Fairness is not always intuitive

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Abstract

We build on literature studying whether fair decisions are made intuitively by looking at distributive fairness decisions in South Africa. In particular, we investigate whether fairness is equally intuitive when dealing with partners who share race and/or gender with the decision maker; versus partners of a different race or gender to the decision maker. Following relevant literature, we measure response time for dictator game decisions, and compare transferred amounts in short (intuitive) decisions and longer (deliberate) decisions across race and gender. Our findings indicate that fairness is not necessarily intuitive in our sample of South African economics students: transfers increase with decision time. We note significantly higher transfers to own race receivers in deliberate, but not intuitive, decisions. Further investigation of this effect suggests that this represents higher transfers to black receivers, particularly from black decision makers. The channel for this effect appears to be perceived income, where black receivers are assumed to have lower income than their white counterparts.

Key words: Dictator game; fairness; implicit bias; Africa
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1 Motivation

Making choices is a daily routine in people's lives. Choices come with opportunity costs that can have implications for individuals, households, firms and even nations. As such, understanding the factors driving decision making has been prominent in the behavioral economics literature. For example, under what situations do people make impulsive rather than deliberate decisions? Do impulsive decisions demonstrate self-interest? Do deliberate decisions demonstrate increased cooperation? Do the choices people make reveal biases that are not immediately obvious, even to the decision maker herself?

The concept of implicit bias originated in the psychology literature in the 1990s (e.g. Greenwald and Banaji, 1995), although earlier research had differentiated between automatic and controlled processes involved in prejudice (e.g. Devine, 1989). These authors, and many others since, have found that people who profess not to hold biases (about gender, ethnic group, etc.) frequently behave as if they do indeed hold such biases. Implicit bias is a positive or negative thought or feeling towards a person, thing, or group held at an unconscious level. A person might therefore genuinely believe themselves not to hold biases, even though biases can be clearly seen in their decisions. In the psychology literature, such automatic or implicit biases are frequently measured using response times (for example, association of positive and negative adjectives with own and other race names in the Implicit Association Test Greenwald et al. (1998); or association of positive and negative adjectives with own and other race photographs as in Fazio et al. (1995). Taking longer to associate positive adjectives (and less time to associate negative adjectives) with other race names/faces than with own race names/faces is taken as an indication of implicit bias.

With the current study, we are interested in how both explicit and implicit biases interact with decisions around the (fair or unfair) distribution of money where race and gender varies. Our results show increased cooperation in distributive (dictator game) decisions where decision makers take more time to deliberate. We note significant bias towards own race receivers in deliberate, but not intuitive decisions. Further analysis of this finding suggests that this can be explained by black decision makers transferring more to black receivers whom they (correctly) assume to have a higher likelihood of below average income.

Despite encouraging trends suggesting that racial prejudice in the United States of America (U.S.) has declined over time, recent evidence suggests that black people face continuing discrimination across a variety of domains due to implicit bias. For instance, implicit bias has become a commonly used term to explain fatal decisions made by white policemen where innocent black men have been shot because police officers misattributed innocent gestures (reaching for a wallet or papers) as life-threatening (reaching for a weapon).

Similarly, more than 20 years after the end of apartheid legislation, race continues to be prominent in the South African media. Although legislation has been introduced to enable overt racism to be punished, and overtly racist behaviour meets with widespread social sanctions, implicit racism is less easily identified. Implicit biases can undermine public policies that aim at inclusive development and therefore have the potential to perpetuate inequality.

A consensus in the literature is yet to be found on the impact of intuitive decision-making versus deliberate decision-making. According to the Social Heuristics Hypothesis (Rand et al., 2012; Rand and Kraft-Todd, 2014), fair behaviour 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 deliberate 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 (Cappelen et al., 2016; Rubinstein, 2007). Intuitive decisions have been found to demonstrate greater fairness or cooperativeness; while deliberate decision-making has been associated with self-interest. Cappelen et al. (2016) find a strong negative association between response time and fair behaviour in dictator games, while Rand et al. (2012) find that subjects who reach their decisions more quickly are more cooperative. Moreover, when under time pressure to decide quickly, people tend to increase their contributions, whereas delaying the decision decreases contributions (Cappelletti et al., 2011; Rand et al., 2012; Rand and Kraft-Todd, 2014; Rand et al., 2014; Lotito et al., 2013). These results are in line with the intuitionist approach Haidt (2001) that moral decisions are quick and require limited thought process.

