. The three treatments, dubbed 'burning', 'stealing' and 'giving', all follow the same general design. In a given round t all subjects in a triplet face the same treatment. This is common knowledge. Within a round, each player chooses an action independently of the others, as in a dictator game. One player is selected from each triplet at the end of the experiment, and the choices of the selected player determine the payoffs of the triplet in that round. It is never the case that a subject's payoff is affected by the decisions of more than one player, themselves included.

We now describe the payoffs to all three subjects if the choices of player i are selected to determine final payoffs. In the burning treatment, subject i chooses what share of subject j's endowment to destroy. This share is denoted τ_{ijt}, with $0 \leq \tau_{ijt} \leq 1$ for each j. The payoff of subject i can thus be written as:

$$\pi_{it} = e_{it} - \gamma_{bt} \sum_{j \in N_{it} ijt} \tau_{ijt} e_{jt} \tag{0.1}$$

and subject j's payoff is given as:

$$\pi_{jt} = e_{jt}(1 - \tau_{ijt}) \tag{0.2}$$

where N_{it} is the set of players in i's triplet in round t. Keeping in line with the dictator design, the actions of other subjects are set to 0 when considering i's choice.[3] Parameter γ_{bt} captures the cost to i of destroying the endowment of j: it is the unit cost to i of reducing j's payoff by \$1. The value of γ_{bt} is randomly varied across rounds in order to vary the cost of burning and make redistribution more or less likely. It is common to all subjects in a given round t, and is common knowledge.

To illustrate, let $N_{it} = \{2, 3\}$, $e_{it} = 4$, $e_{2t} = 6$, $e_{3t} = 2$, $\gamma_{bt} = 0.1$, and $\tau_{i2t} = 50\%$ and $\tau_{i3t} = 0\%$. Payoffs are:

$$\begin{aligned} \pi_{it} &= 4 - 0.1 \times (0.5 \times 6 + 0 \times 2) = 3.7 \\ \pi_{2t} &= 6(1 - 0.5) = 3 \\ \pi_{3t} &= 2(1 - 0) = 2 \end{aligned}$$

In this example subject i has destroyed part of subject 2's endowment, ensuring that 2 now receives a payoff lower than his own. Burning is always wasteful since it reduces aggregate payoffs by $(1 + \gamma_{bt}) \sum_{j \in N_{it}} \tau_{ijt} e_{jt}$. In the above example, the efficiency loss is 3.3 – what subject 2 loses plus what i pays to destroy subject 2's endowment. The higher is γ_{bt}, the larger is

[3] This rules out situations in which players' choices are incompatible – as would arise if two players, say, were to spend all their own endowment to destroy the endowment of the others. In the z-tree code we further impose the restriction that $\pi_{it} \geq 0$ – a subject cannot spend more than his/her endowment e_{it} to destroy the payoff of other subjects. In practice, this restriction was never binding. No individuals chose to spend all of their endowment to destroy that of others.

the trade-off the subject faces between efficiency and redistribution. Player 2 is also asked to independently make choices about τ_{2it} and τ_{23t}, and similarly for player 3.

In the stealing treatment, payoffs are given by:

$$\pi_{it} = e_{it} + (1 - \gamma_{st}) \sum_{j \in N_{it}} \tau_{ijt} e_{jt} \tag{0.3}$$

$$\pi_{jt} = e_{jt}(1 - \tau_{ijt}) \tag{0.4}$$

Here τ_{ijt} is the share of j's endowment that i appropriates and γ_{st} is the unit cost to i of stealing \$1 from j. Since $0 < \gamma_{st} < 1$ in our experiment, stealing is always wasteful and reduces aggregate efficiency. The value of γ_{st} is randomly varied across rounds, is common to all subjects in a given round t, and is common knowledge.

In the giving treatment, payoffs follow:

$$\pi_{it} = e_{it}(1 - \gamma_{gt} \sum_{j \in N_{it}} \tau_{ijt}) \tag{0.5}$$

$$\pi_{jt} = e_{jt} + \tau_{ijt} e_{it} \tag{0.6}$$

Here τ_{ijt} is the share of its own endowment that i gives to j and γ_{gt} is the unit cost to i of increasing j's payoff by \$1. If $\gamma_{gt} < 1$ giving is efficiency enhancing – it costs less than \$1 for i to transfer \$1 to j – and vice versa if $\gamma_{gt} > 1$. In the experiment, we always select a value of γ_{gt} less than one, which means that giving is always efficiency-enhancing. The value of γ_{gt} is randomly varied across sessions, is common to all subjects in a given round t, and is common knowledge.

Part 2

In the second part of the experiment, subjects are randomly allocated an endowment e_{it} and can elect to join a group. Subjects are told that if they join a group the endowment e_{it} will be multiplied by p_t and the round will end. The value of p_t is always 1.5 in this part of the experiment. Subjects who do not join the group keep their initial endowment e_{it}; subjects who join receive $p_t e_{it}$ irrespective of whether others decide to join the group or not.[4] Play ends after the subject decides whether or not to join.

The purpose of this part is to introduce subjects to the new action of joining a group. Any subject who understands this part of the game should join the group. There is only one round of play in Part 2.

Part 3

Part 3 combines Parts 1 and 2 and consists of five rounds. As in Part 1 subjects are randomly assigned to a triplet of players at the beginning of each round and are provided with an endowment e_{it}. Subjects can form a group with others in their triplet.

As in Part 2, subjects are told that if they join a group their endowment will be multiplied by p_t. They are also told that subjects who join a group will have the opportunity to destroy, appropriate, or transfer within the group, in a manner similar to Part 1. Payoff formulas are amended by multiplying e_{it} and e_{jt} throughout by p_t – e.g., payoffs in the burning treatment

[4] In other words, subject i receives $p_t e_{it}$ even if i is the only one in the triplet to join a group.

now are:

$$\begin{aligned}\pi_{it} &= p_t\left(e_{it} - \gamma_{bt}\sum_{j\in N_{it}ijt}\tau_{ijt}e_{jt}\right)\\ \pi_{jt} &= p_t e_{jt}(1-\tau_{ijt})\end{aligned}$$

and similarly for payoffs in the stealing and giving treatments.

We expect the decision to join to increase with the return from joining and to decrease or increase with the subject's desire to participate in redistributive actions – depending on the subject's preferences. The value of p_t is randomized across rounds to vary the return from joining. The sequence of treatments (burning, stealing and giving) and γ_t are also randomized across rounds. The distribution of p_t and γ_t are given in Table 2. The order of treatments, p_t, and γ_t are randomized across sessions so that order effects cancel out and can be ignored in the analysis.

A subject chooses whether or not to join the group on the basis of the information provided. The subject then chooses how much to destroy, appropriate, or transfer within the group. Subjects who do not join the group keep their initial endowment e_{it} as in Part 2. Subjects who join the group can only affect the endowment of triplet members who have also joined the group – which implies that they observe which members of their triplet have joined a group in this round. However, as in Part 1, subjects are never told the burning, stealing, or giving choices of other participants. They are only told their final aggregate payoff at the end of the experiment. As the next sub-section details, this does not allow subjects to infer the choices of other participants. Furthermore, the triplet sets are reshuffled for each round so that, within Part 3, a participant never plays against the same subjects twice. This rules out strategic play.

Implementation

Table 2 details the different values of p_t, γ_{bt}, γ_{st} and γ_{gt} that were used in the experiment. These values were chosen so as to generate sufficient behavioral variation, based on initial sessions run at Oxford University in Fall 2012.[5] The Table shows how the order of treatments are randomized across sessions to ensure that order effects cancel out in the analysis.[6] The values of p_t, γ_{bt}, γ_{st} and γ_{gt} are also randomized across sessions and rounds. The set of parameter vectors used in the experiments and other randomization details are common to all three countries.

The value of p is set to ensure that joining a group is always Pareto-enhancing for all players: $p > 1$ in all cases, and is often large. Since the endowment of player i is multiplied by p whether others join or not, in the absence of redistribution it is always Pareto improving for a subject to join, irrespective of whether others join. Redistribution also has efficiency implications, however. In the giving treatment giving is always efficiency enhancing since the cost of giving is set to a fraction $\gamma_g < 1$ of the amount given. In contrast, redistribution through stealing, burning or

[5] These sessions used essentially the same z-tree code but experimented with different parameter values. We observed a high prevalence of stealing even for large values of gamma/high cost of stealing, so we retained fairly large γ_{st} for the main sessions reported here. For burning, large values of γ_{bt} resulted in hardly any burning. Hence we retained reasonably low values of γ_{bt} to induce experimental variation. For the giving treatment, the initial Oxford sessions showed very low levels of giving, and hardly any giving at all for γ_{gt} values larger than 1, that is, when giving is inefficient. Hence we only retain low values of γ_{gt} for the main sessions.

[6] Within a session the treatment order is the same for all subjects. This is necessary because triplets are reshuffled after each round, and hence it is the only way to ensure that all subjects play the same number of treatments.

giving always reduces aggregate efficiency since the cost of burning γ_b or stealing γ_s is always larger than 0.

At the end of the experiment, three rounds are selected at random and payoffs are determined based on play during these three rounds only. Within each of the selected rounds, one of the subjects in each triplet is randomly selected. The choices made by that player determine the payoffs of all three players in the triplet. This setup is akin to a generalized three-player dictator game. It incentivizes subjects to regard each round as a separate decision, independent of other decisions already made. It also ensures that payoffs are always feasible.

Since there are three subjects in a triplet and three rounds are selected at random, in expectation each subject receives a payoff corresponding to one of their choices.[7] Players who, in parts 2 and 3, elect not to join a group receive a payoff $\pi_{it} = e_{it}$. All these features are explained to subjects at the beginning of the experiment, and illustrated during three practice games. Before being told their final payoff, subjects answer a short questionnaire about their expectations regarding burning, stealing and giving by other participants.

The experiment was implemented in Kenya, Uganda and the United Kingdom. In Kenya, 11 sessions were run in March 2013 at the Busara laboratory in Nairobi. In Uganda, 9 sessions were run in April 2013 with coffee growers from the Masaka district. In the United Kingdom, 4 sessions were run in September 2014 at the Centre for Experimental Social Sciences at Nuffield College, Oxford. The number of participants in each session is 18. It follows that subjects in Kenya and the UK are more experienced with laboratory experiments than those in Uganda.

An additional set of sessions were run in Oxford in 2012. In these sessions, a protocol with more neutral words was used. Results from those sessions are briefly discussed in the empirical section. Our main findings hold across the two formulations of the experiment, suggesting that the framing did not significantly alter subject behavior, at least among UK students.

III. Conceptual framework

In this section, we relate our experimental design to the literature and we present testable predictions on how participants are expected to behave. We first discuss predictions regarding burning, stealing, and giving, conditional on being in a group; and then predictions about joining a group.

