Group identity in fairness decisions: Discrimination or inequality aversion?*

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Abstract

This paper reports preliminary evidence from a small scale study (n=91) on issues of decision time and race in distributive fairness decisions in South Africa. We conduct a dictator game to gather data on transfer amounts and time taken for decisions, where dictators are paired with a series of partners with whom they either share or do not share race. Our results are not in line with the empirical evidence that suggests that impulsive decisions are fair: transfers in our sample increase with decision time, with fairer decisions taking longer than selfish decisions. We note significantly higher transfers to black receivers from black decision-makers. White dictators give more to white receivers in very short (<15 second) decisions, but when they take more time to decide, more is given to black versus white receivers. This race-based discrimination in transfers appears to be primarily motivated by inequality aversion: black receivers are (correctly) assumed to have lower income than their white peers. Although our sample is small, this evidence of willingness to reduce perceived race-based inequality has encouraging implications for redistributive policies in the country, and therefore warrants further investigation.

Key words: Dictator game; fairness; discrimination experiment; Africa
JEL classification: D90; D64; O55

*Conflicts of interest: none

1 Introduction

The importance of understanding preferences beyond self-interest in economic decision making is well-established in the economics literature. Without an understanding of what motivates people's decisions, predicting or influencing those decisions is impossible. Deviations from self-interest equilibria have been widely documented, with altruism, fairness, and reciprocity proposed as important motivators for behavior (consider, for example, the seminal works Kahneman et al. 1986; Rabin 1993; Berg et al. 1995). Many of the biggest challenges facing society require the leveraging of these motivators. For example, reducing inequality and addressing racial injustice requires a willingness on the part of several players (the wealthy or the advantaged race groups) to sacrifice some self-interest in favour of furthering others' interests (those living in poverty and the marginalised race groups).

Several recent studies have investigated whether fair distribution decisions are made intuitively (quickly) or whether fairer decisions require longer decision times (e.g. Rand et al. 2012; Lotito et al. 2013; Cappelen et al. 2016). These studies have used a range of experimental methods, including the Dictator game (Forsythe et al. 1994), valued for ease of understanding by participants. However, different studies have reached opposing conclusions, with some finding that faster, more intuitive decisions are linked to greater fairness (e.g. Cappelen et al. 2016; Rand et al. 2012; Lotito et al. 2013); and others noting greater fairness in slower decisions, where more deliberation takes place (e.g. Piovesan & Wengström 2009; Ubeda 2014).

A separate body of literature has considered bias in decision making, including bias in favour of those in the same group (for example, race, gender, nationality) as the decision maker (e.g. Rudman & Goodwin 2004; Friesen et al. 2012; Daskalova 2018). The continued widespread prevalence of racial bias in many countries, and the costs that such bias imposes on society, has also become particularly clear with the rise in the Black Lives Matter movement since July 2013.

We are interested in how preferences for fairness interact with racial bias. Specifically, we

investigate three research questions: Does the time taken for an allocation decision predict the fairness of the resulting allocation? Is racial bias evident in allocation decisions (particularly bias in favour of those sharing a race with the decision maker)? Is the relationship between decision time and fairness impacted by racial bias? To start to answer these questions, we gathered data from a small sample of 91 participants, making 455 Dictator game decisions in South Africa, where the lasting effects of apartheid legislation are still visible in the inequality between racial groups.

Our results show higher transfers where dictators take more time to deliberate. Although average transfers are higher when the receiver is black than when the receiver is white, this difference is only significant for black dictators, suggesting own race bias in this group. Notably, however, when we account for the receiver's perceived income (white receivers are perceived as having higher incomes), the magnitude of this bias reduces considerably. White dictators give more to white receivers in very short (<15 second) decisions, but when they take more time to decide on a transfer, more is given to black versus white receivers.

The mitigating effect of income perceptions on bias towards own race receivers is a reassuring finding, as it suggests a significant role of preferences for reduced inequality in distribution decisions. We note that the bias against black partners seen in two earlier Dictator game studies in South Africa (Van Der Merwe & Burns 2008; Pecenka & Kundhlande 2013) does not persist in our experiment. This permits some optimism that increased awareness of race-based inequality in the time since these earlier experiments were conducted might have reduced this bias in decisions around fairness.

Although our relatively small sample size means that these findings represent only preliminary evidence in support of this idea, our results suggest some interesting avenues that can be explored further in future research.

The remainder of the paper proceeds as follows: Section 2 briefly reviews the two relevant branches of literature, Section 3 describes the experiment, Section 4 sets out our results, and Section 5 concludes.

2 Literature

2.1 Decision time and fairness

A consensus in the literature is yet to be found on the link between decision speed and fairness. According to the Social Heuristics Hypothesis (Rand et al. 2012; Rand & Kraft-Todd 2014), fair behavior is intuitive in social dilemma experiments because cooperation is viewed as a successful strategy by people in most social interactions outside the lab. "Intuitive" decision making has been contrasted with more "deliberative" decision-making: several experimental studies have considered shorter response times as an indication of intuitive decision-making, while longer response times indicate decisions requiring deliberation (Rubinstein 2007; Cappelen et al. 2016).

Various studies using economics games have found support for intuitive or faster decisions being associated with more fair choices (Cappelletti et al. 2011; Rand et al. 2012; Lotito et al. 2013; Rand & Kraft-Todd 2014; Rand et al. 2014; Cappelen et al. 2016). However, a number of other studies have drawn the opposite conclusion, finding that faster response times are associated with greater self-interest (e.g. Piovesan & Wengström 2009; Grimm & Mengel 2011; Tinghög et al. 2013; Evans et al. 2015).

Some researchers point to the role of errors and cognitive differences in response time measures (Recalde et al. 2018; Goeschl & Lohse 2018). Cappelen et al. (2016) argue that a concern with much of the earlier research on response times is that the games used tend to be complex. These authors note that the simple Dictator game measures the time needed to make a decision (fair or not), avoiding the confounding impact of time needed to understand strategic games and to consider the behaviour of the other participan(s).