While most of these studies conclude that fair behaviour is intuitive, a few find the opposite effect (Tinghög et al., 2013; Piovesan and Wengström, 2009; Evans et al., 2015; Grimm and Mengel, 2011). These authors find that faster response times do not necessarily indicate fairness or cooperativeness. Rather, they argue that when people are under time pressure or experience conflict around a decision, they become more self-interested. Piovesan and Wengström (2009) finds that payoff maximising choices are reached quicker than choices expressing social preferences. On the other hand, Evans et al. (2015) find that response times are driven by conflictedness. Therefore, people who feel conflicted about the decision to cooperate take longer to reach a decision and are less likely to select an extreme response. This is in line with the rationalist approach that moral decisions require reasoning and reflection so may take longer. Interestingly, Grimm and Mengel (2011) find that when responders are given more time to think over a social dilemma, they are more likely to accept low offers from dictators, implying higher cooperation.

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. Almost all use strategic games, such that the decision maker has to consider the likely behaviour of other participant(s) in assessing the outcomes of different decisions. Since response times cannot distinguish between time needed to understand the game versus time needed to make a decision (fair or not), they argue that this is a significant confounding factor. They therefore use the dictator game, since it lacks the complexity of strategic games, and it is easy to see what would be a (relatively) fair versus unfair decision. As such, the variation in cognitive ability that might impact understanding the game prior to making a decision is removed from the analysis.

We add to the literature on response times as indicators of intuitive or more deliberate decisions by considering how group identity and biases towards a specific race or gender might be evident in response times. Specifically, we consider bias in intuitive decisions as indicative of implicit (or subconscious) bias; and bias in deliberate decisions as indicative of explicit (conscious) bias.

The remainder of the paper proceeds as follows: Section 2 describes the experiment, Section 3 sets out our conceptual framework, Section 4 discussed the results and Section 5 concludes.

2 Experiment Design

2.1 Dictator game

We make use of a Dictator game for this research. This game originated with work by Kahneman et al. (1986) and was later simplified by Forsythe et al. (1994). The common version of the game has 2 players, where one player (the Proposer, or decision maker) is endowed with an amount of money, and can choose how much (if any) of the endowment to transfer to another player (the receiver). The simple one-shot Dictator game is a non-strategic one: the proposer does not need to consider the possible responses of the receiver in deciding on the amount to transfer, since the receiver has no opportunity to reciprocate or retaliate. Because of the non-strategic setting, transfers in the game are seen as indicative of altruism or of the fairness preference of the dictator, as a willingness to redistribute income. A meta-analysis of dictator game experiments Engel (2011) reports a give rate of 28% on average, with 36% giving nothing, 17% splitting the endowment equally, and 5% giving the full endowment away.

2.2 Participants

Our experiment was conducted with first year students at the University of Pretoria, South Africa. Students were invited to participate in a decision making experiment through an announcement email sent via the Blackboard communication tool (used by the university as a day to day communication tool) to all students registered for first year economics (n∼2000). 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.[1] Five session times (all sessions were conducted on one day in May 2019) were listed, and students were asked to indicate all session times when they would be available to participate. We invited students to specific session times based on their availability.[2] 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. We invited a total of 137 students to specific sessions, of whom 91 participated in the experiment.

The dictator game set-up of our experiment also required us to appoint receivers from those who signed up for the experiment. Since receivers were needed from demographic groups with 4 combinations of race and gender (black male, black female, white male, white female), receivers were randomly selected from each group: Each student in the relevant demographic group who had expressed an interest in participating in the experiment via the Qualtrics link was assigned a number (based on the number of their row in the excel file where we stored demographic details, email addresses and session availability details). A pair of 10-sided dice allowing for numbers from 1 to 100 was then rolled to select the receiver(s) from each demographic group.[3] The receivers were contacted by email and asked to meet at a given location to receive their payment.

2.3 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

[1] 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.

[2] 5 sessions with different times were made available so as to allow students with different schedules to participate, thereby minimizing selection bias.

[3] To avoid introducing additional confounds, all decision makers faced the same 5 receivers.