Burning, stealing and giving

Once subjects are in a group, the decision structure of the giving and stealing treatments are generalized versions of the dictator game (DG) and reverse dictator game (RDG), respectively – except that giving or stealing decisions are made for two other subjects instead of one. The DG has been used in countless experiments. In pairwise cases, equal sharing often is the modal

[7] Since selection of the decisive player is done independently for each of the three selected rounds, it is possible for one player's choice to be the selected one in more that one round. This raises the possibility that players may have considered all their decisions as part of a portfolio (as decribed in Bolton et al 1999). Given this, a better design to eliminate portfolio considerations may have been to set the experiment such that each player would have his/her decision selected only once. We did not do that to avoid causing confusion, mostly because of the difficulty of discussing probability concepts with less sophisticated experimental subjects. This being said, even if subjects were capable of computing probabilities, portfolio effects are quite small. The true probabilities implied by the description of our experimental setting to subjects is as follows: Pr(0 choices selected)= 29.6%; Pr(1 choice selected)= 44.4%; Pr(2 choices selected)= 22.2%; Pr(3 choices selected)= 3.7%. From this we see that, for subjects who understand probability well enough to calculate these values (something we were unable to do without a computer), they would conclude that the chance of affecting payoffs in multiple rounds is only 25.9%. From this we conclude that, while we cannot fully rule out portfolio effects, they are probably negligible.

decision, with the rest of the distribution between 0 and 50%. But there are some differences across cultures (e.g., Heinrich et al. 2004). Giving in the DG is often interpreted as evidence of altruism or warm glow, although it could also reflect adherence to sharing norms – in which case decisions may be sensitive to normative framing.

List (2007), Bardsley (2008), and Jakiela (2013) all use RDGs. If subjects only care about the distribution of final payoffs, DG and RDG should yield equivalent behavior. The above cited papers show that they do not: subjects often give more than they take. The common interpretation is that subjects behave as if the assignment of endowments generates quasi-ownership rights. Similar findings arise in dictator games where the giver and the recipient both receive an endowment: decisions depend on the initial division of endowments between players.

The generalized DG introduces an exchange rate parameter γ between what is given and what is received. Andreoni and Miller (2002) and Andreoni and Vesterlund (2001) show that the amount given falls as the cost of giving increases, a finding that is consistent with altruism but not with warm glow. Null (2011), however, find that a substantive fraction of subjects does not respond to γ, a behavior she interprets as indicative of warm glow. Fisman et al. (2007) uses a three-person dictator game where the price of redistribution varies across rounds. They find that sharing decisions vary across sub-populations. To the best of our knowledge, no experiment has examined whether the amount taken in the reverse-DG responds to the cost of taking.

The burning game was first introduced by Zizzo and Oswald (2001) to investigate invidious preferences.[8] The available evidence indicates that a small but non-negligible proportion of experimental subjects choose to destroy part of the endowment of others. This behavior is more common when the target of burning has a high endowment (e.g., Zizzo and Oswald 2001, Zizzo 2003, Kebede and Zizzo 2015) – a finding that is broadly consistent with inequality aversion (e.g., Fehr and Schmit 1999).

Building on the literature, we formally derive in appendix S2 how players are expected to behave in the burning, stealing and giving treatments for six preference functions commonly used in the literature: selfish; altruistic; efficiency-maximizing; invidious; inequality averse; and warm glow. These predictions were used to select parameters p and γ_b, γ_s and γ_g in Table 2 such that, if a player consistently follows one of these archetypes, the combination of choices made during the experiment reveals their type. The hope is that, by identifying a subject's preference type, we can better understand their decision to join a group.

The decision to join

The decision to join depends on the action that subjects plan to take, and on what they expect other subjects to do. In the giving treatment, players should join if they have any of the six preference archetypes discussed so far. Those who give nothing should join because doing so multiplies their payoff by $p > 1$, even if they expect to receive nothing. Those who wish to give should join because doing so increases their material payoff while at the same time increasing their utility through giving and, possibly, receiving. It is, however, possible that some subjects wish to avoid environments in which giving is possible, as documented for instance by Lazear et al. (2012). For such individuals, not joining may serve a guilt aversion purpose (e.g., Battigalli and Dufwenberg 2007).

In the burning treatment, only invidious players – and inequality averse players with a low endowment – derive utility from burning. Other players join if the material gain from joining is

[8] The option to destroy someone else's payoff has also been studied in the context of games in which subjects first observe the action of others. Destruction is then interpreted as punishment for violating a social norm. Here burning is decoupled from any punishment motivation.

larger than the expected loss from burning by other players. It follows that all players should be more likely to join if p is large and if they expect less burning by others.

In the stealing treatment things are more complicated. Players who plan to steal – according to Table S2.1 in the supplemental appendix, this is most of them – derive an expected utility gain from joining if their choice determines final payoffs. But they also expect a utility loss if other players steal from them and their choice is not selected. It follows that the decision to join should increase in p and decrease in the expectation of stealing by others. It should also decrease with the player's initial endowment in the round because someone with a low endowment has more to gain, and less to lose, from stealing. We present in appendix S3 a detailed analysis of the decision to join for different preference archetypes.

IV. Experimental results

Descriptive tables are presented first followed by regression anaysis and tests statistics. In this section we focus on findings that are common to the three subject pools; differences across pools are discussed in Section V.

Descriptive analysis

Average play is summarized in Table 3 while Table 4 summarizes expectations relative to other subjects' behavior.

We first examine behavior in Part 1. There are strong similarities across the three study populations: subjects burn little; they steal a lot; and they give very little. In the standard DG, players often give half of their endowment, de facto equalizing payoffs across players. Subjects in our giving treatment give much less than would be needed to equalize payoffs, even though giving is actually cheaper than in a DG game since giving \$1 to another subjects costs less than \$1. Our subjects also take much more than they give, a finding that is different from what has been observed elsewhere: subjects who play both the DG and the reverse-DG tend to take less than they give (e.g., List 2007; Bardsley 2008; Jakiela 2013). A salient difference with standard DG and reverse-DG experiments is that, in our experiment, both players receive an endowment, even though endowments typically differ. This may blunt the pressure to share. Similarly, the fact that subjects are told they are in a group may make taking from others more acceptable. In contrast, levels of burning are broadly comparable to those reported in the existing literature (e.g., Zizzo 2003, Zizzo and Oswald 2001, Kebede and Zizzo 2015).

In Part 2, joining increases one's payoff without affecting others, and is a dominant strategy. We indeed observe that most participants join, even if a sizeable proportion of Ugandan subjects do not. This could indicate that they understand or trust the experiment less well than more experienced subjects from the UK and Kenya, or have a general distaste for joining a group.

In Part 3, we see group participation drop relative to Part 2. This is true for all three treatments across the three study populations. This implies that, if joining a group opens new avenues for redistribution, individuals may refrain from joining even when it increases their endowment. This is true even though our experimental design rules out the kind of free riding or imperfect monitoring that arise in public good games. This result is reminiscent of Jakiela and Ozier (2016), whose experimental subjects prefer a low payoff that is unobservable to others, a finding indicative of a redistributive 'tax'. These authors, however, are unable to identify precisely which type of redistribution subjects seek to avoid. By comparing joining under different treatments in our experiment, we can ascertain which type of redistribution is most problematic for group formation.

We begin with the giving treatment. In Section III we argued that, for this treatment, joining is a dominant strategy for any type of other-regarding preference, as long as subjects only care about material payoffs. Not joining can, however, be explained by guilt aversion (e.g., Battigali and Dufwenberg 2009): it avoids regret at giving when others do not, and shame at not giving when others do. Table 3 shows that joining is far from universal in the giving treatment, and is lower than in Part 2 for two of the three populations. Since this cannot be reconciled with other-regarding preferences defined over final payoffs only, we conclude that a sizeable fraction of subjects have preferences over the process by which payoffs are assigned, and these preferences lead them to abstain from joining a profitable group in the giving treatment.

For the burning treatment, we have argued that not joining is optimal only for those who expect a large proportion of their endowment to be burnt. Selfish subjects, for instance, would have to expect 50% burning in order *not* to join a group. Table 1, Part 1, shows that the average proportion of the endowment that is burnt is much less than that in all three countries. Can we explain not joining by inaccurately high expectations of burning? Expectations are reported in Table 4. We see that 30 to 50% of the subjects expect some players to burn something. To compare expectations with behavior, we report, in the bottom half of the Table, the ratio of expectations relative to actual play. We see that, for burning, expectations are pessimistic, i.e., they exceed the frequency of burning.[9] From this we conclude that pessimistic expectations alone cannot account for subjects' reluctance to join a group in the burning treatment. A possible explanation is that subjects do not join in order to avoid the emotional cost of being burnt. Joining, however, has an added appeal for invidious subjects who intend to burn others' endowment. For this reason, we would expect a higher incidence of burning among those who voluntarily join a group in the burning treatment. This is indeed what we find in the last panel of Table 3 for two of the three study populations. The difference in incidence with Part 1 is small, however, probably because the proportion of invidious subjects is small to start with.

For the stealing treatment, we have shown in Section III that joining is optimal for subjects who intend to steal all of the endowment of others for the modal value of γ_s and p. For subjects who do not intend to steal, joining is optimal under the same conditions as in the burning treatment, that is, if they expect less than 50% of their endowment to be taken on average. From Table 4 we see that, except in the UK sessions, subjects on average ascribe a 50% chance that others would steal. From Table 3 we know that, depending on the country, between 26 and 37% of the endowment is stolen on average. It follows that joining is optimal for most subjects, the main exception being UK subjects who expect a higher incidence of theft. From Table 3, Part 3, we see that joining in the stealing treatment is high but not universal. Except for UK subjects, who hold high expectations of stealing, joining is higher in the stealing treatment than in the burning treatment. We also find that the incidence of stealing is higher among those who join in Part 3 than in Part 1 – a finding at prima facie consistent with the prediction that joining is more attractive for those who intend to steal.

Taken together, this evidence confirms that redistributive considerations are an impediment to the formation of an efficiency-enhancing group when joining facilitates redistribution among members. This arises even in the absence of free riding or imperfect monitoring. Behind these findings seems to be some form of preference over process: in the burning treatment subjects act as if they ascribe a subjective welfare cost to experiencing a destruction of their endowment by others that they could have avoided by not joining – something akin to regret aversion; and in the giving treatment, they demonstrate some reluctance to facing an intrinsic pressure to redistribute, as in Della Vigna et al. (2012). The surprise is that the fear of being 'taxed' by

[9] Furthermore,what is reported in Table 4 is the expectation of *some* burning, not the average amount burned, which presumably would not be 100% for those who burn.

others is not the only – or even the most pernicious – consideration: among the two African subject pools, joining is as common in the stealing treatment as in the giving treatment, and the difference between the two is not statistically significant.

Regression analysis

While our main findings come out directly from the descriptive analysis, the reader may worry that they are affected by differences in parameter values across subjects and treatments. To address this concern, we replicate the various panels of Table 3 in a regression format. A more detailed analysis also enables us to perform a finer analysis of the data. Robust standard errors are reported throughout, clustered at the session level.

Burning, stealing and giving

We begin with burning, stealing, and giving choices. Results are shown in Table 5. The dependent variable is τ_{ijt}, that is, the proportion of the endowment of player j that is burned or stolen by i or the proportion of i's endowment that is given to j. We pool decisions taken under Part 1 – when joining is automatic – and Part 3 – when joining is optional. But we interact regressors with the optional joining dummy, which is equivalent to having different average decisions for Parts 1 and 3.