2.2 In-group bias

Social identity theory (Tajfel 1970; Tajfel & Turner 1979; Tajfel 1982) has been widely studied in the social psychology literature to understand bias or favoritism towards one's

own "in-group". Numerous studies have found bias in favor of in-group members including minimal groups (e.g. Ahmed 2007; Daskalova 2018); country of origin (e.g. Glaeser et al. 2000); ethnicity (e.g. Fershtman & Gneezy 2001; Friesen et al. 2012) and gender (e.g. Rudman & Goodwin 2004).

Race-based inequality continues to be prominent in South Africa: white-headed households (<10% of households in South Africa) have an average income that is 4.5 times larger than that of black-headed households.[1] Racial bias also continues to be found in experimental work in South Africa, including trust games (Burns 2006; Haile et al. 2008; Hamann & Nicholls 2018); student evaluations of lecturers (Chisadza et al. 2019); and (modified) Dictator games (Van Der Merwe & Burns 2008; Pecenka & Kundhlande 2013). Both of these (modified) Dictator game studies found significantly higher offers from white dictators to white receivers than to black receivers.

We contribute to the literature on fairness first by seeing whether our data shows higher or lower transfers with longer decision times. We follow Cappelen et al. (2016) in using the simple Dictator game to avoid potential confounds from difficulty understanding the game. Second, we ask whether racial bias against black receivers, as noted in earlier work in South Africa by Van Der Merwe & Burns (2008) and Pecenka & Kundhlande (2013), persists in our study. Finally, we consider how racial bias might interact with decision time: decisions about altruism towards an out-group receiver might, for example, take longer than decisions with an in-group receiver. By pairing each respondent with multiple receivers where receiver race varies, we can see how variations in response time relate to transfer amounts.

[1] Living Conditions of Households in South Africa 2014/2015, Statistics South Africa 2019.

3 Experiment Design

3.1 Participants

Our experiment was conducted with first-year students at the University of Pretoria. Students were invited to participate in a decision making experiment through an announcement email sent via the Blackboard communication tool (the university's day to day communication tool) to all students registered for first-year economics. Students were asked in the email to register their interest in participating via a Qualtrics link, where they were asked to provide a contact email as well as limited demographic details.[2] Five session times (all on one day in May 2019) were listed, and students were asked to indicate all session times when they would be available to participate.[3] We invited a total of 137 students to specific decision making sessions, based on their availability. 91 of these students arrived on the day and participated in the experiment as dictators.

The Dictator game set-up of our experiment also required us to appoint receivers from those who signed up for the experiment. While racial bias was our primary focus, we also wanted to control for potential gender bias in our results. We, therefore, wanted to include receivers from demographic groups with four combinations of race and gender (black male, black female, white male, white female). To avoid introducing additional confounds, all decision-makers (unknowingly) faced the same receivers in randomized order. From the students who signed up for the experiment, one student fitting each of the receiver demographic profiles used in the experiment was randomly selected to play the role of receiver. These receivers were contacted by email after the experiment and asked to meet at a given location to receive their payment.

[2] Contact details were needed to invite students to specific sessions, but students were assured at this time as well as in the experiment that their responses in the experiment would be anonymous. To this end, no personal identifiers were captured with the experiment data.

[3] 5 sessions with different times were made available so as to allow students with different schedules to participate, thereby minimizing selection bias. Students whose availability did not match with available session spaces received an email thanking them for their interest and apologizing for our inability to accommodate them in a session.

3.2 Experiment Protocol

Five sessions with between 11 and 24 participants per session were conducted. Decision-making participants arrived at the experiment lab at the time of their designated sessions and were seated at prepared computer terminals. The experiment was programmed in Qualtrics, which records responses as well as measuring the time taken for each response. Participants had to select a pseudonym that they would enter into the Qualtrics program and then give to the experimenters at the end of the session to receive their payment. In this way responses could be both anonymously recorded and accessed for payment purposes to ensure incentive compatibility of the experiment.

Receivers attended a session after the experiment to receive their payment. Receivers were only notified of their role after the experiment had been conducted to avoid any possible discussion of roles, which could bias allocation decisions. Receivers' payments were determined by a dice roll to select one of the transfers made to each receiver for payment.

Each decision making session started with the corresponding author reading the instructions aloud to participants. Participants also received a printed copy of instructions, and the instructions appeared on their computer screens as well.

Participants received a ZAR 20 (approximately $1.30) show-up fee for participating in the experiment.[4] They were asked to make a series of five Dictator game decisions where the participant had to allocate ZAR 100[5] (approximately $6.50) between themselves and a fellow student who had signed up for the experiment. To ensure that all decisions were salient, each participant was informed that one of their five allocation decisions would be paid to them in real money at the end of the experiment. Each participant randomly selected their decision for payment by rolling a die. It was emphasized that because of the random nature of the selection process for the paid decision, participants should make each choice as if it would be paid in real money. Participants were also informed that the receivers whose demographic

[4] On campus, students can purchase, for example, coffee and a muffin with this show-up fee.

[5] For reference, assistant lecturers (post-graduate students helping with tutoring) at the University of Pretoria were paid ZAR 100 per hour at the time of the experiment.

details were shown for each of the five decisions were fellow students and that these people's payments would depend on the decisions made in the experiment.

To minimize any order effects and to control for the possibility that response times might decrease with repetition, the order of receivers each decision-maker faced was randomized. In order not to decrease the salience of decision-makers' allocations to receivers, decision-makers were not explicitly made aware that all participants were facing the same five receivers, nor were they made aware of the details of the payment mechanism for the receivers: they were simply informed that the receivers were randomly selected from those who had signed up for the experiment and that the receivers would be paid in real money based on a randomly selected decision in which their demographic details were used.[6]

To further reduce any issues with understanding the (already cognitively simple) game, a detailed example was given in the instructions to explain how the allocation decisions would work, listing the total payments (including the participation fee of ZAR 20) resulting from a hypothetical division for both the decision-maker and the receiver. Finally, participants played 2 practice rounds without any demographic details to ensure that they understood the game structure and that they were familiar with the decision problem by the time they reached the first real receiver decision. After any questions had been answered, participants were asked to commence with the real decisions.

