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## **The Spillover Effects of Affirmative Action on Competitiveness and Unethical Behavior**

Ritwik Banerjee<sup>a</sup>, Nabanita Datta Gupta<sup>b</sup>, Marie Claire Villeval<sup>c</sup>

**Abstract:** We conduct an artefactual field experiment to examine various spillover effects of Affirmative Action policies in the context of castes in India. We test *a*) if individuals who enter tournaments in the presence of an Affirmative Action policy remain competitive after the policy has been removed, and *b*) whether having been exposed to the policy generates unethical behavior and spite against subjects from the category who has benefited from the policy. We find that this policy substantially increases the beliefs on being a winner and the competitiveness of the backward caste members. However, we find no spillover effect on confidence and competitiveness once Affirmative Action is withdrawn. Furthermore, the discrimination by the dominant category against the backward category is not significantly aggravated by Affirmative Action, except when individuals learn that they have lost the previous competition.

**JEL codes:** C91, J16, J24, J31, M52

**Keywords:** Affirmative Action, castes, competitiveness, unethical behavior, field experiment

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## 1. Introduction

Affirmative Action policies have developed in various contexts to facilitate the access to more rewarding positions of groups of the population that suffer from lower status in society, most of the time by means of quotas. Many aim at reducing the gender gap in the access to the boards of large companies or to parliaments,<sup>1</sup> but examples can be found also in the context of highly segmented societies, as in India where the objective is to reduce the gap between castes in the access to higher education and jobs (*e.g.*, Deshpande, 2011).

These policies have pros and cons. On the one hand, they help fight the underrepresentation of some categories whose ability does not differ on average from that of the more represented categories (OECD, 2012), and they reduce stereotypes (Beaman *et al.*, 2009). They can improve the confidence of beneficiaries in the longer run. On the other hand, they may generate efficiency losses and resentment if they lead to more able employees being passed over for less able but more protected employees (Holzer and Neumark, 2000) or if no able person can be found (Ahern and Dittmar, 2012). Despite an emerging literature (Pande, 2003; Besley *et al.*, 2004; Fryer and Loury, 2005; Duflo, 2005; Bertrand *et al.*, 2014), little is known about the causal effects of reservation policies and their spillover effects. Laboratory experiments have shown that in a setting where high-performing females shy away from competition (Niederle and Vesterlund, 2007; Datta Gupta *et al.*, 2013), introducing quotas substantially increases females' competitiveness (Niederle *et al.*, 2013) and does not adversely affect effort provision (Kölle, 2017). The surge in the supply of high-performing individuals to the competitive pool more than outweighs the costs of the program. Balafoutas and Sutter (2012) confirm that Affirmative Action reduces the gender gap without harming male competitors. However, except in the last study showing that post-tournament cooperativeness is not affected, in Maggian and Montinari (2017) who found no effect of

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<sup>1</sup> See for example, <http://www.bloomberg.com/news/articles/2015-07-01/can-gender-quotas-get-more-women-into-boardrooms->, and European Commission (2015).

quotas on unethical behavior against females, and in Leibbrandt *et al.* (2015) who, on the contrary, found a strong backlash against females when quotas are in use, we know very little about the spillover effects of Affirmative Action, especially when the origin of the division between groups is associated with a strong and historical segmentation of the society. This is an important question, however, since this illustrates how institutions can influence the evolution of preferences (*e.g.*, Fehr and Hoff, 2011).

Our objective is investigating two types of spillover effects of Affirmative Action, using natural group identities. First, we study whether such policies, if effective when implemented, keep having an impact on the beneficiaries once they are withdrawn and whether this is conditional on the information received about past success in a competition. It has been found that feedback in a repeated competition reduces the gender gap in competitiveness (Wozniak *et al.*, 2014) but we do not know whether this applies to a context with Affirmative Action. Are people helped by Affirmative Action still willing to compete in the same proportion when they no longer benefit from the support of the policy? How do such policies affect the competitiveness of the unprotected category? Do the winners from the supported category learn from their success and revise their beliefs about their relative ability?

The second spillover effect investigated is the possible spiteful behavior by people from the category who did not benefit from Affirmative Action towards people from the other category. Indeed, if this policy is perceived as unfair (for example, because of a fear that more able individuals are passed over in competition by less able individuals from the other group or because the lower status people do not need any help to compete), it may generate spite against the protected members. Indeed, feelings of injustice can lead to sabotage (*e.g.*, Ambrose *et al.*, 2002; Leibbrandt *et al.*, 2015) or retaliatory actions (Fallucchi and Quercia, 2017), and Affirmative Action is less effective when considered as based on an illegitimate criterion (Balafoutas *et al.*, 2016). The policy may also lead some subjects to cheat to

compensate for the possible disadvantage introduced by Affirmative Action. On the beneficiary category's side, a feeling of entitlement may increase moral flexibility.<sup>2</sup> If the policy targeting reinforces group identity (*e.g.*, Akerlof and Kranton, 2000; Chen and Li, 2009), it may increase hostility against out-groups; or the opposite could occur, the policy may weaken the initial group identity and lead the beneficiaries to feel more like people from the other category.

To study these spillover effects, we have designed an artefactual field experiment with castes in India. We recruited 672 participants in 36 villages from South 24 Parganas district of West Bengal. About half of them were from the General Category and the other half were from the Scheduled Castes.<sup>3</sup> Beyond allowing us to test the robustness of previous findings with a different group than males and females, India offers an interesting setting. This society is deeply segmented and has introduced Affirmative Action very early, with the aim of facilitating the access of lower caste members to jobs in the public sector.<sup>4</sup> Yet, low status associated with the Scheduled Castes prevails and labor market outcomes remain substantially worse even after decades of reservation.<sup>5</sup> Few systematic or controlled studies have been able to tease out the mechanisms leading to these labor market differences.

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<sup>2</sup> For example, Schurr and Ritov (2016) show that winning a competition leads to more subsequent dishonest reporting in a standard die-under-cup task, probably because of a higher feeling of entitlement.

<sup>3</sup> The Scheduled Castes represent 16.6% of the general population in India and the General category about 34% (the rest belong to Scheduled tribes, 8.6%, and Other Backward categories, 41%) (Census 2011).

<sup>4</sup> Largely due to the British colonial regime who made the caste system the central organization of the administration in India, jobs in public administration were allotted based on castes, leading to the over-representation of employees from the upper castes (*e.g.*, de Zwart, 2000). To curb this occupational endogamy, a percentage of jobs in the administration has been reserved for employees from lower castes, a policy starting after the '20s. After independence, lists of Scheduled Castes ("*Dalit*" or Untouchables) have been established for job reservations. In 1989, the parliament adopted the Scheduled Castes and Scheduled Tribes Act. In the two lowest of the four categories of jobs in public administration, the share of employees from the Scheduled Castes is similar to their share in the population, but there is still a high discrepancy for the two highest categories of jobs. Discrimination remains high in the private sector (*e.g.*, Thorat and Attewell, 2010; Siddique, 2011).

<sup>5</sup> After decomposing selection-corrected wage regressions Das and Datta (2008) find a substantial caste wage gap of about 0.37 log points among regular wage employees, a third of which being due to "unequal treatment".

Here we investigate three potential candidates: stereotype threat, competitiveness, and discrimination.<sup>6</sup> Regarding the first factor, previous studies have found that when caste identity is made salient, a gap in performance favoring the high caste emerges and learning by the low caste is impaired (Hoff and Pandey, 2006; 2014). Being reminded of their low status decreases the self-confidence of the low-caste individuals and makes them conform to the stereotype formed about their social group (stereotype threat), while high-caste individuals feel encouraged because they are reminded of their high status (stereotype boost) (Steele and Aronson, 1995; Shi *et al.*, 2011). Lowered beliefs about one’s ability among low caste individuals may impact their perceived ability to succeed. This could lower the competitiveness of these individuals, for a given ability level. We investigate whether the lower status associated with belonging to a Scheduled Caste gives rise not only to lower beliefs about one’s own ability but also to less competitiveness, and how this is affected by Affirmative Action. Such an investigation is unique in the context of castes, although it has been carried out for gender.<sup>7</sup> Finally, we allow for the possibility of discrimination in the form of spite against the low-caste that may arise both generally and due to Affirmative Action. Indeed, the strong status segmentation associated with castes may give rise to more resentment about this policy if the latter is seen as questioning the “natural” hierarchy. If no negative spillover effect of AA is found on unethical behavior in this environment, it suggests that the risk of such a negative spillover in a less segmented environment is limited.

Our experiment consists of four treatments. The structure of the Baseline is close to that of Niederle and Vesterlund (2007). In the first part, subjects had to perform a real-effort task under an individual piece rate payment scheme. In the second part, they performed the same

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<sup>6</sup> This is by no means an exhaustive list, other factors could matter as well, for example caste differences in cultural norms relating to women’s participation on the labor market (*e.g.*, Das and Desai, 2003).

<sup>7</sup> Note, we also allow for differences in self-confidence to vary by information on group composition. The gender gap in competitiveness has been shown to be lower within single-sex groups, *i.e.*, there might not be a difference in preferences for competition per se but only in competition with out-groups (Booth and Nolen, 2012; Data Gupta *et al.* (2013) for endogenous gender matching; Geraldes, 2017).

task under a tournament scheme in groups of six performers with two winners. After experimenting with both schemes, in the third part subjects were given the opportunity to choose the payment scheme to be applied to their performance in this part. Choosing the tournament indicates the players' competitiveness. In the fourth part, subjects chose the payment scheme to be applied to their performance in the first part, giving us an additional measure of competitiveness. Treatment 1 is similar to the Baseline, except that subjects were informed that their group consists of subjects from both castes in equal proportions. This allows us to test whether self-confidence, performance and competitiveness are affected by making the caste composition of the group common information.

