Does interaction affect racial prejudice and cooperation? Evidence from randomly assigned peers in South Africa

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Abstract

We exploit random assignment of roommates in double rooms at University of Cape Town to investigate whether having a roommate of a different race affects inter-ethnic attitudes and cooperative behavior. Our outcomes include Implicit Association Tests (IATs), survey-based measures and experimental games. We find that living with a roommate of a different race has no significant effect on prejudice -as measured by IAT- on average, but it does reduce racial prejudice for whites. We also find increases in the frequency with which respondents talk about race and report to have experienced discrimination. In terms of social interactions, exposure to a roommate of a different race increases the number of study mates of a different race, but not that of "best friends". In our prisoner dilemma and trust games we exploit variation both in the race of the roommate and in the race of the game player that the individual is (randomly) matched with. Black students who live in mixed rooms are more likely to cooperate in the prisoner dilemma game, while white students make higher transfers both as senders and as receivers in the trust game when they are paired with someone of a different race. Overall, the random allocation policy seems to have affected social and cooperative behavior to a larger extent than it affected prejudice and implicit attitudes, as measured by IATs.

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1 Introduction

Ethnic diversity has been shown to negatively correlate with economic growth, public good provision, trust and the quality of institutions. Ethnic tensions are also believed to play a major role in violent conflict in many developing countries. These negative effects appear to be particularly pronounced in contexts where formal market transactions are limited, such as many developing countries. Despite the vivid debate on the above findings, it is difficult to find rigorous evidence exists on which *policies* may help to reduce the costs of ethnic divisions. Understanding which policies might influence racial attitudes and behaviors is particularly important in the context of South Africa, a country where the experience of Apartheid made people relatively prone to stereotyping and led to the economic marginalization of the black population. In addition, South Africa constitutes a reference point for a large part of Sub-Saharan Africa in terms of economic growth and market development.

The goal of this paper is to evaluate if and how a policy of random allocation of students to roommates across university residences can contribute to improving inter-ethnic attitudes and cooperative behavior. Specifically, it addresses the following questions: (i) are an individual's prejudice and inter-ethnic attitudes influenced by those of her peers? (ii) does increased interaction with members of other groups lead to a reduction in prejudice and an increase in inter-ethnic cooperation?

We address the above questions by rigorously evaluating the impact of a policy which randomly allocates students to roommates and across university residences that the University of Cape Town (UCT) started implementing in 2006 with the aim of promoting integration. This random allocation system provides a unique opportunity to test the effect of peers (i.e. those who share the same room) on students' behavior and outcomes. The random assignment is crucial since students cannot choose with whom they want to live, allowing us to identify the causal impact of peer characteristics, eliminating the selection bias that may be present if students chose their roommates. We can thus rigorously identify the effect of living with a student of the same race or with a student of a different race on several outcomes.

We conducted surveys, implicit association tests (IATs) and experimental games, namely trust games and prisoner dilemma games, among 543 freshmen students living in University residences at the beginning and at the end of the academic year . In particular, in addition

to administering the typical IAT which elicits associations between generally "positive" concepts (e.g., happy, reliable, etc.) and race, we designed an IAT to elicit associations between academic ability and race. These broad sets of outcomes allow us to complement subjective perceptions of inter-ethnic attitudes with more "objective" measures of racial bias. While the existing literature has explored some of these effects looking at self-reported attitudes and survey measures (see section 2), to our knowledge this is the first paper that also looks at IAT's and experimental game outcomes.

Our findings can be summarized as follows. Regarding IAT scores, we find that being exposed to a roommate of different race has no significant effect on average. This zero effect is found both for the Population IAT and for the Academic IAT (column 3). When we distinguish between respondents of different races, exposure to a roommate of different race does seem to reduce racial prejudice for whites. The magnitude of the estimated coefficient suggests that treatment closes about one third of the gap between whites and blacks in Population IAT. On the other hand, no such effect is found for the Academic IAT, consistent with the interpretation that beliefs about the academic performance of other students may be driven by "hard" facts and observed performance in class and not be altered by repeated exposure in the dorms.

Turning to attitudinal and behavioral measures, we find that living with a roommate of different race: (i) has no significant effect on self-reported trust; (ii) increases the frequency with which respondents talk about topics of racial prejudice and discrimination, but (iii) does not make them feel more or less comfortable in talking about these issues; and (iv) increases the frequency with which individuals report having been threatened or harassed because of their race.

Having a roommate of a different race also exerts some influence on the pattern of social interactions and friendships, in particular: (i) it increases the number of students from a different race that the respondent would ideally want in a study group (and effect driven by black students in mixed rooms), and in leisure groups (an effects driven by white students in mixed rooms). A similar effect is found for the number of students that the respondent actually studied with over the past year: white respondents in mixed rooms report a higher share of black students and a lower share of white students in their study group. On the other hand, no significant effect is found for "friends", defined as the people that the respondent could "turn

to for help if needed".

Finally, we have a number of results on experimental outcomes. On average, levels of cooperation in the prisoners dilemma game or the amount sent and returned in the trust game are not significantly different for participants in mixed race as opposed to same race dorm rooms, nor between mixed race game pairs as opposed to same race game pairs. However, if one examines individual behavior more closely, this lack of a significant effect seems to reflect counterbalancing effects of different behavioral tendencies by members of different race groups.

When we consider the race of the roommate, cooperation levels in the prisoner dilemma are significantly higher amongst Black participants in mixed race rooms, and these same students are significantly less likely to switch partners in the trust game.

When we look at the race of the partner that is matched with the respondent in the games, we find significant effects for the trust game. White students make significantly higher offers both as Player A's and Player B's, and the result for Player A's is driven by White students in mixed race pairs. However, more interesting to note is that white players in mixed race pairs are significantly more likely to opt to switch partners compared to their counterparts in same race pairs.

When we analyze the combined effect of race of the roommate and race of the game partner, we find interesting differences. In the prisoners dilemma, participants living in mixed race rooms are significantly more cooperative unless they are allocated to a mixed race pair in the game task. This reflects the behavior of white students living in mixed race rooms and allocated to mixed race pairs. These same white students are significantly more likely to switch partners in the prisoners dilemma when afforded the opportunity to do so.

In the trust game, what seems to matter is the race of the other player, and not the race of the roommate. The effect of being allocated to a mixed race game pair works in different directions for White and Coloured students. White Player A's in mixed race pairs make significantly higher offers whilst Coloured students in mixed race pairs make significantly lower offers. The same holds true for Player B's, although here the effect for White students loses significance.

Overall, our findings suggest that the random allocation policy, although it did not significantly affect prejudice (IAT scores) over the period of our study, did lead to changes in certain behaviors, most notably on interactions with study mates from different races and on trust

and willingness to cooperate in strategic settings - although several of the estimated effects are significant only for certain racial pairings.

The reminder of the paper is organized as follows. Section 2 relates our paper to the existing literature in economics and social psychology. Section 3 provides a background of the study setting and describes the random allocation policy in UCT residences. Section 4 describes the data collected and section 5 shows some descriptive statistics. In section 6 we present our empirical strategy. Section 7 contains the main results of the paper and section 8 concludes.

2 Related literature

This paper fits into two broad strands of literature in economics. The first is the literature investigating the importance of peers on human capital formation. Most of this literature studies the effect of peers' ability and academic performance (Sacerdote 2001, Lyle 2009, Garlick 2011) and derives implications for policies such as tracking (Duflo et al. 2011). Our paper contributes to a better understanding of the interplay between peers' ability, income and ethnic identity. More similarly to our work, Boisjoly et al. (2006) show evidence that random matching to roommates of different races increases support for affirmative action policies in the context of a US university. In another paper, Colette Van Laar et al. (2004) using housing assignments of first-year college students at University of California found that having a roommate from another ethnic group tended to decrease levels of prejudice. Using a similar identification strategy, our work will allow us to assess the impact of integration policies on a much broader set of outcomes, and to directly measure prejudice through the implicit association tests. Furthermore, by separately conducting IATs for generic positive associations and for academic ability we will be able to disentangle, at least to some extent, statistical discrimination from prejudice.

The second strand of literature considers the determinants of social capital and cooperation. Some authors have pointed out a positive relation between economic and social status and trust or social capital (Alesina and La Ferrara, 2002; Knack and Keefer, 1997). By reducing transactions costs, higher trust may be associated with higher cooperation, particularly in resolving social dilemmas (Messick and Brewer, 1983, Coleman, 1990), and may even enhance economic growth and the performance of a society's institutions (Knack and Keefer, 1997; Coleman, 1990). However, in segmented societies, trust may depend on group affiliation, with

trust being inversely related to the social distance between groups (Zak and Knack, 2001; Bouckaert and Dhaene, 2003; Akerlof, 1997; Barr, 2003). Thus, while inter- and intra-group trust may affect the economic success or failure of the society as a whole, it may also affect the relative economic outcomes for different groups within that society (Fershtman, and Gneezy, 2001). Indeed, the literature identifies religious and ethnic heterogeneity as being particularly important in this regard (Falk and Zehnder (2007), Alesina and La Ferrara, 2002). The negative correlation between heterogeneity and trust may reflect the fact that each ethnic and religious groups are characterized by specific cultural and social norms. In a similar vein, we document whether cooperation and trust depends on prejudices towards another ethnic group.

The paper also builds on a long line of social psychology literature, which affirms that group identity or affiliation matters for outcomes in society, particularly since individuals tend to favor members of their own group over outsiders. The groundbreaking work in this area is due to Tajfel and his colleagues (1971) who demonstrated that the simple categorization of individuals into groups, on the basis of some trivial criteria, such as the tendency to over- or under-estimate the number of dots on a screen, or a preference for the artistic work of Kandinsky over Klee, was sufficient to induce a favorable bias in behavior by subjects towards in-group members. The startling results of the minimal group experiments conducted by Tajfel et al (1971) suggested that simple categorization of individuals into groups, even on the basis of some trivial criterion, was sufficient to induce in-group bias in behavior. Moreover, Tajfel et al (1971) also found that not only did subjects favour in-group members, but they also actively tried to maximize the difference in the rewards to in-group members relative to outgroup members, even if this required that the total amount of resources for the in-group be sacrificed. This stood in stark contrast to previous work in this area, which had attributed in-group favoritism to perceived similarities in attitudes and beliefs amongst in-group members relative to outgroup members (Byrne, 1969), inter-group conflict over resources (Sherif et al, 1961), or a common identity forged through a common shared fate (Rabbie and Horwitz, 1969).

More recent experimental evidence from games which mimic social dilemmas confirms that individuals are more likely to co-operate with an in-group member than an outsider (Orbell, van der Kragt and Dawes, 1988; Brewer and Kramer, 1986; Kollock, 1997; Kramer and Brewer, 1994; Wit and Wilke, 1992), however the "group" is defined. (Lazarsfeld, 1954; Thibaut,

1959; Homans, 1958; Bowles, 2001; Loury, 2001). Even relatively superficial contexts or frames affects behaviour significantly, as long as the status of the parties involved in the interaction is publicly revealed. (Ball et al, 2001; Hoff and Pandey, 2003; Eckel and Grossman, 1996;). While some group identities may be a matter of choice for an individual, others may be inherited as in the case of ethnicity, but irrespective, these group identities matter because an individual's choice may impact their interactions with other members of their social network, and vice-versa. (Akerlof, 1997).

