Favouritism breeds self-interest: an experimental study of procedural and outcome fairness

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Abstract

We investigate the effect of different procedures for assigning decision-making roles for the distribution of collective resources using a dictator game. Three role allocation procedures are tested, namely random, meritocratic, and favouritism. We contribute to the literature by employing an unfair procedure for the first time and by combining variations across procedures together with the provision of different endowments to recipients. Our study design provides insight into the relationship between procedural and outcome fairness. Findings show that individual choices motivated by outcome fairness are strongly dependent on the degree of procedural fairness. Dictators who obtain their role through unfair mechanisms transfer significantly less money to recipients than dictators exposed to fair procedures.

Keywords: distributive preferences, outcome fairness, procedural fairness, dictator game, artefactual field experiment, community-based management

JEL codes: (C90, D63, O20, Q58)

1 Introduction

The influence of fairness as a moral norm guiding the allocation and distribution of scarce resources has been studied extensively in economics. Individual choices in (re-)distributive contexts are often influenced by outcome fairness, where the fairness of the final allocation is judged according to general principles of fairness (Fehr & Schmidt 1999; Bolton & Ockenfels 2000; Konow 2000; Charness & Rabin 2002). Agents are not completely self-interested, and they are willing to forego personal benefits to achieve the societal objective of a fair distribution of resources. However, agents often interpret and apply fairness norms in a self-serving manner. Both the institutional setting where resources are (re-)distributed and the stakeholders' characteristics may render fairness concerns more or less salient for individual agents. For instance, lower social distance between agents involved in (re-)distribution is found to decrease self-interested allocations (Hoffman et al. 1996), while the more the effort that the agent puts in "producing" the common resource, the higher is the amount he chooses to keep for himself (Cherry et al. 2002).[1]

Procedural fairness regards the fairness of the processes that lead to a given outcome. Procedures can be considered fair if they involve a set of transparent and impartial rules that ensure equal opportunities for all individuals to participate in the decision-making process (Bolton et al. 2005; Grimalda et al. 2016; Trautmann et al. 2016; Dold et al. 2017). The study of procedural fairness in the experimental economics literature has focused on the influence of random procedures in ultimatum games and whether participants are more likely to reject outcomes when fairness norms at procedural level are violated. Most literature posits that agents react similarly to violations of either procedural or outcome fairness and they appear to be substitutes, i.e. the higher the perceived fairness of procedures is, the less likely it is that the agent cares about the fairness of outcomes and vice versa (Bolton et al. 2005; Krawczyk 2011; Grimalda et al. 2016). However, the literature's findings rely exclusively on ultimatum game settings where only the responder's reaction to unfair random procedures has been analysed. The model therefore cannot be used to explain distributive choices of proposers and how they are directly influenced by the fairness of procedures.

In this paper, we explore whether the degree of procedural fairness in assigning decision-making power in a distributive setting (i.e. dictator game) influences individual (i.e. dictator) choices. The degree of decision-making power of the agent has been found to increase self-serving views of fairness norms (Rode et al. 2011; Rustichini et al. 2015; Kittel et al. 2017), and this effect may be influenced by the power distribution mechanism and its fairness. To the best of our knowledge, this is the first study to investigate the role of procedural (un)fairness regarding distributive choices of agents endowed with full decision-making power. In addition, we manipulate the wealth status of the receiving agents to evaluate whether distributive choices are influenced by an income effect.

This paper provides two key contributions to the literature. Firstly, we study the influence of the procedures, and its fairness, for assigning decision-making power on individual choices in a redistributive setting. The procedure used to assign dictator role is experimentally manipulated to mimic three different mechanisms: random, meritocratic and favouritism. Importantly, our design expands that of Hoffman et al. (1994) by introducing an unfair procedure. Our unfair procedure is a mechanism that is not-transparent and it does not guarantee equal opportunity to all agents to access a powerful role. Moreover, we introduce treatments where the recipient's initial endowment is varied to test whether the dictator's choice to give is influenced by the stakeholder's initial wealth status.

[1] For simplicity, we will always use male pronouns when referring to individuals throughout the paper.

Second, we propose a novel framework that operationalises theoretical arguments (Konow 2000; Bicchieri 2005) and incorporates a concern for procedural fairness within outcome fairness models. In our model redistributive choices are assumed to be influenced by fairness norms and agents trade-off a preference for own money with a preference for complying with fairness norms. The (un)fairness of a procedure facilitates self-serving manipulations of fairness norms relative to outcomes. This framework can be used to examine how the distributive behaviour of agents changes when they are exposed to institutional settings where social and moral norms are violated. It is therefore relevant for the analysis of (re-)distributive policies in which the outcome and its fairness depend on the choices of powerful agents.

In this paper, we use data from a lab-in-the-field experiment in Malawi. The management system of forest reserves in Malawi is evolving towards a community-based management system (CBFM). CBFM policies in Malawi involve the Government devolving the rights to access forest resources to local communities where newly established committees coordinate forest management and the distribution of the harvested resources. The procedures used for appointing the forest committee members varies across different forest reserves and includes both elections held at community level and top-down approaches such as nomination by forest department staff or the village chief (Chinangwa et al. 2015). The nomination mechanism may imply some form of favouritism, where the forest department staff or the village chief assign powerful roles to individuals because of social ties. Extensive literature has documented that community-based management systems that lack transparency and impartiality at procedural level may exacerbate inequalities due to elite capture (Lund et al. 2008; Vyamana 2009; Ameha et al. 2014; Persha et al. 2014; Chinangwa et al. 2015; Chomba et al. 2015). Our experiment therefore aims to analyse how the institutional setting, specifically the procedures used to allocate decision-making power, and the recipients' wealth status affect agents' distributive behaviour and their fairness preferences. The rural communities living in the surrounding of forest areas strongly rely on the harvested resources for their basic needs (Fisher 2004; Kamanga et al. 2009) and the distributional consequences of CBFM policies may affect total social welfare. Therefore, uncovering mechanisms that link procedures and outcomes could offer insight into how welfare-enhancing distributions can be achieved and thereby inform local policy design. Briefly, we observe that assigning decision-making power through an unfair procedure significantly reduces the amount sent by dictators compared to fair procedures and we hypothesise that procedural unfairness reduces the relevance of fairness norms relative to outcomes. Section 2 reviews previous literature, followed by a description of the experimental design and procedures in Section 3. Section 4 discusses the analytical model, our hypotheses and the empirical strategy while Section 5 presents our results. Section 6 discusses findings and concludes.