Participants faced one black male receiver, one white female receiver, two black female receivers, and one white male receiver. Gender information was included so that racial bias

[6]The paid decision for each receiver was randomly selected from the decisions involving that receiver. Consider the following example to illustrate the payment method for both dictators and receivers: Assume Dictator 1 randomly selected (by die roll) the decision involving the black male receiver. Dictator 1 had chosen to transfer ZAR 20 to this receiver. Dictator 1 was therefore paid the balance of the ZAR 100 endowment: ZAR 80, in addition to the ZAR 20 participation fee. For the receiver payment session, 10-sided dice were rolled to select a decision to be paid to each receiver. Assume the dice roll for the black male receiver was 10, meaning that the decision from Dictator 10 would be paid to the black male receiver. Dictator 10 had chosen to transfer ZAR 30 to the black male receiver. Since this decision was chosen both by Dictator 10's dice roll and that of the black male receiver, Dictator 10 was paid ZAR 70 (the balance of the ZAR 100 endowment) in addition to the ZAR 20 participation fee; and the black male receiver was paid ZAR 30 in addition to the ZAR 20 participation fee, based on Dictator 10's decision. However, the black male receiver was not paid the ZAR 20 from Dictator 1 since this decision was not randomly selected for the receiver's payment.

could be separated from possible gender bias as a test for the robustness of our findings.[7] We provided the race and gender demographic information using an approach first used with nationality by Bornhorst et al. (2010), and later for testing racial bias in Hamann & Nicholls (2018): The demographic characteristics of interest were provided along with three other apparently relevant demographic details, which are either non-varying within the sample (age group and year of study were homogeneous for our sample, but participants were not aware of this fact), or which would not plausibly impact decisions (whether receivers had an odd or even number of siblings).[8] By not making our interest in racial bias transparent, we hoped to reduce any experimenter demand effects that might arise if participants were aware that their biases were under investigation. Having exactly 4 receivers, one from each of the race/gender demographic combinations under consideration, might make our interest clear despite the presence of the sibling information. Similarly, having an odd and even sibling receiver for each race and gender combination, such that respondents saw exactly 2 receivers from each race/gender group, might highlight a race or gender interest, as well as risking respondent fatigue. To reduce this kind of transparency, we included two representatives (differing on the odd versus even numbers of siblings dimension) from only one of the demographic groups of interest (black females). Having all decision-makers make five choices, facing partners of their own and other race and gender, created a within-subject experiment design, allowing us to control for individual differences in time taken to respond.

Given the race-based inequalities in average incomes in South Africa, we wanted to understand the impact of any assumptions about fellow students' incomes that might affect transfer decisions. We, therefore, asked students to report their assumptions about each receiver's financial position (this was asked after the dictator questions so as not to cue

[7]We anticipated that receiver gender might impact transfers, but this was found not to be the case. Transfers do not differ significantly by gender; and dummy variables indicating interactions between dictator and receiver gender were not significant in any of our regressions. These results are shown in the Appendix in Tables 5 and 6.

[8]To confirm that the siblings variable did not impact transfers, we used a Mann-Whitney test to compare transfers to the black female receiver with an odd number of siblings against transfers to the black female receiver with an even number of siblings: no significant differences were found (p=0.92). Therefore, we combine transfers to both black female receivers in our analysis.

income as a variable in making dictator decisions).[9] Finally, we asked students to provide some demographic details, including their own perceived financial position.[10]

Once all questions had been answered, participants were invited to an adjacent office, one at a time, to roll a die to determine the decision to be paid to them in real money.

3.3 Data

In total, 91 dictators participated in the experiment. Since each dictator made 5 decisions, this resulted in a sample of 455 decisions. Table 1 presents the demographic breakdown of the decision-makers that participated in the experiment. About 79% of dictators are black. The majority black racial composition of our sample reflects the racial demographics of South Africa, where 80.7% of the population at the time of the experiment was black.[11] Most participants, 58%, declared that they have an average income while 36% think that their income is below average compared to other students. Only 7% of the participants believed that their income was above the average. In comparison with the white students, the black students transferred less on average, but took longer on average to make decisions.

[9] Significant disparities in average incomes between black and white South Africans persist more than 20 years after the end of apartheid. For each of the 5 receivers, the following question was asked: "Consider the person you were paired with who is [under the age of 25, female, first-year student, black and has an odd number of siblings (1 or 3 or 5 etc.)] How do you think their income compares to other UP students?" Answer options were "below average", "average" and "above average".

[10] As most students are not aware of the details of their family earnings, and since the most relevant variable to our research question is perceived relative financial position, participants were asked to rate their financial position as above average, average or below average relative to other UP students.

[11] Mid-year population estimates, Statistics South Africa, 2019.

Table 1 – Dictator Summary Statistics

	Black (Mean)	SD	White (Mean)	SD	Difference: Black - White	Pooled (Mean)	SD
Proportion female	0.534	0.499	0.691	0.464	-0.157**	0.567	0.499
Transfer (in ZAR)	31.495	19.330	38.085	17.675	-6.590**	33.036	19.109
Time (in seconds)	27.142	17.222	21.047	12.865	6.095***	25.608	16.864
Own perceived income							
Above average	0.014	0.118	0.255	0.438	-0.241***	0.066	0.250
Average	0.559	0.497	0.638	0.483	-0.079	0.576	0.498
Below average	0.426	0.495	0.106	0.309	0.320***	0.359	0.483
N	72		19			91	