In the limited information setting of social exchange, that publicly revealed identity should matter makes sense. Individuals rely on costlessly observable cues such as race and gender to distinguish between individuals, especially in segmented societies where such characteristics hold some social significance. Moreover, because they are costlessly observable, these visual cues are likely to be privileged over other categorizations, such as class or educational background, even when the latter might be more relevant. (Chandra, 2003; Cornell and Welch, 1996). Evidence from experiments and audit studies suggest that race and ethnicity also play a significant role in social interactions. For example, Ayres and Siegelman (1995) find that white males are quoted lower prices than black or female buyers in bargaining outcomes in the second hand car market. These differences are not attributable to differences in bargaining tenacity. Bertrand and Mullainathan (2003) used a field experiment to examine the question of racial discrimination in the labour market, and found that the callback rate for white applicants was significantly higher than for blacks. In this study, the researchers responded to job advertisements with almost identical fictional resumes, the only difference being the race of the applicant which was conveyed via typically white and African-American sounding surnames. Moreover, resume quality was varied. A high quality resume applicant would typically have some kind of degree and a very complete record of past job experiences. A low quality resume would not have any tertiary education and the record of job experiences would be full of gaps. While resume quality had the desired effect for white applicants, with high quality individuals receiving a significantly higher callback rate than low-quality individuals, no such effect existed for black applicants, suggesting that African Americans benefit little if at all from improving their credentials. Hoff and Pandey (2003) provide evidence from experiments in India that caste identity, when it is publicly known, inhibits the motivation of low-caste subjects in maze-solving

experiments. This effect is attributed to an expectation on the part of low caste subjects that their efforts will be poorly rewarded. Their key result is that making an individual's social identity public affects the way they respond to economic incentives - members of lower status groups expect to be mistreated and this hinders their motivation.

3 Institutional setting

The University of Cape Town (UCT) is a public research university located in Cape Town, Western Cape province of South Africa. UCT is the oldest and most prestigious university in South Africa and it enrols approximately 5000 incoming freshmen every year, nearly 35 percent of whom live in university residences.[1] Incoming students were historically tracked into dormitories to live with students whose academic performances in standardized high school graduation tests was similar to their own. This tracking regime was replaced in 2006 with a policy of randomly assigning incoming students to dormitories and roommates.

Students submit applications to the university between July and October to start study in January of the following year. UCT's admission policy is mainly based on a measure called Admission Points Score (APS), computed from the high school grades in the last year, but, it is also designed in order to have a student body reflecting the diversity of the South African population. In the application form, students may request to live in the university residences. Only students living outside the Cape Town area can apply for accommodation. ExceptionS are made for disadvantaged students or for those with great academic merit. The policy and criteria for admission to UCT student housing assume that a student will initially enter a first-tier (catering) residence and subsequently move to a second-tier (senior catering or self-catering) residence or into third-tier (semi-autonomous self-catering) accommodation. While second year students may express preference for the residence to be assigned to, freshmen assignment to residences RELIES ON a random allocation system. Freshmen's accommodation is completely managed by the Student Housing Office which randomly allocated, through a lottery system, each first year student in one of the 15 university residences (Baxter Hall, Carinus House, Clarendon House, College House, Fuller Hall, Glendower Residence, Graca Machel, Kilindini

[1] In 2011, UCT had enrolled 4945 students, 3226 were living in dorms and 1719 in private accomodations. Similar figures are recorded in 2006: among the 4663 incoming students, 1633 were living in university residences and 3030 in private accomodations.THESE NUMBERS ARE THE OPPOSITE OF EACH OTHER? IS THERE AN ERROR - IT SEEMS AS THOUGH IN 2006, VERY FEW WERE LIVING IN RES? BUT THIS SWITCHED BY 2011?

Residence, Kopano, Leo Marquard, Rochester House, Smuts Hall, Tugwell Hall, University House, Varietas). All students who are allocated to the first-tier residences should complete an accommodation acceptance form and return it to the Student Housing Office.

Once first year students are assigned to residence, they are assigned to a room, which can be either single or double occupancy. Allocation to specific rooms within the residence, either double or single, is managed by the Warden or by his/her nominee within the residence and it varies slightly by residence.

Our analysis focuses exclusively on the 10 residences with double rooms who implement a random allocation mechanism, conditional on gender. Approximately one week before the beginning of the academic year, each residence organizes an "Open Day" with the first year students to introduce residence's rules and benefits. During the open day each student is in charge of extracting a ball from an urn, which indicates the room number to which he has been assigned. This process ends when all the rooms have been allocated to one student. For double rooms, after the first student has been assigned to a room, the roommate will be assigned following the same process. Other wardens randomly select students and their roomates from the list of students' surnames enrolled in the residence but they ensure that each floor or wing has the same share of students of each ethnic group. Rooms are never reserved irrevocably and may be switched. First year students may also decide to swap residences. Approximately 50% of undergraduate students at UCT will be in shared rooms in their first year in residence. The Residence Management Services (RMS) is in charge of residence applications, which records, for each student, her room number and the dates in which she moved in or out of residence.

4 Data

Our sample includes 543 freshmen students who joined UCT in 2012 and who live in double rooms in 10 out of 15 first-tier residences (Baxter Hall, Carinus House, Clarendon House, College House, Fuller Hall, Glendower Residence, Graca Machel, Leo Marquard, Tugwell Hall, Varietas) which apply the random allocation policy.

For this sample of students, we conducted two rounds of data collection: a baseline and a follow-up survey. The baseline survey was conducted in February 2012, at the beginning of the academic year and the follow-up survey has been conducted in September 2012, at the end of the academic year, just before students take their final first year exams. As part of the data

collection, we conducted a series of implicit association tests (IATs) both at baseline and in follow up survey. During the follow up survey, beside collecting data through questionnaires and IATs, we also conducted two types of experimental games with the same subjects who took our baseline survey: trust games and prisoner dilemma.

Students were recruited to participate in the project through a variety of channels. First, the project was advertised during the weekly residence meeting among wardens and students. our field coordinator visited each participating residence before the beginning of the project to garner support from residences' warden. The warden was requested to hold a meeting to introduce the goal of the project. Second, posters advertising the project were hang up in visible places (i.e. residence hall) about one week before the project's kick-off. Third, we send email to all the students in the participating residence to schedule appointment for the survey at their most convenient time.

The survey questionnaire, the IATs and the experimental games were conducted in each residence on laptops and under the supervision of about 2 enumerators per residence. We did our best to assure no communication among students during the survey. To try not to contaminate the IATs scores, we conducted them first, followed by the survey questionnaire and by the experimental games. For their participation in the survey, every student received a monetary incentive, worth approximately 7 US dollars.

Our initial sample size was 681 freshmen who were enrolled in the baseline survey in February 2012. Of these, 543 were traced successfully for the follow-up survey in October 2012, with a tracking rate of 80%. Appendix Table A1 summarizes the study sample and attrition. The p-value reported in column (7) indicates that there is no statistically significant difference in the attrition rate across students allocated to a roommate of a different race (treatment) and students allocated to a roommate with the same ethnic background (control). In Appendix Table A2 we show the determinants of participating in the follow-up round. Once again, there is no statistically significant difference in the attrition between respondents allocated to a mixed room compared to those allocated with a roommate of the same rate (column (1)). Looking at additional controls (column (3)), it emerges that white students are (marginally) less likely to be participate in the follow-up round while those with a monthly income between 40,000-75,000 rands are more likely to participate.

4.1 Implicit association tests

The IAT is an experimental method, widely used in social psychology, which relies on the idea that respondents who more easily pair two concepts in a rapid categorization task more strongly associate those concepts (e.g., how fast do people pair images of black versus white people with descriptions of leadership roles). Slower speed in associating certain pairs denotes mental processes that tend to perceive those pairs as less common. The seminal contributions that introduced IATs in the scientific literature were those of Greenwald and Banaji (1995) and Greenwald et al. (1998). This tool has been widely employed in social psychology to understand implicit cognition, that is, cognitive processes of which an individual may not be aware and that include among others perception, stereotyping, and memory. For our purposes, a particularly useful feature of IAT's is that they implicitly reveal attitudes that individuals may be uncomfortable disclosing, such as racial prejudice. We thus use IATs to complement subjective and self-reported perceptions of inter-ethnic attitudes with more "objective" measures of racial bias.

As explained in detail in Appendix 1, we conducted two types of IAT's. The first was a standard test in which tasks involved pairing positive and negative attributes (e.g., "happy", "good", "terrible", "failure") with the racial categories of White Southafrican and Black Southafrican. Different combinations of race and qualities appeared in the top corners of the screen, for example "Black/Positive" on the left and "White/Negative" on the right. Respondents would then see a series of pictures of people of different gender and race in the middle of the screen and had to press the left or the right-hand key depending on which category the picture belonged to. The time taken to complete a given task is inversely related to how strongly the respondent commonly associates those categories. In the paper we refer to this as the Population IAT.

The second IAT was instead less standard and was designed elicit associations between academic ability and race. We asked people to match pictures of different gender and race with different exam scores (percentile of the grade distribution). In the paper we denote this as the Academic IAT. The goal of conducting this second IAT was to test whether differential interaction or cooperation with members of the opposite race may reflect priors on how much one can benefit in terms of learning and academic success, based on the beliefs that one holds about the academic performance of the other race. This notion is closer to that of statistical

discrimination, as opposed to taste based discrimination or prejudice.

4.2 Attitudinal and behavioral measures

Through the survey questionnaire, we collect information on student's socioeconomic characteristics, parental background, income, consumption, beliefs and knowledge (i.e. subjective estimates of population shares of the different groups and of their academic performance), friendships (names and behaviors) and attitudes (trust, attitudes towards other ethnic groups, support of integration policies). More specifically, we elicit information about the following attitudes: (i) trust: we asked "Generally speaking, would you say most people can be trusted or we must be very careful?"; (ii) frequency and comfort in discussing about racism with close friends: we asked: "In the last month, how often did you talk with any friends of yours about topics of discrimination and racial bias?" and "How comfortable do you feel in talking to people about these issues?; (iii) passive discrimination: we elicited information on whether in the last year the student was threatened or harassed in any way because of her race; (iv) propensity to have friends from different ethnic groups. We explore the latter dimension through several questions: a dummy variable to indicate when students report hanging out more or equally with friends different ethnicity than with friends from their own ethnic background; the self-reported preferred number of people of different ethnicity in a study group and or a leisure group formed by 7 people; the share of reported best friends who are black or white; the share of reported study mates who are black or white. Descriptive statistics for these variables can be found in table 1.

4.3 Experimental games

In order to examine the impact of racial identity on exchange and cooperation, a series of trust and prisoner dilemma games in which the racial identity of participants is revealed using photographs, were conducted during the follow-up survey in September 2012 among all the students who participated in the baseline survey.[2]

We implemented a standard Berg, Dickhaut and McCabe (BDM) trust game. Participants were randomly assigned to particpate either as Player A or Player B. Both players were endowed with fifty rand (approximately 5US$). Player A was shown a photograph of Player B and asked

[2]Experimental instructions available from the authors upon request.

what portion (if any) of this endowment she would like to pass on to Player B).[3]. The offer made by the first mover is tripled before passing it on to the second mover, who must then decide how much, if anything, to return to Player A. Player B also sees a photograph of Player A. We interpret the amount sent by the first mover as an indication of trust, while the amount returned by the second mover as an indication of reciprocity or trustworthiness. These experiments allow us to test whether choices in the task differ when an individual is paired with a player of the same race compared to a player of a different race, and whether these effects differ according to the race of the roommate that participants were paired with (in real life).[4]

In the prisoners dilemma task, two students are paired and randomly assigned to their position as player A and player B. Each player sees a photograph of their partner. In this task, each player must choose whether to Cooperate with or Block their partner. The final payment in this task depends both on the choice that player B makes, as well as the choice made by player A. If both players choose cooperate, both will earn R50 each. If both players choose Block, both will earn R40 each. If one player chooses Block while the other chooses cooperate, then the Player who chooses "Block" will earn R75, and the Player who chooses "Co-operate" will earn R25.

We played the prisoner dilemma and the trust game in random order, that is, for half of the sample the prisoner dilemma was played first and the trust game second, and for the other half the reverse occurred.