2 Literature review

Outcome fairness has often been proposed as the motive underlying other-regarding preferences in the literature (Fehr & Schmidt 1999; Bolton & Ockenfels 2000; Konow 2000; Charness & Rabin 2002). Models of rational choice incorporating outcome fairness assume that the individual is willing to give away some of his benefits to realise a fair outcome. Such models assume that agents judge fairness of a wealth distribution according to universal norms of fairness over outcomes, i.e. the reference point (Konow 2001).[2] Early theoretical developments identified efficiency, equality and maximin as fairness norms that motivate choices in distributive contexts (Fehr & Schmidt 1999; Bolton & Ockenfels 2000; Charness & Rabin 2002). Further experimental research has demonstrated that

[2] We use the term 'fairness norm' for what is also referred to in the literature as 'fairness ideals' (Cappelen et al. 2007) and 'general principles of distributive justice' (Konow 2001).

when the total wealth to be redistributed is a result of individuals' contributions, different fairness norms arise. For example, under accountability, a distribution is fair if wealth is redistributed proportionally to individual effort, and under libertarianism, wealth should be divided based on contribution without distinguishing among effort and luck (Konow 2003; Cappelen et al. 2007; Cappelen et al. 2010).

The relative importance of fairness norms within individual choices is highly heterogeneous across agents and contexts (Hoffman et al. 1994; Konow 2001; Henrich et al. 2005; Engel 2011; Rode et al. 2011; Krupka et al. 2013; Rustichini et al. 2015). For instance, Cappelen et al. (2007) show that individuals involved in the same distributive situation seem motivated by different fairness norms and that the overall relevance of those norms is heterogeneous across participants. Konow (2001; 2003) explains the great variability of individual behaviour in distributive contexts by suggesting that fairness and the willingness to act on it is context-dependent. Context includes, for instance, varying degrees of social distance with the other agents that will benefit from redistribution (Charness et al. 2008), how the total wealth to be distributed has been obtained (Jakiela 2011; Cappelen et al. 2010; Jakiela 2015; Barr et al. 2015) or whether property rights over the total wealth have been defined (List 2007; Cappelen et al. 2013).

An important aspect of the distributive context which has received little attention in the literature is the fairness of procedures and rules governing the decision-making process. The procedures through which a society makes choices about final allocations, and their fairness, influence individual utility, both as a moral value per se and in relation to the outcome (Bolton et al. 2005; Grimalda et al. 2016; Trautmann et al. 2016; Dold et al. 2017; Krawczyk 2011). The study of procedural fairness in the experimental economics literature has focused exclusively on random procedures where lotteries with equal probabilities have been considered the fair reference point for procedures.

Bolton et al. (2005) show that individuals have preferences for (fair) procedures in addition to preferences for (fair) outcomes. In an ultimatum game, responders' rejection rates are higher for unequal outcomes which have been determined by an unfair procedure, in this case a lottery assigning higher probability to the outcomes biased in favour of proposers, than by a procedure with equal probabilities. Bolton et al. (2005) extend the outcome-based model of Bolton et al. (2000) to incorporate procedural fairness; the model assumes that individual utility decreases if the final allocation deviates from the fair benchmark, which is defined either by the procedure or the outcome depending on which of the two is less biased. In this model, procedural and outcome fairness are considered two factors which act as substitutes. Grimalda et al. (2016) explore the role of random procedures, and their fairness, in determining initial roles in an ultimatum game. The probability of becoming the proposer, which the authors consider the advantageous position in the game, determines the degree of procedural (un)fairness, i.e. the higher the inequality of opportunities the more unfair the procedure. Results suggest that higher procedural unfairness lead to an increase of the minimum acceptable offer, i.e. responders demand more equal outcomes.

However, in ultimatum game designs the direct effect of procedural fairness on the proposer's choice is confounded with strategic considerations about the responder's reaction. The responder can, in fact, reject the proposer's offer preventing both participants to gain any money, and therefore the proposer's choice is in part determined by his beliefs about the responder's expectations. On the contrary, in dictator games, where dictators have unilateral power to decide on the final distribution, such concerns are not present. Past evidence suggests that procedures, other than random, used for assigning roles may reduce the relevance of outcome fairness and enhance self-interested allocations (Hoffman et al., 1994; Ku et al., 2013). Hoffman et al. (1994) find that when dictator roles are assigned based on merit, the average share sent to the other agent is lower

compared to random assignment. Ku et al. (2013) designed an experiment where the advantaged or disadvantaged role translated into unequal initial endowments. The initial position was assigned using different procedures such as random, meritocratic, arbitrary, and rewarding uncooperative behaviour. The payoffs redistribution mechanism generated a trade-off between efficiency (i.e. an increase in total income available to both participants) and equality (i.e. an increase in income inequality relative the pair). The results show that the advantaged agents kept for themselves a statistically significant higher amount in the treatment when they were assigned the role based on their uncooperative attitude. However, the underlying motive is not easily identified as in their experimental design, self-interested choices were confounded with choices motivated by a desire to increase total efficiency.

Overall, although previous research has shown that individuals are influenced by procedural fairness, the literature has almost exclusively focused on examining the effect of random (unfair) procedures on responder's reactions, but it has not explored directly how different procedures for allocating roles influence choices of agents endowed with full decision-making power.

3 Experimental design

We designed a lab-in-the-field experiment to investigate the effect of different procedures for assigning decision-making roles on the distributive choices of agents endowed with full decision-making power. Moreover, we manipulated the endowment provided to the recipients to evaluate whether the initial wealth status of stakeholders influences dictator's giving.

3.1 Treatments

We conducted six treatments of a dictator game that varied along two dimensions: the procedure for assigning the dictator's role and the initial endowment provided to recipients. In all treatments, each dictator made a single choice about how to divide a fixed amount of money, E_d, between himself and an anonymous recipient. Recipients made no decision and only received the amount that dictators allocated to them.

The role of dictator was assigned using three different mechanisms: random, earned and unfairly earned (called unfair from now on). In the random treatment, the dictator role was assigned based on an identification number randomly picked at the beginning of the experimental session. The random treatment qualifies as a lottery with equal probabilities and therefore it is considered a fair procedure. In the earned treatment, the dictator role was assigned based on performance on a simple task, which consisted of sorting beans from a bag containing four different varieties of dried beans over a one-minute period, with a fixed number of beans from each variety (Jakiela 2015; Barr et al. 2015). We ranked the participants from high to low based on the number of beans sorted. We then assigned the dictator role to participants in the top half of the ranking, while the remaining participants (in the lower half) were assigned the role of recipient. In the earned treatment we introduced an effort/talent component but we provide all participants with equal opportunities, i.e. the same number of beans in each bag, and therefore it is considered a fair procedure. In the unfair treatment, the dictator role was assigned based on performance in a similar sorting task, where half the bags, which were distributed randomly to participants, contained fewer beans. The fixed, low number of beans prevented participants who received those bags from scoring high enough in the sorting task to become dictators. After the task, participants were informed that some bags contained fewer beans so players receiving those bags could not have become dictators irrespective of their effort. The bags were distributed to participants randomly and we do not know who got the

"unfair" one.[3] The unfair treatment hence created an unfair procedure by employing a mechanism which was not transparent and that did not provide equal opportunities to participants.