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 R20 for participating in the experiment. They were asked to make a series of five dictator game decisions where the participant had to decide how to allocate R100 between themselves and a fellow student who had signed up for the experiment. To ensure that all decisions were salient, participants were informed that one of these five allocation decisions would be paid to them in real money at the end of the experiment, and that each participant would randomly select the decision to be paid to them 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 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 the order of receivers each decision maker faced was randomized.[4]

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 R20) 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 the real decisions.

Participants faced one black male receiver, one white female receiver, two black female receivers and one white male receiver. We provided this demographic information using

[4]In order not to decrease the salience of decision makers' allocations to receivers, decision makers were not 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.

an approach first used with nationality by Bornhorst et al. (2010), and later for testing racial bias in Hamann and Nicholls (2018): The demographic characteristics of interest are provided along with other apparently relevant demographic details, which are either non-varying within the sample (age group and year of study were homogenous 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). By not making our interest in race and gender bias transparent we hoped to reduce any experimenter demand effects that might arise if participants were aware that their biases were under investigation. We included two representatives (with varying odd versus even numbers of siblings) from one of the demographic groups of interest (black females) to further reduce transparency about our specific interest in race and gender.

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.

There are two main critiques on the use of response time data to predict co-operation. The first is that lack of understanding of the game can result in quick response times that reflect confusion rather than intended fairness (Goeschl and Lohse, 2018; Recalde et al., 2018). Like Cappelen et al. (2016), we used the very simple dictator game, including a detailed worked example and two practice rounds, to address this criticism. The second is raised by Myrseth and Wollbrant (2017): response times as seen in Rand et al. (2012); Rand and Kraft-Todd (2014) and Cappelen et al. (2016) for fair responses, although shorter than those for unfair responses, are still believed to be too long to reflect intuitive decisions. Myrseth and Wollbrant (2017) suggest that intuitive decisions would be made in 10 seconds or less. We follow this suggestion and use a 10 second cut-off to define intuitive decisions.

More than 20 years after the end of apartheid in South Africa, significant disparities in average incomes between black and white South Africans persist. In order to understand the impact of any assumptions about fellow students' incomes which might affect transfer decisions, we asked students to report their assumptions about each receiver's financial position (this is asked after the dictator questions so as not to cue income as a variable in making dictator decisions). Finally, we asked students to provide some demographic details, including their own perceived financial position.[5]

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

[5]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 financial position as above average, average or below average relative to other students.

Table 1 – Dictator Summary Statistics

Variable	Mean	Std. Dev.	N
Female	0.5604	0.4991	91
Black	0.7912	0.4087	91
Own perceived income			
Above average	0.0659	0.2495	91
Average	0.5714	0.4976	91
Below average	0.3626	0.4834	91
Transfer (in Rand)	33.0363	19.1090	455
Time (in second)	25.6084	16.8635	455

2.4 Data

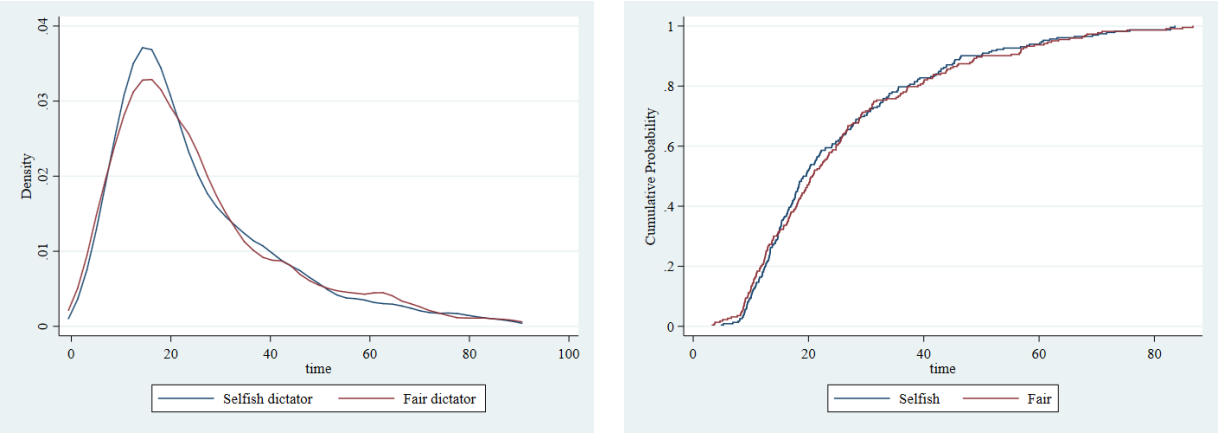
The experiment took the form of 5 standard one-shot dictator games, each with an endowment of 100 Rand. Participants (dictators) were paired with a series of receivers (one black male, one white female, two black females and one white male, in random order) and were asked to decide how to split the endowment with each receiver independently. In each round, the dictator could choose any amount between 0 and 100 to transfer to the receiver. Overall, we ran 5 experimental sessions with between 11 and 24 dictators per session, each making 5 independent decisions. In total, 91 dictators (i.e. 455 decisions) participated in the experiment. Table 1 presents the demographic breakdown of the decision makers that participated in the experiment. About 79% of dictators are black and 56% are female. The majority black racial composition of our sample in Table 1 reflects the racial demographics of South Africa, where 80.7% of the current population is black.[6] Most of them, 57%, declared that they have an average income while 37% think that their income is below average compared to other students. Only 7% of the dictators feel that their income is above the average.