In addition to the standard prisoner dilemma and trust games described above, we designed an additional experiment where respondents were allowed to choose their partner for a third game among three (exogenously given) partners of different races: Black, White and Coloured. This game was played last and had the same structure as the second game that participants had played. Participants were informed of this and that their role would also stay the same as in the second game, e.g. if a participant was player B in the second game, he/she would also be player B in the 3rd game.

The overall game sequence was therefore:

[3]The photos came from student identification cards

[4]To control our estimates for the fact that the two players may know each other, we asked to player A whether she knows player B after revealing her photo. *On average, 10 percent of the players know the partner they were matched with. When we include a dummy for knowing your partner among the controls, its' coefficient is close to zero and insignificant. The inclusion of this variable does not affect the estimates on our variables of interest.*

- Trust game; Prisoner's dilemma; Prisoner's dilemma (for half of the sample)

- Prisoner's dilemma; Trust game; Trust game (for the other half).

The goal of this "Switch" game is to help us detect possible bias in strategic interactions, i.e. to test whether people who were paired with a roommate of a different race (in real life) exhibit different behavior when they can choose who to interact with in a strategic setting. For example, they may be relatively less likely to choose a game partner of their own race.

5 Descriptive statistics

[Insert Table 1]

Table 1 shows summary statistics for our variables of interest as well as the controls and tests for balance between treatment and control students using baseline data for the sample used in the analysis, that is, those successfully interviewed in the baseline and in the follow-up. Panel A reports balance on individual socio-demographic characteristics, Panel B on IATs scores and Panel C on self-reported attitudes and behaviors.

We have a sample of 543 students, 209 are allocated to a room with a roommate from different race and 317 are sharing the room with a students of their own same race. Overall, baseline characteristics are similar for students allocated to a mixed versus a non-mixed room, suggesting that the randomization policy was successfully implemented. In the sample, the share of females is higher (67%) compared to men (33%). The income distribution shows that more than half of the sample reports a household monthly income lower than 40,000 Rands (approximately 4,000 Dollars).

Looking at the IATs scores (Panel B), the mean of the academic IAT score is equal to -0.21 while that of the IAT population score is -0.18 . Negative values of the IATs scores indicate prejudice against blacks. Prejudice against blacks is found both among respondents who have a roommate of a different race, and among those who have a roommate of the same race, without statistical difference.

Panel C reports the mean in the attitudes and behaviors elicited in the survey questionnaire. Only approximately 15% of the sample think that most people can be trusted, 18% of the respondents declare to talk always or most of the time about issues of discrimination, 21% are extremely comfort in talking about these issues and 15% have been discriminated because of

their race. By analyzing students' behavior, we show that about 52% of the respondents hung out with students from a different ethnic background. The survey also elicit information about the favorite composition of a study group and leisure activities in term of race. In a study group of 7 respondents, the sample mean is to have almost 3 students of a different race. Similarly, respondents declare to prefer, on average, 3 students from a different ethnic background for leisure activities.

[Insert table 2]

As additional check, in table 2, we report the correlations between own pre-treatment characteristics regressed on roommate pre-treatment characteristics. We show that most of the coefficients are not statistically significant, suggesting, once again, that the assignment process resembles a randomized experiment.

6 Empirical strategy

In the first part of the analysis, we focus on the effects of exposure to a roommate of a different race on measures of prejudice, i.e. IAT scores, and self-reported attitudes. For each dependent variable, we estimate two specifications. In the first we estimate the average effect across respondents of different races, specifically we estimate:

$$Y_{ikt} = \alpha Y_{ik0} + \beta MixRoom_{ik0} + \boldsymbol{\gamma} Race_i + \boldsymbol{\lambda} X_{ik0} + \delta_k + \varepsilon_{ikt} \tag{1}$$

where Y_{ikt} is the outcome for student i in the follow-up survey (time t) and Y_{ik0} is the baseline (time 0) value of the same variable; $MixRoom$ is a dummy equal to 1 if at baseline the student was assigned a roommate of a race different from his/her; $Race_i$ is a vector of race dummies (White, Coloured, Indian or Asian, with Black as omitted category); X_{ik0} is a set of individual controls measured at baseline which include gender, year of birth, income categories, and grade received at High School graduation; δ_k is a set of residence dummies, and ε_{ikt} is the error term. Our coefficient of interest is β: a positive value of this coefficient indicates a reduction in prejudice against blacks (recall that negative values of IATs indicate prejudice against blacks and positive values prejudice in favor of blacks).

In the second specification we estimate (1) augmented with an interaction between *Race*

and $MixRoom$, to test whether exposure to a roommate of a different race has heterogeneous effects depending on the race of the respondent:

$$Y_{ikt} = \alpha Y_{ik0} + \beta MixRoom_{ik0} + \boldsymbol{\gamma} Race_i + \boldsymbol{\mu} Race_i * MixRoom_{ik0} + \boldsymbol{\lambda} X_{ik0} + \delta_k + \varepsilon_{ikt}. \quad (2)$$

We estimate these specification using OLS and cluster standard errors by the Residence in which the respondent lives at baseline. For those attitudinal variables that are categorical (and ordered), we employ an ordered logit model.

We then analyze prosocial behavior as captured by our experimental measures. In this case we consider the following dependent variables Y :

- $CooperatePD$, which is a dummy equal to 1 if the individual decided to cooperate in the prisoner dilemma game;
- $Trust_A$, which is the amount sent by the sender (player A) in the trust game;
- $Trust_B$, which is the amount returned by the received (player B), expressed as a share of the total endowment available to B. This total endowment includes the initial endowment of 50 plus three times the amount that A sent;
- $Belief_A$, which is the amount that player A expects player B to return in the trust game;
- $SwitchPD$, which is a dummy equal to 1 if the individual decided to switch partner for the prisoner dilemma game;
- $SwitchT$, which is a dummy equal to 1 if the individual decided to switch partner for the trust game.

For each of the above dependent variables, we estimate the effects of two different treatments. The first treatment is external to the game and comes from the random roommate allocation policy. This is the exposure to a roommate of a different race, captured by the dummy $MixRoom$. The second treatment is instead built in the experiment and refers to the race of the player that the respondent is matched with in each game. We denote this variable

$MixPlayer_{ig}$, which is a dummy equal to one if the partner that player i is matched with in game g is of a different race from his/hers.

The specifications we estimate for the games are thus:

$$Y_{ikg} = \beta MixRoom_{ik0} + \gamma Race_i + \lambda X_{ik0} + \delta_k + \varepsilon_{ikg} \quad (3$$

$$Y_{ikg} = \beta MixRoom_{ik0} + \gamma Race_i + \mu Race_i * MixRoom_{ik0} + \lambda X_{ik0} + \delta_k + \varepsilon_{ikg} \quad (4$$

$$Y_{ikg} = \alpha MixPlayer_{ig} + \gamma Race_i + \lambda X_{ik0} + \delta_k + \varepsilon_{ikg} \quad (5$$

$$Y_{ikgt} = \alpha MixPartner_{ig} + \gamma Race_i + \mu Race_i * MixPlayer_{ig} + \lambda X_{ik0} + \delta_k + \varepsilon_{ikg} \quad (6$$

$$Y_{ikgt} = \alpha MixPlayer_{ig} + \beta MixRoom_{ik0} + \mu(MixPlayer_{ig} * MixRoom_{ik0}) + \boldsymbol{\gamma} Race_i + \boldsymbol{\lambda} X_{ik0} + \delta_k + \varepsilon_{ikg} \quad (7$$

In the last equation, the coefficient μ is meant to capture whether those individuals who have interacted with a roommate of a different race for the past year behave differently when they play with an individual who is also of a different race.

7 Results

7.1 Implicit association tests

Figures 1 and 2 show the correlation between IATs scores at baseline and follow-up, for the full sample of students and separately for those allocated to a mixed versus a non-mixed room. On the horizontal axis we show the IATs score of each student in the baseline survey, on the vertical axis we report the IATs score at follow-up. The dashed line is the 45° line and the solid line represents the regression line.

[Insert Figures 1 and 2]

Figure 1 (a) suggests that students starting with a high level of prejudice versus blacks at baseline (lower population IAT score) see a decrease in their levels of prejudice in the follow-up round. On the other hand, students reporting low prejudice at baseline increase their prejudice in the follow-up round. This emerges also looking at figures 1 (b) and (c), where we show the correlation between baseline and follow-up population IAT score for students in mixed versus non mixed room. This constitutes prima facie evidence that the gap in prejudice towards

black is closing over time in the population, but it is not systematically correlated with being allocated to a mixed versus a non-mixed room.

[Insert Table 3]

Table 3 reports the estimated coefficients for equations (1) and (2) and shows that being exposed to a roommate of different race has no significant effect on prejudice on average. This zero effect is found both for the Population IAT (column 1) and for the Academic IAT (column 3). When we distinguish between respondents of different races, we find that exposure to a roommate of different race does reduce prejudice for whites. The magnitude of the coefficient on $MixRoom$ in column 2 is .12, which suggests that treatment closes about 1/3 of the gap between whites and blacks in Population IAT (the coefficient on White is $-.35$ and Blacks are the omitted race). No such effect is found for the Academic IAT (column 4), which is consistent with the interpretation that beliefs on the academic performance of other students may be driven more by "hard" facts and observed performance in class than by prejudice, and while interaction can potentially affect prejudice, it is more difficult that it affects "hard facts". Interestingly, none of the race dummies is significant in column 4.

[Insert Table 4]

In Table 4 we break down the effect of exposure to a roommate by race of the respondent and race of the roommate, we find no robust significant pattern. Whites and Indians display more prejudice against blacks compared to blacks, and this is true regardless of the roommate they are paired with (column 1). As for the Academic IAT score, all groups display a lower valuation of Blacks which is statistically the same across racial paris. In what follows, we will therefore report results for the treatment $MixRoom$ (roommate of a different race), without breaking it down by the specific race of the roommate.

7.2 Attitudinal and behavioral measures

[Insert Table 5]

Table 5 examines the effect of living with a roommate of difference race on self-reported attitudes. In columns 1-4 we show the impact of the random allocation policy on students' level of trust. More specifically, we asked the following question: "Generally speaking, would you

say that most people can be trusted or you need to be very careful in dealing with people?". In column (1), the dependent variable assumes values two, one and zero if "most people can be trusted", "depends", "you need to be very careful", respectively. We estimate this regression using an ordered logit model. In column (2), we aggregate the dependent variable into a dummy equal to one if most people can be trusted and zero otherwise. Results show that living with a roommate of different race has no significant effect on self-reported trust. No statistically significant effect is also found when we look at the interaction between respondent's race and "Mixed Room". On average, white students report a higher degree of trust compared to black students. In columns (5) and (6), we report the effect of the policy on the probability that respondents talk about topics of discrimination, prejudice and racial bias. In the latter, the dependent variable range from a 1 to 5 scale, where 1 means "always talk" and 5 "never talk". Being assigned to a roommate from different ethnicity is associated with talking more about issues of discrimination and prejudice (the coefficient on $MixedRace$ in column 5 is negative and statistically significant at 5% level). This effect is particularly strong for blacks (column 6): black students having a non-black roommate are more likely to talk about discrimination and related issues compared to blacks paired with a co-ethnic roommate. However, they do not feel more or less comfortable in talking about these issues (columns 7-8). In the last two columns of table, we report the impact of the policy on discrimination experienced. The question we asked was "In the last year, were you threatened or harassed in any way by anyone because of your race?", with answers ranging from 1 ("never") to 5 ("more than ten times"). Results show that black students who were assigned roommates from different ethnic group during their first year are more likely to be discriminated because of their race compared to black students assigned to another black roommate (columns 9-10). These results are consistent with the possibility that exposure to a roommate of a different race may generate conflictual situations where race comes up as an issue, or it may be that the level of conflict is unaltered, but people become more sensitive about issues related to race.