We introduce dyad-specific choice parameters as additional regressors. These parameters are organized into four groups: the price of burning, stealing or giving (γ_{bt}, γ_{st} or γ_{gt}); the initial endowment of the player e_{it}; the gain from joining the group $e_{it}(p_t - 1)$; and the endowment of the other player $p_t e_{jt}$. To correct for differences in average endowment across sessions, we normalize the initial endowment, gain from joining, and endowment of the other players by the average endowment $\overline{e}_S$ in session S.[10] Since choice parameters are orthogonal to each other by design, similar results are obtained if we limit the regressors to one set of choice parameters at a time. All choice parameters are interacted with country dummies, except for the γ parameters, which show too little variation for interaction coefficients to be identified. We also include a dummy for the order in which choices are made – by design, subjects are always first asked about the other player with the largest initial endowment. The UK dummy is the omitted country category.

Results confirm that on average there is significantly more stealing when joining is optional (Part 3). There is also significantly less stealing when the price γ of stealing is high. This finding contradicts purely selfish preferences, which dictate stealing everything irrespective of the value of γ_s – but it is consistent with altruistic preferences, inequality aversion, or warm glow. In contradiction with theoretical predictions presented in appendix S2, we find no systematic variation in burning, stealing or giving as a function of own endowment. This is difficult to reconcile with inequality aversion, that is, with the idea that subjects seek to correct differences between their endowment and that of the other player. We find less stealing when the gain from joining the group is larger, and less giving to players with a large endowment – a finding consistent with altruism and inequality aversion. We also note less burning and stealing from the second j player, the one with a lower endowment $p_t e_{jt}$.

All these results are robust to alternative specifications such as adding round dummies. There seems to be no learning across rounds, which is to be expected given that no information was fed back to participants during the experiment.

[10] Formally, analysis is performed by replacing e_{it} with $\widetilde{e}_{it} \equiv \frac{e_{it}}{\overline{e}_S}$, where $\overline{e}_S \equiv \frac{1}{N_{i,t\in S}} \sum_{i,t\in S} e_{it}$ for session S. The gain from joining and the endowment of the other players are similarly divided by $\overline{e}_S$.

To investigate the findings further, we compare subjects' behavior to archetypes of selfish and other-regarding preferences discussed in the literature – i.e., altruistic and invidious preferences, inequality aversion, and warm glow. The details of the analysis are presented in appendix S2. We find that the burning, stealing and giving choices of most subjects do not satisfy any of these archetypes. This provides further confirmation that other-regarding preferences defined solely over final payoffs do a poor job of predicting behavior in our experiment. This opens the door to the possibility that subjects hold preferences over the process by which final payoffs are determined. More about this below.

Joining

Next we turn to the decision to join a group. We include regressors for the experimentally manipulated information known to the subject at the time the decision to join is made: the initial endowment of the subject e_{it}; the gain from joining $e_{it}(p_t - 1)$; and the price of burning, stealing or giving (γ_{bt}, γ_{st} or γ_{gt}), depending on the treatment. Results are presented in Table 6 separately for each of the three treatments, using a linear probability model with robust standard errors clustered by experimental session.

In the absence of redistribution issues, the aggregate efficiency gain from forming groups increases in $p_t \sum_i e_{it}$. We therefore would hope that the propensity to join a group is not decreasing in $e_{it}(p_t - 1)$. Because a higher p_t creates larger absolute differences between payoffs, however, it may also increase redistribution pressures. What do the results show?

For burning, we find in all three countries a lower propensity to join when $e_{it}(p_t - 1)$ is large. The effect is particularly large among African subjects. We also find that, among African subjects, the size of the initial endowment e_i has no additional effect on joining – the negative (but not significant) coefficient on e_i is reversed for Kenya and Uganda. This suggests that subjects expect more burning when they gain more from joining – suggesting that individuals who receive a larger share of efficiency gains fear becoming a target of envy.

For stealing, none of the $e_{it}(p_t - 1)$ is statistically significant, suggesting that the magnitude of p_t has no systematic effect on joining. But UK subjects with a large initial endowment e_i are significantly less likely to join. For the two African populations, the effect of e_{it} is either small or not present: the coefficient on own endowment is essentially cancelled out by interaction terms with the Kenya and Uganda dummies. From this we conclude that UK subjects with a high e_i refrain from joining in the stealing treatment, a finding that is in line with the idea that these subjects anticipate theft to be increasing with e_{it}, as hypothesized in the theory section.

For the giving treatment we find that African subjects are less likely to join when $e_{it}(p_t - 1)$ is large. We also find UK subjects to be less likely to join when their initial endowment e_i is higher (this effect is reversed for African subjects). Taken together, the evidence indicates that subjects have a lower willingness to join when one's ability to give is higher. This finding is difficult to reconcile with altruistic preferences of any kind, but it can be accounted for by a reluctance to face an implicit pressure to redistribute, as in Della Vigna et al. (2012).

Table 6 also reports the sensitivity of joining to the cost of redistribution γ. We see that participants are more likely to join a group in the burning treatment if the price of burning γ_b is high. This may reflect the fact that in that case individuals expect less burning from others, making it safer to join the group. In contrast, participants are less likely to join a group if the price of stealing γ_s is high. If subjects thought that a high γ_s would deter stealing by others, they should be more likely to join. Since we observe the opposite, this suggests that the average subject joins in the hope of stealing from others – and steals more when γ_s is low, as we have seen in Table 5. Finally, we find that subjects are less likely to join in the giving

treatment if the price of giving γ_g is high. Since $p_t > 1$ joining is always optimal for any subject with consequentialist preferences. Hence an explanation for this finding must rest in process preferences, but it is not clear which.

Introducing expectations

As discussed in Section III, the decision to join should partly depend on how subjects expect other participants to behave. If they expect others to burn or steal their endowment, they should be more reluctant to join a group in these two treatments. In contrast, if they expect to receive a lot from others, they should be more willing to join in the giving treatment. To investigate this idea, we re-estimate Table 6 with additional regressors for subjects' expectation of play by other participants, on its own and interacted with country dummies.

For this regression to be fully convincing, we must control for the subject's intended play. To illustrate the issue, remember that people who intend to steal have an incentive to join in the stealing treatment. Now imagine that subjects who expect others to steal also steal a lot themselves. If we control for expectations but not own play, we may falsely assign to a high expectation of stealing by others a behavior that is in fact driven by an intention to steal from others. To correct for this, we construct a variable that summarizes each participant's burning, stealing, and giving decisions made in Part 1. Since subjects receive no feedback about others' play during the experiment, play in Part 1 should be a good proxy for intended play in Part 3.

Regression results are summarized in Table 7. We find no pattern regarding the stealing treatment. African subjects are slightly more likely to join in the giving treatment when they expect to receive more, as hypothesized earlier. But the effect is only significant for Kenya. Results are stronger in the burning treatment: joining is less likely for UK subjects who expect more burning, as would be predicted by theory. But the effect is absent among Kenyan and Ugandan subjects who, other things being equal, are much less likely to join in a burning treatment. We also find that UK subjects who burned a lot in Part 1 are less likely to join a burning treatment in Part 3. This effect, however, is reversed in the other two countries: subjects who burned more in Part 1 are more likely to join a group in the burning treatment. This latter finding is consistent with theoretical predictions, suggesting that their desire to burn partly motivates their decision to join.

In results not shown here, we also examine whether expectations of others' play help predict own play in Part 1 and Part 3 of the experiment. We find in the UK study population a strong association between own play and own expectation of others' play. This is true in all treatments and in both parts of the experiment although, in the two African study pools, this association is weaker.

V. Conclusions

In this paper we have reported the results from a laboratory experiment conducted with different subject pools in Kenya, Uganda, and the United Kingdom. We test whether subjects are less likely to join a group when doing so increases their endowment but exposes them to one of three redistributive treatments: burning, stealing, or giving. We also test whether people in a group choose to destroy or steal the endowment of others, and whether they choose to give some of their endowment to others. The experimental setting precludes any feedback between subjects during and at the end of the experiment. Play is anonymous and subjects never play twice with the same subject within the same part of the experiment.

We find a lot of commonality across the three subject populations in terms of redistributive

behavior: little giving and burning, more stealing. Our main finding is that exposure to redistributive pressures among group members operates as a disincentive to join a group. Perhaps unexpectedly, this finding obtains under all three treatments – including when the pressure to redistribute is purely intrinsic, as in the giving treatment. We also find much less giving in our giving treatment than in a typical dictator game, and more appropriation in the stealing treatment than in a typical reverse-dictator game. Burning, on the other hand, is broadly consistent with existing experimental evidence. The data also shows that all subjects expect more burning, stealing, and giving than actually takes place. These findings are common across all three subject pools, indicating that they are not specific to African or UK subjects.

By drawing Kenya and Uganda subjects from a broad cross-section of urban and rural Africans, we hope that their actions in the experiment are indicative of the behavioral motivations of individuals similar to them outside the lab. If so, our results suggest that the formation of efficiency-enhancing groups is hindered whenever group membership opens the door to redistributive pressures – including the internalized pressure to give.

Although much behavior is similar across the African and UK subjects, there are some differences. Why this is the case is unclear since these subject populations differ along several dimensions. We find that UK subjects are less likely to join the group when in the stealing treatment, and that African subjects are particular concerned about payoff destruction by others. In fact, only 42% of Ugandan subjects join a group under the burning treatment, even though burning is fairly uncommon in practice. If we combine this finding with the observation that burning expectations would have to be higher than they appear to be to explain not joining, we are left with the conjecture that African subjects derive a large utility loss from exposing themselves to prospect of payoff destruction by others – a type of behavior suggestive of regret aversion. This is confirmed by the fact that African subjects are least likely to join in the burning treatment when they have a larger endowment or gain more from joining a group.

While our findings are broadly consistent with earlier work on sharing norms and redistributive 'taxes' (e.g., Jakiela and Ozier 2016, Goldberg 2016), they demonstrate that redistribution need not take the form of an imposed transfer of the type allowed in the stealing treatment. Other forms of redistribution matter equally if not more – especially destructive forms of redistribution in which payoffs are dissipated. In spite of the thousands of miles separating our subjects from native Americans of the North West, this observation brings to mind the *potlatch*, a practice by which economic surplus is ceremonially burned or otherwise destroyed on a regular basis (e.g., Mauss 1923-4).

We also note in passing that UK subjects tended to steal more and give less than subjects in either African sample. African subjects expect less stealing and more giving than the UK subjects. Why this is the case is unclear – but it does not support the view either that individuals in Africa are uniformly less altruistic[11] or that redistributive pressures are unusually strong in Africa – at least compared to the UK college students participating to our experiment. This makes our findings about group formation even the more striking.

Our findings have relevance for public policy, particularly in Kenya and Uganda and other parts of the developing world where formalized social insurance systems are weak and where various forms of ad hoc redistribution are relied upon to help those in need. The widespread presence of informal redistribution has for instance been listed by Ugandan policy makers as justification for not investing in formal, public insurance. The results of our work indicate that informal redistribution can have adverse effects. Redistributive pressures discourage the formation of groups – e.g., business partnerships, farmers' cooperatives, self-help groups – that

[11] See Heinrich et al. (2004) for international comparisons of altruistic behavior.

bring about Pareto gains.