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. The average time in our sample is 25.6 seconds, the fastest dictator spent less than 3.28 seconds on a decision, while the median decision time is around 20.10 seconds. Following Myrseth and Wollbrant (2017), we use a 10 second cut-off for intuitive decisions.

Looking at the amount transferred, on average decision makers transfer about 33.04 percent of the endowment, 33 Rand. Only 1 decision maker gave nothing, while 9% shared the endowment equally and none gave away the endowment fully. We use the average transfer to classify transfers into fair and selfish decisions: a fair participant is defined as someone

[6]Source: Mid-year population estimates, Statistics South Africa, 2019.

Figure 1 – Kernel density and Cumulative distribution of response time



(a) Kernel density

(b) Cumulative distribution

who gives at least 33 Rand to the receiver while a selfish dictator is someone who gives less than 33 Rand to a receiver.

Fair decisions in our sample take slightly more time than their selfish counterparts. The average decision time for selfish decisions is about 25.38 seconds, while for fair decisions this is about 25.85 seconds. Panel (a) of Figure 1 plots the distribution of decision time for selfish and fair decisions. The figure shows that decision time distribution for fair decisions is tilted toward the right and has a lower peak in comparison to the distribution for selfish decisions. Similarly, Panel (b) of Figure 1 presents the cumulative distributions of response time of the selfish and the fair decisions. We observe that the cumulative distribution of the fair decisions does not strictly dominate that of the selfish decisions.

Formally, we test the mean difference in decision time between fair and selfish decisions. The mean difference test(t-test) shows that fair decisions took marginally more time than selfish decisions (difference= 0.4723, p-value= 0.7656). 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 and Wong, 1992). Both Cohen's d and Hedges's g indicate that the average decision time differs by approximately 0.03 standard deviations, with 95% confidence intervals. Moreover, a Kolmogorov-Smirnov test of p-value = 0.828 suggests that the two distributions are equal to each other. Thus, our data fail to provide meaningful evidence for the hypothesis that cooperation is intuitive rather than deliberative. This finding supports prior literature that suggest that impulsive responses might not be more fair than deliberate responses (e.g., Martinsson et al., 2012; Achtziger et al., 2015). This could be due to several factors. For instance, individuals might

Table 2 – Mean response time

Mean response time, by receiver gender & race						
Dictator	Receiver					
	Female	Male	Difference (Female-Male)	Black	White	Difference (White-Black)
Female	23.4752	22.8941	0.5811	23.8499	22.3322	-1.5177
Male	29.3909	27.4750	1.9159	28.3696	29.0069	0.6374
Black	27.4727	25.9308	1.5419	27.1964	26.3452	-0.8512
White	20.7810	21.0306	-0.2495	20.6834	21.1769	0.4935
Mean transfer						
Dictator	Receiver					
	Female	Male	Difference (Female-Male)	Black	White	Difference (White-Black)
Female	32.7974	30.3922	2.4052	33.9346	28.6863	-5.2484**
Male	35.8084	32.7063	3.1022	36.7917	31.2314	-5.5603*
Black	32.6389	30.3924	2.2466	34.1991	28.0522	-6.1469***
White	39.7368	35.2632	4.4737	38.9474	36.4474	-2.5000

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

have experienced an initial proclivity, changed their mind, and then changed their mind once again by controlled deliberation.