The second manipulation concerned the assignment of endowment to recipients. In standard dictator games, only dictators receive an endowment which they can then split between themselves and recipients. In our experiment, similarly to Konow (2010) and Korenok et al. (2012) the recipient had a zero or positive initial endowment, but dictators did not get any initial personal endowment. Dictators only received endowment E_d that they could split as they wanted with their recipients.

3.2 Lab-in-the-field setting and recruitment procedures

We conducted our lab-in-the-field experiment with a sample of adults aged 18-65 years selected from fourteen rural villages in Mangochi District in Malawi. The villages were randomly chosen from within a 5-km buffer around the Namizimu Forest Reserve. In each location, we conducted either two parallel sessions or one single session depending on the population size of the village. For single sessions, we invited 24 participants; in villages where we ran parallel sessions, we invited 48 participants who were assigned, on arrival, randomly to one of the two treatments. We ran a single treatment in each experimental session.

Table 1 – Summary of experimental treatments and sample size

Treatment	**Recipient's endowment**	**Dictator role**	**Number of pairs[a]**
Random – zero	No	Random	34
Random – positive	Yes	Random	34
Earned – zero	No	Earned	34
Earned – positive	Yes	Earned	33
Unfair – zero	No	Unfair	32
Unfair – positive	Yes	Unfair	33
Total number of participants (dictators and recipients)			400

Notes:

[a] For each session we invited 24 participants. Non-attendance was low: three sessions were attended by 24 participants, 14 sessions were attended by 22 participants and one session was attended by 20 participants.

We selected participants for every village from a list of households previously compiled with the help of village members. We employed a stratified random sampling method and selected people based on gender, age and wealth status. One day prior to each experimental session, members of the research team visited the village chief and provided him with a list of individuals invited to the experimental session happening the day after, as well as a reserve list of names in case the invited participant was not available, and an invitation letter that included information about the study. Potential participants invited to take part in the study were informed of the time and venue, the duration of the session, the show-up fee (100 MKW) and the possibility of earning additional

[3] The probability of getting the role of dictator in the unfair treatment depends both on effort exerted and number of beans in the bag. Potentially a participant which received the "unfair" bag could have become a dictator if they exerted a higher effort than all participants with the bags containing the higher number of beans. Yet, it is unlikely that such situation did happen as the number of beans in the "unfair" bags was lower than the average sorted in all other earned treatments, including the pilot. Moreover, even if such specific situation did happen, participants were not able to notice it because they were never informed about the total number of beans in their bags or their score. The unfairness of the procedure was conveyed through the instructions which informed dictators that they got their role because they had been favourably treated while the opposite held for recipients.

money.[4] In total, we ran 18 experimental sessions (3 per treatment) in 14 villages (Table 1). All the sessions were conducted in Chichewa, the main language in Malawi. The data were collected within a 3-weeks period in August 2017.

3.3 Experimental protocol

The experimental sessions were held in common spaces used by village members for communal activities, such as empty school classrooms or the outside area in front of the chief's house or church. Research assistants prohibited access to any non-participants and ensured participants' privacy and anonymity.

The experimental sessions consisted of two phases. In the first phase, participants were asked to pick an identification number from a bag and subsequently detailed instructions about the game and the role allocation mechanisms were read aloud (see appendix B.1.1). Participants were then divided into a dictator and a recipient group either randomly (random treatment) or based on performance in the bean-sorting task (earned and unfair treatments). In the earned and unfair treatments, a member of the research team read aloud the bean-sorting task instructions and demonstrated to participants how to perform the task by showing some of the content of the bag and the type of beans to be sorted. All participants of the same session were assigned either the dictator or recipient role. Players who did not become dictators in the role assignment phase were assigned the role of recipients. All interactions between participants were anonymous.

In the second phase, we sent dictators and recipients to separate locations and provided further instructions about the structure of the game (see appendix B.1.2 and B.1.3). We informed participants that they were paired with someone from the other group. The social proximity between dictators and recipients may influence the absolute level of giving but the focus of our paper is on analysing the differences across experimental treatments. Experimental instructions on the dictator's choice were presented orally, and the decision-making process was demonstrated using envelopes that were clearly labelled as YOU and OTHER PERSON. The endowment (320 MKW) was split into 16 notes of 20 MKW (the smallest denomination of notes in Malawi), so that dictators could allocate any amount divisible by 20. Dictators were informed either that the recipient got no initial endowment (in the zero treatment) or that recipients got 80 MKW as initial endowment (in the positive treatment) and that this money would be part of the recipients' final earnings independent of the amount they (i.e. the dictator) allocated to them. We then sent each dictator to a separate, secluded location to make their choice using the envelopes.

Once the second phase was completed by both groups, a researcher (who was not involved in phase one or two) collected all envelopes, labelled with the participants identification number, and calculated the final payments, while the participants were provided with refreshments and completed a short questionnaire (see appendix B.1.4). The questionnaire included questions on socio-economic characteristics of respondents (i.e. age, education, livestock ownership, agricultural activities and other income-generating activities), attitudes toward fairness and trust and feedback on game (e.g. fairness perception about role allocation). We placed the final payments in an envelope and distributed these to participants at the end of the experimental session, thereby ensuring complete anonymity about the dictator's choices (double blind dictator design) and

[4] 100 MKW = 0.60 USD PPP (purchasing power parity). The adjusted exchange rate is 172.42 MKW = 1 USD PPP using the PPP conversion factor for private consumption for the year 2016 (World Bank, International Comparison Program database)

reducing potential experimenter's demand effects (Hoffman et al., 1994). The experimental sessions, including refreshments and short questionnaires, lasted about two hours.

4 Conceptual framework

We develop a novel conceptual framework where both outcome and procedural fairness are incorporated, starting from the assumption that fairness norms influence dictators' choices. We build on the modelling framework proposed by Cappelen et al. (2007) where the dictator is assumed to experience disutility for making a choice that deviates from the fair reference point prescribed by a fairness norm. Formally, dictator *i* is assumed to maximise the following utility function when choosing how to distribute the endowment provisionally allocated to him:

$$V_i(y) = \alpha_i y - \beta_i (y - \eta^k)^2 \qquad (1)$$

where α_i is the marginal utility of income, capturing material self-interest, β is the weight attached to fairness considerations and *y* is the amount kept by the dictator. The parameter β represents an overall preference for fairness which is assumed to be an individual characteristic following Cappelen et al. (2007). The preference for fairness, β, is traded-off against utility derived from monetary income allocated to the agent, α. η^k identifies the content of fairness in situation k, i.e. the reference point that defines what is a fair share for the dictator. The dictator experiences disutility if he chooses to keep more or less of the fair share prescribed by the norm (i.e. $y - \eta^k \neq 0$), while the fairness term has a quadratic form that reaches its minimum when the dictator keeps the fair share, i.e. $y - \eta^k = 0$.