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Table 1: Overall structure of the experiment

	Part 1	Part 2	Part 3
Joining is a choice	No	Yes	Yes
Number of rounds	5	1	5
Number of burning rounds	1	0	1
Number of stealing rounds	3	0	2
Number of giving rounds	1	0	2

Table 2: Treatment and parameter values across rounds

Session type:		A			B			C			D		
	round	**treatment**	**γ**	**p**	**treatment**	**γ**	**p**	**treatment**	**γ**	**p**	**treatment**	**γ**	**p**
Part 1	1	Burning	0.05		Stealing	0.5		Stealing	0.9		Stealing	0.9	
	2	Stealing	0.7		Stealing	0.7		Giving	0.7		Stealing	1.2	
	3	Stealing	1		Burning	0.05		Stealing	0.3		Giving	0.7	
	4	Stealing	0.9		Stealing	0.1		Stealing	1.2		Burning	0.05	
	5	Giving	0.4		Giving	0.4		Burning	0.05		Stealing	0.3	
Part 2	1			1.5			1.5			1.5			1.5
Part 3	1	Giving	0.4	1.25	Giving	0.05	1.05	Giving	0.9	1.05	Giving	0.9	1.05
	2	Burning	0.05	1.25	Giving	0.4	1.25	Burning	0.1	2	Stealing	0.5	1.25
	3	Stealing	0.9	1.05	Stealing	0.3	1.5	Stealing	0.5	1.25	Burning	0.1	2
	4	Giving	0.1	1.5	Burning	0.1	2	Giving	0.4	2	Giving	0.4	2
	5	Stealing	0.9	1.5	Stealing	0.5	1.25	Stealing	0.3	1.25	Stealing	0.3	1.25

Note: all session types (A, B, C and D) were repeated twice in Kenya and Uganda and once in the UK.

Table 3. Summary of play

	UK		Kenya		Uganda	
	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.
Part 1: Joining imposed:						
Average share of the endowment that is:						
Burnt in burning treatment	7.8%	144	4.8%	198	10.7%	162
Stolen in stealing treatment	37.4%	432	23.4%	594	26.3%	486
Given in giving treatment	0.7%	144	4.6%	198	8.4%	162
Part 2: Joining only:						
Percentage of subjects joining:	95.8%	144	94.4%	198	82.1%	162
Part 3: Joining + transfers:						
a. Percentage of subjects joining in:						
Burning treatment	82.6%	144	59.6%	198	42.0%	162
Stealing treatment	64.6%	288	82.5%	360	74.8%	306
Giving treatment	81.6%	288	75.7%	378	82.4%	324
b. Average share of the endowment:						
Burnt in burning treatment	5.9%	111	6.7%	97	17.6%	39
Stolen in stealing treatment	70.3%	167	41.0%	284	38.5%	211
Given in giving treatment	0.8%	235	7.1%	286	8.2%	267

Source: Authors analysis based on data described in the text. Note: The average share of the endowment that is burnt, stolen or given is calculated as the average of the choices made by the subject for the other two players in the group. We thus have one observation per subject per round.

Table 4. Expectations of others' behavior

	UK		Kenya		Uganda	
	Mean	N.obs.	Mean	N.obs.	Mean	N.obs.
Percentage of subjects responding 'yes' when asked whether other will…						
Burn their endowment	29.6	144	42.4	198	51.5	145
Steal their endowment	76.9	144	53.6	126	54.7	145
Give to them	12.9	144	39.9	126	52.0	145
Percentage of subjects responding `yes' when asked whether others expect them to give.						
Giving norm	17.9	144	47.0	126	45.4	145
Ratio Expectation to Part 1 play						
Burning	3.8		8.8		4.8	
Stealing	2.1		2.3		2.1	
Giving	18.4		8.7		6.2	

Source: Authors analysis based on data described in the text. Note: Some expectation questions were not asked to Kenyan participants in the first two sessions because of a technical glitch, hence the smaller number of observations. Differences between Oxford and the two African samples are statistically significant using either a t-test, or a joint significance test in regressions of answers on country dummies with session clustering.

Table 5. Burning, stealing and giving by treatment

	(2) Burning	(4) Stealing	(6) Giving
Kenya	-0.069	-0.094	0.047
	(-0.827)	(-1.289)	(1.499)
Uganda	-0.108	**-0.147***	0.044
	(-1.148)	(-1.750)	(1.278)
Dummy for optional joining	-0.023	**0.181*****	0.000
	(-0.344)	(4.674)	(0.053)
Kenya x optional joining dummy	0.052	**-0.110****	0.016
	(0.867)	(-2.095)	(1.524)
Uganda x optional joining dummy	0.068	**-0.163*****	0.011
	(0.918)	(-2.826)	(0.695)
γ	-1.865	**-0.319*****	-0.008
	(-1.033)	(-7.760)	(-0.349)
Initial endowment	-0.173	0.096	0.002
	(-1.440)	(0.866)	(0.349)
Kenya x initial endowment	0.046	-0.116	-0.020
	(0.462)	(-0.868)	(-0.830)
Uganda x initial endowment	-0.101	-0.128	0.012
	(-0.672)	(-0.945)	(0.346)
Gain from joining	0.174	**-0.339***	0.003
	(1.083)	(-1.797)	(0.337)
Kenya x gain from joining	-0.013	0.317	-0.023
	(-0.088)	(1.304)	(-0.864)
Uganda x gain from joining	0.396*	0.307	0.012
	(1.730)	(1.207)	(0.351)
Endowment of other player	0.022	**0.055*****	**-0.019****
	(1.025)	(3.208)	(-2.148)
Kenya x endowment of other player	-0.001	**-0.082*****	0.024
	(-0.032)	(-4.667)	(1.388)
Uganda x endowment of other player	0.034	0.012	0.014
	(0.814)	(0.508)	(0.848)
Dummy for rank = 2	-0.003	-0.022	-0.005
	(-0.230)	(-1.491)	(-1.077)
Constant	0.238*	0.635***	0.030
	(1.707)	(8.501)	(1.459)
Observations	1,426	4,112	2,290
R-squared	0.045	0.161	0.054

Source: Authors analysis based on data described in the text. Note: The dependent variable is the share of the endowment of *j* that is burnt or stolen by *i*, or the share of the endowment of *i* that is given to *j*. Each decision of subject *i* is a separate observation. Each regression is estimated using a linear probability model. This ensures that each coefficient can be interpreted as the marginal effect of the regressor on average burning, stealing or giving. Gain from joining = (p-1)*e_i. Standard errors are clustered at the session level. *t*-statistics appear in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6. Joining by treatment

	(1) Burning	(2) Stealing	(3) Giving
Kenya	0.346	**0.467*** **	**0.389*** **
	(1.630)	(3.781)	(11.820)
Uganda	**-0.378*** **	-0.079	-0.026
	(-3.549)	(-0.809)	(-0.377)
Gain from joining	**-0.288** **	-0.061	0.080
	(-2.181)	(-0.505)	(1.184)
Kenya x gain from joining	**-0.474*** **	-0.091	**-0.446*** **
	(-3.224)	(-0.219)	(-5.921)
Uganda x gain from joining	**-0.852** **	-0.452	**-0.446*** **
	(-2.310)	(-1.487)	(-6.903)
Initial endowment	-0.345	**-0.464*** **	**-0.110** **
	(-1.618)	(-4.762)	(-2.356)
Kenya x initial endowment	**0.586*** **	**0.385** **	**0.136** **
	(3.559)	(2.438)	(2.223)
Uganda x initial endowment	0.537	**0.353** **	0.077
	(1.546)	(2.512)	(0.827)
γ	**4.376* **	**-0.251*** **	**-0.210*** **
	(1.840)	(-3.108)	(-3.150)
Constant	0.487**	1.010***	0.882***
	(2.100)	(10.760)	(17.530)
Observations	504	954	990
R-squared	0.161	0.069	0.055

Source: Authors analysis based on data described in the text. Note: The dependent variable is 1 if subject *i* joins the group, 0 otherwise. Each regression is estimated using a linear probability model. This ensures that each coefficient can be interpreted as the marginal effect of the regressor on the probability of joining. Gain from joining = (p-1)*e_i. Standard errors are clustered at the session level. *t*-statistics appear in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7. Joining, expectations, and past play

	(1) Burning	(2) Stealing	(3) Giving
Expected burning/stealing/receiving	**-0.268****	0.029	-0.066
	(-2.417)	(0.148)	(-0.679)
Kenya x expected burning/stealing/receiving	**0.440****	0.168	**0.219***
	(2.536)	(0.836)	(1.898)
Uganda x expected burning/stealing/receiving	**0.278***	0.060	0.109
	(1.986)	(0.272)	(0.853)
Own past burning/stealing/giving	**-0.290****	-0.021	0.298
	(-2.243)	(-0.173)	(0.755)
Kenya x own past burning/stealing/giving	**0.581****	0.193	0.081
	(2.589)	(1.349)	(0.188)
Uganda x own past burning/stealing/giving	**0.539*****	0.307	-0.020
	(2.913)	(1.675)	(-0.048)
Other regressors (*)	YES	YES	YES
Observations	487	829	830
R-squared	0.214	0.098	0.083

Source: Authors analysis based on data described in the text. Note: (*) Other regressors included in the regressions are as in Table 6: Kenya dummy, Uganda dummy, gain from joining, Kenya dummy x gain from joining, Uganda dummy x gain from joining, initial endowment, initial endowment x Kenya dummy, initial endowment x Uganda dummy, γ. The dependent variable is 1 if subject *i* joins the group, 0 otherwise. Each regression is estimated using a linear probability model. This ensures that each coefficient can be interpreted as the marginal effect of the regressor on the probability of joining. Gain from joining = (p-1)*e_i. Standard errors are clustered at the session level. *t*-statistics appear in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Supplemental Appendix S1: Experimental Protocol

The experiment was implemented using z-tree (Fischbacher 1999) and designed for use with touchscreen tablets, so that people who are not familiar with using computers can easily be instructed how to play. The screens were made as visual as possible to facilitate play by those with limited levels of formal education. In all sessions the instructions were read out to maximize the chance that they are properly understood.[1] The script used and examples of screen shots seen by the participants at different points of the game is given below.

First, a couple of comments on the language used in the experiment and translations. The words used to describe each treatment were selected to be as neutral as possible whilst being understandable by subjects from different backgrounds. This requires the use of more direct language than might have been used with university students. In the burning treatment, subjects were told that they have the opportunity to `confiscate' some of the endowment of other players. This word was chosen after a short pilot in Kenya because players associate it with the action of, say, a primary school teacher who, by confiscating an object, de facto makes it unavailable to all. The term `confiscate' is more neutral than `destroy' which would have been understood as well, but has a more negative connotation. In the stealing treatment, subjects were told they have the opportunity to `take' some of their group members' endowments. This is easier for the subjects to understand than `appropriate', but more neutral than `steal'. In the giving treatment subjects were told that they have the opportunity to `give'. This is less neutral but more understandable than `transfer'.[2]

In both sets of African sessions, the script was translated into the local language (Swahili in Nairobi and Luganda in Masaka). Considerable care was taken to keep the meaning of these words the same. This was achieved by discussing the script carefully with session leaders and by having the same experimental assistant present in all African sessions of the experiment.