The main focus of our study is to understand whether the intuitive response to distributive behaviour is to behave selfishly or fairly when dealing with partners who share race and/or gender, and hence we start our analysis by comparing the response time and average transfer of gender and race interaction of decision makers and receivers. For the most part, we don't find significant differences in response time across race and gender interactions. Looking at transfers we note that decision makers transfer less to white receivers. The difference is more pronounced for black decision makers (Table 2).

3 Conceptual framework

The simplest version of individual utility taking into account fairness (altruism) in a two-player setup is given as follows:

$$U_x(x,y) = U_x(x) - \alpha_x Max(0, x-y) - \beta_x Max(0, y-x) \tag{1}$$

where x is person x's income and y is the person y's income. $U_x(x)$ is the utility of person x independent of the income of person y, and $U_x(x;y)$ is the utility of person x incorporating the income of person y. α_x measures the level of person x's aversion to inequality favouring person x over person y. This could also be interpreted as economic altruism of person x

towards person y, representing person x's desire for redistribution that arises from fairness. Across different settings α_x is found to be greater than 0 (that is, inequality aversion is found to impact decision making) and it varies based on the characteristics of person x and y, such as race, gender, etc. (see e.g. Bouckaert and Dhaene, 2004; Camerer, 2011). β_x measures person x's aversion to inequality favouring person y over person x.

In this study, we are interested in understanding whether the intuitive response to distributive behaviour is to behave more selfishly or more fairly when dealing with partners who share race and/or gender. Thus, we consider the following model to determine α_x:

$$\alpha_x = f(G_y, R_y, O_y, X) \tag{2}$$

G_y and R_y are the gender and race of a person y, the receiver. O_y ia a set of all characteristics of the receiver that are known by the proposers outside of the information provided in the experiment. [7] X is a matrix of observable and unobservable characteristics of proposers that might affect their level of altruism. Since we control the amount of information a decision maker has on the characteristics of a receiver we assume :

$$O_y = \emptyset \tag{3}$$

Based on this assumption we deduce the following empirical model for testing the true value of altruism (α_x) for an individual x :

$$E(\alpha_x|O_y : X) = E(\alpha_x) = \beta_0 + \beta_1 G_x + \beta_2 R_x + \beta_3 (R_y * R_x) + \beta_4 (G_y * G_x) + \beta_5 (R_y G_y * R_x G_x) \tag{4}$$

G_x and R_x take a value of one if a proposer is male and black, respectively. α_x is proxied by the share of the total endowment redistributed by proposer x to a receiver y. β_3, β_4 and β_5 measure the marginal expected payout for partners who share race and/or gender with proposers.[8]

4 Results

4.1 Fairness is not always intuitive

Table 3 presents our basic regressions: we start by regressing the amount transferred on the decision maker's gender and race, as well as decision makers' own perceived income. Next, we include response time in addition to these predictors. We then show separate

[7] It is important to mention that in our experiment the observable characteristics of receiver that are provided to the proposers are not enough to personally identify the receivers.

[8] In line with the literature on dictator games, and considering the truncated nature of the transfer data in these games, we use Tobit regressions to estimate our empirical model for transfers.

regressions for intuitive decisions (response time of 10 seconds or less) and decisions that are not intuitive (response time of more than 10 seconds, suggesting some deliberation in making decisions). We note that overall, decision makers who perceive themselves as having above average income give higher transfers than those with lower perceived incomes. In contrast to Cappelen et al. (2016), we find that response time has a positive and significant effect, 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).

Table 3 – Determinants of transfer to a receiver, Tobit regressions

Dependent variable: Amount transferred				
	All	All†	Intuitive	Not intuitive
Gender (Female=1)	2.594	1.935	7.654	2.549
	(3.490)	(3.405)	(9.270)	(3.322)
Race (Black=1)	-5.656	-6.450	-16.77**	-4.319
	(4.458)	(4.633)	(6.527)	(4.179)
Perceived income of decision makers (Reference group: Average income)				
Below average	3.298	3.189	-8.305	4.357
	(3.915)	(3.867)	(9.190)	(3.720)
Above average	10.30*	10.03*	-22.80**	14.48***
	(5.741)	(5.442)	(9.414)	(4.980)
Response time		0.143**		
		(0.0662)		
Constant	34.07***	31.37***	45.81 ***	32.37***
	(3.778)	(4.152)	(3.460)	(3.555)
Log likelihood	-1916.386	-1913.131	-210.998	-1699.728
χ_2	1.73	1.89	3.63	3.22
P-value	0.1427	0.0944	0.0119	0.0128
# Observations	455	455	50	405