[Insert Table 6]

We next turn to examine the effect of living in mixed room on social interactions and friendships. We find that there is no significant relationship between living with a student from different race on hanging out more with people of a different race (columns 1-2) or with the

roommate (columns 3-4). In column 1, the coefficient on "White" is positively and statistically significant but this effect disappears in the subsequent specifications.

Next, we investigate how living with a roommate of different race influences preferences for the racial composition of a study or leisure group. In columns (5)-(8) we report the impact of the policy on the preferred number of people of different race in a hypothetical study group. Respondents could choose a number between 0 to 6 for a group of size 7 (including themselves). Having been paired with a roommate of a different race leads to a positive and significant increase in the preferred number of students of a different race in a study group (column 5). When looking at the interaction terms between the treatment ($MixRoom$) and one's own ethnic group (column 6) we see that the effects is driven by black respondents who have been paired with non-black roommates. The average effect for the case of leisure groups (column 7) is of similar magnitude to that of study groups, but not significant. Interestingly, when looking at column 8, we note that white students in mixed rooms are more likely to choose a more racial heterogenous group for leisure activities compared to white students with a white roommate.

In columns 9-16, we investigate the effects on actual friends and study group members. Friends were defined as "those you can turn to for help if needed"), and we asked respondents to list the first name, gender, age and race of up to five friends. The results in columns 9 to 12 show that the number of reported black and white friends was not significantly affected by the roommate allocation policy. However, we find an interesting result when looking at the number of classmates with whom the respondent mainly studies (columns 13-16): white respondents in mixed rooms report a higher share of black students (column 14) and a lower share of white students in their study group (column 16). The latter finding suggests that the random allocation policy, although it does not significantly affect prejudice (IAT scores), does lead to some changes in certain behaviors.

7.3 Experimental results

[Insert Figure 3]

Figure 3 presents co-operation levels conditional on the ethnicity of the participant's roommate or the ethnicity of their partner in the decision task. As is evident, there are no significant differences in the propensity to co-operate in the prisoner's dilemma for participants living with same race roommates compared to those living with roommates from a different race group.

The same holds true for co-operation contingent on the race group of one's partner in the game. Whilst co-operation levels are higher in same race pairs compared to mixed race pairs, these differences are not significant. Finally, there are no significant differences in co- operation levels in mixed race pairs in the game conditional on the ethnicity of their roommate. In contrast, co-operation levels in the prisoners dilemma are higher in same race pairs amongst participants in mixed race rooms, albeit the differences are not significant.

[Insert Figure 4]

Figure 4 presents the distribution of offers made by Player A's in the trust game, conditional on their roommates' ethnicity, the ethnicity of their partner in the game or both. There are no significant differences in the distribution of offers conditional on roommate race of game partner race, as revealed by the Kolmogorov-Smirnov test for equality of the two distributions. The p-value is .77 for the distributions based on roommate's ethnicity (panel A in the figure), and .40 for those based on the race of the other player (panel B). Interestingly, in panel C of figure 4 the distribution of offers made in same race pairs by partners with roommates from different ethnic backgrounds is more skewed to the right than the same distribution for same race pairs where participants have same race roommates. This echoes the earlier trend in co-operation responses in the prisoners dilemma.

[Insert Table 7]

Table 7 presents summary statistics of choices made in the two experiments. As is evident, 57% of subjects chose to co-operate in the Prisoner's Dilemma task, and whilst this was higher for students in same race rooms as opposed to mixed race rooms, these differences are not significant. In contrast, there are significant differences in the propensity to co-operate between students allocated to a same race pairing as opposed to a mixed race pairing. However, this difference disappears once we include additional controls in a multivariate regression framework (presented later).

Turning to behavior in the trust game, Player A's sent 40% of their endowment to Player B on average. This does not differ in any significant way contingent on whether the student lives in a mixed race room or is allocated to a mixed race pair. Similarly, there are no significant differences in return offers made by Player B contingent on roommate race or racial characteristics of the game pairing.

[Insert Figure 5]

Figure 5 presents the return schedules that emerge from the return offers recorded by Player B in the trust game. It is important to note that the strategy method was used. Player B's were asked to record the amount they would return to Player A for any given offer A might make during the game. This is the data used to generate the return schedules. As is evident in the figure, there are no significant differences in return schedules contingent on roommate ethnicity. However, in the trust game task, return schedules are higher for participants in mixed race pairs as opposed to same race pairs. Controlling for both roommate and game partner ethnicity, it is clear that no strong effects emerge in this regard.

The absence of a strong effect of roommate ethnicity or game partner ethnicity evident in the graphical exposition are confirmed in a multivariate regression framework as shown in Tables 8-10. On average, levels of co-operation in the prisoners dilemma game or the amount sent and returned in the trust game are not significantly different for participants in mixed race rooms as opposed to same race dorm rooms, nor between mixed race game pairs as opposed to same race game pairs. However, if one examines individual behaviour more closely, it would appear that this lack of a significant effect may simply mask the counterbalancing effects of different behavioural tendencies by members of different race groups.

[Insert Table 8]

For example, in Table 8, it is apparent that co-operation levels are significantly higher amongst Black participants in mixed race rooms in residence (Column 1). These same students are significantly less likely to switch partners in the trust game (Column 10). In contrast, an individual's race appears to have very little effect on behaviour in the trust game. White students make significantly higher offers and return offers in the trust game, which we plausibly attribute to differences in socio-economic status, although this tendency is weaker amongst White Player As living in mixed race rooms (Columns3-6).

[Insert Table 9]

Table 9 repeats the analysis from table 8, but instead of examining the impact of living in a mixed race room, the focus here is on the impact of being assigned to a mixed race pair in the

relevant game. Again, there are no uniformly strong effects that emerge to explain choice in the games. Rather, it would appear that Coloured students in mixed race pairs make significantly lower offers in the trust game (either as Player A or Player B), but are also significantly less likely to switch partners in a trust game when afforded the opportunity to do so. There also appears to be some variation in the behaviour of white students. In the trust game, white students make significantly higher offers both as Player As and Player Bs, although it would appear that the result for Player As is driven by White students in mixed race pairs. However, more interesting to note is that white players in mixed race pairs are significantly more likely to opt to switch partners compared to their counterparts in same race pairs.

[Insert Table 10]

Table 10 presents a final specification that includes controls both for roommate ethnicity, game pair ethnicity and the interactions thereof. The results in column 1 suggest that in the prisoners dilemma, participants living in mixed race rooms in residence are significantly more co-operative unless they are allocated to a mixed race pair in the game task: in this case the two effects cancel out. Inspection of columns 2 reveals that this reflects the behaviour of white students in the sample. Moreover, white students living in mixed race rooms allocated to mixed race pairs are significantly more likely to switch partners in the prisoners dilemma when afforded the opportunity to do so (column 8).

In the trust game, the effect of being allocated to a mixed race game pair appears to work in different directions for White and Coloured students. White Player A's in mixed race pairs make significantly higher offers whilst Coloured students in mixed race pairs make significantly lower offers. The same holds true for Player B's, although here the effect for White students loses significance. Despite this behaviour by Coloured students in mixed race pairs, they are still significantly less likely to switch partners in the trust game when afforded the opportunity. Interestingly, the race of the roommate in this case has no significant effect when combined with the race of the other player.

8 Conclusions

This paper investigates the effect of a policy implemented by the University of Cape Town which randomly allocated students across residence and roommates on inter-ethnic attitudes

and cooperative behavior.

We find that living with a roommate of a different race during the first year of university has no significant effect on prejudice -as measured by IAT- on average, but it does reduce racial prejudice for whites. The lack of a strong race effect is both surprising and encouraging. On the one hand, it would suggest that the kinds of transformation initiatives that have happened in post-apartheid South Africa, both at Universities, but in broader society as a whole, have made inroads in removing the salience of race. Under this interpretation, the reason why prejudice is unaffected is that the "transformation" in students' minds had already occurred before they joined UCT.

The lack of a strong race effect here may also reflect the rising importance of other factors, such as class or residence identity. Not everyone can afford the residence fees. Those who can will mostly be from similar socio-econmomic backgrounds, and it may be this class identity that relegates race as being less important. This argument is particularly strengthened by the fact that students knew they were playing with other students from UCT residences (though not necessarily from their residences), so the shared norms and values in the residences may have made race less salient.

Finally, it is possible that effects only materialize after long periods of exposure, and our follow-up occurred about nine months after the students joined the residences. Future work on the long term impacts of this policy could shed light on this point.

Appendix 1. Implicit Association Tests

In our survey we implemented a shorter version of Greenwald et al.'s (1998) Implicit Association Test (IAT). The procedure included the following five tasks.

- Task 1: The respondent was asked to categorize stimuli into two categories, Black South-Africans and White South-Africans, which appeared in the top left-hand and top right-hand corner of the screen. In the middle of the screenthere was a picture of a person, either Black or White. For each picture that appeared in the middle of the screen, the respondent had to sort it into the appropriate category by pressing the left-hand or the right-hand key.

- Task 2: The respondent had to complete a similar sorting task with a positive/negative attribute in the Population IAT, or with a High/Low academic performance in the Academic IAT. For example, the words "Positive" and "Negative" would appear in the top corners of the screen, and a series of pleasant or unpleasant works appeared in the middle of the screen, e.g.: "good, joy, love, peace, wonderful, pleasure, glorious, laughter, happy" and "bad, agony terrible, horrible, nasty, evil, awful, failure, hurt". For the Academic IAT, categories were defined in terms of grades, e.g. 99%, 85%, 78%, etc., for a total of 12 categories ranging from 50% to 99%. The respondent had to sort each word as being either positive or negative, or high/low performing, by hitting the left or right key.

- Task 3: The respondent had to perform a combined task that included both the categories and attributes from the first two tasks. Different combinations of race and qualities appeared in the top corners, for example "Black/Positive" may appear on the top left and "White/Negative" would appear in the top right. Respondents would then see a series of pictures in the middle of the screen and had to press the left or the right-hand key depending on which category the picture belonged to.

- Task 4: This was a repetition of Task 1, with the variation that the position of the two target words was reversed.

- Task 5: This was a repetition of Task 3, except that race and qualities were paired in the opposite way compared the that task.

A score is produced at the end of the procedure, which reflects the time taken to complete a task in relation to other tasks. If is race is differently associated with the attributes proposed (positive/negative, or high/low performing), then it is expected that the pairing that a respondent implicitly believes in is easier (takes less time), for him or her. The score takes on negative values when the participant is "prejudiced" against blacks, and positive ones when the "prejudice" is in favor of blacks and against whites.