The fair share η^k is determined by the fairness norms, which depend on the characteristics of situation k (Konow 2001; Cappelen et al. 2007). In our dictator game where the player's endowment is provided by the experimenter, as opposed to be "produced" by participants, players will consider themselves equally deserving, so the relevant fairness norm in our design is egalitarianism (Jakiela 2011; Andreoni & Bernheim 2009; Cappelen et al. 2007). As the egalitarian norm prescribes the equalisation of the final payoffs, the provision of an endowment to recipients influences the reference point (Korenok et al. 2012; Konow 2010). Formally, given that the total available endowment (*E*) is the sum of the dictator's endowment (E_d) and the recipient's endowment (E_r), the fair share for the dictator prescribed by egalitarianism is:

$$\eta_E = (E_d + E_r)/2 \qquad (2)$$

When the recipient is not given an initial endowment, E_r = 0, the fair share for the dictator is exactly half E_d.

Konow (2000) and Bicchieri (2006) propose theoretical frameworks that we can adapt to address procedural fairness. In Konow's (2000) model, the individual experiences a conflict between self-interest, i.e. the desire to keep the full endowment for himself, and fairness, i.e. the desire to keep only his fair share. This tension, defined as cognitive dissonance, is costly and the agent aims to reduce these costs by sending the amount that is fair. The fair share is identified by two distinct terms: the fairness norm and the individual's belief about what is a fair share. The latter is mediated by contextual factors. Konow's model prescribes that the agent reduces the level of disutility generated by cognitive dissonance through self-deception, i.e. changing what he believes is a fair share in a self-serving manner. Konow (2000) finds evidence that self-deceptive behaviour is highly relevant in dictator game interactions and that the agents' self-serving interpretation of fairness norms may be facilitated by contextual factors, which motivates why in our framework we assume that dictators change their beliefs about what is a fair share.

Bicchieri (2005) extends Konow's framework by including the role of expectations. She argues that individual choices are influenced by fairness norms as long as individuals prefer to comply with those norms. The preference to comply with a fairness norm in a distributive context is conditioned by the presence of empirical and normative expectations. When a fairness norm exists and is practiced in a given population, the agent's empirical expectations arise from repeated past observations that a sufficient number of people will conform to the norm. The agent's normative expectations instead originate from the belief that others expect the individual to conform to the norm, either because the individual recognises the legitimacy of others' expectations or because non-conformity may be sanctioned by others. A fairness norm influences a choice if and only if both expectations are present; the individual prefers to comply with a norm if he believes that the others will comply (empirical expectations) and that the others expect him to do so too (normative expectations). Features of the distributive context may influence both types of expectations and generate ambiguity about the relevance of a fairness norm, thereby enhancing self-serving manipulations (Bicchieri & Chavez 2010).

We incorporate the intuition of both theoretical models in our framework where agent *i* is assumed to maximise the following individual utility function:

$$V_i(y) = \alpha_i y - \beta_i \left(\frac{y-\delta_p \eta^k}{E_d}\right)^2 \qquad (3)$$

Here, the cost associated with the deviation from the fairness norm is given by β and is assumed to be stable within the context of a one-shot game. The procedures for the allocation of the dictator role can change what the dictator believes to be the fair share, and thus the magnitude of self-serving bias. Therefore, the procedure *p* modifies the weight (δ_p) that individuals assign to η^k, the fair share prescribed by the norm and exogenous to the model. The product $\delta_p \eta^k$ is the dictator's context-dependent belief about what is a fair share to keep for himself.

Assuming an interior solution, maximizing *V* yields the optimal amount *y** for the dictator to keep:

$$y^* = \frac{\alpha}{2\beta} E_d + \delta_p \eta^k \qquad (4)$$

where the procedure, *p*, is either random (R), earned (E) or unfair (U) and $\beta \geq 0$.

The dictator's optimal allocation is therefore related both to what is believed to be a fair share, $\delta_p \eta^k$, and to the weight attached to self-interest and fairness concerns, $\frac{\alpha}{2\beta}$.

4.1 Hypotheses

Under this modelling framework, we formulated two hypotheses about the effect of power-allocation procedures on the magnitude of self-serving bias (δ_p) in our experiment.

Hypothesis 1 - Entitlement hypothesis

H1: $\delta_{Earned} > \delta_{Random}$

The first hypothesis is derived from empirical evidence suggesting that dictators earning their position through winning a contest feel entitled to exploit their power and favour themselves because they believe to have earned a larger share (Hoffman et al., 1994).

Hypothesis 2 - Procedural fairness hypothesis

H2: $\delta_{Unfair} > \delta_{Random}$

Unfair procedures in allocating dictator roles reduce the dictator's perception on how much he ought to adhere to fairness norms compared to random procedures, and increase the likelihood of self-serving manipulations of beliefs about what is a fair share. This follows from Bicchieri's (2005) framework, where exposing agents to a violation of fairness norms at procedural level modifies their empirical expectations.

4.2 Empirical strategy

We investigate whether the two factors manipulated in the experiment influence average allocations to recipients by estimating a linear regression model, using the amount sent to the recipient, $x = E_d - y$, as response variable. Model 1 includes all the main experimental variables:

$$x_i = a_0 + a_1 R_e + a_2 P_e + a_3 P_u \quad (5)$$

where P_e takes the value 1 if the participant *i* is a dictator in the earned treatment and 0 otherwise, P_u takes the value 1 if the participant is a dictator in the unfair treatment and 0 otherwise, and R_e takes the value 1 if the recipient has an initial (private) endowment and zero if they do not. The first hypothesis is that a dictator who earned his role is subject to an entitlement effect and keeps a larger share for himself so that $a_2 < 0$ (H1). The second hypothesis prescribes that dictators exposed to unfair procedures change their perception about how much they ought to adhere to a fairness norm and choose to keep more for themselves so that $a_3 < 0$ (H2). Finally, following our conceptual framework, if the individual reference point prescribed by the norm is influenced by the recipient's endowment and thereby reduces the overall amount sent to recipients, then $a_1 < 0$.

Furthermore, we fit an extended model with two-way interactions between the magnitude of endowment provided to recipients and the procedures used to allocate the dictator role. Model 2 is:

$$x_i = a_0 + a_1 R_e + a_2 P_e + a_3 P_u + a_4 R_e * P_e + a_5 R_e * P_u \quad (6)$$

Note that the baseline treatment is the random mechanism with no private endowment for recipients. We did not formulate hypotheses on the presence and the expected effects of the interaction terms given the lack of theoretical and empirical evidence.