Treatment 2 introduces Affirmative Action. In parts 2 to 4, a quota imposes that one of the two winners in the tournament is the best performer of the Scheduled Caste. To measure its spillover effects on future competitiveness, part 4 includes two successive choices between submitting performance in part 1 to either a piece rate or a tournament, the first one in the presence of a quota and the second one without. The spillover is identified through the evolution of beliefs about one's performance rank and the comparison between the choices of the tournament. To measure the role of previous success on spillovers, we conducted a variant of treatment 2 in which players are informed about their outcome in the forced competition in part 2 before making their last decision in part 4 when the quota policy is removed.

To measure the spillover of Affirmative Action on spite and discrimination, in the fifth part of all treatments subjects had to roll dice like in Fischbacher and Föllmi-Heusi (2013) or Shalvi *et al.* (2011). Earnings were proportional to the reported side of the die that faced up. By misreporting the outcome, subjects could increase their payoff at no risk of detection. An original aspect is introducing either positive or negative externalities.<sup>8</sup> Indeed, the subjects' reports determined both their earnings and that of another subject. We manipulated between-

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<sup>8</sup> We also differ from Leibbrandt *et al.* (2015) because in their experiment subjects could misreport others' performance. Here, subjects can misreport a random outcome with no interference with another player's action.

subjects whether the interests were aligned or not, allowing for Pareto-white lies or selfish black lies.<sup>9</sup> We manipulated within-subjects whether the matched partner was from own or the other caste. We test whether people are more (less) willing to lie to benefit themselves and an in-group member (an out-group member) when payoffs are aligned, and less (more) willing to lie to avoid harming an in-group member (to harm an out-group member) when they are unaligned. The comparison between treatments indicates whether Affirmative Action affects a possible discrimination against out-group members.

Our main findings show that without Affirmative Action, the revelation of castes generates a significant caste gap in the beliefs about absolute performance and on being a winner but not in terms of competitiveness. Affirmative Action slightly increases the perceived chance of the Scheduled Castes subjects of being the winner, but not the beliefs about one's absolute performance. It discourages the entry of General category subjects and encourages that of the Scheduled Castes subjects. As a result, the caste gap in competitiveness becomes significant to the advantage of the Scheduled Caste subjects.

Regarding the first spillover, we find that as soon as Affirmative Action is removed, the percentage of the Scheduled Castes subjects entering the tournament decreases sharply while that of the General category subjects increases. As a result, the gap in competitiveness is reversed but is no longer significant. This is observed even when subjects have received feedback on whether they won or lost the previous forced competition. Regarding the second spillover, the General Category subjects lie less when interests are aligned and more when

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<sup>9</sup> By analyzing how group identity influences lying, we also make a contribution to this literature since the role of identity in lying has been little explored. Studying the contagion of dishonesty, Gino *et al.* (2009) and Dimant (2016) show that contagion is more likely among in-groups than when social identification with peers is lower. In a game in which the die roller receives a fixed payoff, Jiang (2015) find that people with a strong in-group bias do not cheat more to benefit an in-group than another subject. Cadsby *et al.* (2016) show evidence of dishonesty to benefit oneself and in-groups against out-groups, but they have no condition in which reporting determines the payoff of both the die roller and an in-group. Hruschka *et al.* (2014) compare a condition in which the die roller can benefit an in-group or an out-group, and a condition in which the self is opposed to an out-group. They show that in societies with stronger institutions, people are more likely to follow an impartial rule instead of favoring in-groups or themselves. Benistant and Villeval (2017) find no effect of group identity on dishonesty in a competitive setting. In contrast, our active player is always matched either with an out-group or an in-group and payoffs are aligned or not, which offers a more complete picture.



they are unaligned when they are matched with an out-group from the backward caste compared to when they are matched with an in-group from the same caste. This is much less the case for the SC subjects.<sup>10</sup> Affirmative Action does not increase significantly such discrimination, which suggests that this policy is accepted as relatively legitimate. However, General Category subjects are more likely to lie spitefully when they learn that they have lost the tournament under Affirmative Action. Overall, Affirmative Action does not generate the discrimination against the protected category, but it increases it when non-protected individuals know they have lost a competition.

The remainder of this paper is as follows. Section 2 develops the experimental design and procedures. Section 3 presents our findings. Section 4 discusses these results and concludes.

## **2. Experimental design, procedures and predictions**

We first present our experimental design, then our procedures. Finally, we develop our behavioral predictions.

### *2.1. Experimental design*

The experimental design comprises of four treatments that vary information about the caste composition of the group and the rules for determining the winners in a tournament. Each treatment has multiple parts. One part is randomly selected for payment to prevent hedging. In each of the first three parts, subjects have to perform a real-effort task. We first describe the task, then the Baseline treatment and finally, each of the other treatments.

#### *The task*

The task consists of a memory test. Indeed, stereotype threat has been shown to reduce working memory, in particular the phonological (sound of language) loop (Beilock *et al.*, 2007). Recalling a series of numbers that are dictated is a suitable test of stereotype threat. 15

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<sup>10</sup> This is consistent with Piff *et al.* (2012) who found that high status in society predicts higher unethical behavior, and with Fehr *et al.* (2008) who show that spitefulness is more prevalent among people belonging to high castes in India than among those from low castes (see also Hoff *et al.*, 2011).

randomly selected numbers between 0 and 100 are called out, one at a time. The subject has to recall and write down as many numbers as possible in the allotted 3 minutes *after* all the numbers have been called out. The score is given by the number of correctly recalled numbers. No feedback is provided on absolute or relative performance in any part before the end of the session, except in the T2-Feedback treatment, as explained below.

### *Baseline treatment*

The sequence of the Baseline treatment (T0, henceforth) is quite similar to that of Niederle and Vesterlund (2007). Subjects are informed that they are part of a group of six that remains fixed throughout most parts of the experiment, but they are not informed about the caste composition of this group. In fact, each session comprises of 12 subjects. In each group, there are three Scheduled Castes (SC, hereafter) and three General Category (GC, hereafter) subjects. The content of parts and the compensation schemes are as follows.

*Part 1 – Piece Rate:* Payoff depends exclusively on the individual absolute performance. Subjects are paid 10 Indian Rupee for every correctly recalled number in the allotted three minutes (INR 10 = \$ 0.56 in 2015 Purchasing Power Parity).

*Part 2 – Tournament:* The top two performers in each group of six players are declared “winners”. Each winner is paid a piece rate of INR 30 for every correctly recalled number. The non-winners are not paid anything. In case of a tie, the winners are chosen randomly.

*Part 3 - Choice of compensation scheme for future performance:* Before performing the task again, subjects have to choose whether they want to be paid by piece rate or tournament. Tournament winners are decided by comparing the score of competitors in part 3 relative to the part 2 score of the group members (to avoid the effect of self-selection that occurs in part 3). Presenting subjects both compensation schemes in the first two parts before letting them

choose allows them to experience first-hand what the otherwise abstract compensation schemes mean. It also helps us map performance metric to the choice of competition.

*Part 4 - Choice of compensation scheme for past performance:* Contrary to the previous parts, subjects do not perform the memory task henceforth but are asked to choose the compensation scheme they want to be applied to their performance in part 1. We postpone the justification for asking subjects whether they are willing to compete in both parts 3 and 4 to the presentation of the treatments with Affirmative Action.

*Part 5 – Die Roll:* This task is inspired by the die-under-the-cup task of Fischbacher and Föllmi-Heusi (2013) and Shalvi *et al.* (2011). Each subject has to roll two dice successively, one red and one blue, and report the outcomes. Each outcome can potentially determine an additional payoff for themselves and for another participant in the session. Each die is put in a cup closed with a lid. A hole in the lid allows only the subject to see the outcome of a die roll, which forbids any scrutiny. Before each report, subjects are instructed to roll the die twice to check that the die is fair but only report the first outcome. A random draw at the end of the session determines which decision in each pair counts for payment. Since there is no scrutiny, we cannot identify lying at the individual level. But at the caste level, we are able to compare the actual distribution of reports with the theoretical distribution.

For part 5, we use two conditions across sessions. Condition 5A allows for black lies. The payoffs of the subject who rolls the die and of his matched partner are unaligned, as indicated in Table 1: the roller cannot increase his payoff by lying without reducing the payoff of his partner. In contrast, condition 5B allows for Pareto-improving lies. Here, payoffs are aligned: the payoffs of both players increase with the number reported. In the two conditions the subject always earns more the higher the number he reports, which gives him an incentive to inflate the reported number. However, social preferences may affect behavior, as a subject

who misreports helps or harms another player, depending on the condition. Thus, these conditions indicate the sensitivity of lying to the consequence of a lie on others.