t-tests significance level: *: 10% **: 5% ***: 1%

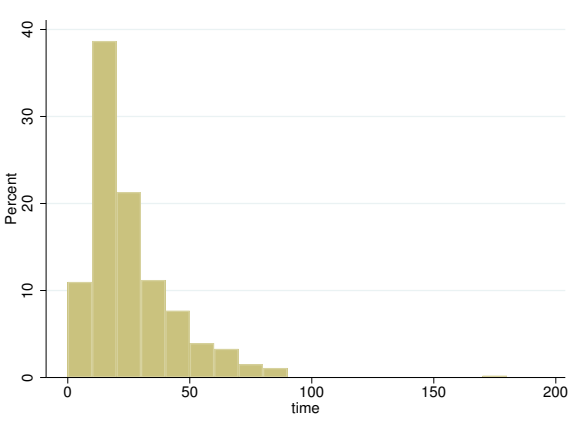
4 Results

4.1 Response time and transfers

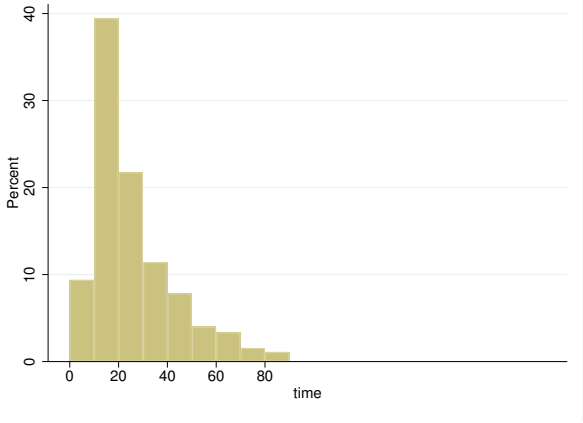
In line with the existing literature, we measure the response time as the time elapsed from opening the experiment's decision screen until submitting the amount transferred to the receiver on the screen. Our sample's average time was 26 seconds; the fastest dictator spent less than 3.3 seconds on a decision, while the median decision time was around 20.1 seconds. Panel (a) of Figure 1 shows the time distribution of decisions: 99% of the dictators decided within 82s, yet some outliers spent less than 5s at the bottom of the distribution and a single decision took 178.7s at the top of the distribution. These outliers likely result from dictators who did not read the receiver demographic details in the instructions for each decision (very short outliers); or who left the screen during the experiment (long outlier). Such outliers are not informative about the length of the decision process and potentially bias statistical results. Thus, for the analysis, we exclude decisions where the dictator spent less than 6s or

more than 100s, eight and one observations, respectively. The resulting time distribution is presented in Panel (b) of Figure 1.

Figure 1 – Distribution of response time



(a) Decision time histogram, full sample



(b) Decision time histogram, decision time between 6.6s and 86.7s

The median and mean transfers in our sample were ZAR30 and ZAR33, respectively. Only 1 decision-maker gave nothing in any of the 5 decisions[12], 21% of decisions had the endowment shared equally, and less than 1% of decisions gave away the full endowment. We use the median transfer in our sample to classify transfers into fair and selfish decisions: a fair decision is defined as a transfer of at least ZAR30 to the receiver, while a selfish decision is a transfer of less than ZAR30. In a recent meta-analysis of Dictator games, Engel (2011) noted an average donation amount of 28.3% across 129 studies. We also consider this average as a robustness check, noting very similar findings.[13]

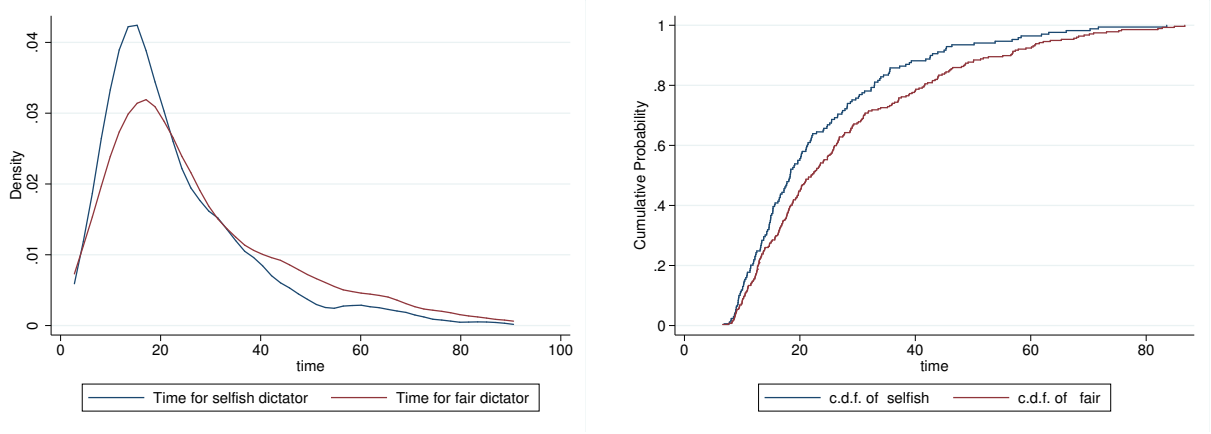
Fair decisions in our sample take more time than their selfish counterparts. The average decision time for selfish decisions is about 23.1 seconds, while for fair decisions this is about 27.6 seconds. Panel (a) of Figure 2 plots the distribution of decision time for selfish and fair decisions. The figure shows that the decision time distribution for fair decisions is tilted

[12]In total, we have 25 decisions with zero transfer.

[13]Cappelen et al. (2016) used zero transfer decisions as selfish decisions and transfers of half of the endowment as fair decisions for a similar analysis. Since we have a small sample of entirely selfish decisions (n=25), we use these authors' approach as a robustness check rather than for our primary analysis. This approach supports our finding that in our sample selfish (0 transfer) decisions took less time (mean time = 14.5 seconds) than fair (50-50 split) decisions (n=96, mean time = 24.9 seconds).

toward the right and has a lower peak compared to the distribution for selfish decisions. A Kolmogorov-Smirnov test shows that the differences in the distributions is statistically significant: p=0.04. Panel (b) of Figure 2 presents two cumulative distribution functions (CDF) of deciding within t seconds, one for selfish and one for fair decisions. The CDF for fair decisions is consistently to the right of selfish decisions over the range of observed response times. This first-order stochastic dominance suggests that it takes longer for individuals to share fairly than to behave selfishly.

Figure 2 – Kernel density and Cumulative distribution of response time



(a) Kernel density

(b) Cumulative distribution

Formally, we test the mean difference in decision time between fair and selfish decisions. The mean difference test (two-tailed t-test for groups with unequal variance) shows that fair decisions took more time than selfish decisions (difference= 4.49s, p-value= 0.004). To investigate the extent of the size of the difference in decision time in means of fair and selfish decisions in a way that takes into account both within-dictator variability and the possibility of overlap between distributions of the two groups, we estimate effect sizes (Cohen 1988; McGraw & Wong 1992). Both Cohen's d-test and Hedges's g-test indicate that the average decision time differs by approximately 0.27 standard deviations and that this difference is statistically significant with a 95% confidence interval. This indicates that the difference in time taken by fair and selfish dictators is meaningful.[14] This finding supports prior literature

[14]Both Cohen's d-test and Hedges's g-test are measures of effect size that assess the extent to which one

that suggests that impulsive responses (decisions made in a shorter time) might not be more fair than deliberative responses (e.g., Martinsson et al. 2012; Achtziger et al. 2015).