5 Results

We first present the sample statistics, followed by a set of descriptive statistics of dictator allocation means and non-parametric tests across treatments. We then present the results of our regression analysis defined in equations (5) and (6).[5]

5.1 Descriptive statistics

A comparison of our dictators' characteristics (Table 2) with data available for the district suggests that our sample is representative of the wider population. The average age of our participants is 32 years and households are composed of about five members on average. The fourth Integrated Household Survey (IHS4) conducted by the Malawi National Statistics Office (2017) in 2016-2017 reports that the average household size for the Mangochi district (including urban areas) is 4.2. About 40% of our respondents owns livestock and the average land size is 1.38 acres (0.56 hectares) with the corresponding figures from IHS4 at 34% and 1.3 acres. More women than men participated (78% female respondents) due to local customs, i.e. in Malawi, women usually attend group

[5] In section A.2 of the appendix we also present the estimates of our structural choice model defined in equations (1)-(4). The results are consistent with the regression model therefore we did not include it in the main section (Cf. Table A.2.1).

activities at village level. The amount of money provided to dictators was 320 MKW and the average payment for participants across the whole experiment was 280 MKW. Because of the high level of poverty and low opportunity costs, we are confident that the monetary incentives were sufficient for activating utility maximizing behaviour. The average daily household income calculated from our data is 296 MKW.[6] It is estimated that 73% of the population in the Mangochi district lives below the poverty line (IHS3, 2011) which is higher than the national average (about 50% in 2010, World Bank). The opportunity costs of participation can be considered low and stable because the data were collected during the dry season, when farm labour requirements of rain-fed agriculture are low, while alternative income activities are rarely undertaken.

Table 2 –Descriptive statistics: characteristics of dictators (n=200)

Variable	Mean	S.D.
Female (1=female, 0=male)	0.78	0.41
Age (years)	32.51	10.81
Household size	5.27	2.10
Livestock ownership dummy (1=yes, 0 otherwise)	0.42	0.49
Land size (acres)	1.38	1.05
At least 5 years of schooling (1=yes, 0 otherwise)	0.61	0.48

We classify the random and earned allocation mechanisms as a fair procedure while the unfair earned treatment as an unfair procedures because it does not provide equal opportunities to all participants. Such classification is supported by the subjective evaluations of dictators regarding the fairness of role allocation mechanisms as shown in table 3. In the random treatment 90% of participants stated that the procedure was fair or very fair and the figure increases to 96% for the earned treatment. In the unfair treatment instead the figure decreases to 32% and 52% of dictators who earned the role "unfairly" stated that the procedure was very unfair or unfair (P-value < 0.001, Fisher's exact test).

Table 3 – Contingency table of participants' perceived procedural fairness of role allocation mechanism

Role allocation mechanism	Unfair or very unfair	Fair or very fair	Don't know	Total
Random	0%	90%	10%	
	(0)	(61)	(7)	68
Earned	0%	96%	4%	
	(0)	(64)	(3)	67
Unfair	52%	32%	15%	
	(34)	(21)	(10)	65
Total				200

Notes: Number in parentheses is the number of respondents in each category.
P-value < 0.001, Fisher's exact test

[6] The average annual household income calculated from the data is 70950 MKW which implies a monthly income of 5913 MKW and, assuming a week of 5 working days and a month with 4 weeks an average daily income of 295 MKW. If we assume that each family has on average at least two members earning income, then the estimated daily individual income is about 150 MKW so that the average payment to the participants was almost double their daily income.

5.2 Dictator's choices across treatments

Overall, the average allocation of dictators across experimental treatment is 33.4% of their total endowment (MKW=320) as shown in Table 4 Panel A. The role allocation mechanisms significantly affect dictator's allocations. In the random treatment dictators allocated 39.1% of their total endowment while this drops to 28.1% ($p < 0.001$)[7] in the unfair treatment and to 32.5% ($p = 0.05$) in the earned treatment. These results confirm both the entitlement effect (H1) and the procedural fairness (H2) hypotheses. Moreover, the percentage of dictators choosing to split their endowment in half decreases from 19.1% in the random treatment to 7.7% in the unfair treatment and 14.9% in the earned treatment, again providing support for H2 and suggesting that unfair procedures reduce the relevance of fairness norms and increase self-interested allocations.

Table 4 – Mean amount sent by dictators to recipients across role allocation mechanisms and recipient's endowment

Panel A: allocations by procedure and recipient's endowment

		Role allocation			Endowment	
	Pooled sample	Random	Earned	Unfair	Zero	Positive
Mean allocation to recipient (MKW)	107 (98-116)	125 (110-140)	104 (89-118)	90 (75-106)	119 (107-131)	95 (82-108)
Mean allocation to recipient (% of dictator endowment)	33.4%	39.1%	32.5%	28.1%	37.2%	29.7%
Frequency (%) of dictators allocating 50% of their endowment	14.0%	19.1%	14.9%	7.7%	23.0%	5.0%
Number of observations (dictators)	200	68	67	65	100	100

Panel B: allocations by treatment

	Random - Zero	Random - Positive	Earned - Zero	Earned - Positive	Unfair - Zero	Unfair - Positive
Mean allocation to recipient (MKW)	131 (109-152)	120 (99-141)	127 (110-144)	80 (59-101)	98 (76-119)	84 (60-107)
Mean allocation to recipient (% of dictator endowment)	40.9%	37.5%	39.7%	25.0%	30.6%	26.3%
Frequency (%) of dictators allocating 50% of their endowment	32.3%	5.9%	26.5%	3.0%	9.4%	6.1%
Number of observations (dictators)	34	34	34	33	32	33

Notes: 95% confidence interval in parentheses

As expected, providing an additional endowment to recipients reduces the average amount sent by dictators. In the zero-endowment treatment, the average amount sent is 37.2%, significantly higher than the amount sent (29.7%) in the positive-endowment treatment ($p = 0.002$). Similarly, the relative frequency of dictators allocating half of their endowment decreases by 18 percentage points compared to the baseline. Finally, the modal amount sent (22% of dictators) in the positive private endowment treatment is 120 MKW, i.e. half of the sum of dictator's and recipient's endowments.

[7] All reported test results in this section for the differences between treatment means are based on a non-parametric two-side Mann-Whitney U test with alpha=0.05. The significance of differences between treatments means were also tested using T-tests with unequal variances and Kolmogorov-Smirnov tests. These tests provided the same results.

Table 4, Panel B presents disaggregated results for each treatment. In the zero-endowment treatments, the unfair procedure significantly decreases the average share by about 10% compared the random procedure ($p = 0.007$), but there is no significant difference between the random and earned procedure ($p = 0.71$). Yet, the number of dictators choosing to split their endowment in half in the unfair procedure (9.4%) is significantly lower than those in the random (32.3%) and earned (26.5%) treatments. Therefore, when recipients do not receive an endowment, the null hypothesis for H1 cannot be rejected and only the procedural fairness hypothesis H2 is confirmed.