Table 1. Payoffs in the die task in part 5 (in Indian Rupees)

Reported outcome	1	2	3	4	5	6
<i>Condition 5A - Unaligned payoffs</i>						
Payoff of the roller in INR	10	20	30	40	50	60
Payoff of the other in INR	60	50	40	30	20	10
<i>Condition 5B - Aligned payoffs</i>						
Payoff of the roller in INR	10	20	30	40	50	60
Payoff of the other in INR	10	20	30	40	50	60

*Part 6 – Risk elicitation:* In this final part, we use a risk elicitation task inspired from Gneezy and Potters (1997). Subjects can invest any amount of a given endowment of INR 100 in a risky project. With 50% chance the amount invested is trebled and with 50% chance it is lost. The final payoff is therefore the initial endowment minus the invested amount, plus the return of the investment. Invested amounts others than the total endowment indicate risk aversion.

#### *Other treatments*

*Treatment 1 – T1* replicates the Baseline treatment, except that the caste composition of the group is made common information from the very beginning, while preserving anonymity. Moreover, in part 5, each subject is informed that if this part is selected for payment, his report using the blue die determines both his payoff and that of another player from his own caste, while the report using the red die determines his payoff and that of another player from the other caste. This allows us to investigate whether behavior is conditional on the caste identity of the matched player, while the aligned and unaligned payoff structures are expected to capture the tension between caste identity and payoffs. Indeed, the decision to misreport may now depend on the willingness to help or harm an in-group or an out-group.

Similar to T1, in treatments 2 and 2-Feedback the caste composition of the groups is made common information. But now, Affirmative Action (AA, hereafter) is introduced.<sup>11</sup>

*Treatment 2* - A quota based AA is introduced in parts 2, 3 and 4A. In quota tournament, one of the two winners is necessarily the best performer from the Scheduled Castes category and the other one is the top-performing subject among the remaining five. In part 4B, the quota intervention is withdrawn and the choice is between piece rate and the regular tournament.

*Treatment 2-Feedback* – This treatment is a variant of treatment 2. The only difference is that at the beginning of part 4B, all the subjects are informed on whether they won or lost the tournament in part 2 (when the tournament was compulsory for all subjects). This information may affect their choice to compete when the quota is removed in part 4B.

In treatments 2 and 2-Feedback, the withdrawal of AA in part 4B aims to elicit the spillover effects of these policies on self-confidence and competitiveness. Treatments 2 allow us to identify whether having competed with a potential advantage in the past (but without any feedback) encourages the lower caste subjects to compete even without the support of AA. The comparison between T2 and T2-Feedback indicates whether or not the potential persistent effect of AA on self-confidence and competitiveness requires more information on relative ability in order to develop.

It now becomes clearer why we asked players to make successive competition decisions about similar or different performances in parts 3, 4A and 4B. There are three reasons for that. First, the comparison of the decisions to compete under AA and after AA has been removed requires the exactly same conditions, except for the presence of AA. If subjects had to perform the task in each part, fatigue could have introduced an additional difference between the decisions. Thus, these two decisions have to be taken about the same performance. Second, giving a better chance to spillover effects of AA to appear may require repeat

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<sup>11</sup> We ran another treatment, which introduced another form of AA, namely, Preferential Treatment through bonus points for Scheduled Caste subjects. The results are very similar to the treatment 2 results and are not discussed in this paper. For more on Preferential Treatment, refer to Banerjee *et al.* (2016).

exposure to AA. However, we could not ask people to make too many decisions about the same past performance in the same conditions. The decision in part 3 about future performance introduces such a difference. The third reason is to control if AA has a different impact on competitiveness when future or past tournament performance is involved or not. If AA has the same impact when competing about past performance in part 1 (part 4A) than when competing about future performance in part 3, it indicates that it affects not so much the pure fear of competing, but rather confidence. If the impact differs, such a difference would qualify the generalizability of the interpretation of the differences in competitiveness between parts 4A and 4B. In fact, we found no difference (see below).

Finally, in part 5 we can observe whether the reporting of the die outcomes is affected by the previous implementation of AA.

Table 2 summarizes the main characteristics of our experimental design.

Table 2. Summary of the experimental design

	<i>Baseline</i>	<i>Treatment 1</i>	<i>Treatment 2</i>	<i>Treatment 2-Feedback</i>
Info on caste composition of group	No	Yes	Yes	Yes
Feedback	No	No	No	Yes
Part 1	Piece rate	Piece rate	Piece rate	Piece rate
Part 2	Tournament	Tournament	Quota tournament	Quota tournament
Part 3	Choice: Piece rate vs. Tournament	Choice: Piece rate vs. Tournament	Choice: Piece rate vs. Quota tournament	Choice: Piece rate vs. Quota tournament
Part 4*	Choice: Piece rate vs. Tournament for part 1 score	Choice: Piece rate vs. Tournament for part 1 score	Choice: Piece rate vs. Quota tournament for part 1 score	Choice: Piece rate vs. Quota tournament for part 1 score
Part 4B			Choice: Piece rate vs. Tournament for part 1 score	Feedback on success in part 2 Choice: Piece rate vs. Tournament for part 1 score
Part 5	Dice roll	Dice roll	Dice roll	Dice roll
Condition 5A <sup>†</sup>	Unaligned payoffs	Unaligned payoffs	Unaligned payoffs	Unaligned payoffs
Condition 5B	Aligned payoffs	Aligned payoffs	Aligned payoffs	Aligned payoffs
Part 6	Risk elicitation	Risk elicitation	Risk elicitation	Risk elicitation

*Note:* \* Part 4 denotes part 4A in treatment 2 and 3. <sup>†</sup> Within each treatment, sessions are randomized either to Condition 5A or Condition 5B.

### *Belief elicitation*

At the end of each part, subjects are asked to report their beliefs about their absolute and their relative performance. The belief about the absolute performance is captured using the question: “How many numbers do you think you have correctly written down?”. The belief about relative performance is captured with two questions: “Between 1 and 6, which rank do you think you have got, compared to the five other group members?” and “What is the chance, in percent, that you will be among the winners of your group?”. In T2 and T2-Feedback subjects also report their perceived rank within their caste. A small incentive encouraged truthful reports of beliefs without a risk of hedging. The incentivizing procedure has been kept as simple as possible to make it comprehensible to the subject pool.<sup>12</sup>

We elicited these three beliefs (absolute performance, being a winner, chances of being a winner) to have a better perception of the subjects’ beliefs about their own ability and their ability compared to others. Since subjects never receive feedback in any part about their score or the score of others, this gives us rich data on the evolution of self-confidence before, during, and after the AA intervention. This helps us identify whether the SC subjects suffer from stereotype threat (through the beliefs about absolute performance) and map self-confidence to competitive attitudes (through the beliefs about being a winner).

### *2.2. Experimental procedures*

We recruited subjects from South 24 Parganas district of West Bengal. One third of the total number of blocks in the district were randomly chosen. A stratified sample of 3% of

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<sup>12</sup> See instructions in Appendix 1. We paid subjects for one of their beliefs, randomly drawn at the end of the session. A correct guess was paid INR 50 in addition to the other earnings. For the estimate of the chance, in percent, of being a winner, the calculation is more complex. Subjects had to indicate a number between 0 and 100, with 0 if they are absolutely sure they are not among the top two, 100 if they are absolutely sure they are among the top two, and some number in between 0 and 100 depending on how sure they are of being among the top two. The maximum bonus for answering to this question was INR 50 and the minimum INR 0. They were simply told that their best interest was to report their belief truthfully. We proposed to the subjects if interested, to explain the details of the procedure at the end of the session. Indeed, we thought that it was too complex to develop this during the session. The details about the incentivized procedure are in Figure A1 in Appendix 5.

village/ward was chosen from each block<sup>13</sup> The maps of the sampled blocks and the villages/wards are given in Appendix 2. From each sampled unit 12 to 24 subjects were recruited using convenience sampling. Local intelligence helped us strike a balance between the number of GC and SC subjects. In total, we had 36 villages and 672 subjects in our study. This includes 340 GC, 315 SC and 17 subjects from other castes (Other Backward Caste or Schedule Tribes) that we pool with the SC subjects in the data analysis.

Brief descriptive statistics of the subject pool across the four treatments are reported in Table A1 in Appendix 3. The subject composition is balanced across treatments. 44-48% are females. About 48-52% belong to the SC category. Subjects are willing to invest between INR 38-46 in the risk elicitation game, which denotes a relatively high degree of risk aversion. Mean age is 20.38-21.94 years. Two-tailed non-parametric tests indicate that very few pairwise treatment comparisons are significant (compared to the Baseline, mean age is lower in T1, mean education and family income are higher in T2-Feedback).

Each session comprised of 12 subjects and was randomly assigned to one of the main treatments and one of the two part 5 conditions.<sup>14</sup> Upon arrival, subjects were randomly assigned to a desk in public facilities (schools, open spaces, ...) where they received a set of instructions and two cups with the blue and red dice. Instructions for the next part were distributed after completion of the previous part. All questions were answered in private. Appendix 4 displays pictures of some sessions. Each session lasted between 75 and 90 minutes. Subjects were given a show up fee of INR 100. Earnings from the game ranged from INR 100 to INR 550 with an average of INR 275 (~\$15.3 in 2015 PPP terms).

### *2.3. Behavioral conjectures*

We now present four main behavioral conjectures.

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<sup>13</sup> The census data which was used for sampling purposes identifies at the village or ward-of-a-town level.

<sup>14</sup> Except for the T2-Feedback treatment, as the data for this treatment have been collected in isolation in a second wave, about one year after the first wave.