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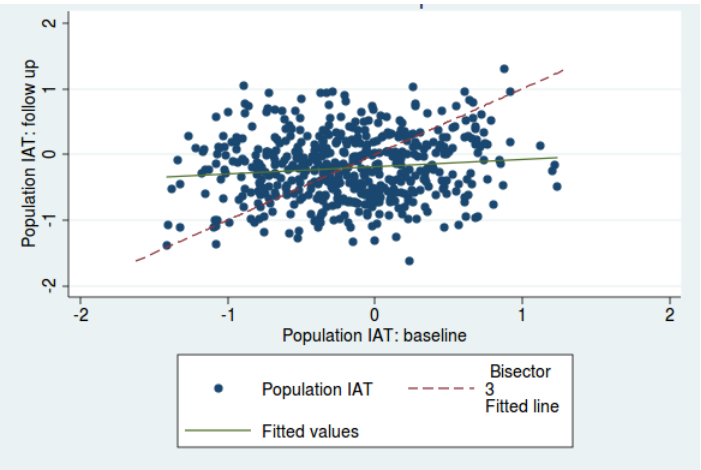
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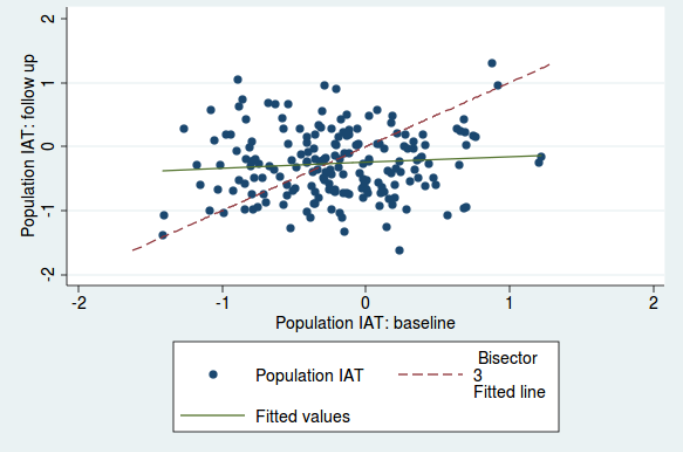
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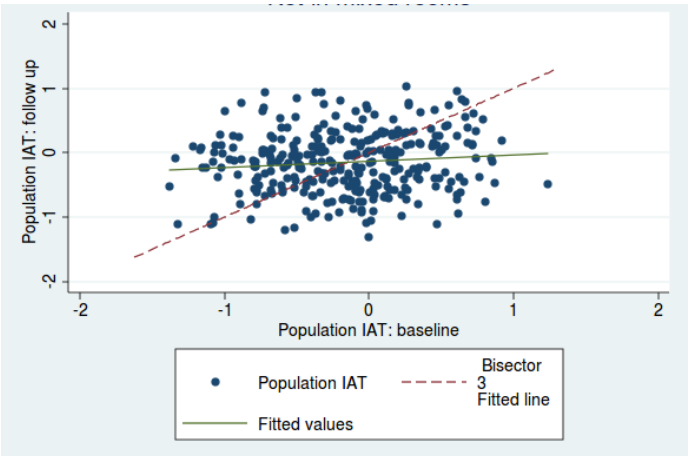
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(a) Full sample

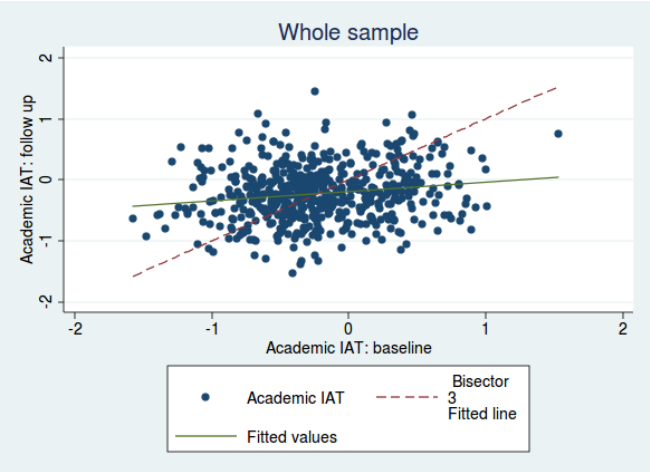


(b) Roommate of different race (MixRoom = 1)

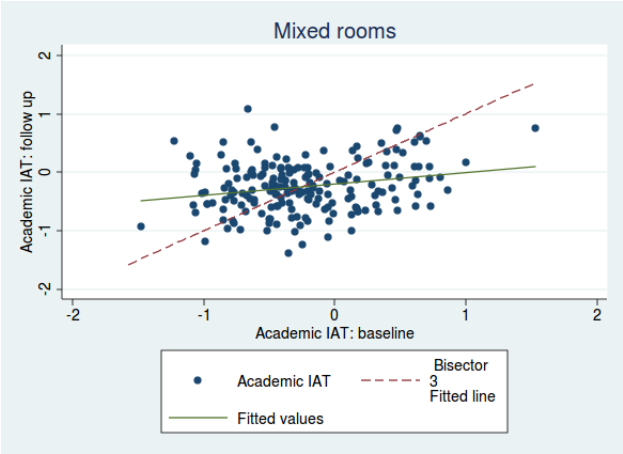


(c) Roommate of same race (MixRoom = 0)

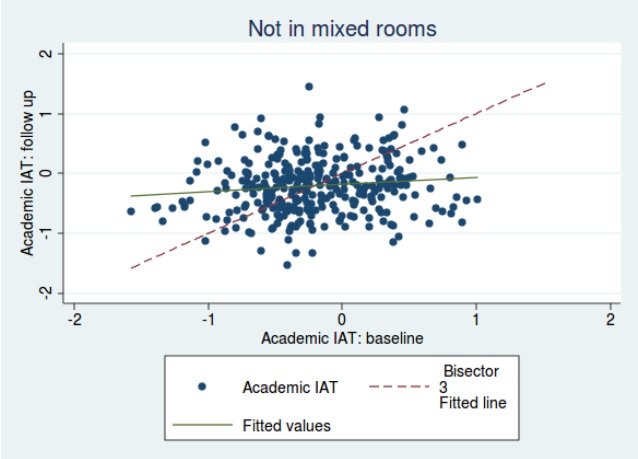
Figure 1: Population IAT, baseline and follow-up



(a) Full sample

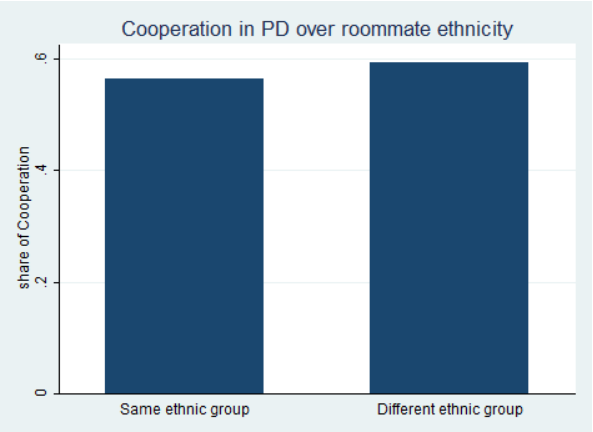


(b) Roommate of different race (MixRoom = 1)

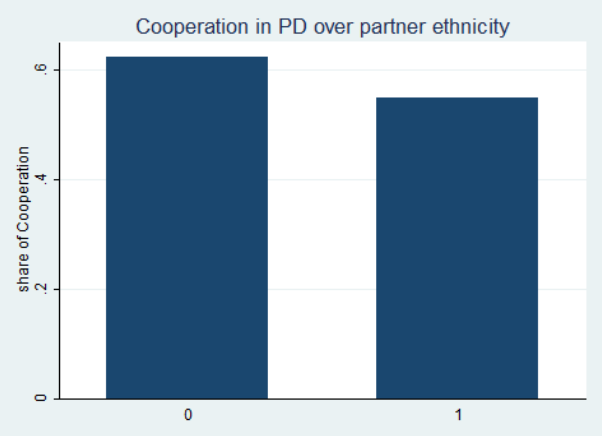


(c) Roommate of same race (MixRoom = 0)

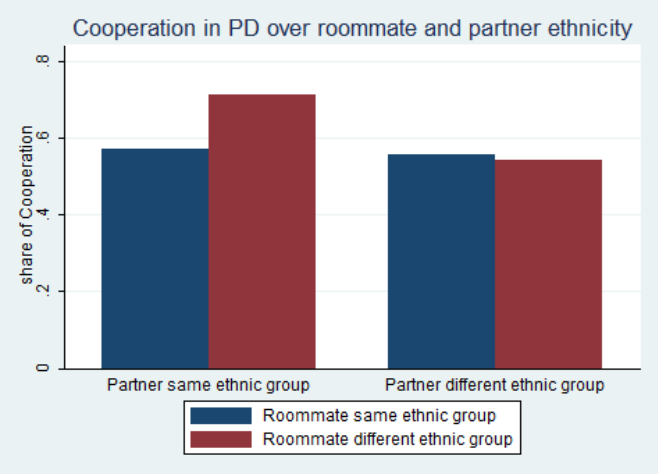
Figure 2: Academic IAT, baseline and follow-up