In the positive-endowment treatments, however, the amount sent in the random treatment (37.5%) is significantly higher compared to both the earned (25%, $p = 0.006$) and the unfair procedure (26.3%, $p = 0.009$). Therefore, across positive treatments both hypotheses are confirmed, implying that earning the role of dictator fairly or unfairly significantly reduces the amount sent to recipients.

The endowment reduces the mean allocation to recipients for the earned treatment by 14.7 percentage points (p-value < 0.001). However, the corresponding differences in the random and unfair treatments are much smaller at 3.4 and 4.3 percentage points, respectively, and not statistically significant ($p=0.23$; $p=0.26$ resp.). The number of dictators who split their endowment in exactly half is much lower in the positive treatments ($E_r>0$) than in the zero treatments ($E_r=0$), again showing that the fair (egalitarian) reference point is influenced by the recipient's endowment.

5.3 Regression analysis

Table 5 reports the results of the ordinary least squares (OLS) regression models, where the response variable is the dictator's allocation to the recipient expressed as percentage of dictator's endowment. The results of Model 1 (eq. 5) show that the earned procedure reduces the amount sent by about 7%, while the unfair procedure decreases the average amount by almost 11% compared to the random procedure. Both effects are statistically significant, confirming our two hypotheses. The recipient endowment has a negative (-7.5%) and significant ($p < 0.001$) effect, showing that the average allocation to recipients decreases when an endowment is provided. Results for Model 2 (eq. 6) show that, controlling for interaction effects, the effect of the unfair procedure remains significant and reduces the average amount sent by about 10%, indicating that unfair procedures have an effect on dictator's choices (H2). In the earned procedure, the average amount sent decreases significantly only in the positive treatment ($E_r>0$), as indicated by the significant interaction effect with endowment. This suggests that the entitlement effect hypothesis (H1) is weakly supported by the empirical results.

Models 1a and 2a include controls for dictators' socio-economic characteristics and show that the effect of the unfair procedure remains statistically significant and reduces the average amount sent. In model 1a we find that both the unfair procedure and the provision of an endowment to the recipients reduces the average amount sent by about 9-10% ($p < 0.01$), while the effect of the earned procedure is smaller (-5.5%) and only marginally significant ($p < 0.1$). Participants who own livestock, which can be considered as an indicator of wealth, are found to send a higher average amount (5%; $p < 0.1$). Gender also significantly reduces the average amount sent (12.1%).[8] In Model 2a, which includes interactions between the two experimental factors, the effect of the unfair procedure is negative (-12.4%) and statistically significant, while the other experimental factors do not have significant effects. As in Model 1a, gender and livestock have significant effects.

[8] The regression findings hold also within a female sub-sample, whose size is large enough to allow robust estimation.

Table 5 – OLS regression results: average amount sent by dictators to recipients

	Model 1 - main effects		Model 2 - main and interaction effects		Model 1a – model 1 and socio-economics		Model 2a – model 2 and socio-economics	
Constant	42.8	***	40.8	***	62.2	***	62.9	***
	(2.652)		(3.225)		(7.391)		(9.125)	
Earned treatment	-6.7	**	-1.1		-5.5	*	-1.5	
(1=Yes, 0 otherwise)	(3.252)		(4.561)		(3.184)		(4.566)	
Unfair treatment	-10.8	***	-10.3	***	-9.9	***	-12.4	**
(1=Yes, 0 otherwise)	(3.277)		(4.632)		(3.287)		(4.861)	
Recipient endowment	-7.5	***	-3.1		-9.5	***	-7.4	
(1=Yes, 0 otherwise)	(2.672)		(4.561)		(2.659)		(4.646)	
Recipient endowment x Earned			-11.4	*			-9.3	
			(4.596)				(6.489)	
Recipient endowment x Unfair			-1.0				4.6	
			(4.596)				(6.796)	
Gender (1=female, 0=male)					-12.1	***	-13.0	***
					(3.225)		(3.381)	
Total number of household members					0.0		0.2	
					(0.623)		(0.666)	
Livestock ownership dummy (1=yes, 0 otherwise)					5.0	*	5.2	*
					(2.719)		(2.742)	
Land size (Acres)					0.1		0.3	
					(1.301)		(1.325)	
Age (years)					-0.0		-0.0	
					(0.137)		(0.136)	
Observations	200		200		191		191	
Adjusted R2	0.075		0.083		0.134		0.146	

Notes: *p<0.1; **p<0.05; ***p<0.01. Standard errors in parentheses. We excluded nine individual's choice from the dataset when estimating model 1a and 2a because we had no information on age or household size. Dependent variable: percentage of dictator's endowment allocated to the recipient

6 Discussion and conclusion

The experiment explored how procedures for defining roles with decision-making power influence choices on how to distribute resources. Our study builds on previous empirical findings that show that distributive choices are motivated by a desire to be fair but that fairness norms are often interpreted and applied by the agent in a self-serving manner. The results of our experiment confirm that procedures employed in a distributive context may facilitate self-serving biases. The most striking result is that unfair procedures, in the form of favouritism, strongly increase self-interested allocations. We define a procedure as fair if it provides equal opportunities to all participants to become dictators and therefore the random and earned mechanism are classified as fair while the unfairly earned is classified as an unfair procedure. It could be argued that the earned procedure

does not provide equal opportunities, and hence it cannot be considered a fair procedure, because it rewards participants based on a personal talent, i.e. their ability to perform in the task, which may be distributed unequally in the sampled population. Cappelen et al. (2010) has shown that a meritocratic principle is part of the fairness principles employed by individuals to judge the fairness of an outcome and that individuals consider a final distribution that reward individual talents as fair. We therefore argue that the same principle may be applied to judge fairness of procedures as supported also by the participants' perception on procedural fairness: 96% of our dictators considered the earned allocation mechanism fair or very fair.

Our results contribute to a growing literature which shows that procedural fairness matters for the acceptance of (un-)equal outcomes and that procedural and outcome fairness may act as (imperfect) substitutes (Bolton et al. 2005; Grimalda et al. 2016). We expand on this by showing that the fairness of procedures influences the incentives of agents endowed with full decision-making power in distributive contexts. Agents who are assigned a powerful role through an unfair mechanism do not compensate for this injustice by choosing a fairer outcome but instead choose a more unequal, self-interested final allocation.