Our first conjecture is that SC subjects may suffer from a stereotype threat when group identity is made common information, compared to a setting where castes are kept silent. This stereotype threat has been identified in the literature, especially in highly segmented societies. We expect to observe it through a lower mean score in the memory task and a lower confidence in absolute and relative performance levels for the SC subjects when caste is made salient compared to when it is not. We also test for the stereotype boost in the GC subjects.

Our second conjecture is that AA boosts the self-confidence of the subjects who are eligible to the policy and increases their competitiveness. The prospect of benefiting from a quota when choosing the tournament should counteract the effect of the stereotype threat, if any. This has been observed in studies where the same types of intervention increased the competitiveness of the most able females and reduced the gender gap in competitiveness (Niederle *et al.*, 2013; Balafoutas and Sutter, 2012).

Our third conjecture is that after the AA intervention is withdrawn, the subjects from the category that previously benefited from AA remain more optimistic about their ability to win a tournament because of this policy support compared to people from the same category who never benefited from such intervention, especially in T2-Feedback if they learn they won a previous competition. If this is the case, they may remain almost as competitive after AA has been withdrawn than before. An alternative conjecture is that the protected subjects adjust rationally their beliefs to the removal of the AA intervention and do not differ, in terms of beliefs and competitiveness, from people who never benefited from such actions.

Our last conjecture is related to the spillover effect of AA on lying. Based on the previous literature on dishonesty (*e.g.*, Fischbacher and Föllmi-Heusi, 2013; Abeler *et al.*, 2016), we expect that not all subjects lie and those who lie do not lie in full. We also know from Balafoutas *et al.* (2016) that AA has a different impact on behavior if this policy is perceived favorably or not within the affected group. We conjecture that if they do not find AA

legitimate, the subjects from the non-protected category increase discrimination (if any) against the subjects from the other caste, compared to a setting without AA. In particular, they may forego benefits from misreporting the die outcome when lying also increases the payoff of a member from another caste; they may also lie more when such a lie increases their own payoff and decreases at the same time the payoff of a protected out-group. We expect that discrimination is reinforced in T2-Feedback if the GC subjects learn that they have lost the tournament in part 2 because they may attribute this failure to the AA policy.

### 3. Results

First, we present our results on the existence of a stereotype threat/boost, on the willingness of subjects from different castes to compete, and on the impact of AA on the decision to enter the tournament across castes. Next, we study the spillover effects of AA on confidence and competitiveness once the intervention is removed. Finally, we focus on its spillover effects on lying behavior and on the in-group/out-group discrimination.

#### 3.1. Stereotype threat, competitiveness, and the impact of AA

Our first result can be stated as follows.

**Result 1.** Caste-related stereotype threat and boost work via beliefs, not via performance. Our first conjecture is only supported for beliefs about being a winner.

*Support for Result 1.* Table 3 displays mean scores by caste and treatment in each part.<sup>15</sup>

Table 3. Mean performance

Treatment	T0		T1		T2		T2-Feedback	
Caste	GC	SC	GC	SC	GC	SC	GC	SC
<i>Memory score in Part 1</i>								
- Mean score	8.18	8.06	8.01	7.61	8.15	8.23	8.26	8.16
- Diff. T1-T0/Ti-T1			-0.17	-0.45	0.14	0.62	0.25	0.55
- Diff. GC-SC	0.12		0.39		-0.08		0.1	
<i>Memory score in part 2</i>								
- Mean score	8.51	8.70	8.69	8.32	9.21	8.86	9.25	8.89
- Diff. T1-T0/Ti-T1			0.18	-0.38	0.52	0.54	0.56*	0.56
- Diff. GC-SC	-0.19		0.37		0.35		0.36	

<sup>15</sup> Table A2 in Appendix 3 displays the same information for those subjects who chose the piece-rate and those who chose the tournament payment scheme in part 3, separately.

<i>Memory score in part 3</i>								
- Mean score	7.47	7.23	7.6	7.19	7.49	7.51	8.09	8.12
- Diff. T1-T0/Ti-T1			0.13	-0.04	-0.11	0.31	0.49	0.93**
- Diff. GC-SC	0.24		0.41		-0.02		-0.03	
<i>Memory score in all parts</i>								
- Mean score	24.16	24	24.31	23.13	24.85	24.59	25.61	25.17
- Diff. T1-T0/Ti-T1			0.15	-0.87	0.55	1.47	1.30	2.04**
- Diff. GC-SC	0.16		1.18		0.26		0.44	

*Notes:* Within each variable, the top row represents the mean actual score; the middle row presents the mean differences between treatment T1 and treatment T0 or treatment  $T_i$  and treatment T1, with  $i=2,2$ -Feedback; and bottom row presents the mean difference between General category (GC) and Scheduled Castes (SC) subjects. A  $t$ -test is used to test statistical significance for difference and standard errors are clustered at the village level. \*\* and \* indicate significance at the 0.05 and 0.10 level, respectively.

We first test whether our two groups perform differently when caste is made common information, without the AA intervention. We compare the memory score difference in part 2 (when tournament is compulsory) between T1 and T0, for GC and SC subjects. This is the appropriate test since the other treatments confound caste revelation with the degree of competition and AA, hence the existence of pure stereotype threat cannot be cleanly inferred.<sup>16</sup> The mean score of the GC subjects is 8.51 in T0 and 8.69 in T1 ( $t$ -test, clustered  $p=0.74$ ). For the SC subjects, the mean score is 8.70 in T0 and 8.33 in T1 ( $t$ -test, clustered  $p=0.37$ ). The caste performance gap in T0 is not significant and for neither group does performance change significantly from T0 to T1, although GC subjects increase their performance while the SC subjects lowers theirs, in line with the notions of stereotype boost and stereotype threat, respectively.

Although no significant gap in performance appears when caste is announced, do high and low-caste groups form different beliefs about their ability in this context? Table 4 presents the share of subjects who think they will be winners in the tournament. The reported measures are treatment averages of all subjects, *i.e.* of those who chose tournament and those who did not. Comparing T0 and T1 in part 2 (so, without the AA intervention), we see that making the caste composition of the group common information significantly increases the

<sup>16</sup> No significant differences in performance are found in most of the other treatments either. We find no difference between castes either when considering scores in part 1 instead of part 2 ( $t$ -test,  $p=0.40$ , as shown in Figure A2 in Appendix 5 (top right panel). Figure A2 reveals no difference in score in part 1 across treatments. Only in T2-Feedback, the GC score better than in T0 in part 2 and the SC score better in part 3.

beliefs of the high-caste subjects and lowers that of the low-caste ( $p<0.05$ ). The caste gap in the proportion who think they will be winners increases by 19 percent points from 2 to 21.

Table 4. Beliefs about being a winner, by treatment and caste

Treatment	T0		T1		T2		T2-Feedback	
Caste	GC	SC	GC	SC	GC	SC	GC	SC
<i>Part 2</i>								
- Mean	0.34	0.32	0.48	0.27	0.41	0.46	0.36	0.51
- Diff. T1-T0/Ti-T1			0.14	-0.05	-0.07	0.19**	-0.12	0.24**
- Diff. GC-SC	0.02		0.21**		-0.05		-0.15*	
<i>Part 3</i>								
- Mean	0.22	0.20	0.22	0.16	0.27	0.42	0.23	0.54
- Diff. T1-T0/Ti-T1			0.00	-0.04	0.05	0.26**	0.01	0.38**
- Diff. GC-SC	0.02		0.06		-0.15**		-0.31**	
<i>Part 4††</i>								
- Mean	0.30	0.25	0.29	0.20	0.38	0.47	0.29	0.53
- Diff. T1-T0/Ti-T1			-0.01	-0.05	0.09	0.27**	0.00	0.33**
- Diff. GC-SC	0.05		0.09		-0.09		-0.24**	
<i>Part 4B</i>								
- Mean	0.30	0.25	0.29	0.20	0.42	0.31	0.39	0.28
- Diff. T1-T0/Ti-T1			-0.01	-0.05	0.13*	0.11	0.10	0.08
- Diff. GC-SC	0.05		0.09		0.11*		0.11*	

Notes: ††: in treatments T2 and T2F, part 4 refers to part 4A. T0 and T1 do not have two different parts A and B for part 4. Hence, the same numbers are reported for part 4 and part 4B. Mean Prediction on rank is the proportion of subjects who think they will be winners in the tournament. The measures reported in parts 3 and 4 represent treatment averages of all subjects, i.e. those who chose tournament and those who did not. Within each variable, the top row represents mean values; the middle row presents the mean differences between treatment T1 and treatment T0 and between treatment  $T_i$  and treatment T1 with  $i=2,2$ -Feedback; and bottom row presents the mean difference between General category (GC) and Scheduled Castes (SC) subjects. A chi-2 test is used to test statistical significance for difference, and standard errors are clustered at the village level. \*\* and \* indicate significance at the 0.05 and 0.10 level, respectively.

This is confirmed by the analysis of the reported chance of being a winner (see Tables A3 in Appendix 3 and Figure A3 in Appendix 5, with  $p<0.05$ ). This is also consistent with the analysis of the beliefs about the absolute performance: a significant caste gap appears between T0 and T1 in part 2 ( $p<0.05$ ). GC subjects increase significantly their prediction on their absolute score ( $p<0.05$ ) and SC subjects lower theirs (see Table A4 in Appendix 3 and Figure A4 on prediction errors in Appendix 5). In part 3, these differences are no longer significant.