Introduction

Welcome. Thank you for participating in this experiment.

In today's experiment you will be asked to make choices on a computer screen. You will see a question on the screen and then you will asked to touch the screen to choose your answer to the question (just like on a smartphone).

We will be asking you to make two types of decisions today.

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[1] We tested whether including the education level of the subject is significantly predictive of play in the game, or whether controlling for education alters the findings. Education has no significant explanatory power in accounting for players' actions, suggesting that we succeeded in making the games well understood by participants irrespective of their education level.

[2] Initial sessions conducted in the fall of 2012 in the UK used a z-tree program with a more standard screen with no colors and neutral language throughout -- e.g., `to eliminate' rather than `to confiscate', `to appropriate' rather than `to take'; and `to transfer' rather than `to give'.

First we will put you in a group with two other people in this room. You will not know who is in your group and other people will not know if you are in their group. You and the other two people will be given some money. You will be told how much you have been given. You will also be told how much the other two people in your group have been given. You will then be asked if you want to change the amount of money that other people in your group have.

There are three different ways that we will allow you change the amount of money that other people in your group have:

- Sometimes we will ask you if you want to GIVE money to other people in your group from the money that you have.
- Sometimes we will ask you if you want to TAKE money from other people in your group and add it to the money that you have.
- Sometimes we will ask you if you want to CONFISCATE money other people in your group have. No-one will have this money then.

You will be charged for changing the amount of money someone in your group has. For example if you decide to GIVE someone 20 shillings from your own money you might have to pay a 2 Shillings charge to do this. We will tell you the size of the charge before you have to make the choice.

So, this is one type of decision that we will ask you to make: changing the amount of money that other people in your group have.

The other type of decision we will ask you to make today is whether or not you want to join a group. Again you will be given money. You will be given the choice of keeping that money and not joining a group. OR joining a group and getting more money. If you join a group you might be given the chance to change the amount of money that other people in your group have.

There are three parts to this experiment. In the first part you will be asked to change the amount of money other people in your group have. In the second part of the experiment you will be asked whether or not you want to join a group. In the last part of the experiment you will be asked to make both choices: first whether or not you want to join a group and then whether you want to change the amount of money other people in your group have.

In the first part of the experiment there will be five rounds of play. In the second part of the experiment there will be one round of play. In the third part of the experiment there will be five rounds of play.

Practice rounds

Let me describe the first type of choice you are going to make today a bit more and give you some practice at making this type of choice.

We will put you in a group with two other people in this room. The other people in your group will be selected by a lottery. You will not know who is in your group and other people will not know if you are in their group. As we go through the experiment today you will be put in lots of different groups with people in this room. For each part of the experiment you will never be put in a group twice with the same person. Look at two people in the room. Imagine they are in a group with them during the first

round. These two people will not be in the same group as you again during the first part of the experiment. Is that clear?

Press the GREEN OK square.

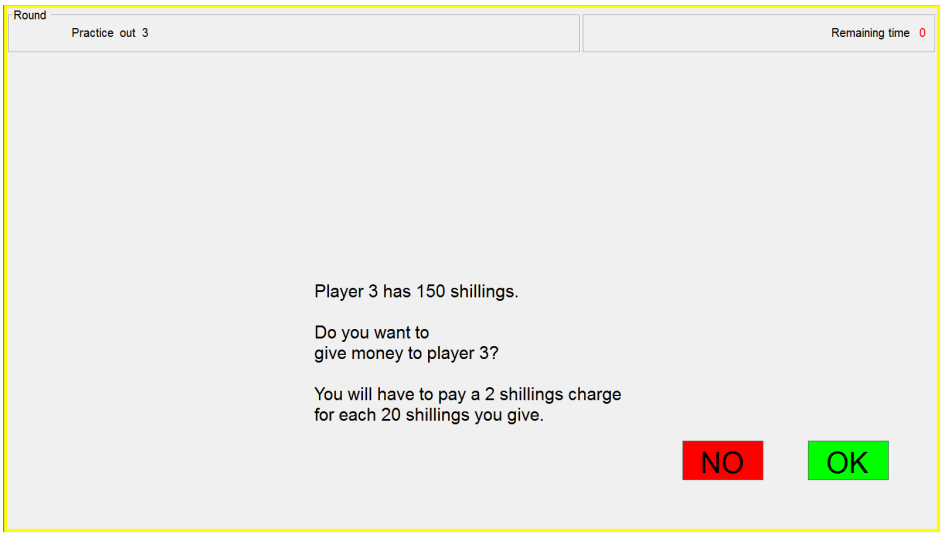
First practice round

You will now see that you have been matched with two other people in the room. As you can see you and the other people in your group have been given some money. The money that you have been given is written in the blue square. The money that the other people in your group have been given is written in the yellow and the orange square. You might have the same amount as the other people in your group or you might have more or less.

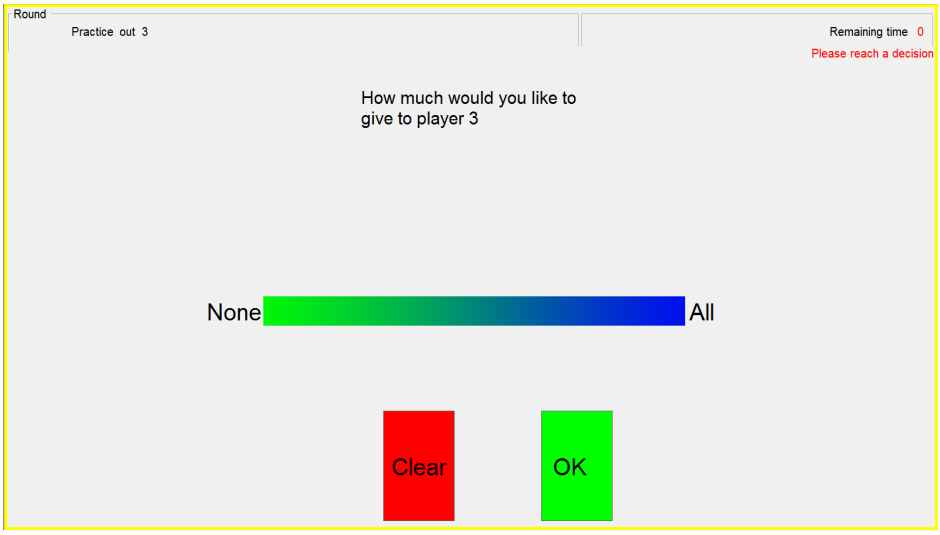
Once you have read everything on your screen press the GREEN OK square.

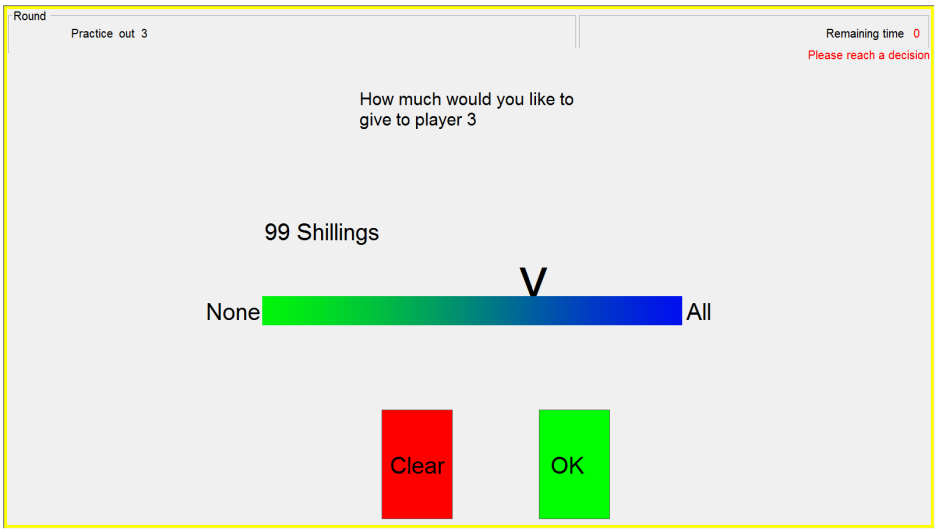
You are now being asked if you want to change the amount of money that other people in your group have. You are being asked if you want to GIVE money to other people in your group from the money that you have. If you GIVE money you will be charged for transferring money. At the moment the charge for GIVING money is 2 shillings for every 20 Shillings GIVEN. So if you want to GIVE 40 Shillings from your money to another player in your group you will have to pay 40 Shillings plus a 4 Shilling charge. What will you have to pay if you GIVE 60 shillings?

If you want to GIVE money to this player click the GREEN OK button. If you do not want to GIVE money to this player click the RED NO button.



If you clicked the GREEN OK button you will now have to say how much money you would like to GIVE to this player. As you move your finger to the blue end of the scale you will be GIVING more money to the other player. Once you are happy with the amount that is shown on the screen click the GREEN OK button. If you want to start again click the RED CLEAR button and then choose a value again.



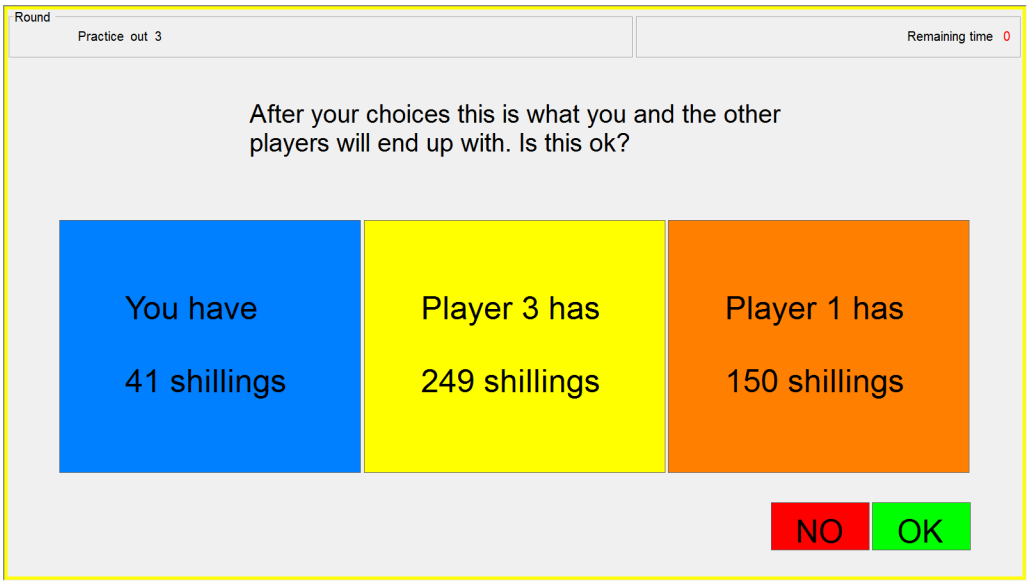


Now you have to decide how much money you would like to GIVE to the other player in your group. Again you will have to pay a 2 Shilling charge for every 20 shillings GIVEN. If you want to GIVE money to this player click the GREEN OK button. If you do not want to GIVE money to this player click the RED NO button.