In our analytical framework, we defined two hypotheses on the role of procedures: an entitlement effect and a procedural fairness effect. We found strong support for our procedural fairness hypothesis; dictators which have been allocated a powerful role through an unfair procedure strongly reduces the amount sent to recipients. The results of the estimated structural model suggest that the fairness of the procedure modifies individual behaviour through changing expectations about how much the individual ought to adhere to a fairness norm. However, an explanation based solely on the fair-unfair dichotomy would ignore the entitlement effect hypothesis confirmed weakly in the earned treatments of our experiment. The allocation of power through a mechanism that rewards merit and thereby creates a sense of entitlement is, in fact, found to influence average dictator shares although the effect is only marginally significant. Previous findings on the magnitude of entitlement effect have shown that individuals acknowledge earned entitlements but there is substantial heterogeneity across participants (Jakiela 2011; Jakiela 2015; Barr et al. 2015). A meritocratic fairness norm has been found to be relevant for relatively more educated subjects in a Kenyan sample (Jakiela 2015) and relatively wealthier in a South African sample (Barr et al. 2015). Our study contributes to this literature by showing that meritocratic procedures may activate an entitlement effect and influence fairness norm relative to outcome, but further research is needed to evaluate whether this effect is mediated by individual characteristics, such as the wealth status of participants.

The assumption that the provision of an endowment to recipients influences the fairness reference point is also supported by our results. The results show that the difference in the amount dictators sent between the zero and the positive treatments is statistically significant. In our theoretical framework, dictator choices are motivated by fairness norms. We hence interpret this result as a shift in the fairness reference point prescribed by the egalitarian norm similarly to Korenok et al. (2012) and Konow (2010).

We selected two procedural mechanisms which are the most relevant for our policy setting, meritocracy and favouritism, and we defined fair procedures based on the degree of equality of opportunity provided to participants. However, such proxy may not ensure a clear classification of procedural fairness and further research should investigate alternative proxies. Individuals hold a pluralism of fairness norm regarding distributive outcomes and it is plausible that those same principle apply to procedures employed to determine outcomes or to allocate power positions. Further research should also investigate the mechanism underlying the relationship between

procedures and final choices. Here we hypothesise that the fairness of procedures modify the degree of compliance with fairness norms through influencing expectations and lowering the cost of self-deception. However, it could be argued that unfair procedures reduces the overall relevance of fairness concerns in such a context and through comparison of dictators with the behaviour of non-implicated stakeholders further insights on the mechanism underlying procedural and outcome fairness relationship could be gathered.

In conclusion, our findings are relevant to natural resource management institutions and offer initial evidence that the mechanism through which the decision-making positions are assigned has a strong effect on how individuals will behave in distributing resources. When forest management is delegated to local village elites, managers control the distribution of forest benefits across all village members. The fairness of final distribution of those benefits is often determined by choices of the village members selected for the coordination of the resource use. Our findings suggest that a mechanism which does not favour anyone because of merit, effort or other characteristics beyond individual control would result in the most equal outcome. This translates into a call for more transparency in selection procedures for forest management committees and in payment mechanisms.

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Appendix

A.1 Structural choice model

We estimate the parameters of the utility function defined in (3) using a random utility framework (McFadden, 1974). In the random utility framework, the total individual utility (U_n) is assumed to be the sum of a deterministic part (V_n) and a random error term (ε):

$$U_n(y) = V_n(y) + \varepsilon_i \quad (7)$$

Given our set-up the dictator chooses the optimal allocation from a discrete set of *Y* values ranging between 0 (where he gives everything to the recipient) to 320 (when he keeps everything for himself) in intervals of 20. Out of the 16 possible values, the individual chooses alternative *j*, i.e. a specific *Y*, over any alternative *i* if $U_n(y^*) \geq U_n(y)$. The probability of choosing alternative *j* is then given by

$$Prob(j|J) = Prob(V_{nj} - V_{ni} > \varepsilon_{ni} - \varepsilon_{nj})$$

By assuming that the error term, ε_i, follows a type I extreme value distribution we derive McFadden's conditional logit model (Train, 2003), where the probability of choosing the alternative that maximises the dictator's utility is given by:

$$Prob(j|J) = \frac{e^{V_{nj}}}{\sum_{i=1}^{J} e^{V_{ni}}} \quad (8)$$

The model is estimated through maximum likelihood, with the parameter β representing the importance attached to fairness consideration, and the procedure-specific parameters δ_R, δ_E and δ_U denoting the magnitude of self-serving bias. The fair share prescribed by the norm, η^k, is exogenous to the model and calculated as in (2).

For β = 0 the individual is completely selfish while for β > 0 the individual is willing to forego some of his income to be fair. The amount that is believed to be fair in a given context depends on δ_p and we can distinguish different "type" of fair behaviour. For $\delta_p = 1$ the dictator believes that he should keep exactly the amount prescribed by the fairness norm for himself and he is fully compliant with the relevant fairness norm. If $\delta_p > 1$ the dictator believes that he should keep more than the fair share prescribed by the norm while if $\delta_p < 1$ the dictator believes that he should keep less.

The model estimation results presented in Table A.2.1 show that all parameters are statistically significant. Following our theoretical framework, we hypothesized that the procedure-specific parameter, δ, for the earned and unfair procedure is higher than when a random procedure is employed. The δ parameter for the random procedure is higher than 1 indicating that on average dictators in the random treatment believe that is fair to keep for themselves more of what is the fair (egalitarian) share. The δ parameter for the earned procedure is higher than for the random procedure (p-value < 0.05), indicating support for the first hypothesis (H1), i.e. being allocated the dictator role because of merit increases what is believed to be a fair share for the dictator, so that the dictator keeps a higher amount for himself. As described in equation 4, the optimal choice for dictator is influenced by what is believed to be a fair share, $\delta_p \eta^k$.

Table A.1.1 - Estimates of the conditional logit model

β	2.3589	***
	(0.1428)	
δ_{Random}	1.0743	***
	(0.0514)	
δ_{Earned}	1.2408	***
	(0.0567)	
δ_{Unfair}	1.3272	***
	(0.0614)	
Log-likelihood	-495.24	
Number of observations	200	
Post-estimation calculations		
$\delta_R - \delta_E$	-0.1665	**
	(0.0755)	
$\delta_R - \delta_U$	-0.2529	***
	(0.0787)	
$\delta_E - \delta_U$	-0.0864	
	(0.0802)	
$^1/_{2\beta}$	0.2119	***
	(0.0128)	

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors in parentheses.

The second hypothesis (H2) is also supported by the model estimation results. The δ parameter for the unfair procedure is higher than for the random procedure (p-value < 0.01), meaning that unfair procedures decreases the relevance of the fairness norms and dictators keep more for themselves compared to a random procedure. Using the delta method, we tested whether the difference between the δ parameter for the earned procedure is significantly different from the δ parameter for the unfair procedure. We find that the difference is not significantly different from zero (p-value=0.28). The procedural fairness hypothesis assumes that being exposed to a violation of general principles of fairness, e.g. unfair procedures in the assignment of decision-making roles, will influence self-serving bias and increase the amount kept by dictators compared to a situation where procedures are perceived as fair. Our results support this hypothesis when comparing unfair procedures to random. Finally, the ratio between marginal utility of income, here treated as a fixed parameter equal to 1, and the concern for fairness is positive so it indicates that on average across all treatments the allocation to self is greater than what the dictator believes is the fair share (Cf. Eq. 5).