Since stereotype threat and boost could also affect the desire to compete with members of the other caste, we compare the proportion of GC and SC subjects who choose the tournament

in part 3 in T0 and T1, when AA is not available. Figure 1 displays the proportion of subjects choosing the tournament in various parts. For part 3, the top left panel shows that the proportion of GC subjects who compete is higher in T1 when caste is salient (0.25) compared to T0 (0.20), whereas the opposite movement is observed for the SC subjects (0.15 and 0.19, respectively). However, the differences are not significant (tests from logit regressions with clusters at the village level:  $p > 0.10$ ).

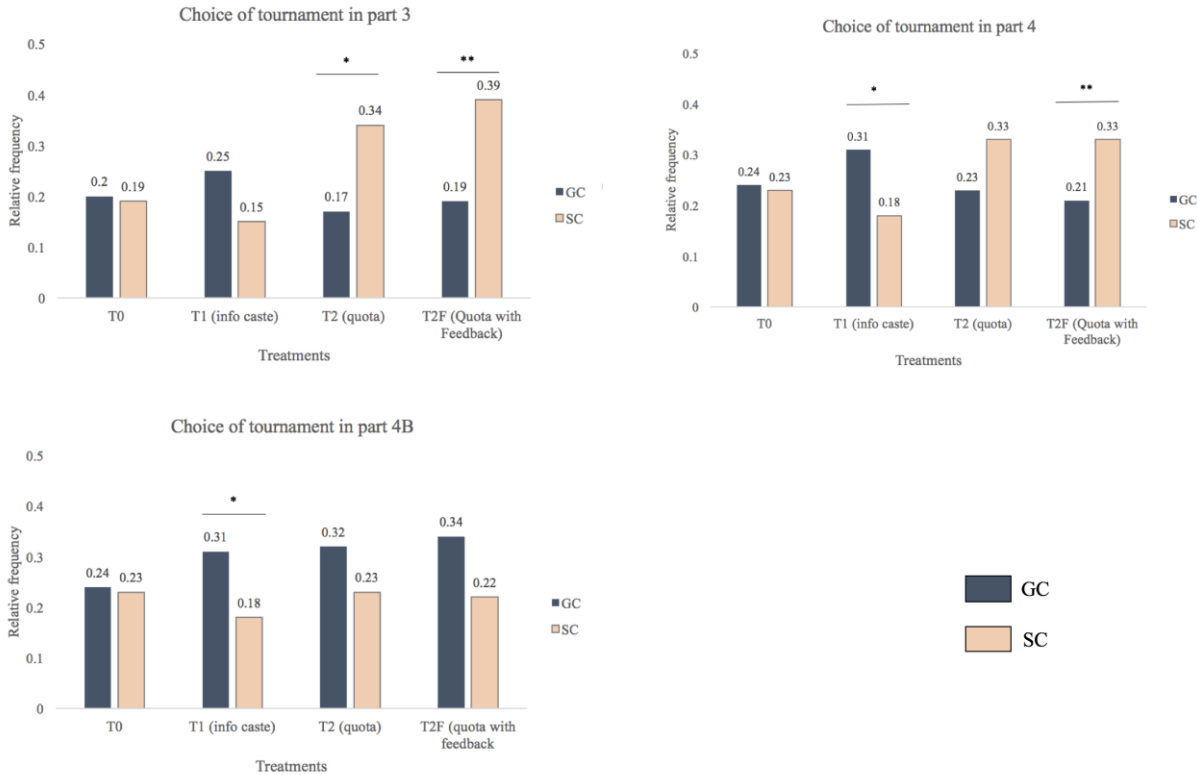


Figure 1. Proportion of subjects competing in the various parts, by caste and treatment  
 Note: \*\*\*, \*\* and \* indicate significance at the 0.01, 0.05 and 0.10 level, respectively, derived from logistic regressions with standard errors clustered at village level.

Turning next to the direct impact of AA, our second result can be stated as follows.

**Result 2.** Quotas naturally increase the beliefs of the SC subjects on being a winner, motivating them to compete more than the GC subjects; the caste gap in the beliefs about absolute performance under forced tournament disappears under AA.

*Support for Result 2.* We first compare the mean memory scores in all parts when AA is introduced in T2 and T2-Feedback with scores in T1 in the absence of AA. Table 3 shows that quotas do not improve scores except in T2-Feedback in part 2 for the GC subjects and in part

3 for the SC subjects. Table A4 in Appendix shows no difference in parts 2 or 3 under AA between the beliefs of the GC and the SC subjects about their absolute performance, whereas these beliefs differed significantly in part 2 in T1. But this does not result from a significant increase in confidence of the SC subjects.<sup>17</sup>

Table 4 shows that introducing quotas in T2 significantly increases the proportion of the SC subjects who think they will be winners in part 2 by 19 percentage points and in part 3 by 26 percentage points, compared to T1 (see also the third panel in Figure A4 in Appendix 3). The caste gap is not significant in part 2 but it is 15 percentage points in favor of SC subjects in part 3 ( $p < 0.10$ ) (regardless of the scheme chosen). Similar results are obtained for the percent chance of winning presented in the appendix (see Table A3, panel A). The results for T2-Feedback are essentially the same as for T2, as SC's beliefs increase by 19 percentage points in part 2 and 34 percentage points in part 3, and the caste gap rises in favor of SC in both parts 2 and 3, by 15 and 31 percentage points respectively, although the increase is only weakly significant in part 2. The higher beliefs of SC in part 3 compared to part 2 may be due to having to make an active choice (in part 2 competing was compulsory), which requires one to think further about one's relative ability. It may also be due to motivated beliefs (Benabou, 2015): subjects may manipulate their beliefs to increase their subjective chance of winning when they have to decide whether or not to compete.

As a result, Figure 1 shows that introducing quotas induces more SC individuals to enter the tournament in part 3 compared to T1 (the proportion is 0.34 instead of 0.15,  $p = 0.01$ ), while the proportion of GC subjects remains stable (0.17 vs. 0.25 in T1,  $p = 0.30$ ), indicating no discouragement. Therefore, the entry rate of the SC subjects now exceeds significantly that of GC subjects: the caste gap is 17 percentage points in T2 ( $p = 0.08$ ) in favor of the SC

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<sup>17</sup> The difference in prediction errors between castes that was significant for part 2 in T1 is no longer significant under AA (see Table A4). Indeed, the prediction error is lower for the GC subjects in T2 than in T1, whereas it becomes higher for the SC subjects, but not significantly so.

subjects. The  $p$ -values correspond to tests based on logit regressions with standard errors clustered at the village level.

To better understand how the change in beliefs induced by AA provision in turn affects competitiveness, we conduct an econometric analysis of the tournament choice in part 3. Table 5 reports marginal effects in a two-step estimation procedure because beliefs on being a winner are endogenous to the tournament choice. Indeed, using a Durbin–Wu–Hausman test leads us to reject the null hypothesis that beliefs are exogenous ( $p < 0.01$ ). In the first step we endogenize beliefs and in the second step we explain tournament choice by the predicted beliefs. In the first step (bottom part of Table 5), we estimate a linear probability model with robust standard errors clustered at the village level. The dependent variable is the belief of being a winner in part 3 tournament. The independent variables include belonging or not to the SC category, treatment dummies (with T1 as the reference category), interaction terms between belonging to SC and each treatment, the subject’s score in part 2 when tournament was compulsory<sup>18</sup>, and controls for socio-demographic characteristics (risk aversion, gender, age, education, and log household income).

Caste is not directly and significantly related to beliefs in part 3, but the AA treatment dummies interacted with caste are significant predictors of beliefs. SC are about 24 percentage points more likely to believe that they will be winners in T2 and 38 percentage points in T2-Feedback. Regarding competitiveness, in the second step (upper part of Table 5) the identifying assumption in model (1) is that being SC and subject to AA affect residual competition only indirectly via beliefs on being a winner and not directly. The predicted value of beliefs in part 3 is entered as a regressor in the binary tournament choice model that we estimate using a probit model, again with clustered standard errors. We next relax this

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<sup>18</sup> Although subjects do not receive any feedback on their score in part 2, they can form a belief about their performance by counting their number of recalls.

assumption by including a dummy variable for being a SC subjects in model (2) and also an interaction term between being a SC subject and the predicted beliefs in model (3).

Table 5 shows that the predicted value of beliefs is a strong and significant determinant of tournament choice. The quota policy increases the beliefs of the SC subjects to be a winner, which in turn naturally increases the probability to enter competition. Models (2) and (3) show that belonging to the SC category or the specific beliefs of the SC subjects have no additional effect on the tournament entry decision.

Table 5. Determinants of tournament choice in part 3

	(1)	(2)	(3)
<i>Step 2: Dependent variable: Tournament choice in part 3</i>			
Predicted belief on being a winner	0.64***(0.14)	0.65***(0.17)	0.86** (0.42)
SC	-	-0.01 (0.05)	0.05 (0.10)
SC*Predicted belief	-	-	-0.23 (0.42)
Socio-demographic variables	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Log pseudo-likelihood	-264.35	-264.25	-264.18
Prob>chi2	<0.001	<0.001	<0.001
<i>Step 1: Dependent variable: Belief on being a winner in part 3</i>			
Scheduled Castes subject (SC)	-0.06 (0.06)		
Treatment T2	0.02 (0.07)		
Treatment T2-Feedback	-0.04 (0.07)		
SC*T2	0.24** (0.09)		
SC*T2-Feedback	0.38** (0.11)		
Score in part 2	0.02*** (0.02)		
Socio-demographic variables	<i>Yes</i>		
Number of observations	502	502	502

*Notes:* Clustered standard errors at the village level are in parentheses. The two columns report marginal effects. Treatment effects are estimated with respect to Treatment 1. In the first step estimation, the dependent variable in columns (1) and (2) is the belief that the subject will be among the winners in part 3. In the second step, a probit model estimates the probability to choose the tournament in part 3. \*\*\*, \*\*, and \* indicate significance at the 0.01, 0.05, and 0.1 level, respectively.