If you clicked the GREEN OK button you will now have to say how much money you would like to GIVE to this player. As you move your finger to the blue end of the scale you will be GIVING more money to the other player. Once you are happy with the amount that is shown on the screen click the GREEN OK button. If you want to start again click the RED CLEAR button and then choose a value again.

Now you have made your choices about how much money to GIVE to each player you will see a summary of the money you have left in blue square and the money that the other two players will have in the yellow and orange squares. If you are happy with the choices that you made press the GREEN OK button. If you are not happy with the choices that you made and would like to make choices again press the RED GO BACK button. You will now have the chance to make your choices about how much to GIVE again.

Once you are happy with the choices that you made and have pressed the GREEN OK button you will have finished this first practice round.



Any questions before we move onto the second practice round?

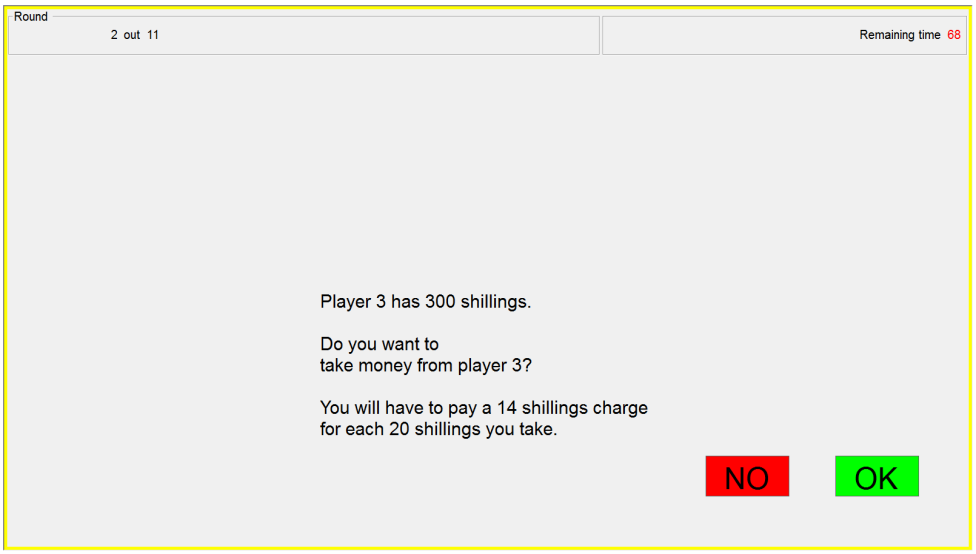
Second practice round

You are now in the second practice round. Again you have been put in a group with two other people in this room. The money you have been given is written in the blue square and the money that the other two people have been given is written in the yellow and orange squares. Press the GREEN OK button once you have read this information.

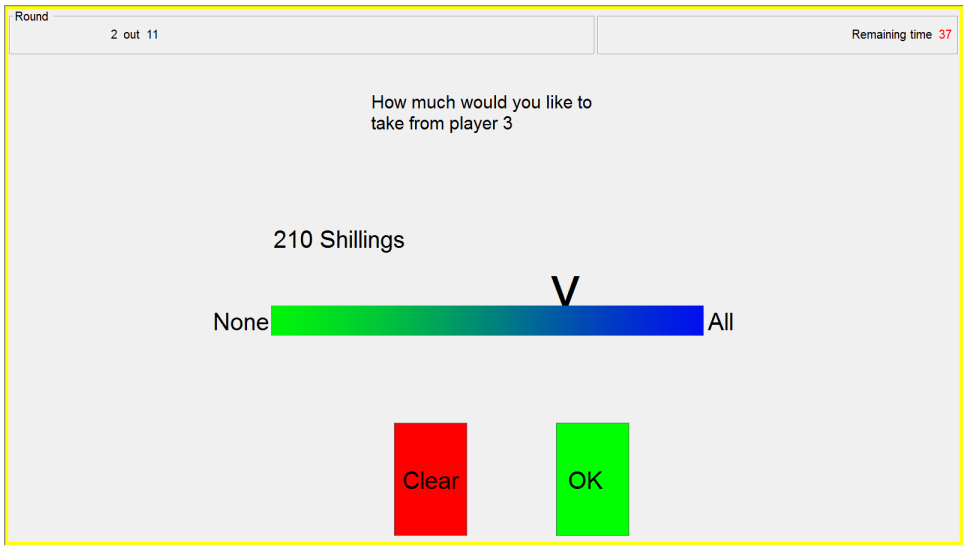
You are now being asked if you want to change the amount of money that other people in your group have. You are being asked if you want to TAKE money from the other people in your group and add it to the money you have. If you TAKE money you will be charged for transferring money. At the moment the charge for TAKING money is 14 Shillings for every 20 Shillings TAKEN. So if you want to TAKE 40 Shillings from another player in your group and add it to your money you will have to pay 28 Shillings. You will

take 40 Shillings for yourself but then pay a 28 Shillings charge, so you will only add 12 shillings to what you have. What charge will you have to pay if you TAKE 60 shillings? How much extra money would you have?

If you want to TAKE money from this player and add it to what you have click the GREEN OK button. If you do not want to TAKE money from this player click the RED NO button.

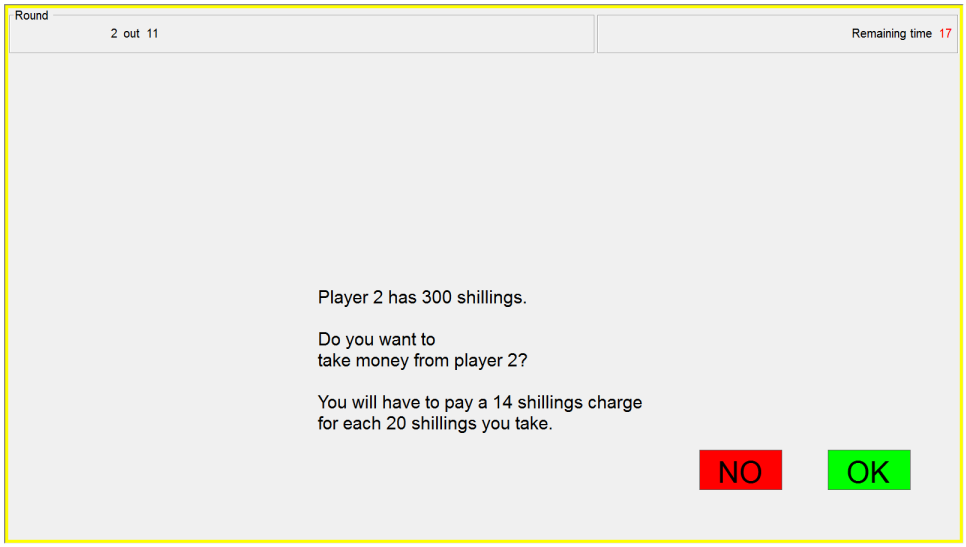


If you clicked the GREEN OK button you will now have to say how much money you would like to TAKE from this player. As you move your finger to the blue end of the scale you will be TAKING more money from the other player. Once you are happy with the amount that is shown on the screen click the GREEN OK button. If you want to start again click the RED CLEAR button and then choose a value again.



Now you have to decide how much money you would like to TAKE from the other player in your group and add it to what you have. Again you will have to pay a 14 Shilling charge for every 20 shillings TAKEN.

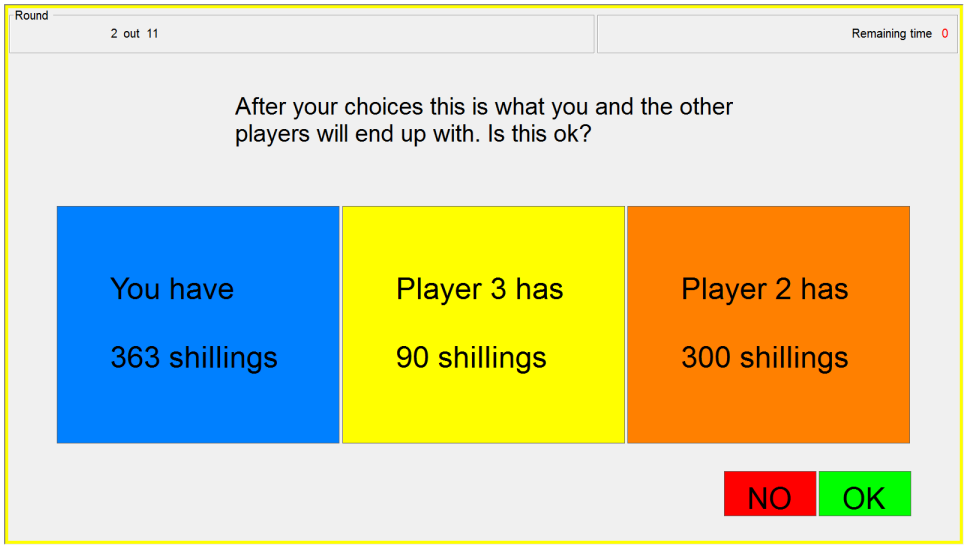
If you want to TAKE money from this player click the GREEN OK button. If you do not want to TAKE money from this player click the RED NO button.



If you clicked the GREEN OK button you will now have to say how much money you would like to TAKE from this player. As you move your finger to the blue end of the scale you will be TAKING more money from the other player. Once you are happy with the amount that is shown on the screen click the GREEN OK button. If you want to start again click the RED CLEAR button and then choose a value again.

Now you have made your choices about how much money to TAKE from each player you will see a summary of the money you have in the blue square and the money that the other two players will have in the yellow and orange squares. If you are happy with the choices that you made press the GREEN OK button. If you are not happy with the choices that you made and would like to make choices again press the RED GO BACK button. You will now have the chance to make your choices about how much to TAKE again.

Once you are happy with the choices that you made and have pressed the GREEN OK button you will have finished this second practice round.



Any questions before we move onto the third and final practice round?

Third practice round

You are now in the third practice round. Again you have been put in a group with two other people in this room. The money you have been given is written in the blue square and the money that the other two people have been given is written in the yellow and orange squares. Press the GREEN OK button once you have read this information.

You are now being asked if you want to change the amount of money that other people in your group have. You are being asked if you want to CONFISCATE money from the other people in your group. If you CONFISCATE money from other players the other player will not have it and you will not have it—no-one will have it. If you CONFISCATE money you will be charged. At the moment the charge for

CONFISCATING money is 1 Shilling for every 20 Shillings CONFISCATED. So if you want to CONFISCATE 40 Shillings from another player in your group you will have to pay 2 Shillings. What charge will you have to pay if you CONFISCATE 60 shillings?

If you want to CONFISCATE money from this player click the GREEN OK button. If you do not want to CONFISCATE money from this player click the RED NO button.

If you clicked the GREEN OK button you will now have to say how much money you would like to CONFISCATE from this player. As you move your finger to the blue end of the scale you will be CONFISCATING more money from the other player. Once you are happy with the amount that is shown on the screen click the GREEN OK button. If you want to start again click the RED CLEAR button and then choose a value again.