4.2 Racial bias and race-time interactions

We next try to understand whether respondents behave more or less fairly when dealing with partners who share race and whether this varies with how quickly they make decisions.

Table 2 – Mean response time and transfer, by dictator and receiver race

Mean response time			
Dictator	Receiver		
	Black	White	Difference (White-Black)
Black	27.411	26.345	-0.686
(n)	216	144	
White	20.959	21.177	0.217
(n)	57	38	
Mean transfer			
Dictator	Receiver		
	Black	White	Difference (White-Black)
Black	34.051	27.532	-6.519***
(n)	216	144	
White	39.196	36.447	-2.749
(n)	57	38	

Significance levels: *: 10% **: 5% ***: 1%

We start this part of our analysis by comparing the response time and average transfer amount by decision-makers' and receivers' race interactions. Using Mann-Whitney tests, we do not find significant differences in response time across dictator/receiver race. Looking at transfers, we note that dictators transfer more to black receivers. The difference is more pronounced from black decision-makers (Table 2; see also Figure 5 in the Appendix).

group mean differs from another. Cohen's d and Hedges' g are interpreted in a similar way. As a rule of thumb, means differing by more than 0.2 standard deviations are considered as different (Cohen 1988).

4.2.1 Conceptual framework

In this study, we are interested in measuring economic altruism. In particular, we are interested in understanding whether the intuitive response to distributive behavior is to behave more selfishly or more fairly when dealing with partners who share race. Thus, we consider the following model to estimate economic altruism for an individual x:

$$E(\alpha_x) = \beta_0 + \beta_1(R_y * R_x) + \beta_2 Time + \gamma_1 \mathbf{X} + \gamma_2 \mathbf{Y} \tag{1}$$

α_x, our measure of economic altruism, is proxied by the share of the total endowment re-distributed by dictator x to a receiver y. β_1 measures the marginal expected payout for receivers who share race with decision makers. β_2 represents the difference in the predicted value of the transfer for each additional unit of time taken to respond. $\mathbf{X}$ is a matrix of observable and unobservable characteristics of decision makers and $\mathbf{Y}$ is a matrix of observable and unobservable characteristics of receivers that might affect the level of altruism shown by dictators to receivers. Since we control the amount of information decision makers have about receivers, this is limited to the information provided.[15]

With the objective of investigating the interaction between the value of transfer for each additional unit of time taken in the decision and any racial bias, we introduce an interaction term of response time and the race interaction variables in Equation 2:

$$E(\alpha_x) = \beta_0 + \beta_1(R_y * R_x) + \beta_2 Time + \beta_3 Time * (R_y * R_x) + \gamma_1 \mathbf{X} + \gamma_2 \mathbf{Y} \tag{2}$$

Given our experiment's setup we use OLS regressions with standard errors clustered at the level of the individual to estimate our empirical models (Equation 1 and Equation 2).[16]

[15] It is important to mention that these observable characteristics provided to decision makers are not enough to personally identify receivers.

[16] Considering the truncated nature of the transfer data, which varies from 0 to 100 in our Dictator games, we re-estimate the regressions using Tobit. The qualitative results remain the same (results are available on request).

4.2.2 Regressions

Table 3 presents our main regressions based on Equation 1 and Equation 2: we start by regressing the amount transferred on our main variables of interest, indicating whether or not the receiver has the same race as a dictator. Next, we include response time. We then interact the race interactions with decision time. All regressions use standard errors clustered at the individual level to account for the fact that we have five decisions for each individual.[17] Results suggest that decision makers do condition their transfer decisions on race parity with the receiver. Black dictators transfer significantly less to white receivers compared to black dictators paired with a black receiver (the reference group). This finding is different from those in previous Dictator games in South Africa (Van Der Merwe & Burns 2008; Pecenka & Kundhlande 2013), where black receivers received lower transfers or lost more of their endowments than white receivers. In contrast to Cappelen et al. (2016), but in line with our earlier findings in Figure 2, we find that response time has a positive and significant effect on transfers, suggesting that longer response times are associated with higher transfers (that is, more fair decisions are made by those taking more time to make a decision). Looking at the interactions between response time and race, dictators' behavior does not vary according to the speed of the decision at the mean. Once these interactions have been included, the time variable loses significance. We also checked the effect of the order in which dictators saw different receivers. We did not find any significant effect on either transfers or any other coefficients. Thus, the inclusion of this predictor is relegated to the Appendix (Table 7).

[17] Panel regressions are used as a robustness check for these findings, and are included in the Appendix (Table 7).

Table 3 – Transfer across race, OLS regressions

Dependent variable: Transfer amount			
	[1]	[2]	[3]
Race interaction: (Reference group: Black dictator & Black receiver)			
White dictator & White receiver	2.396	3.390	8.189
	(3.629)	(3.872)	(7.309)
Black dictator & White receiver	-6.519***	-6.409***	-9.843***
	(1.426)	(1.460)	(3.193)
White dictator & Black receiver	5.145	6.174	0.672
	(4.603)	(4.720)	(7.982)
Response time		0.159**	0.110
		(0.0722)	(0.0792)
Race interaction and time (Reference group: Black dictator & Black receiver)			
White dictator & White receiver * time			-0.241
			(0.283)
Black dictator & White receiver * time			0.127
			(0.0927)
White dictator & Black receiver * time			0.247
			(0.386)
Constant	34.05***	29.68***	31.04***
	(2.050)	(3.305)	(3.661)
Adj. R-sq	0.036	0.053	0.054
N	446	446	446