### 3.2. The spillover effects of AA on confidence and competitiveness

We summarize the spillover effects of AA on confidence and competitiveness as follows:

**Result 3.** The caste gap in confidence and competitiveness reverts as soon as the AA intervention is removed. There is no evidence of a spillover effect of AA on confidence and competitiveness, even when subjects receive feedback on past success or failure. This supports our alternative third conjecture.



*Support for Result 3.* Considering all the subjects regardless of their payment scheme choice, Table 4 shows that there is no spillover effect of the AA intervention on confidence when comparing beliefs on being a winner in part 4B to beliefs in parts 3 and 4A.<sup>19</sup> Remember that in part 4A, subjects are given the choice of submitting their part 1 performance to tournaments with AA or to a piece-rate; in part 4B, subjects have to make again a decision but now AA is removed. Table 4 shows that the caste gap in the proportion of subjects who believe they will be winners is about the same in part 4A and in part 3. In part 3, the proportion is 0.15 point lower for GC than SC in T2 (significant at the 5% level; clustered tests based on logit regressions); the respective value in part 4A is 0.09 (not significant). For T2-Feedback the respective values are -0.31 (significant at the 5% level; clustered tests) and -0.24 (not significant).

As soon as AA is removed, the caste gap in confidence reverts to the benefit of the GC subjects: in part 4B, the proportion is 0.11 point higher for GC than SC in both T2 and T2F, and the caste difference is marginally significant at the 10% level in both treatments (clustered tests).<sup>20</sup> Removing AA policies brings confidence back to the same level as in the treatment without AA (T1), except for the GC subjects in T2 who are marginally more confident than in T1.

Regarding competitiveness, Figure 1 shows a substantial decrease in entry among the SC subjects and a substantial increase among the GC subjects in part 4B compared to parts 3 and 4A.<sup>21</sup> In T2, the entry rate of SC subjects is 0.34 in part 3, 0.33 in part 4A, but it goes down to 0.23 when quotas are removed (Wilcoxon signed-rank tests,  $p=0.05$  when parts 3 and 4A are compared to part 4B); the respective values for the GC subjects are 0.17, 0.23 and 0.32 (W

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<sup>19</sup> We cannot consider beliefs on absolute performance here. Indeed, since part 4 does not involve a new task and refers back simply to part 1 score, this self-confidence measure would be the same as that in part 1.

<sup>20</sup> Note that the evolution of beliefs is qualitatively similar if considering instead the reported percent chance of being winners: while the SC subjects are significantly more confident in their chance of winning the tournament than the GC subjects in parts 3 and 4A when they benefit from AA, the caste gap is reverted in part 4B to the statistically insignificant non AA level.

<sup>21</sup> There is no significant difference in the proportion of subjects choosing the tournament in part 3 and part 4A in any treatment (W tests,  $p>0.10$  in each treatment).

tests,  $p=0.02$  and  $0.14$  when part 3 and part 4A are compared to part 4B, respectively).<sup>22</sup> In T2-Feedback, the entry rate of SC subjects is  $0.39$  in part 3,  $0.32$  in part 4A, but it goes down to  $0.22$  when quotas are removed (W tests,  $p=0.02$  and  $0.05$  when part 3 and part 4A are compared to part 4B, respectively); the respective values for the GC subjects are  $0.19$ ,  $0.18$  and  $0.34$  ( $p=0.02$  and  $0.01$ , respectively). As a result, the caste gap that had previously opened in favor of the SC subjects under AA is closed or even reversed. Interestingly, this tendency does not differ for those who learn that they won the forced tournament in part 2 and those that lost this tournament in the T2-Feedback treatment. The regression reported in Table A6 in Appendix 3 shows that being a winner in part 2 has no significant effect on the choice of the tournament in part 4B, regardless of the caste.

Additional analyses show that in T2, the proportion of subjects who always choose to compete (in parts 3, 4A and 4B) is  $10.12\%$ , the proportion of those who choose to compete only under AA (in parts 3 and 4A) is  $8.33\%$ , and the proportion of those who never compete is  $51.80\%$ . Following a similar pattern, in T2-Feedback the respective percentages are  $8.33\%$ ,  $8.93\%$ , and  $49.40\%$ . There is a relatively large share of individuals who cannot be classified in these groups ( $29.75\%$  in T2 and  $33.34\%$  in T2-Feedback), showing some instability in their strategy. We have performed the same analysis for each caste separately. It shows that in T2 the respective percentages are  $7.41\%$ ,  $6.17\%$  and  $54.32\%$  for the GC subjects, and  $12.64\%$ ,  $10.34\%$  and  $49.43\%$  for the SC subjects. In T2-Feedback, the respective percentages are  $9.20\%$ ,  $3.45\%$  and  $54.02\%$  for the GC subjects and  $7.41\%$ ,  $14.8\%$  and  $44.44\%$  for the SC subjects.

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<sup>22</sup> We conducted a similar two-step regression analysis as in Table 5 to explain the determinants of the tournament choice in part 4B when AA is removed. The results are reported in Table A5 in Appendix 3. The predicted values of beliefs are still significant predictors of tournament choice like in part 3, but in contrast to part 3, beliefs are no longer explained by the treatment.

### 3.3. The spillover effects of AA on lying and discrimination against out-groups

We now explore whether introducing AA affects the willingness of individuals to avoid helping or even to harm a subject from the other caste. Our last result can be summarized as follows:

**Result 4.** The AA intervention does not generate the discriminatory behavior of the GC subjects against their out-groups from the protected caste in the experiment. It does not modify the reporting behavior of the members of any caste, except for the individuals from the higher caste who learn that they lost the forced competition. Our fourth conjecture is not fully supported.

*Support for Result 4.* Tables 6A and 6B present summary statistics on reporting behavior by treatment and caste, respectively for when payoffs are aligned and for when they are unaligned. They indicate the relative frequency of reports higher than 3, *i.e.* outcomes that pay more than the expected outcome (the expected mean outcome of truthful reporting is 3.5). With this restriction, we acknowledge that we may underestimate total lying since we ignore the cases in which subjects lie but report a number lower than 4. P-values are reported from two-sided binomial tests comparing the observed frequencies and the theoretical frequency for a fair die (50%). Wilcoxon signed-rank tests are used to compare reporting behavior when the matched partner is from the same caste (in-group) and when he is from the other caste (out-group). Mann-Whitney rank-sum tests are used to compare reports across treatments, with T1 as the benchmark (except when comparing T1 and T0), to test whether the previous use of AA affects the bias towards in-groups and out-groups. Each report is taken as an independent observation. These tables also display, for each caste and treatment, the percentages of subjects who report a higher number for a same caste partner than for another caste partner when interests are aligned, and the percentages of subjects reporting a higher number for another caste partner when interest are unaligned. Binomial tests compare these values with the expected 50% if there was no caste bias. Finally, we report the mean estimated percentage of subjects who misreport an outcome higher than 3 and its 95%

confidence interval, using the econometric technique of Garbarino *et al.* (2016) and the lying calculator that can be found at <http://lyingcalculator.gate.cnrs.fr>.<sup>23,24</sup>

Table 6A reveals widespread lying when payoffs are aligned, as in all treatments subjects report high payoff outcomes significantly more often than the expected 50%. In the absence of caste identity (T0), subjects lie less when payoffs are unaligned (see Table 6B) than when they are aligned, suggesting that a fraction of people who accept Pareto white lies are not willing to tell black lies (there is very little overlapping between the CI).

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<sup>23</sup> This technique estimates the full distribution of the percentage of individuals who lie when they have an incentive to report dishonestly (here: reporting a number higher than 3 when getting a number lower than 4). By determining the PDF and CDF of dishonesty, it gives a precise estimate of the mean and the lower and upper bounds on the percent of subjects reporting dishonestly that can be inferred from the full distribution.

<sup>24</sup> A caveat is in order. To apply this method, we assume that people do not lie backward, *i.e.*, they do not lie to reduce their own payoff. Garbarino *et al.* (2016) provide evidence that this behavior is extremely rare. In our experiment, it could happen if some subjects were willing to pay to harm their pair member.