Now you have to decide how much money you would like to CONFISCATE from the other player in your group. Again you will have to pay a 1 Shilling charge for every 20 Shillings CONFISCATED. If you want to CONFISCATE money from this player click the GREEN OK button. If you do not want to CONFISCATE money from this player click the RED NO button.

If you clicked the GREEN OK button you will now have to say how much money you would like to CONFISCATE from this player. As you move your finger to the blue end of the scale you will be CONFISCATING more money from the other player. Once you are happy with the amount that is shown on the screen click the GREEN OK button. If you want to start again click the RED CLEAR button and then choose a value again.

Now you have made your choices about how much money to CONFISCATE from each player you will see a summary of the money you have in the blue square and the money that the other two players will have in the yellow and orange squares. If you are happy with the choices that you made press the GREEN OK button. If you are not happy with the choices that you made and would like to make choices again press the RED GO BACK button. You will now have the chance to make your choices about how much to CONFISCATE again.

Once you are happy with the choices that you made and have pressed the GREEN OK button you will have finished this third and final practice round.

Any questions before we move onto the first part of the real experiment?

Additional information

Before we start the real experiment there are three other things about this experiment that we want to tell you:

- Each time that you have been in a group you have made a choice about what you and the other two people in your group will have. The other people in your group have also been making a choice about what they would like to have and what they would like you to have. The computer will decide whether to use your choices about GIVING, TAKING or CONFISCATING or the choices of one of the other players in the group. The computer will use a lottery to decide whether or not to take your choice or the choice of the other players.
- You will be making choices about real money today. It is important that you make each choice carefully because what you are paid today will depend on the choices that you make. Remember we told you that there would be 11 rounds of play today? The computer is going to pick 3 of those rounds and you will be paid based on the choices that you or the other players in the group made in those rounds. When you have finished the experiment the computer will use a lottery to decide which rounds to pick.
- No other player will be told about the choices that you make. Your choices are being made in secret, known only to you.

Part 1

[To be repeated 5 times with the text in green appropriately defined.]

The money you have been given is written in the blue square and the money that the other two people in your group have been given is written in the yellow and orange squares. Press the GREEN OK button once you have read this information.

You are now being asked if you want to GIVE money to / TAKE money from / CONFISCATE money from one of the other people in your group. The charge for GIVING/TAKING/CONFISCATING money is 5

shillings for every 20 Shillings GIVEN/TAKEN/CONFISCATED. If you want to GIVE money to / TAKE money from / CONFISCATE money from this player click the GREEN OK button. If you do not want to GIVE money to / TAKE money from / CONFISCATE money from this player click the RED NO button.

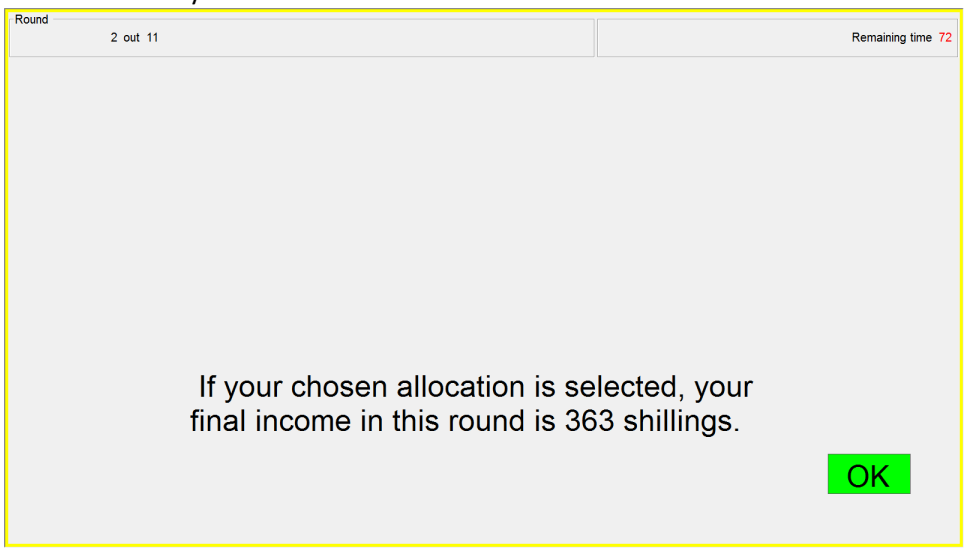
If you clicked the GREEN OK button you will now have to say how much money you would like to GIVE to / TAKE from / CONFISCATE from this player. As you move your finger to the blue end of the scale you will be GIVING/TAKING/CONFISCATING more money to/from/from the other player. Once you are happy with the amount that is shown on the screen click the GREEN OK button. If you want to start again click the RED CLEAR button and then choose a value again.

Now you have to decide how much money you would like to GIVE to / TAKE from / CONFISCATE from the other player in your group. Again you will have to pay a 5 Shillings charge for every 20 shillings GIVEN/TAKEN/CONFISCATED. If you want to GIVE money to / TAKE money from / CONFISCATE money from this player click the GREEN OK button. If you do not want to GIVE money to / TAKE money from / CONFISCATE money from this player click the RED NO button.

If you clicked the GREEN OK button you will now have to say how much money you would like to GIVE to / TAKE from / CONFISCATE from this player. As you move your finger to the blue end of the scale you will be GIVING/TAKING/CONFISCATING more money to/from/from the other player. Once you are happy with the amount that is shown on the screen click the GREEN OK button. If you want to start again click the RED CLEAR button and then choose a value again.

Now you have made your choices about how much money to GIVE to / TAKE from / CONFISCATE from each player you will see a summary of the money you have in the blue square and the money that the other two players will have in the yellow and orange squares. If you are not happy with the choices that you made and would like to make choices again press the RED GO BACK button. You will now have the chance to make your choices about how much to GIVE/TAKE/CONFISCATE again. If you are happy with the choices that you made press the GREEN OK button.

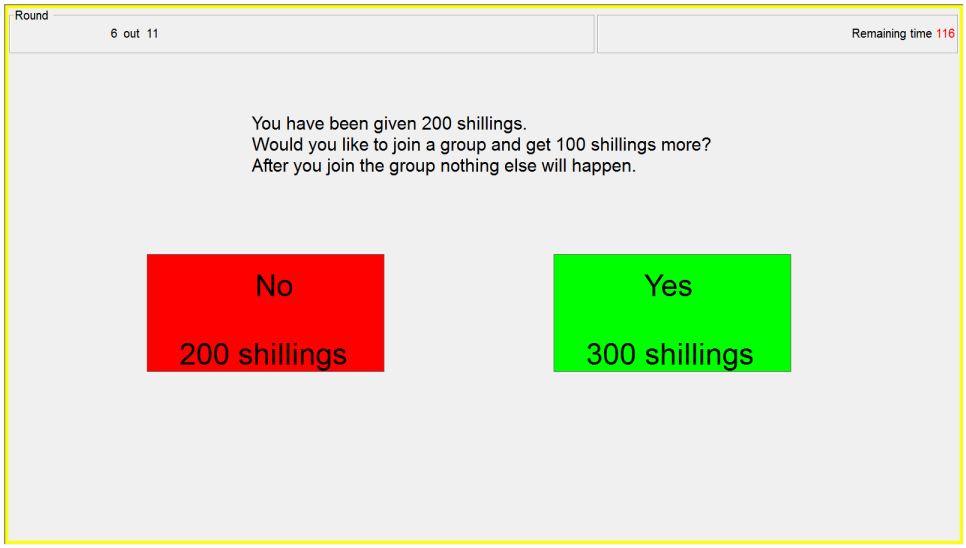
You are now being told how much money you will receive if your choice and this round is chosen. Press the GREEN OK button once you have read this information.



Part 2

This part of the experiment has one round in which you decide whether or not to join a group. Again you will be given money. You will be given the choice of keeping that money and not joining a group. OR joining a group and getting more money. Press the GREEN OK button to continue.

The amount of money you have been given is written on the screen. You can choose whether to keep that money or whether to receive 50% more by joining a group. If you do not want to join the group, press the red square. You will stay with the amount of money you were given. If you want to join the group and get more money, press the green square.



You are now being told how much money you will receive if this round is chosen. Press the GREEN OK button once you have read this information.

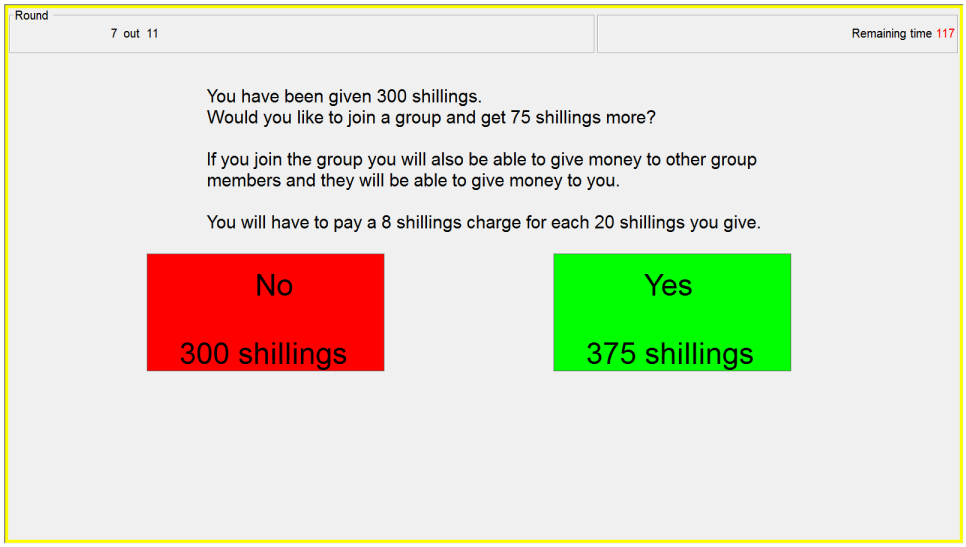
Part 3

This part of the experiment is a combination of part 1 and 2 above. You have been matched with two other people in this room. Just like part 2, each person starts with the decision of whether or not to join a group. If you do not join the group you keep the money you have. If you join the group you increase the money you have. Just like part 1, you will also be given the chance to GIVE, TAKE or CONFISCATE money if the other players in your group decide to join.

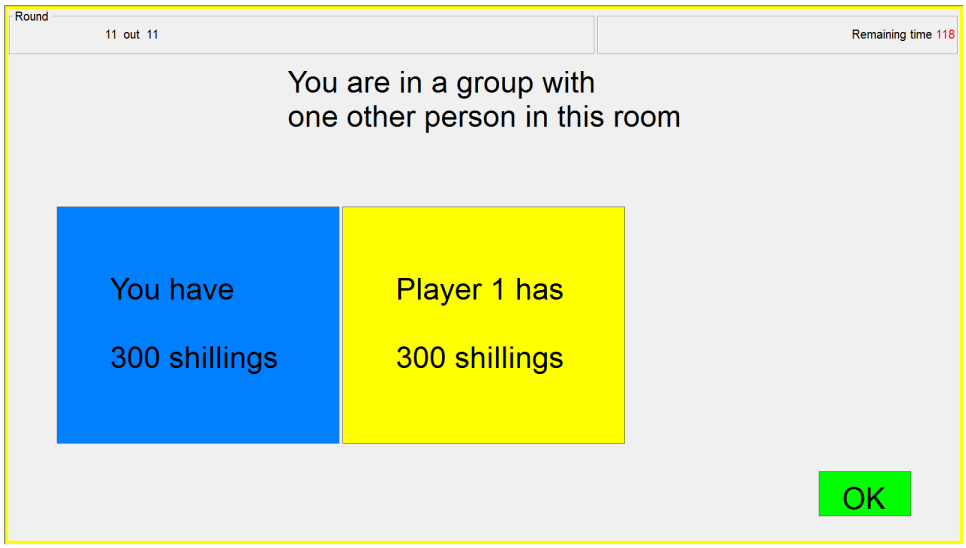
You may be in a group with three people if you and the other two people you have been matched with join a group. You may be in a group with two people if you and just one other person join a group. You may be in a group on your own if no-one you join but no-one else does.