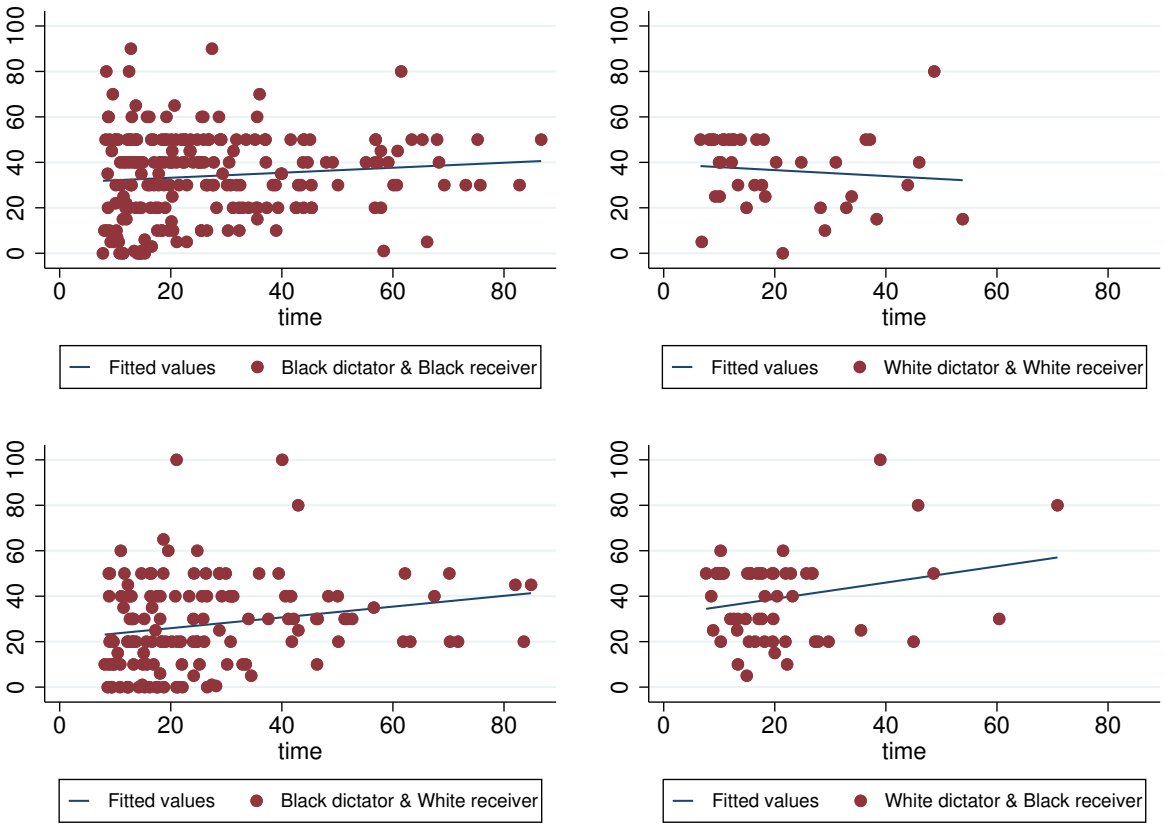
Standard errors in parentheses.

Significance levels: *: 10% **: 5% ***: 1%

Figure 3, investigates whether there is a difference in transfer from black and white

dictators for different values of time in more detail (time varying between 6 and 90 seconds in increments of 5 seconds). We note that while white dictators who make decisions very quickly (less than 15 seconds) transfer more on average to own-group (white) receivers than to out-group (black) receivers; white dictators who take more time to consider their decisions transfer more to black receivers than to white receivers, with the gap in average transfer amounts increasing as decision time increases. For black dictators, faster decisions also see higher transfers towards own-group (black) receivers. Transfers to own- and out-group receivers converge at far longer decision times for black dictators (∼75 seconds). These findings suggest that while white dictators might have some own-group bias when they make very short, impulsive decisions, taking time to consider their decisions leads, on average, to reducing this bias and even giving more to black receivers.

Figure 3 – Adjusted Predictions of transfer by race interaction of dictators and receivers



Given the persistent income inequalities by race in South Africa, we next investigate income as a possible explanation for the differences noted in Figure 3 and for the apparent bias in favour of black receivers. We hypothesise that white dictators who take time to consider their decisions might consider the likelihood that a black receiver has greater financial need than a white receiver. For black dictators, inequality reduction and own-group bias motives would both lead to favoring the black receiver. Since transfers to black receivers account for much of the racial bias, we control for dictators' beliefs about receiver income in Table 4. We note an apparent aversion to inequality in that dictators who perceive their own income to be above average give more; while less is given to receivers perceived as having above average income. Further, the inclusion of the income variable reduces the racial bias that we observe in Table 3: once perceived receiver income is controlled for, we see far smaller coefficients on the race interaction variables.[18] This suggests that inequality aversion appears as race-based bias because of perceptions of racial disparities in income. Since white receivers are expected to have above-average incomes, they receive lower transfers on average.

[18]Table 4 reports standard errors clustered at the level of the individual. As a robustness check, we also ran these regressions using bootstrapped standard errors. The bootstrapped results are consistent with the reported results. These results are available from the authors on request.

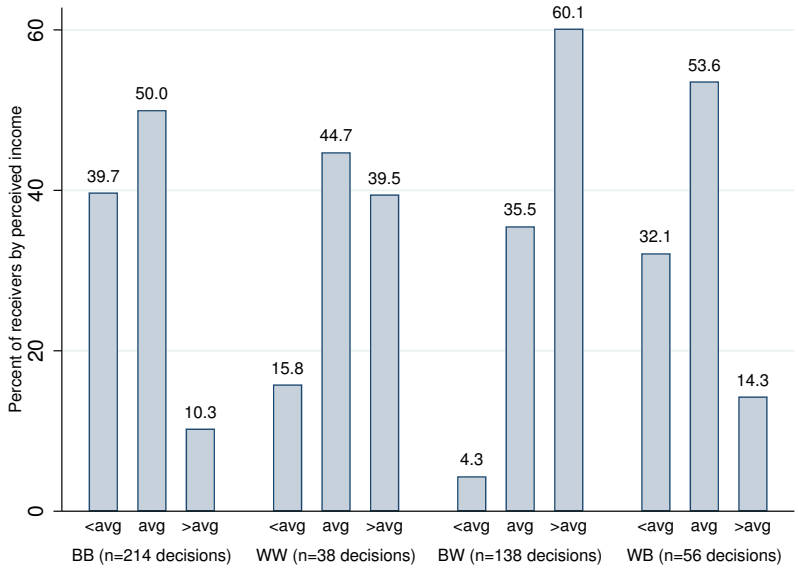
Table 4 – Heterogeneity of transfer across race and income, OLS regressions