B.1 Experiment scripts

B.1.1 Game introduction and role allocation phase [All group]

[TO BE READ ONCE THE GROUP OF PARTICIPANTS IS FORMED]

Thank you for coming here today and participating in this study. It will approximately last [TIME]

It is important that you do not talk to any of other participants until the experiment is over. Thank you very much!

Now I am going to explain how the game will work and you can decide afterwards, if you want to keep participating. You are free to withdraw at any time and you will receive as a minimum compensation 100 MK.

This is a game on making choices. In addition to the 100 MK for participation you will have the opportunity to earn more money depending on your choices and the choices of the others.

When you came in today, each of you draw a piece of paper. The piece of paper has a number. Please keep this piece of paper with you because we will use it during the game. You will also need it at the end of the study to claim your money.

Now, this exercise is about sharing money between you and your partner. The money that you are receiving today comes from the University of Southampton in the UK.

Any money you get will be paid privately and in cash at the end of the game after answering a short questionnaire. If you decide to leave before you will receive just the show-up fee.

Each of you will be paired with a player from this group and you will form a pair. But, you will never know who he/she is, you will not know who you are paired with.

The pairing will be performed by [EXPERIMENTER] by drawing numbers from these two cups [RESEARCH ASSISTANT DEMONSTRATES HOW PAIRING WILL BE DONE BY EXTRACTING NUMBERS FROM THE CUPS]. This is how the pairing will be done. The researcher will do the pairing far away from you and record the pairs on a sheet that we will use at the end for calculating the payments. No one except the experimenter will know who is paired with who.

Do you understand how you will be paired with another person?

Any question?

Your pair will be allocated a sum of money and one member of the pair will be asked to decide how to divide this amount of money between him/herself and his/her partner.

[RANDOM TREATMENT] We will assign you a role based on chance depending on the number indicated on the piece of paper that you picked when you arrived. Since the role of choosing how to divide the money is assigned randomly everyone has an equal chance to get the role.

<u>[EARNED TREATMENT] We will assign you a role based on your performance in a sorting task. The players that sort more beans in one minute will earn the role to decide how to divide the money.</u>

[UNFAIR TREATMENT] We will assign you a role based on your performance in a sorting task. The players that sort more beans in one minute will earn the role to decide how to divide the money.

You can now decide whether you want to continue with the experiment by accepting your role and the rules or you can leave with the show-up fee.
Important: participation is voluntary!
Are you all happy to keep participating in the experiment?

Now we will divide you in two groups.

[RANDOM TREATMENT]

If you drew numbers from 1 to 12 please go with [Name of RA].

If you drew numbers from 13 to 24 please go with [Name of RA]

[EARNED TREATMENT]
Now I will give you the material to perform the task. [Explain the task]

[TIME FINISHED]

[RESEARCH ASSISTANT GOES FURTHER AWAY FROM THE GROUP, COUNT BEANS AND MAKE A RANKING]

Now we will divide you in two groups.

[FIRST 12 CALLED BY NUMBER] please go with [Name of RA]

[LAST 12 CALLED BY NUMBER] please go with [Name of RA]

[UNFAIR TREATMENT]

Now I will give you the material to perform the task. [Explain the task]

[TIME FINISHED]

[RESEARCH ASSISTANT GOES FURTHER AWAY FROM THE GROUP, COUNT BEANS AND MAKE A RANKING]

[UNFAIR TREATMENT] Now we will divide you in two groups based on how many red and white beans you sorted. But, the bags that you got to sort were not equal, some bags contained more beans than others. So, you did not all have the same opportunity to gain the role of the person who decides.

[FIRST 12 CALLED BY NUMBER] please go with [Name of RA].

[LAST 12 CALLED BY NUMBER] please go with [Name of RA]

B.1.2 Instructions for group of dictators – decision-making phase

Your pair will be allocated 320 kwacha.

We ask each of you to choose how you want to divide this money between you and your partner.

This "fake" money represents the 320 kwacha that are allocated to your pair. Every note is worth 20 kwacha.

[PUT THE MONEY IN THE MIDDLE BETWEEN THE TWO ENVELOPES]

You have received 0

[SHOW THE BROWN ENVELOPE EMPTY]

Your partner in the other group has received 0/80

[SHOW THE WHITE ENVELOPE EMPTY/WITH 80]

Now each of you must decide how much of the money that your pair has [320] you want to send to your partner and you can do this by placing money in the white envelope [PUT SOME OF THE 320 IN THE WHITE ENVELOPE], and how much you want to keep for yourself by placing money in the brown envelope [PUT MONEY IN THE BROWN ENVELOPE]. You can choose to send any amount you want, anything from nothing to all the money. Please remember that this is just your choice and there is no wrong or right choice.

The money placed in the envelopes will be given to you and your partner in cash at the end of the exercise.

[RA make demonstration with notes and envelopes]

Do you have any question?

Each of you will go one-by-one to the [PLACE]. There, no one can see what you choose. There, you choose how much money you want to give to your partner by putting it in the white envelope and how much you want to keep for yourself by putting it in the brown envelope. You will then put the envelopes in this bigger envelope and give it to me and at the end of the game you will earn the money that you choose to keep for yourself, and your partner will get the money that you decided to give to him. You will never know who the person to whom you send the money to, and he/she will never know your identity; they will never know who they got the money from.

Do you have any question?

[PARTICIPANTS MAKE A CHOICE ONE BY ONE]

B.1.3 Instructions for group of recipients – decision-making phase

Your pair will be allocated 320 kwacha.

Your partner will then choose how he/she wants to divide this money between him/herself and you.

This "fake" money represent the 320 kwacha that are allocated to your pair. Every note is worth 20 kwacha.

[PUT THE MONEY IN THE MIDDLE BETWEEN THE TWO ENVELOPES]

You have received 0/80

[SHOW THE WHITE ENVELOPE EMPTY]

Your partner has received 0/80

[SHOW THE BROWN ENVELOPE EMPTY/WITH 80]

Now your partner will decide how much of the money that he has [320] he/she wants to send to you, and how much he/she wants to keep for him/herself. [DEMONSTRATE WITH FAKE MONEY]

The choice that he/she makes determines how much you and your partner will be given in cash at the end of the experiment.

[RA demonstrates with notes and envelopes]

We want to know, independently from the choice that your partner is making, what you think will be a fair division of money.

Each of you will come with me in a place where no one can listen what you say and you will tell me what you think your partner should give to you as a fair share.

Do you have any question?

Please notice that this will not affect your earnings from the choice that your partner is making.

[RA goes in the designed place and every participant goes there to answer the question]

B.1.4 Final script [Both groups]

We have now finished!

Thank you very much for your participation!

Please come all with me to [DESIGNATED PLACE] where refreshments are available and you can collect your earned money in cash after answering a quick questionnaire.

Many thanks!