The amount of money you have been given is written on the screen. You can choose whether to keep that money or whether to receive 50% more by joining a group. If you join the group you will also be able to GIVE money to /TAKE money from /CONFISCATE money from other players and they will be able to GIVE money to /TAKE money from /CONFISCATE money from you. You will be charged 5 Shillings for every 20 Shillings you GIVE/TAKE/CONFISCATE.

If you do not want to join the group, press the red square. You will stay with the amount of money you were given and will wait for the next round to start. If you want to join the group and get more money, press the green square.



If you joined the group, the money you now have is written in the blue square and the money that the other people in your group have been given is written in the yellow and orange squares. If there is just one other person in your group there is no orange square.



If you are not in a group or are alone in your group there will be no squares on your screen and you will be told what you received and wait for the next round to start. Press the GREEN OK button once you have read this information.

If you joined a group and have other people in your group, you are now being asked if you want to GIVE money to / TAKE money from / CONFISCATE money from one of the other people in your group. The charge for GIVING/TAKING/CONFISCATING money is 5 shillings for every 20 Shillings

GIVEN/TAKEN/CONFISCATED. If you want to GIVE money to / TAKE money from / CONFISCATE money from this player click the GREEN OK button. If you do not want to GIVE money to / TAKE money from / CONFISCATE money from this player click the RED NO button.

If you clicked the GREEN OK button you will now have to say how much money you would like to GIVE to / TAKE from / CONFISCATE from this player. As you move your finger to the blue end of the scale you will be GIVING/TAKING/CONFISCATING more money to/from/from the other player. Once you are happy with the amount that is shown on the screen click the GREEN OK button. If you want to start again click the RED CLEAR button and then choose a value again.

If you have two other players in your group, you now you have to decide how much money you would like to GIVE to / TAKE from / CONFISCATE from the other player in your group. Again you will have to pay a 5 Shillings charge for every 20 shillings GIVEN/TAKEN/CONFISCATED. If you want to GIVE money to / TAKE money from / CONFISCATE money from this player click the GREEN OK button. If you do not want to GIVE money to / TAKE money from / CONFISCATE money from this player click the RED NO button.

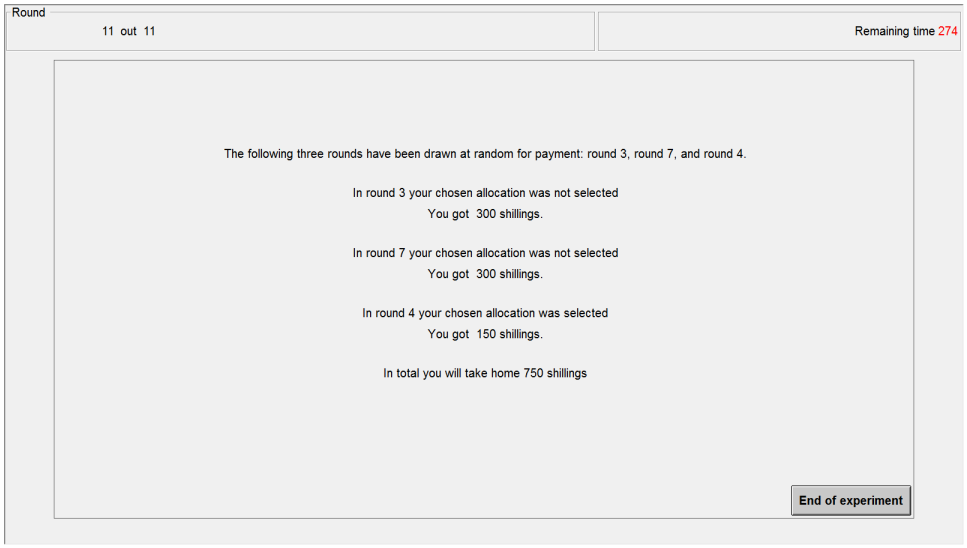
If you clicked the GREEN OK button you will now have to say how much money you would like to GIVE to / TAKE from / CONFISCATE from this player. As you move your finger to the blue end of the scale you will be GIVING/TAKING/CONFISCATING more money to/from/from the other player. Once you are happy with the amount that is shown on the screen click the GREEN OK button. If you want to start again click the RED CLEAR button and then choose a value again.

Now you have made your choices about how much money to GIVE to / TAKE from / CONFISCATE from each player you will see a summary of the money you have in the blue square and the money that the other two players will have in the yellow and orange squares. If there is just one other player in your group there is no orange square. If you are not happy with the choices that you made and would like to make choices again press the RED GO BACK button. You will now have the chance to make your choices about how much to GIVE/TAKE/CONFISCATE again. If you are happy with the choices that you made press the GREEN OK button.

You are now being told how much money you will receive if your choice and this round is chosen. Press the GREEN OK button once you have read this information.

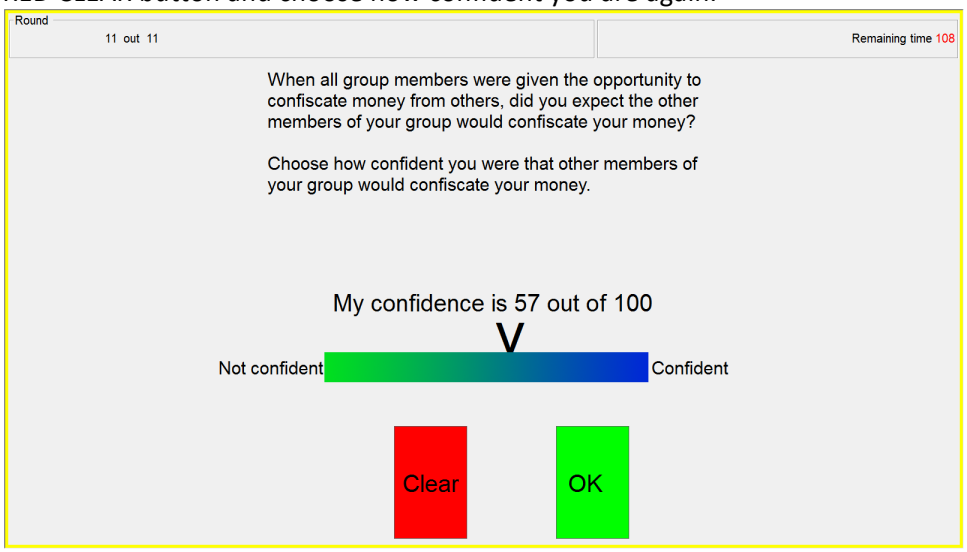
End of experiment

The experiment is now over. The computer has decided whether to take your choices or the choices of others in your groups and which rounds to select for payment. This screen summarizes what you will be paid.



Before you are paid we would like you to answer four questions. We will read the questions out to you.

- When all group members were given the opportunity to confiscate money from others, did you expect the other members of your group would confiscate your money? Choose how confident you were that other members of your group would confiscate your money. As you move your finger to the blue end of the scale you are indicating that you were more confident. Once you are happy with the choice you made press the GREEN OK button. If you want to start again click the RED CLEAR button and choose how confident you are again.



- When all group members were given the opportunity to take money from others, did you expect the other members of your group would take some of your money? Choose how confident you were that other members of your group would take some of your earnings. As you move your finger to the blue end of the scale you are indicating that you were more confident. Once you are happy with the choice you made press the GREEN OK button. If you want to start again click the RED CLEAR button and choose how confident you are again.
- When all group members were given the opportunity to give money to others, did you expect the other members of your group would give you money? Choose how confident you were that other members of your group would give you money. As you move your finger to the blue end

of the scale you are indicating that you were more confident. Once you are happy with the choice you made press the GREEN OK button. If you want to start again click the RED CLEAR button and choose how confident you are again.

- When all group members were given the opportunity to give earnings to other members, do you think other group members expected you to give to them? Choose how confident you were that other members of your group expected you to give them money? As you move your finger to the blue end of the scale you are indicating that you were more confident. Once you are happy with the choice you made press the GREEN OK button. If you want to start again click the RED CLEAR button and choose how confident you are again.

We are now finished. Your payment will be made to you as you leave the experimental session. Please make sure you don't leave anything behind as you leave. Thank you for participating!

Table S2.2. Compatibility of choices with utility archetypes

% of subjects whose choices violate:			
	UK	Kenya	Uganda
3 archetypes	0.7%	1.0%	1.2%
4 archetypes	5.6%	16.2%	14.2%
5 archetypes	11.8%	3.0%	5.6%
6 archetypes	81.9%	79.8%	79.0%
N.subjects	144	198	162
% of subject who do not violate the archetype even once in the experiment			
	UK	Kenya	Uganda
U.Selfish	9.0%	4.0%	3.7%
U.Efficient	0.7%	1.0%	1.2%
U.Altruist	1.4%	15.2%	14.2%
U.Invidious	9.0%	2.5%	1.9%
U.Warm glow	1.4%	15.2%	14.2%
U.Inequal. Averse	3.5%	0.5%	2.5%
N.subjects	144	198	162

Source: Authors analysis based on data described in the text.

Table S2.3. Proportion of choices that violate each archetype

	All	**Burning**	**Stealing**	**Giving**
A. UK 2014	%	%	%	%
U.Selfish	40%	18%	58%	**8%**
U.Efficient	54%	18%	52%	99%
U.Altruist	23%	18%	0%	99%
U.Invidious	44%	38%	58%	8%
U.Warm glow	23%	18%	0%	**99%**
U.Inequal. Averse	46%	41%	53%	29%
N.observations	720	144	432	144
B. Kenya	%	%	%	%
U.Selfish	44%	13%	58%	**30%**
U.Efficient	51%	13%	54%	79%
U.Altruist	18%	13%	0%	79%
U.Invidious	49%	40%	58%	30%
U.Warm glow	18%	13%	0%	**79%**
U.Inequal. Averse	49%	44%	57%	32%
N.observations	990	198	594	198
C. Uganda	%	%	%	%
U.Selfish	53%	36%	61%	**48%**
U.Efficient	61%	36%	65%	74%
U.Altruist	22%	36%	0%	74%
U.Invidious	54%	41%	61%	48%
U.Warm glow	22%	36%	0%	**74%**
U.Inequal. Averse	51%	56%	55%	33%
N.observations	810	162	486	162

Source: Authors analysis based on data described in the text.