Standard errors in parentheses.
"Intuitive" is measured using 10 second cut-off
†Regression includes response time.
Significance levels: $*$: 10% $**$: 5% $***$: 1%

In considering intuitive and not intuitive decisions separately, we note an interesting income effect: in intuitive decisions, decision makers with above average income transfer significantly less on average than those with average incomes. However, for non-intuitive decisions, this direction reverses, with higher transfers given by those with above average incomes relative to those with average incomes. Perhaps those decision makers who take more time to consider their decisions might consider their own income advantage in making their transfer decision. We also note directionally lower transfers from black respondents, although this difference is only statistically significant in intuitive decisions.

4.2 Heterogeneity of transfer

In Table 4 we introduce 3 of our main variables of interest indicating whether or not the receiver has the same race and/or gender as the decision maker. Results suggest that decision makers do not condition their transfer decisions on gender parity with the receiver. However, we do see evidence of higher transfers where the decision maker and the receiver's race is the same. Although this directional effect is seen in both intuitive and non-intuitive decisions, it is only statistically significant in non-intuitive decisions.

Table 4 – Heterogeneity of transfer across age and gender, Tobit regressions

Dependent variable: Amount transferred				
	All	All†	Intuitive	Not intuitive
Gender (Female=1)	2.470	1.777	6.323	2.631
	(3.483)	(3.398)	(9.298)	(3.300)
Race(Black=1)	-6.529	-7.271	-17.52**	-5.246
	(4.434)	(4.607)	(7.432)	(4.135)
Perceived income of decision makers (Reference group: Average income)				
Below average	3.305	3.197	-7.775	4.390
	(3.919)	(3.872)	(9.522)	(3.709)
Above average	10.38*	10.16*	-19.85**	14.37***
	(5.717)	(5.413)	(8.940)	(4.999)
Same gender	0.873	1.399	-1.405	1.304
	(1.938)	(1.912)	(6.291)	(2.371)
Same race	5.610***	5.927***	10.02	4.774**
	(1.875)	(1.848)	(8.805)	(2.121)
Same race and gender	-1.795	-2.621	-8.088	-1.158
	(2.093)	(2.139)	(10.96)	(2.637)
Response time		0.143**		
		(0.0661)		
Constant	31.73***	28.78***	44.08***	30.02***
	(3.982)	(4.243)	(5.176)	(3.907)
Log likelihood	-1913.187	-1909.902	-209.870	-1697.371
χ_2	3.55	3.77	2.25	4.48
P-value	0.001	0.000	0.048	0.000
# Observations	455	455	50	405

Standard errors in parentheses.
"Intuitive" is measured using 10 second cut-off
†Regression includes response time.
Significance levels: $*$: 10% $**$: 5% $***$: 1%

Table 5 investigates the apparent bias towards own-race receivers noted previously. We first add a dummy variable taking a value of 1 if the receiver is black. When we control for the receiver being black, we note higher transfers to black receivers. When receiver race is controlled for, higher transfers to same race receivers are no longer significant, suggesting that this was driven by higher transfers from black proposers to black receivers. Interestingly, white proposers also transfer more on average to black receivers. Recall that our sample consisted of nearly 80% black respondents, in line with the South African population demographics. Because of this demographic characteristic of our sample, higher transfers to black receivers from black respondents appear as a same race "bias" effect in our data.