(a) By roommate's race

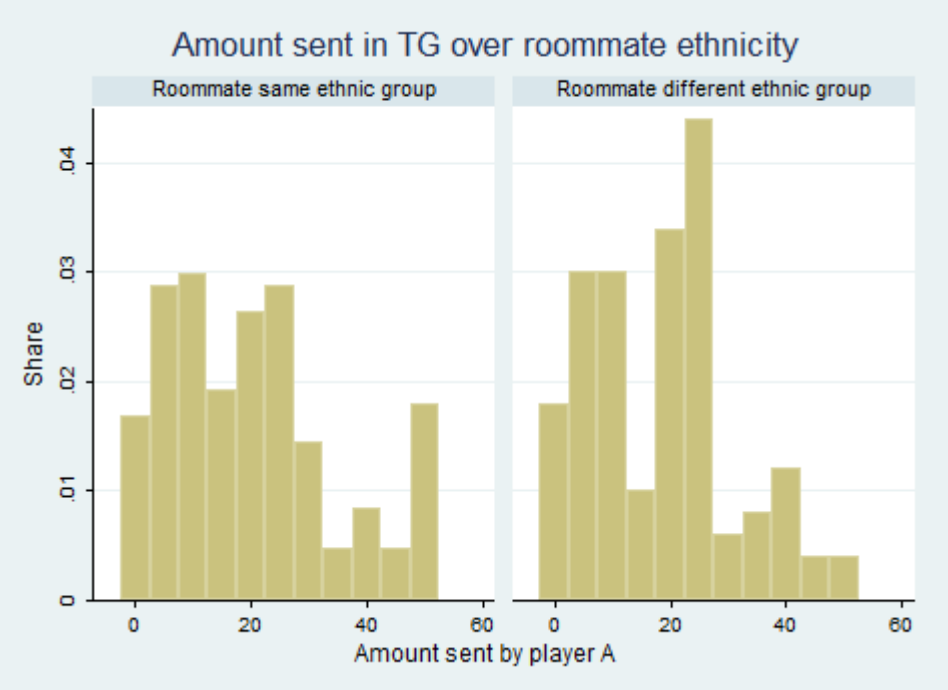


(b) By other player's race

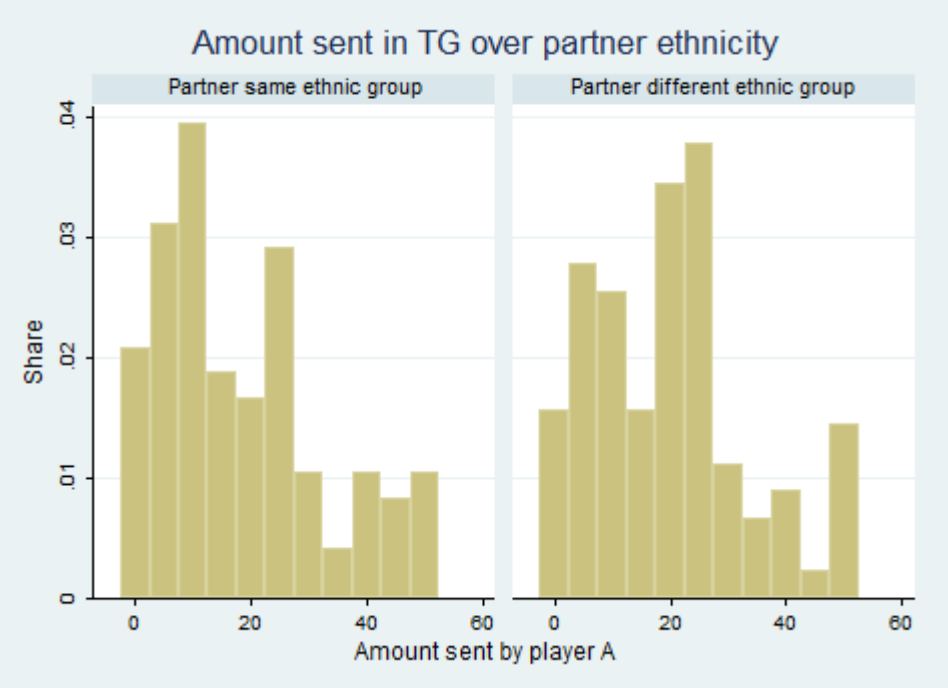


(c) By roommate's and other player's race

Figure 3: Share who cooperate in Prisoner Dilemma

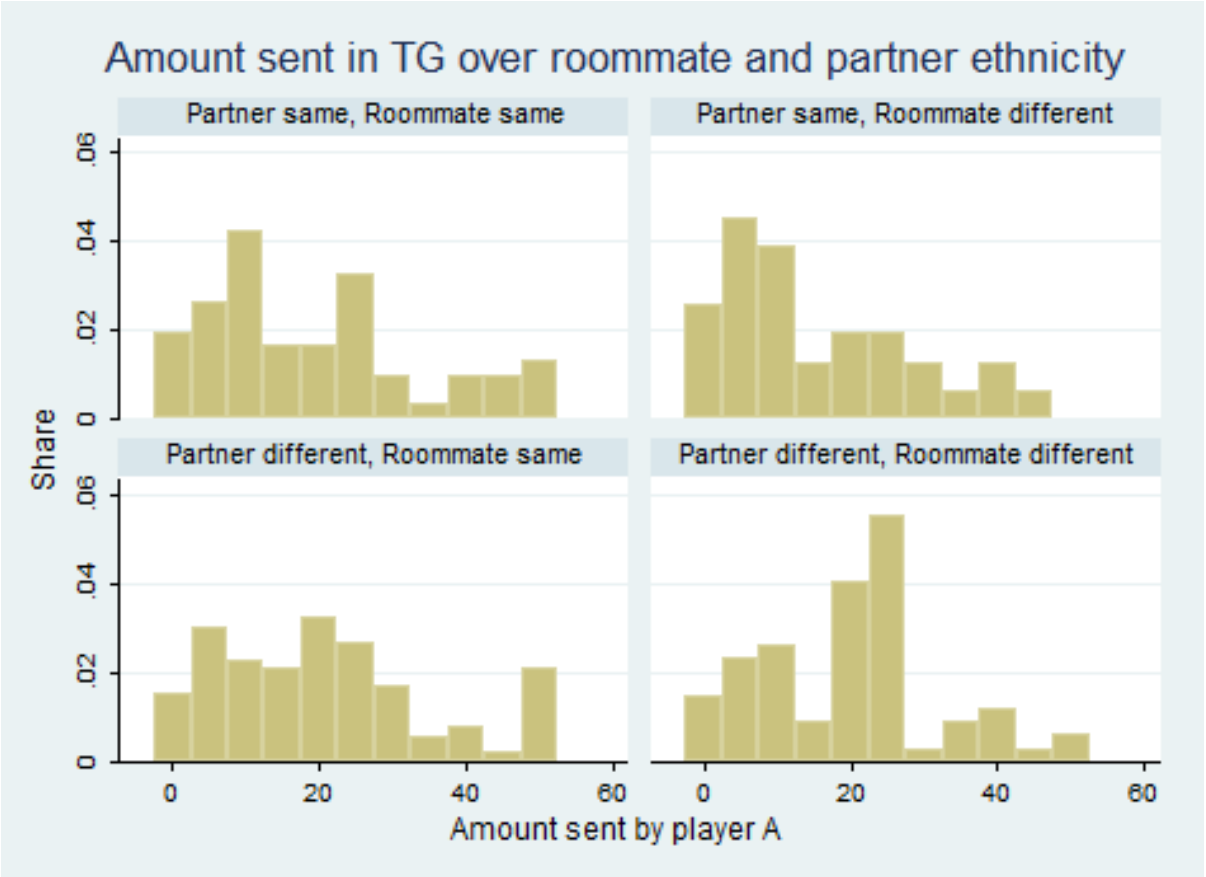


(a) By roommate's race



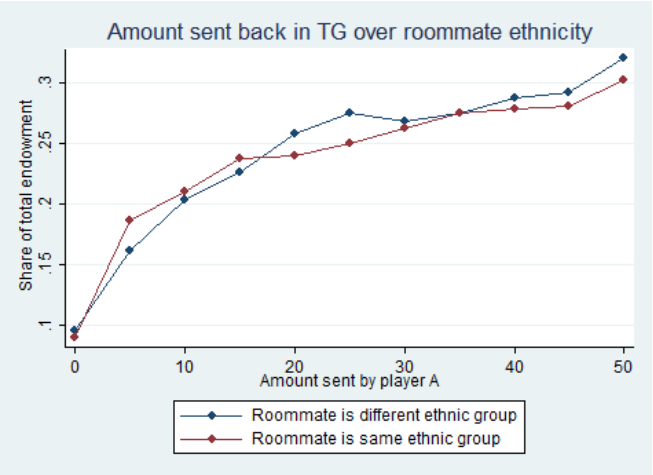
(b) By other player's race

Figure 4: Trust game, Share of endowment sent by Player A

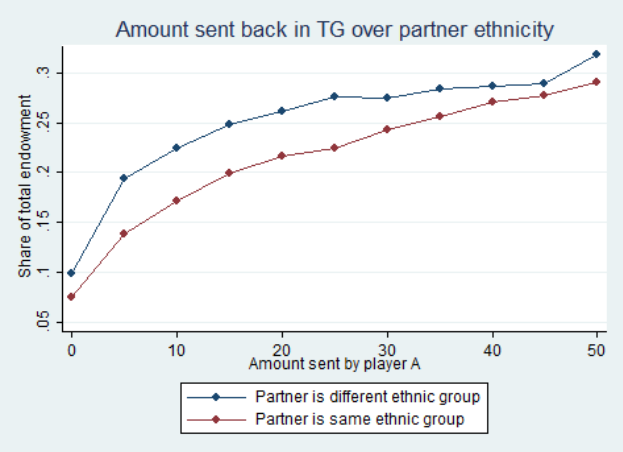


(c) By roommate's and other player's race

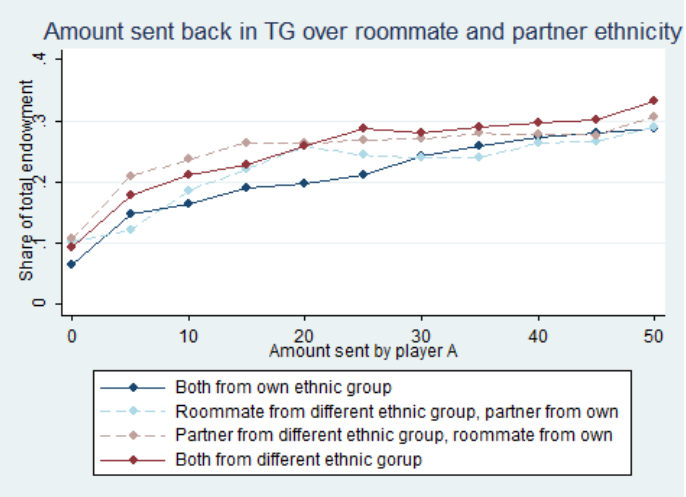
Figure 4 (cont'd): Trust game, Share of endowment sent by Player A



(a) By roommate's race



(b) By other player's race



(c) By roommate's and other player's race

Figure 5: Trust game, Share of endowment returned by Player B

Table 1: Summary statistics at baseline and difference in means between treatment and control

Sample:	*Full sample*		*Mixed room*		*Non Mixed room*		*Diff=0*
	Mean	*Std. Dev*	*Mean*	*Std. Dev*	*Mean*	*Std. Dev*	*(p-value)*
Panel A: Socio-demographic characteristics							
Female	0.67	0.471	0.67	0.472	0.66	0.475	0.910
B in Highschool	0.43	0.495	0.41	0.493	0.46	0.499	0.354
C/D in Highschool	0.06	0.242	0.06	0.234	0.07	0.249	0.700
Income < R 10,000	0.24	0.429	0.2	0.402	0.29	0.453	0.074*
Income R 10,000-40,000	0.29	0.455	0.32	0.467	0.28	0.449	0.318
Income R 40,000-75,000	0.2	0.401	0.2	0.402	0.19	0.395	0.915
Income > R 75,000	0.12	0.323	0.16	0.366	0.09	0.293	0.036**
Income not reported	0.15	0.353	0.12	0.326	0.15	0.356	0.236
Panel B: Implicit Association Tests							
Academic IAT	-0.21	0.492	-0.21	0.53	-0.19	0.458	0.672
Population IAT	-0.18	0.508	-0.22	0.491	-0.15	0.517	0.180
Panel C: Attitudes and behaviors							
Trust (ordinal)	0.67	0.728	0.7	0.73	0.66	0.736	0.559
Trust dummy	0.16	0.362	0.16	0.368	0.16	0.356	0.889
Talks of racism (ordinal)	3.38	1.082	3.4	1.082	3.33	1.049	0.521
Discriminated (ordinal)	0.33	0.851	0.33	0.829	0.33	0.812	0.971
Comfort (ordinal)	0.52	0.5	0.59	0.494	0.47	0.823	0.012**
Hangs out more w/different race	0.2	0.399	0.21	0.408	0.19	0.501	0.581
Studygroup	2.83	0.988	2.88	0.962	2.78	1.004	0.283
Leisure group	2.65	1.096	2.64	1.133	2.66	1.098	0.866
Share of black friends	0.6	0.412	0.51	0.409	0.66	0.405	0.000***
Share of white friends	0.27	0.367	0.32	0.373	0.23	0.365	0.006***
Observations	543		209		317		

Notes: In column (7), mean differences between treatment and control groups statistically different at 99 (***), 95 (**) and 90 (*) percent confidence level. Robust standard errors adjusted for the correlation at the residence level. Residence fixed effects included in the regression.

Trust (ordinal): Generally speaking, would you say most people can be trusted or we must be very careful? 1 Need to be very careful 2 Depends 3 Most people can be trusted

Trust dummy: Dummy for: would you say that most people can be trusted?