Dependent variable: Transfer amount			
	[1]	[2]	[3]
Perceived income dictator (1=above average)	11.54**	10.89**	11.46**
	(5.657)	(5.266)	(4.826)
Perceived income receiver (1=above average)	-6.303***	-6.433***	-5.927***
	(2.051)	(2.095)	(2.175)
Race interaction (Reference group: Black dictator & Black receiver)			
White dictator & White receiver	1.362	2.520	7.129
	(4.298)	(4.494)	(7.351)
Black dictator & White receiver	-3.381**	-3.211*	-7.053**
	(1.568)	(1.627)	(3.146)
White dictator & Black receiver	2.675	3.826	-0.201
	(4.415)	(4.613)	(7.529)
Response time		0.154**	0.108
		(0.0656)	(0.0792)
Race interaction and time (Reference group: Black dictator & Black receiver)			
White dictator & White receiver * time			-0.245
			(0.255)
Black dictator & White receiver * time			0.133
			(0.0926)
White dictator & Black receiver * time			0.171
			(0.312)
Constant	34.54***	30.34***	31.55***
	(2.057)	(3.157)	(3.663)
Adj. R-sq	446	446	446
N	0.067	0.082	0.083

Significance levels: *: 10% **: 5% ***: 1%

Figure 4 plots the perceived distribution of receiver income by combinations of dictator and receiver race. We observe that black receivers are perceived as far more likely to have below-average incomes, while white receivers are perceived as far more likely to have above-average incomes. This is true when both black and white dictators are reporting income perceptions, although the differences between the perceived income of black and white receivers is slightly more pronounced when the dictator is black.

Figure 4 – Perceived income of receiver, by dictator and receiver race



5 Discussion

In contrast to much of the literature on fairness and response time, our Dictator game found higher transfers where more time was taken to make decisions. This finding is suggestive of greater cooperation in deliberative decisions than in shorter, more impulsive decisions. While we do see evidence of higher transfers to own-race receivers from black dictators, we also note higher transfers from white dictators to black receivers where more time is taken to make decisions. Further investigation of this bias in favor of black receivers points to a perceived income inequality-based mechanism. Taking beliefs about receiver income into account, we note that the difference between transfers to black and white receivers is reduced. This suggests that lower-income perceptions among black versus white receivers explain much of the apparent bias from black dictators towards black receivers. This is in line with intersectionality theory (Crenshaw 1989), suggesting that multiple aspects of identity, such as class, race, or gender, can become interconnected. Persistent race-based inequality in South Africa results in perceived intersectionality between race and income, where black receivers are assumed to have lower income. Indeed, inequality aversion in decision making is well-established in the literature on Dictator games (e.g. Bouckaert & Dhaene 2004; Camerer 2011).

Our student sample's behavior is encouraging, given the inequality challenges facing South Africa. Decision-makers appear to have conditioned their decisions on the need to reduce inequality, giving less to students perceived as more wealthy. This finding suggests that where inequality is understood, people act intuitively to reduce it. Better awareness of the persistence of race-based inequality might help to explain the difference between our results (bias in favour of black respondents, related to perceptions of lower-income) and the results in previous Dictator games in South Africa (bias against black respondents, see Van Der Merwe & Burns 2008; Burns 2010; Pecenka & Kundhlande 2013[19]). Increased awareness

[19]The work of Pecenka & Kundhlande (2013) differs from ours in framing the dictator decision (their experiment used a stealing frame, where the receiver had the initial endowment and the dictator could take up to a fixed amount from this endowment). Despite different findings in terms of receiver race effects, their

of race-based inequality has likely been helped by the publicity given to racial injustice by the Black Lives Matter global movement since 2013.

Our findings suggest that policies designed to increase awareness of the persistence of inequalities might help to stimulate voluntary inequality reduction in South Africa.

research does support our hypothesis of inequality aversion: these authors note that dictators chose to steal more from receivers with higher endowments than from those with lower endowments, a finding which the authors attribute to inequality aversion.

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A Appendix

A.1 Experiment instructions

Thank you for participating in this experiment.

You will receive R20 just for being here and participating, and you will be able to earn additional money based on the choices you make. There are no right or wrong answers: we are interested in your preferences.

Please remember also that your decisions are anonymous: we will at no point ask for any information that can identify you personally.

You will be asked to make a series of decisions about how to divide R100 between yourself and one of the other people who signed up for the experiment. For each decision, R100 must be divided between yourself and the other person.

From the people who signed up, some people were randomly selected to be decision makers and others were selected to be receivers (if you are in this room, you were randomly selected to be a decision maker. The people who were selected to be receivers will receive emails inviting them to a session tomorrow where they will be paid based on the decisions made by the decision makers today).

For each decision, you will be given some limited demographic information about the person you have been paired with for that decision. This will never allow you to identify a specific individual, but it will give you a bit of information about the person. Note that for each decision, you will be paired with a different person.