Given the history of systematic discrimination against black South Africans under apartheid,

Table 5 – Heterogeneity of transfer across age, gender and income, Tobit regressions

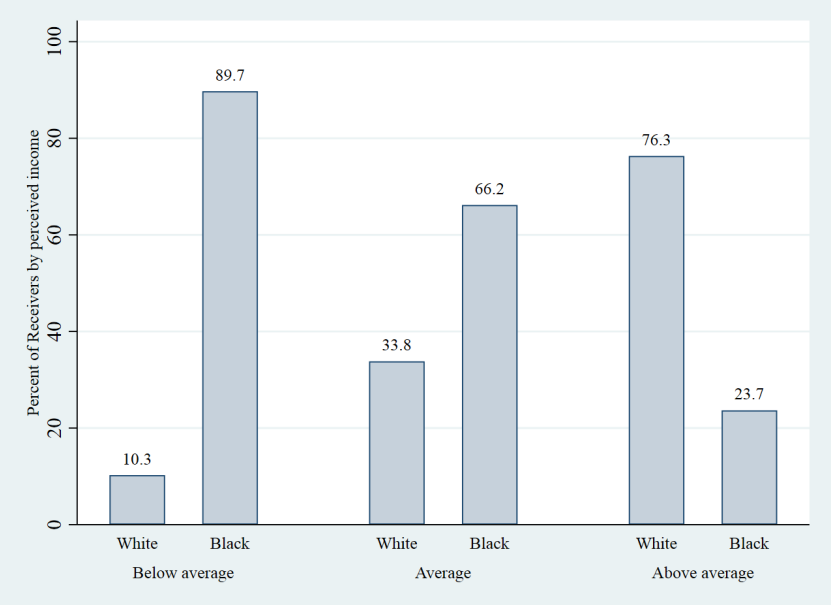
	All	Intuitive	Not intuitive	All	Intuitive	Not intuitive
Gender (Male=1)	1.769	6.278	2.642	2.041	6.284	3.085
	(3.397)	(9.119)	(3.306)	(3.361)	(8.999)	(3.254)
Race (Black=1)	-6.734	-17.56**	-4.549	-6.096	-17.65**	-3.986
	(4.588)	(6.978)	(4.082)	(4.596)	(7.328)	(4.099)
Perceived income of dictator (Reference group: Average income)						
Below average	3.198	-8.063	4.404	2.694	-7.741	3.918
	(3.872)	(9.377)	(3.724)	(3.843)	(9.307)	(3.664)
Above average	10.14*	-23.52***	14.67***	10.12*	-23.30***	14.76***
	(5.413)	(7.657)	(5.029)	(5.504)	(7.893)	(5.089)
same gender	1.185	-0.306	0.980	1.208	-0.398	1.093
	(1.918)	(5.954)	(2.375)	(2.031)	(6.222)	(2.466)
Same race	3.118	5.520	1.835	2.334	6.068	1.107
	(2.033)	(8.379)	(2.596)	(1.974)	(7.858)	(2.528)
Same race & gender	-2.431	-6.298	-1.000	-2.585	-6.136	-1.097
	(2.136)	(10.73)	(2.623)	(2.297)	(10.99)	(2.862)
Response time	0.142**			0.150**		
	(0.0652)			(0.0653)		
Perceived income of receiver (Reference group: average income)						
Black receiver (1=black)	4.683***	8.706	4.739**	1.949	9.257	1.348
	(1.652)	(5.194)	(2.187)	(1.637)	(5.817)	(2.168)
Below average				0.781	-1.456	0.595
				(2.299)	(8.007)	(2.531)
Above average				-6.864***	1.065	-8.125***
				(2.219)	(6.205)	(2.324)
Constant	27.19***	41.38***	28.32***	30.44***	40.97***	32.49***
	(4.283)	(5.892)	(3.777)	(4.365)	(6.760)	(4.072)
Log likelihood	1907.818	-209.054	-1695.514	-1903.105	-209.013	-1689.614
χ_2	3.80	10.61	3.98	3.53	8.53	3.94
P-value	0.009	0.000	0.000	0.000	0.000	0.000
# Observations	455	50	405	455	50	405

Standard errors in parentheses.
"Intuitive" is measured using 10 second cut-off
Significance levels: $*$: 10% $**$: 5% $***$: 1%

income differences between races persist in South Africa: According to Statistics South Africa, white-headed households have an income that is 4.5 times larger than that of black-headed households.[9] Since black receivers appear to be driving much of the apparent same race bias, we control for perceived income of the receivers. We note that where the receiver is expected to have above average income, a significantly lower transfer is chosen. This effect appears to dominate the simple race effect: once perceived receiver income is controlled for, we no longer see significant bias towards own race receivers, or even to black receivers. It seems, then, that the apparent bias is instead an artefact of perceptions of racial disparities in income: if white receivers are expected to have above average incomes, these receivers might receive lower transfers.