Talks of racism (ordinal): In the last month, how often did you talk with any friends of yours about topics of discrimination and racial bias? 1 Always 2 Most of the times 3 Sometimes 4 Rarely 5 Never

Discriminated (ordinal): In the last year, were you threatened or harrassed in any way because of your race? 0 Never 1 Once 2 2-5 times 3 5-10 times 4 More than 10 times

Hangs out more w/different race: Hangs out more or equally with different than with same race

Comfort (ordinal): How comfortale do you feel in talking to people about these issues? 1 Extremely Uncomfortable 2 Uncomfortable 3 Comfortable 4 Extremely Comfortable

Studygroup: Preferred number of people of different ethnicity in a study group:number up to 6

Leisure group: Preferred number of people of different ethnicity in a leisure group: number up to 6

Table 2: Own baseline characteristics regressed on roommate characteristics

	Own characteristics:																		
	Academic IAT	Population IAT	Trust (ordinal)	Trust (dummy)	Talks of racism	Discriminated (ordinal)	Comfort (ordinal)	Hangs out more w/different race	Studygroup	Leisure group	Share of black friends	Share of white friends	B in Highschool	C/D in Highschool	< R10,000	R10,000-40,000	Income R40,000-75,000	> R75,000	Not reported
Roomate characteristics																			
Academic IAT	0.037																		
	(0.033)																		
Population IAT		-0.035																	
		(0.032)																	
Trust (ordinal)			0.069																
			(0.073)																
Trust dummy				0.023															
				(0.064)															
Talks of racism					-0.076														
					(0.051)														
Discriminated (ordinal)						0.058													
						(0.086)													
Comfort (ordinal)							0.008												
							(0.055)												
Hangs out more w/different race								-0.034											
								(0.034)											
Studygroup									0.113										
									(0.065)										
Leisure group										-0.010									
										(0.050)									
Share of black friends											0.187*								
											(0.085)								
Share of white friends												0.184***							
												(0.039)							
B in Highschool													0.010						
													(0.018)						
C/D in Highschool														0.204*					
														(0.087)					
Income																			
< R10,000															0.129**				
															(0.037)				
R 10,000-40,000																0.048			
																(0.028)			
R 40,000-75,000																	0.023		
																	(0.071)		
> R 75,000																		0.028	
																		(0.028)	
Not reported																			-0.067
																			(0.074)
Observations	390	381	358	397	354	357	354	397	273	270	357	357	397	397	397	397	397	397	397
R-squared	0.030	0.024	0.062	0.048	0.055	0.035	0.016	0.039	0.026	0.036	0.084	0.093	0.035	0.042	0.070	0.028	0.008	0.035	0.019

Standard errors in parentheses. * p<.10, ** p<.05, *** p<.01. Controls include residence dummies

Table 3: Prejudice and exposure to a roommate of different race

Dependent variable:	*Population IAT*		*Academic IAT*	
	(1)	(2)	(3)	(4)
MixRoom	-0.009		-0.024	
	(0.021)		(0.055)	
Black*MixRoom		-0.045		-0.000
		(0.037)		(0.068)
White*MixRoom		0.118*		-0.015
		(0.058)		(0.070)
Indian*MixRoom		-0.043		-0.310
		(0.173)		(0.219)
IAT at baseline	0.062	0.059	0.140***	0.140***
	(0.034)	(0.034)	(0.040)	(0.040)
White	-0.277***	-0.350***	-0.128**	-0.127
	(0.040)	(0.062)	(0.041)	(0.080)
Coloured	0.009	-0.011	0.033	0.016
	(0.055)	(0.069)	(0.076)	(0.064)
Indian	-0.444***	-0.433**	0.031	0.248
	(0.034)	(0.149)	(0.069)	(0.193)
Female	0.058	0.038	0.055**	0.059**
	(0.107)	(0.107)	(0.024)	(0.022)
B in Highschool	-0.005	-0.005	-0.047	-0.053
	(0.026)	(0.028)	(0.063)	(0.064)
C/D in Highschool	-0.182	-0.187	-0.045	-0.048
	(0.108)	(0.112)	(0.121)	(0.122)
Income R 10,000-40,000	0.151**	0.151**	0.066	0.061
	(0.061)	(0.063)	(0.068)	(0.069)
Income R 40,000-75,000	0.074**	0.079**	0.075	0.077
	(0.031)	(0.030)	(0.063)	(0.061)
Income > R 75,000	0.194***	0.194***	0.041	0.043
	(0.053)	(0.056)	(0.062)	(0.061)
Income not reported	0.095	0.088	0.043	0.043
	(0.088)	(0.090)	(0.063)	(0.065)
Constant	-0.319**	-0.306**	-0.901***	-0.886***
	(0.103)	(0.107)	(0.097)	(0.110)
Observations	502	502	513	513
R-squared	0.120	0.124	0.069	0.073

Standard errors in parentheses clustered by Residence
Higher values of the dependent variable (IAT) imply a decrease in prejudice against blacks
All regressions include residence FE
* p<.10, ** p<.05, *** p<.01

Table 4: Differential effect by race of respondent

Dependent variable:	Population IAT	Academic IAT
	(1)	(2)
Black*Roommate is White	-0.082	0.024
	(0.052)	(0.070)
Black*Roommate is Coloured	-0.197*	-0.046
	(0.100)	(0.122)
Black*Roommate is Indian	0.099	-0.009
	(0.059)	(0.086)
Coloured	0.242	0.074
	(0.321)	(0.210)
Coloured*Roommate is White	-0.285	-0.146
	(0.415)	(0.339)
Coloured*Roommate is Black	-0.306	0.175
	(0.345)	(0.157)
White	-0.364***	-0.123
	(0.068)	(0.079)
White*Roommate is Black	0.131	-0.010
	(0.074)	(0.087)
White*Roommate is Coloured	-0.003	-0.083
	(0.312)	(0.171)
White*Roommate is Indian	0.155	0.001
	(0.103)	(0.060)
Indian	-0.445**	0.249
	(0.153)	(0.195)
Indian*Roommate is White	-0.114	-0.313
	(0.081)	(0.331)
Indian*Roommate is Black	-0.130	-0.306*
	(0.151)	(0.141)
Indian*Roommate is Coloured	0.753***	-0.324
	(0.125)	(0.254)
Constant	-0.305**	-0.944***
	(0.109)	(0.189)
Observations	502	513
R-squared	0.145	0.077

Standard errors in parentheses clustered by Residence
Higher values of the dependent variable (IAT) imply a decrease in prejudice against blacks
All regressions include residence FE and the controls listed in Table 3
* p<.10, ** p<.05, *** p<.01

Table 5: Impact on attitudinal measures

Dependent variable:	*Trust (ordinal)*		*Trust dummy*		*Talks of racism (ordinal)*		*Discriminated (ordinal)*		*Comfort (ordinal)*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
MixRoom	-0.091		-0.081		-0.264**		0.624		-0.052	
	(0.252)		(0.056)		(0.133)		(0.413)		(0.216)	
Black*MixRoom		-0.019		-0.057		-0.404*		0.969*		-0.024
		(0.288)		(0.057)		(0.208)		(0.516)		(0.176)
White*MixRoom		-0.278		-0.084		-0.042		-0.130		-0.458
		(0.246)		(0.059)		(0.277)		(0.393)		(0.401)
Indian*MixRoom		-0.945		-0.551*		0.414		-0.443		0.899
		(1.150)		(0.282)		(0.891)		(0.667)		(1.158)
Coloured[(a)]	0.218	0.153	-0.007	-0.077	0.421**	0.118	-2.097	-1.341	0.726***	0.681***
	(0.322)	(0.380)	(0.049)	(0.070)	(0.199)	(0.293)	(1.352)	(0.991)	(0.249)	(0.177)
White	1.076***	1.184***	0.060	0.070	0.289***	0.144	-0.156	0.350	-0.175	0.028
	(0.261)	(0.363)	(0.065)	(0.052)	(0.095)	(0.154)	(0.210)	(0.461)	(0.154)	(0.229)
Indian	0.806***	1.494	0.099	0.466*	0.460**	-0.099	0.792**	1.672***	-0.050	-0.786
	(0.261)	(0.912)	(0.054)	(0.235)	(0.218)	(0.756)	(0.331)	(0.475)	(0.366)	(1.190)
Constant			-0.111	-0.094						
			(0.076)	(0.073)						
Observations	512	512	488	488	511	511	498	498	500	500
R-squared			0.141	0.158						

Standard errors in parentheses clustered by Residence
All regressions include residence FE and the controls listed in Table 3
(a) In our sample all Coloureds are in mixed race rooms
* p<.10, ** p<.05, *** p<.01

Table 6: Impact on friendships

Dependent variable:	*Hangs out more w/ different race*		*Hangs out with roommate (dummy)*		*Studygroup (Ologit)*		*Leisure group (Ologit)*		*Black friends*		*White friends*		*Black studymates*		*White studymates*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
MixRoom	0.082		-0.002		0.211**		0.218		-0.028		0.001		0.096		-0.021	
	(0.054)		(0.027)		(0.106)		(0.181)		(0.025)		(0.022)		(0.068)		(0.040)	
Black*MixRoom		0.035		0.014		0.368***		0.147		-0.059		0.019		0.086		0.020
		(0.052)		(0.022)		(0.118)		(0.200)		(0.037)		(0.016)		(0.077)		(0.054)
White*MixRoom		0.166		-0.060		-0.024		0.401***		0.075		-0.097		0.204***		-0.186**
		(0.105)		(0.045)		(0.164)		(0.097)		(0.049)		(0.064)		(0.041)		(0.064)
Indian*MixRoom		0.202		0.107		-1.168		-1.002		-0.008		0.211		0.034		0.330
		(0.213)		(0.121)		(0.772)		(0.976)		(0.087)		(0.176)		(0.209)		(0.195)
Coloured[(a)]	0.346***	0.413***	0.101	0.104	1.278***	1.543***	1.284*	1.477***	-0.327***	-0.367***	0.038	0.047	-0.909***	-0.818***	0.088	0.079
	(0.073)	(0.036)	(0.094)	(0.083)	(0.227)	(0.220)	(0.686)	(0.558)	(0.079)	(0.089)	(0.023)	(0.026)	(0.135)	(0.092)	(0.076)	(0.080)
White	0.189***	0.133	0.110	0.141	-0.819***	-0.675**	-0.503**	-0.627***	-0.501***	-0.561***	0.457***	0.518***	-1.136***	-1.193***	1.431***	1.526***
	(0.046)	(0.076)	(0.080)	(0.094)	(0.265)	(0.270)	(0.237)	(0.188)	(0.078)	(0.060)	(0.063)	(0.038)	(0.124)	(0.082)	(0.121)	(0.102)
Indian	0.251***	0.145	0.112*	0.037	0.959**	2.097**	1.400*	2.309*	-0.540***	-0.569***	0.134**	-0.001	-1.253***	-1.216***	0.230*	-0.001
	(0.073)	(0.172)	(0.057)	(0.071)	(0.443)	(0.874)	(0.807)	(1.381)	(0.058)	(0.089)	(0.054)	(0.139)	(0.101)	(0.168)	(0.121)	(0.248)
Constant	-0.109	-0.115	1.084***	1.077***					0.759***	0.776***	0.139	0.124	2.052***	2.063***	0.310	0.293
	(0.185)	(0.186)	(0.188)	(0.191)					(0.093)	(0.096)	(0.255)	(0.264)	(0.282)	(0.295)	(0.347)	(0.348)
Observations	527	527	494	494	511	511	511	511	463	463	463	463	461	461	461	461
R-squared	0.152	0.155	0.065	0.067					0.693	0.697	0.722	0.729	0.272	0.274	0.508	0.511

Standard errors in parentheses clustered by Residence
All regressions include residence FE and the controls listed in Table 3
(a) In our sample all Coloureds are in mixed race rooms
* p<.10, ** p<.05, *** p<.01

Table 7: Summary statistics for games and difference in means by race of the roommate and of the other player