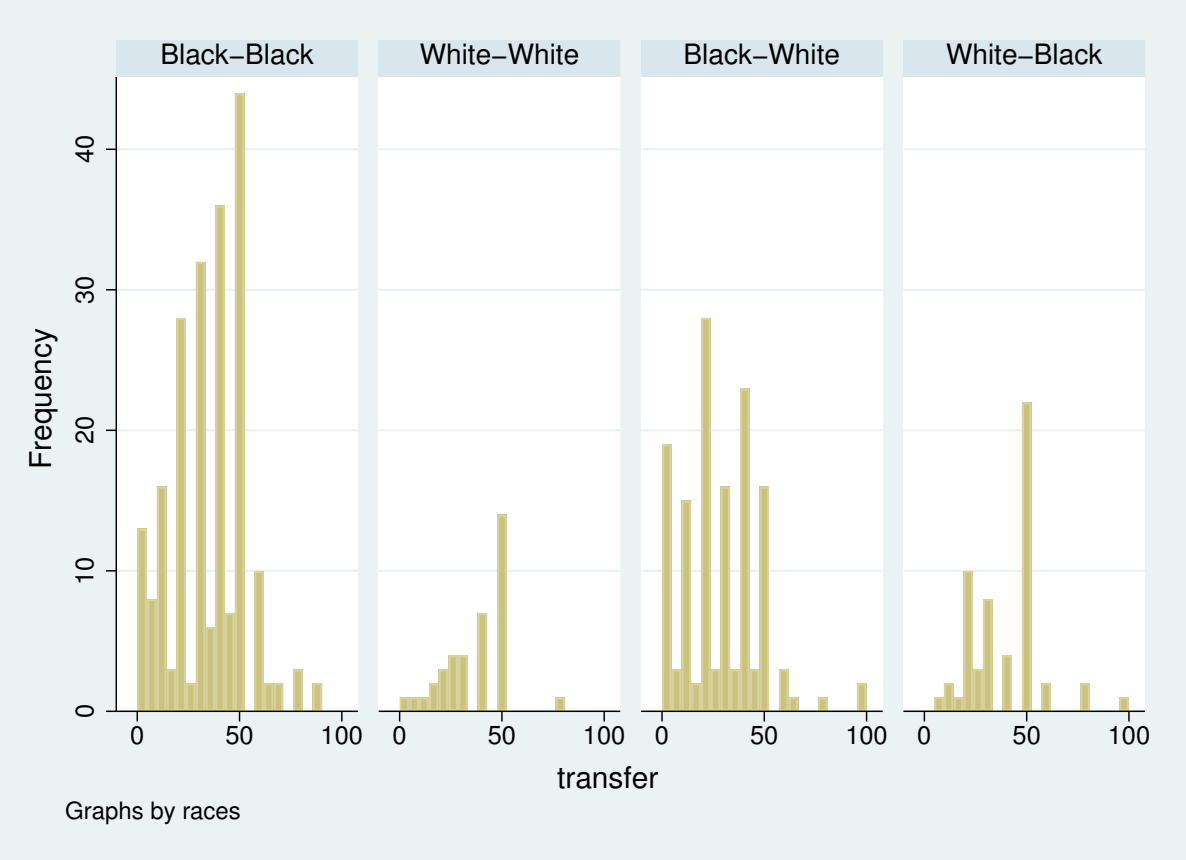
All you have to do is to decide how much of the R100 you want to keep for yourself and how much you want to give to the person whose details are shown on the screen.

Before we start with your real decisions, we will play two practice rounds to make sure you understand how the decisions work. We will then have an opportunity for you to ask any questions you might have before we continue to the real decisions. You will make 5 real decisions.

Note that at the end of the experiment, one of your real decisions will be randomly selected to be paid in real money. You will roll a dice to select one of the decisions, and we will then pull up your actual decisions, and you will be paid in cash based on the amount you decided to keep. Similarly, the receivers will attend a session tomorrow in which they will be paid for one of the decisions in which their demographic details were used. For this reason, please make sure you make each decision as if it is the one with real monetary consequences, as all decisions have an equal chance of being selected for payment.

A.2 Transfer by race interaction

Figure 5 – Distribution of transfer by race interaction



A.3 Gender controls

Table 5 – Mean response time

Mean response time, by receiver gender & race						
Dictator	Receiver					
	Female	Male	Difference (Female-Male)	Black	White	Difference (White-Black)
Female	23.590	23.073	0.518	23.850	22.670	-1.179
Male	29.577	28.382	1.195	28.980	29.285	0.305
Black	27.535	26.547	0.988	27.411	26.725	-0.686
White	21.059	21.031	0.028	20.959	21.177	0.217
Mean transfer						
Dictator	Receiver					
	Female	Male	Difference (Female-Male)	Black	White	Difference (White-Black)
Female	32.684	30.598	2.090	33.934	28.660	-5.275**
Male	35.707	32.032	3.675	36.667	30.507	-6.159 **
Black	32.405	30.118	2.288	34.051	27.532	-6.519**
White	40.000	35.263	4.737	39.196	36.447	-2.749

Significance levels: $*$: 10% $**$: 5% $***$: 1%

Table 6 – Transfer across race and gender, OLS regressions

Dependent variable: Transfer amount			
	[1]	[2]	[3]
Race interaction: (Reference group: Black dictator & Black receiver)			
White dictator & White receiver	3.179	3.964	9.220
	(3.663)	(3.874)	(7.304)
Black dictator & White receiver	-6.177***	-6.097***	-9.216***
	(1.395)	(1.426)	(3.131)
White dictator & Black receiver	5.697	6.519	1.588
	(4.643)	(4.734)	(8.067)
Gender interaction: (Reference group: Female dictator & Male receiver)			
Female dictator & Female receiver	1.227	1.160	1.157
	(0.992)	(1.020)	(1.025)
Male dictator & Male receiver	2.193	1.490	1.528
	(3.596)	(3.489)	(3.565)
Male dictator & Female receiver	4.992	4.131	3.984
	(3.783)	(3.638)	(3.635)
Response time		0.147**	0.105
		(0.0664)	(0.0768)
White dictator & White receiver * time			-0.262
			(0.274)
Black dictator & White receiver * time			0.115
			(0.0919)
White dictator & Black receiver * time			0.222
			(0.389)
Constant	31.71***	28.09***	29.27***
	(2.760)	(3.779)	(4.129)
Adj. R-sq	0.039	0.052	0.053
N	446	446	446

Standard errors in parentheses.
Significance levels: *: 10% **: 5% ***: 1%

A.4 Panel regression and control for decision order

Table 7 – Transfer across race, OLS and panel regressions controlling for decision order

Dependent variable: Transfer amount		
	[Pooled]	[Panel]
Reference group: Black dictator & Black receiver		
White dictator & White receiver	3.43	2.89
	(3.89)	(4.35)
Black dictator & White receiver	-6.37***	-6.17***
	(1.46)	(1.22)
White dictator & Black receiver	6.25	5.47
	(4.76)	(4.23)
Response time	0.17**	0.10**
	(0.08)	(0.05)
Question order (pooled)/Time (panel)	0.24	-0.04
	(0.47)	(0.44)
Constant	28.72***	31.67***
	(4.48)	(2.93)
Adj. R-sq	0.061	0.059
Chi-sq		35.71***
N	446	446

Standard errors in parentheses.

Significance levels: *: 10% **: 5% ***: 1%