Figure 2 plots the perceived distribution of receiver income by receiver race: here we see the effect that we hypothesized previously: black respondents are perceived as far more likely to have below average incomes; while white respondents are perceived as far more likely to have above average incomes.

Figure 2 – Perceived income of receiver, by race



[9]Source: Living Conditions of Households in South Africa 2014/2015, Statistics South Africa 2019

4.3 Decision time

Table 6 reports response time regressed on decision maker demographics, as well as receiver demographics. We then add a dummy variable taking a value of 1 for "fair" decisions (above the mean transfer of R33). Here we note that decisions with greater transfers do not take significantly longer than lower transfers. Next we analyze "fair" and "selfish" (less than R33 transferred) decisions separately. Overall we note that black proposers take longer to make decisions. This appears to be based on significantly longer times taken when making selfish decisions. We also note that male proposers take longer to make decisions than their female counterparts, although this difference is not significant for selfish decisions. Where the receiver is expected to have below average income, decisions are made more quickly overall. Interestingly, this is not the case for fair decisions. Decision makers who perceive their own income to be above average make fair decisions more quickly than those who perceive their income to be average or below average. We do not, however, note any significant differences in time taken to decide, conditional on whether the receiver shares a race or gender with the decision maker.

Table 6 – Determinants of response time, OLS regressions

Dependent variable: Response time	All	All†	Fair	Selfish
Race (Black=1)	4.989**	5.018**	1.741	7.963***
	(1.977)	(2.000)	(3.114)	(2.283)
Gender (Male=1)	4.334*	4.346*	5.465*	3.734
	(2.260)	(2.257)	(3.105)	(3.010)
Perceived income of decision makers (Reference group: average income)				
Below average	1.027	0.932	-0.987	2.644
	(2.373)	(2.247)	(2.799)	(3.073)
Above average	1.611	1.385	-12.33***	6.331
	(4.205)	(4.180)	(3.597)	(5.226)
Perceived income of receiver (Reference group: average income)				
Below average	-3.313*	-3.325*	-0.241	-5.797**
	(1.972)	(1.977)	(3.374)	(2.549)
Above average	0.120	0.189	-0.139	1.824
	(1.992)	(2.030)	(2.753)	(3.190)
Same gender	-0.566	-0.570	-2.679	2.287
	(1.337)	(1.337)	(2.004)	(2.033)
Same race	1.626	1.581	1.811	1.625
	(1.574)	(1.563)	(2.299)	(2.271)
Fair (1= R33 or more to the receiver)		0.600		
		(1.802)		
Constant	19.48***	19.21***	22.74***	15.46***
	(2.174)	(2.485)	(3.447)	(2.492)
# Observations	455	455	232	223
Adj. R-sq	0.032	0.030	0.019	0.063

Standard errors in parentheses.
†Regression includes dummy for fair, 1 for giving at least the mean of transfer (rand 33)
"Fair" giving at least mean of transfer (Rand 33)
"Selfish" shared less than mean of transfer (Rand 33)
Significance levels: $*$: 10% $**$: 5% $***$: 1%

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 deliberate decisions. We were particularly interested in whether in-group bias exists in either intuitive decisions (suggesting implicit racial bias) or non-intuitive decisions (suggesting more explicit, deliberate bias). While we do see some evidence of higher transfers to own-race receivers (statistically significant differences for non-intuitive decisions; and directional differences in intuitive decisions), further investigation points to a different mechanism. When we control for receiver race we see that this apparent in-group racial bias takes the form of higher transfers to black receivers. Taking receiver income into account, we note that the channel for higher transfers to black receivers appears to be perceptions of lower income among this group. It seems, then, that particularly in deliberated decisions (where more time is taken), decision makers transfer more to receivers whom they perceive to have greater need for money.

This proposed channel is supported by findings on decision time: we see no difference in time taken to make transfer decisions based on whether or not the receiver shares race and/or gender with the decision maker. If transfer decisions were made based on in-group bias, we might expect to see impacts on decision time as well as on transfer amount. Further, inequality aversion in decision making is well-established in the literature on dictator games (e.g. Bouckaert and Dhaene, 2004; Camerer, 2011). Our findings are therefore reassuring in that simple racial bias is not seen in our sample; but concerning in that they highlight awareness of the continued racial inequalities in income in South Africa.

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