	All		*Mixed room*		*Non Mixed room*		*P-value*	*Partner different*		*Partner same*		*P-value*
	Mean	*Std. Dev*	*Mean*	*Std. Dev*	*Mean*	*Std. Dev*	*(Mixed-NonMixed)*	*Mean*	*Std. Dev*	*Mean*	*Std. Dev*	*(Different-Same)*
Trust Game												
Dummy - Switched	0.31	0.464	0.33	0.471	0.30	0.461	0.333	0.32	0.469	0.31	0.464	0.343
Time in watching switch photo	31.38	14.451	32.25	15.134	30.45	13.853	0.314	30.27	15.223	31.95	14.089	0.354
Amount sent by Sender	19.32	13.991	19.69	14.741	18.95	12.870	0.674	18.96	14.972	19.51	13.483	0.757
Belief on trustee behaviour	27.38	25.546	27.65	27.944	27.55	22.204	0.973	26.17	23.645	28.02	26.534	0.566
Share of endowement sent by trustee if sender sends n												
n=0	0.76	8.478	1.10	11.073	0.31	0.515	0.474	0.24	0.564	1.03	10.385	0.480
n=5	0.35	0.938	0.39	1.182	0.32	0.398	0.567	0.25	0.446	0.41	1.103	0.190
n=10	0.29	0.345	0.29	0.377	0.31	0.305	0.703	0.29	0.443	0.29	0.287	0.972
n=15	0.36	0.680	0.41	0.856	0.31	0.285	0.240	0.29	0.400	0.40	0.783	0.211
n=20	0.31	0.315	0.29	0.346	0.33	0.275	0.359	0.29	0.409	0.31	0.258	0.663
n=25	0.39	0.640	0.40	0.685	0.40	0.596	0.918	0.31	0.395	0.43	0.731	0.144
n=30	0.31	0.301	0.31	0.340	0.31	0.242	0.938	0.31	0.402	0.31	0.236	0.889
n=35	0.41	0.720	0.43	0.791	0.38	0.632	0.612	0.36	0.644	0.43	0.757	0.476
n=40	0.45	2.046	0.54	2.662	0.32	0.257	0.403	0.34	0.386	0.50	2.492	0.554
n=45	0.38	0.606	0.38	0.613	0.40	0.623	0.834	0.33	0.379	0.41	0.691	0.348
n=50	0.35	0.319	0.34	0.321	0.36	0.328	0.563	0.34	0.386	0.35	0.280	0.799
Average share of endowement sent	0.40	2.676	0.44	3.475	0.34	0.431	0.327	0.31	0.448	0.44	3.261	0.196
Prisoner's dilemma												
Cooperate	0.57	0.495	0.55	0.498	0.61	0.488	0.138	0.63	0.484	0.55	0.498	0.062
Time in watching switch photo	31.20	14.550	30.11	13.627	32.50	15.522	0.202	34.66	16.361	29.32	13.207	0.006
Dummy - Switched	0.34	0.474	0.35	0.478	0.31	0.466	0.581	0.31	0.465	0.35	0.477	0.573

Table 8: Experimental games, impact of roommate's race

Dependent variable:	*Cooperate in Prisoner Dilemma*		*Amount sent by Sender in Trust game*		*Belief of Sender on amount sent by*		*Switch in prisoner dilemma*		*Switch in trust game*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
MixRoom	0.052		-2.136		-1.679		-0.042		-0.049	
	(0.042)		(2.183)		(2.094)		(0.107)		(0.057)	
Black*MixRoom		0.107*		-0.624		0.516		-0.026		-0.119**
		(0.057)		(2.989)		(2.617)		(0.097)		(0.037)
White*MixRoom		-0.008		-5.946*		-4.764		-0.148		0.114
		(0.100)		(2.692)		(2.920)		(0.136)		(0.085)
Indian*MixRoom		-0.287		3.049		-5.467		0.030		0.080
		(0.238)		(4.817)		(11.579)		(0.239)		(0.373)
Coloured[(a)]	0.066	0.134	0.381	-1.165	1.088	0.250	-0.037	-0.075	0.134	0.069
	(0.059)	(0.079)	(3.926)	(4.392)	(8.601)	(8.875)	(0.128)	(0.074)	(0.086)	(0.097)
White	-0.013	0.029	4.570*	6.733*	14.726*	16.650**	-0.146	-0.106	-0.122*	-0.240***
	(0.091)	(0.064)	(2.442)	(2.949)	(6.508)	(6.700)	(0.088)	(0.087)	(0.061)	(0.059)
Indian	-0.210*	0.058	4.527**	1.761	7.000	10.165	-0.004	-0.052	0.034	-0.088
	(0.104)	(0.228)	(1.473)	(4.121)	(8.165)	(14.340)	(0.131)	(0.277)	(0.036)	(0.280)
Constant	0.884***	0.891***	24.987**	25.132**	134.005***	134.496***	-0.044	-0.048	-0.192	-0.171
	(0.162)	(0.170)	(8.075)	(8.474)	(11.026)	(11.563)	(0.194)	(0.181)	(0.200)	(0.199)
Observations	522	522	268	268	268	268	246	246	275	275
R-squared	0.075	0.082	0.105	0.111	0.165	0.167	0.145	0.149	0.105	0.115

Standard errors in parentheses clustered by Residence
All regressions include residence FE and controls listed in table 3
(a) In our sample all Coloureds are in mixed race rooms
* p<.10, ** p<.05, *** p<.01

Table 9: Experimental games, impact of other player's race

Dependent variable:	*Cooperate in Prisoner Dilemma*		*Amount sent by Sender in Trust game*		*Belief of Sender on amount sent by*		*Switch in prisoner dilemma*		*Switch in trust game*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
MixPlayer	-0.047		1.076		2.583		0.048		-0.013	
	(0.049)		(1.611)		(2.507)		(0.069)		(0.029)	
Black*MixPlayer		-0.069		0.695		2.140		0.053		-0.099
		(0.050)		(1.658)		(2.161)		(0.099)		(0.074)
Coloured*MixPlayer		-0.120		-19.599***		-23.178*		-0.241		-0.500**
		(0.089)		(3.808)		(10.182)		(0.341)		(0.194)
White*MixPlayer		0.055		7.044*		9.640		0.055		0.312**
		(0.083)		(3.783)		(7.457)		(0.142)		(0.125)
Coloured	0.060	0.085	0.427	6.508	1.504	9.057	-0.059	0.115	0.045	0.232
	(0.080)	(0.079)	(3.631)	(3.836)	(8.962)	(9.012)	(0.091)	(0.308)	(0.089)	(0.130)
White	-0.007	-0.088	4.993**	0.798	14.955*	9.987	-0.103	-0.108	-0.126**	-0.396***
	(0.073)	(0.069)	(2.112)	(3.034)	(6.511)	(7.296)	(0.069)	(0.081)	(0.050)	(0.104)
Indian[(a)]	-0.180**	-0.239**	2.572	3.354**	4.318	6.535	0.010	0.059	0.020	-0.049
	(0.071)	(0.100)	(1.653)	(1.431)	(7.956)	(8.006)	(0.132)	(0.152)	(0.043)	(0.053)
Constant	0.905***	0.943***	27.115***	28.444***	136.840***	138.392***	-0.089	-0.089	-0.204	-0.202
	(0.153)	(0.152)	(6.523)	(7.042)	(11.516)	(11.689)	(0.164)	(0.174)	(0.228)	(0.151)
Observations	540	540	277	277	277	277	254	254	285	285
R-squared	0.078	0.080	0.101	0.127	0.169	0.182	0.119	0.122	0.094	0.131

Standard errors in parentheses clustered by Residence
All regressions include residence FE and controls listed in table 3
(a) Because no picture portrayed an Indian/Asian person, all respondents from these groups have mixmatch=1
* p<.10, ** p<.05, *** p<.01

Table 10: Experimental games, impact of roommates and other player's race

Dependent variable:	Cooperate in Prisoner Dilemma		Amount sent by Sender in Trust game		Belief of Sender on amount sent by		Switch in prisoner dilemma		Switch in trust game	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
MixPlayer*MixRoom	-0.145*		1.950		5.191		0.104		0.046	
	(0.068)		(4.536)		(7.877)		(0.140)		(0.127)	
MixPlayer	0.006		1.233		1.467		-0.032		-0.044	
	(0.055)		(2.335)		(3.723)		(0.090)		(0.061)	
MixRoom	0.151**		-3.577		-5.432		-0.112		-0.079	
	(0.057)		(4.915)		(5.534)		(0.190)		(0.050)	
Black*MixPlayer		-0.054		-0.551		0.091		-0.015		-0.109
		(0.072)		(1.983)		(2.467)		(0.077)		(0.081)
Black*MixRoom		0.111		-3.649		-3.837		-0.086		-0.118
		(0.107)		(6.742)		(6.942)		(0.166)		(0.083)
Black*MixPlayer*MixRoom		-0.011		5.026		7.073		0.096		0.019
		(0.112)		(7.028)		(9.104)		(0.141)		(0.097)
White	-0.011	-0.140	4.499	0.439	14.495*	12.624	-0.153	-0.063	-0.125*	-0.443***
	(0.087)	(0.082)	(2.529)	(4.190)	(6.478)	(9.508)	(0.099)	(0.106)	(0.060)	(0.105)
White*MixPlayer		0.201**		10.188*		7.117		-0.101		0.218
		(0.086)		(4.667)		(8.154)		(0.108)		(0.244)
White*MixRoom		0.261***		-9.071		-20.160		-0.458***		0.006
		(0.073)		(5.275)		(10.942)		(0.066)		(0.116)
White*MixPlayer*MixRoom		-0.384*		1.624		17.629		0.415***		0.126
		(0.192)		(5.362)		(13.426)		(0.116)		(0.295)
Coloured	0.049	0.207***	1.569	4.895	3.611	8.301	-0.032	0.055	0.132	0.349**
	(0.059)	(0.061)	(4.320)	(5.645)	(10.159)	(10.792)	(0.129)	(0.287)	(0.083)	(0.132)
Coloured*MixPlayer		-0.201		-17.927***		-22.223*		-0.240		-0.656**
		(0.112)		(4.219)		(10.565)		(0.343)		(0.246)
Indian[(a)]	-0.175*	0.026	3.709***	1.398	5.391	10.013	-0.021	-0.064	0.035	-0.156
	(0.082)	(0.233)	(0.912)	(4.757)	(8.602)	(15.067)	(0.121)	(0.272)	(0.031)	(0.342)
Indian*MixRoom		-0.287		3.093		-5.535		0.030		0.077
		(0.240)		(5.224)		(11.888)		(0.241)		(0.393)
Constant	0.914***	0.972***	26.148**	27.327**	135.754***	138.065***	-0.057	-0.040	-0.173	-0.200**
	(0.163)	(0.178)	(8.387)	(9.685)	(12.151)	(12.969)	(0.188)	(0.177)	(0.183)	(0.085)
Observations	522	522	268	268	268	268	246	246	275	275
R-squared	0.081	0.093	0.110	0.155	0.171	0.194	0.148	0.159	0.107	0.156

Standard errors in parentheses clustered by Residence
All regressions include residence FE and controls listed in table...
(a) Because no picture portrayed an Indian/Asian person, all respondents from these groups have mixmatch=1
* p<.10, ** p<.05, *** p<.01

Table A1: Sample Size and Attrition

	All		*Mixed Room*		*Non Mixed Room*		*p-value*
	Obs.	*%*	*Obs.*	*%*	*Obs.*	*%*	*(Mixed-*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Interviewed at baseline	681		252		392		
Interviewed at follow-up	543	0.80	201	0.80	325	0.83	0.31

Table A2: Correlates of attrition

Dep. Var= 1 if respondent participated in follow-up survey				
	Coeff. (1)	t-stat (2)	Coeff. (3)	t-stat (4)
Roommate from different race (baseline)	-0.028	(-0.68)	-0.004	(-0.08)
Female			0.012	(0.31)
Coloured			-0.130	(-1.85)
White			-0.135*	(-1.98)
Indian/Asian			-0.028	(-1.18)
Born in 1991			0.204	(0.65)
Born in 1992			0.114	(0.35)
Born in 1993			0.124	(0.38)
Born in 1994			0.177	(0.57)
Born in 1995			0.287	(0.91)
B in Highschool			-0.024	(-1.14)
C/D in Highschool			-0.036	(-0.52)
10,000-40,000 rand			0.062	(1.08)
40,000-75,000 rand			0.091**	(2.40)
> 75,000			0.020	(0.27)
Income not reported			0.022	(0.47)
Observations	634		634	
R-squared	0.001		0.039	

Notes: Linear probability model. T-statistics in parenthesis, *** Significantly different from zero at 99% confidence level, ** significantly different from zero at 95% confidence level, * significantly different from zero at 90% confidence level. Robust standard errors are clustered at the residence level. Controls include residence fixed effects.