Table 6A. Summary statistics on lying in the die rolling task – Aligned payoffs

Treatments	T0		T1		T2		T2-Feedback Winners		T2-Feedback Losers	
	GC	SC	GC	SC	GC	SC	GC	SC	GC	SC
<i>Percent of reports &gt; 3</i>										
- Same caste partner	77.38***	77.38***	83.72***	80.49***	75.61***	88.37***	58.33	70.59	87.88***	68.18
- Other caste partner			65.12*	73.17***	53.66	81.40***	50.00	52.94	45.45	72.73**
Number of observations	84	84	43	41	41	43	12	17	33	22
Comparison same/other caste ( <i>p</i> -values)		-	0.032**	0.439	0.039**	0.317	0.655	0.317	0.001***	0.739
<i>Comparison Ti-T0/Ti-T1 (<i>p</i>-values)</i>										
- Same caste partner	<i>Ref.</i>	<i>Ref.</i>	0.546	0.472	0.358	0.321	0.062*	0.415	0.612	0.278
- Other caste partner			0.265	0.402	0.288	0.371	0.345	0.138	0.089*	0.970
<i>Percentage of subjects with higher report for same caste partner</i>										
	-	-	55.81	51.22	56.10	46.51	66.67	52.94	63.16***	18.18***
<i>Mean percent lying (CI)</i>										
- Same caste partner			66.63	59.95	44.97	76.16	21.31	38.81	74.95	34.62
	54.20	54.20	(55-75)	(46-71)	(25-60)	(68-82)	(0-49)	(0-61)	(65-82)	(0-56)
- Other caste partner	(43-63)	(43-63)	29.15	44.97	12.50	61.86	13.64	14.81	7.09	43.17
			(8-47)	(25-60)	(0-31)	(48-72)	(0-41)	(0-61)	(0-24)	(0-63)

Table 6B. Summary statistics on lying in the die rolling task – Unaligned payoffs

Treatments	T0		T1		T2		T2-Feedback Winners		T2-Feedback Losers	
	GC	SC	GC	SC	GC	SC	GC	SC	GC	SC
<i>Number reports &gt; 3 (%)</i>										
- Same caste partner	68.89***	66.67**	57.14	57.14	60.0	56.82	33.33	40.00	53.12	60.71
- Other caste partner			73.81***	66.67**	77.5***	59.09	41.67	73.33	93.75***	75.00**
Number of observ.	90	78	42	42	40	44	12	15	32	28
Comparison same/other caste ( <i>p</i> -values)		-	0.144	0.346	0.089*	0.818	0.655	0.705	0.001***	0.285
<i>Comparison Ti-T0/Ti-T1 (<i>p</i>-values)</i>										
- Same caste partner	<i>Ref.</i>	<i>Ref.</i>	0.176	0.263	0.794	0.976	0.149	0.258	0.732	0.768
- Other caste partner			0.470	0.810	0.699	0.470	0.039**	0.176	0.027**	0.459
<i>Percentage of subjects with higher report for other caste partner</i>										
	-	-	66.67**	50.00	55.00	40.91	41.67	46.67	75.00***	42.86
<i>Mean percent lying (CI)</i>										
- Same caste partner			16.44	16.44	20.55	15.91	5.19	7.03	12.78	22.24
	37.07	32.48	(0-36)	(0-36)	(0-40)	(0-35)	(0-26)	(0-29)	(0-33)	(0-44)
- Other caste partner	(23-49)	(16-46)	46.30	32.07	53.79	19.03	8.53	10.54	87.07	48.12
			(27-60)	(10-50)	(37-66)	(0-38)	(0-33)	(0-35)	(82-90)	(25-64)

*Note:* In T0, there is no information on partner's caste identity. Thus, we pool the data from the two die rolls. Regarding the number of reports higher than 3, \*\*\*, \*\*, and \* indicate significance at the 0.01, 0.05 and 0.1 levels, respectively, from binomial tests comparing each frequency with the expected value of 50%. The  $p$ -values for the comparisons same/other caste come from Wilcoxon signed-rank tests. Those for the comparisons  $T_i$ -T0 with  $i=1$ , and  $T_i$ -T1, with  $i=2,2$ -Feedback, are from Mann-Whitney tests. For the mean percent lying statistics, the data in parentheses represent the confidence interval, *i.e.* the minimum and the maximum estimated percent of subjects lying.

Strikingly, when caste identity is introduced Tables 6 show a different pattern between GC and SC subjects. All categories tend to lie more (less) when it benefits (harms, respectively) an in-group rather than an out-group. But while the difference is never significant for the SC subjects, it is significant at the 1% level in most cases (no overlapping between the CI) for the GC subjects who discriminate against the SC subjects in the experiment. Many GC subjects refrain from lying when misreporting also benefits a SC subject (in T1 the lying rate is 29.15% when matched with a SC subject and 66.63% when matched with an in-group). They avoid helping someone from the other caste. When lying benefits themselves but also harms the partner, GC players are less reluctant to lie when matched with a SC subject than with an in-group (in T1 the lying rate is 46.30% in the former case and 16.44% in the latter). SC subjects discriminate much less and tell less black lies than Pareto-white lies (in T1, when interests are aligned the lying percentage is 44.97% when matched with a GC subject and 59.95% when matched with an in-group; when interests are unaligned the respective lying percentages are 32.07% and 16.44%; CI overlap in both cases). Thus, the higher status category is more likely to discriminate against out-groups than the lower status category.

Does AA impact this behavior? In the absence of feedback on previous competition, quotas do not increase lying or discrimination. Considering the overlapping between the 95% confidence intervals, we do not find any significant difference between the estimated mean lying percentages in T2 and T1, regardless of whether interests are or not aligned and of the caste (see Tables 6). Thus, despite the difference in behavior of the GC subjects towards their out-groups, AA does not boost dishonesty and does not generate discrimination in the experiment. This suggests that the GC subjects might consider AA as relatively acceptable.

The pattern is different when subjects receive information on whether they won or lost the forced tournament in part 2. Figure 2 illustrates the mean lying percentages in the T2-

Feedback treatment for the winners and losers separately, depending on whether the subject is matched with an in-group or with an out-group. Panel A is for GC and panel B for SC when payoffs are aligned. Panels C and D are for the cases in which payoffs are unaligned. Similar panels are displayed in Figure A5 in Appendix 3 for treatment T2: this is used as a counterfactual since subjects did not receive any feedback in T2 about their winner status.

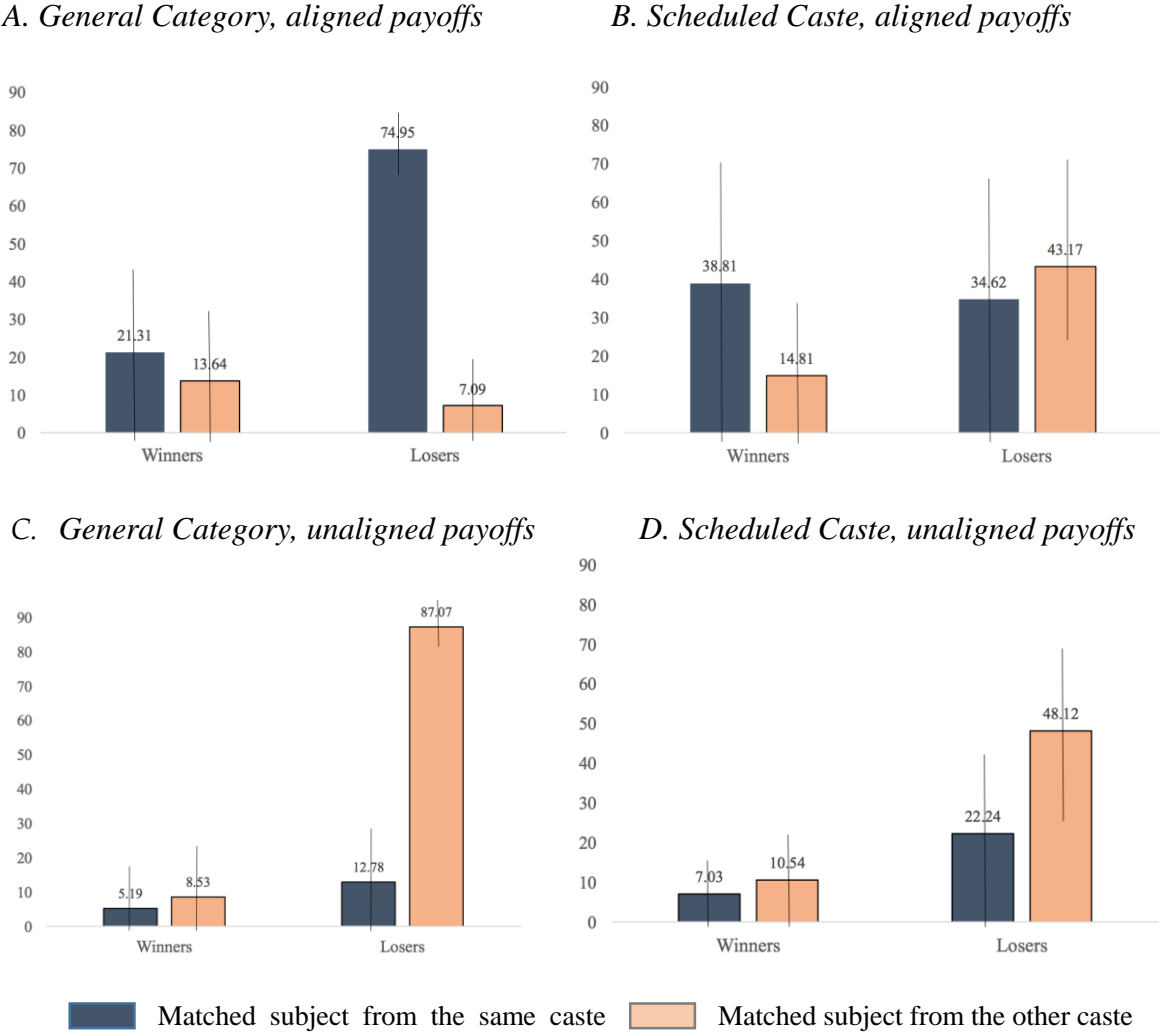


Figure 2: Mean lying percentages in the T2-Feedback treatment, by caste and condition  
*Notes:* 95% confidence intervals are indicated by each bar. Subjects were informed about whether they were winners or losers in the T2 treatment.

In Figure 2, spillover effects appear when individuals are informed about the outcome of the forced competition. In T2-Feedback, there are two cases where the mean lying percentage is significantly higher than in the other configurations, at the 1% level: when the GC subjects who lost the forced tournament are matched with an in-group and interests are aligned (the



lying percentage is 74.95%, panel A), and when they are matched with an out-group and interests are unaligned (87.07%, panel C) (See also Tables 6). Figure A5 does not display the same pattern for T2. It shows that the only significant differences, at the 1% level, are for the losers from both castes who lie more when matched with an in-group than with an out-group and interests are aligned (see panels A and B), and for the GC winners who are matched with an out-group and interests are unaligned (panel C). When comparing pairwise panels of Figure 2 and Figure A5, two major differences are noticeable, significant at the 1% level. First, when interests are aligned, losers from the GC category have a higher lying percentage in T2-Feedback than in T2 when matched with an in-group and the difference between in-group and out-matching increases (panel A). Second, when interests are unaligned, winners from the GC category lie significantly less in T2-Feedback compared to T2 when matched with an out-group, whereas losers from the GC category lie significantly more when matched with an out-group (panel C). These two major differences indicate that feedback on the winning status reduces discrimination by the winners and aggravates discrimination by the losers, but only for the dominant category subjects.

The willingness to compensate for a loss in the forced tournament cannot explain this pattern since most GC subjects refrain from lying when they are matched with an out-group and interests are aligned, or when matched with an in-group and interests are unaligned. The explanation has to do with the willingness not to help a SC subject when interests are aligned and even harm him when they are unaligned. Overall, the GC losers discriminate against the SC subjects in the T2-Feedback treatment, and they do it significantly more (at the 1% level) than when AA or feedback on the winning status is not available (see Tables 6A and 6B, and panels A and C in Figures 2 and A5). No such effects are found for the SC subjects, although when interests are unaligned the losers also lie significantly more compared to the winners when matched with an out-group (panel D).

These findings are also supported by a regression analysis in which the dependent variable is the reported outcome of the die roll. Table A7 in Appendix 3 reports the estimates of four ordered probit models. Models (1) and (2) are for the cases in which interests are aligned and subjects are matched with an in-group or an out-group, respectively; models (3) and (4) are for the cases in which interests are unaligned. The independent variables include dummies for each treatment (T1 being the reference category) and interaction terms between each treatment dummy and belonging to the GC caste. Robust standard errors are clustered at the village level. The regressions confirm that the behavior of the GC subjects differs mainly when they know that they have lost the tournament in T2-Feedback. In that case, these subjects report higher outcomes (by extension, they are more likely to lie) when matched with an in-group and interests are aligned, and when matched with an out-group and interests are unaligned; they report lower outcomes when matched with an out-group and interests are aligned. These differences are significant at the 1% level. Therefore, the acceptability of AA by the higher status category is conditional on whether or not one suffers personally in this environment, in particular whether rank is reverted.<sup>25</sup>

#### **4. Discussion and conclusion**

We conducted an artefactual field experiment to examine the potential spillover effects of quota based Affirmative Action in the context of castes in India. We tried to identify various mechanisms, stereotype boost/threat, competitiveness or discrimination that can contribute to the observed differences in economic outcomes between low and high caste individuals. We first examined whether individuals who had previously benefited from AA would have developed a sufficient taste for competition and confidence in their own abilities to continue to compete after AA was removed. Second, we explored whether being exposed to AA affects

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<sup>25</sup> Xie *et al.* (2017) show that preserving hierarchy seems to be a social norm even for inequality averse people (see also Charness and Villeval, 2017). AA may modify this hierarchy. Those people from the non-protected category may feel frustration and anxiety about losing their rank, which may translate into resentment and anger against people from the other social category who have won the competition and got a higher rank.

ethical behavior and whether behavior is conditioned on being matched with in-groups vs. out-groups when reporting affects also the payoff of another individual.

Our results show that the lower status associated with the Scheduled Castes gives rise to less confidence in one's ability but not to less competitiveness. This suggests that a lower status in a society may affect self-confidence but not necessarily ambition. AA has naturally an immediate impact on the individuals' beliefs about winning a competition. By increasing the beliefs of the beneficiary category, it increases substantially its willingness to compete, without discouraging the unprotected group from competing. This result points to the importance of retaining AA policies for the purpose of fostering beliefs in one's ability to succeed, although not necessarily on one's absolute performance, and the desire to compete.

We found no spillover effect of AA interventions on further confidence and competitiveness. As soon as the policy is removed, the caste gap in beliefs and competitiveness reverts. This reveals a very short-term effect of AA, even when subjects receive feedback on whether or not they were successful in a previous tournament. Thus, while it has been found that feedback on previous relative performance encourages females to become more competitive over time (Wozniak *et al.*, 2014), this does not apply to AA in our context. We also show that the spillovers of AA on lying behavior and discrimination by the members of the upper caste against the protected caste are limited when there is no feedback. Such discrimination is observed even without AA. However, when non-protected subjects learn that they lost a previous competition, even if they do not know if AA is responsible for it, they adapt their reporting behavior so as to harm or avoid benefiting their partner from the protected caste. Overall, this suggests a major role of this factor in the observed differences in economic outcomes between low and high caste individuals.

Our results regarding the absence of spillovers of AA on competitiveness should be viewed in the light of the fact that our subjects were exposed to it at most during three parts.

A possible extension would be to increase the duration of exposure to test whether spillovers are more likely to emerge when people have benefited from AA for a longer period of time. Moreover, we conducted our experiment in a specific setting and the question is whether what we learn from this experiment may extend beyond the case of castes in India, although the abstract setting of the experiment helps limit idiosyncrasies. Finding no spillover effects of AA on the later competitiveness of people who are already relatively competitive (the gap in competitiveness was not significant in the treatments without AA) shows that the latter react mainly to its instrumental value: they come back to their initial situation when the incentive is no longer available. For a category that is originally more reluctant to compete, like for example females as opposed to males, such interventions may trigger an emotional dimension and eliminate the psychological barriers preventing them to compete. For this type of population, spillover effects of AA may have a greater chance to appear.

On a similar point, the discriminatory behavior of the higher caste members against the backward caste revealed by lying behavior is consistent with previous studies showing the strong segmentation of Indian society. But even in this highly-segmented society, the treatments without feedback show no evidence that AA generates higher spite against the out-groups benefiting from the intervention. *A fortiori*, AA should generate also little retaliation in a less segmented society. It is the combination of AA and feedback on being a loser that generates more harmful and discriminatory behavior in the individuals who did not benefit from the intervention, which is then somewhat in line with Leibbrandt *et al.* (2014). The intensity of such negative reactions may depend on the degree of segmentation of the society. This could be tested in replicating the study in different countries and in dissociating the beneficiaries of an AA policy and the status of the group in the society. We leave this for further investigation.

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## Appendix 1. Instructions for all treatments

### Introductions (Common for all)

#### Welcome!

Thank you all for taking the time to come today. Today's session will take less than two hours. Before we begin, I want to make some general comments about what we are doing here today and explain the rules that you must follow.

You have each received an anonymous identification number. At some point, you will interact with other participants: you will never know their identity or their choices. Similarly, the other participants will never know your identity and your choices. All your choices and responses are anonymous.

The session consists of several tasks. At the end of the session, one of these tasks will be randomly selected to determine your earnings in this experiment. Therefore, each task may count for determining your earnings. The method we use to determine your earnings varies across tasks. Before each task we will describe in detail how your payment is determined.

Whatever money you earn in the session will be yours to keep and take home. In addition to the money you earn in the session, we will pay you **Rs. 100 for your participation today**. Your earnings will be paid to you in cash and in private at the end of the session.

At the end of the session, you will have to fill out a questionnaire with a list of simple questions. We are about to begin the first task. It is important that you listen as carefully as possible. We will distribute the instructions for the following task at the end of this first part.

If you have any question, please raise your hand and we will answer your questions in private. Please do not ask questions to the other participants or talk about the game with them at any point during today's session. This is very important. Please be sure that you obey this rule.

#### Instruction for Baseline Treatment (T0)

We will describe below the instructions for Task 1. We will distribute the instructions for the following task at the end of this task.

#### Task 1. Piece rate [Common for T0, T1, T2 and T2-F]

For Task 1, you will be asked to memorize and report numbers and then, we will ask you some questions.

We will dictate fifteen numbers between 1 and 100. Each number will be dictated twice. After the completion of the dictation, you will be asked to recall as many numbers as you can and then write them down on the response sheet provided to you within 3 minutes. You do not have to write the numbers down in the order in which they were dictated. Just write down as many numbers as you can recall.

Note that **you are not allowed to write anything while the dictation is going on; otherwise you will be excluded from the session. This is an individual task, so it is not permitted to discuss the numbers with any of the other participants. Doing so will also lead to exclusion from the session.** So you should listen carefully what the numbers are, memorize them and then reproduce as many of these numbers as you can on the response sheet. You cannot write more than 15 numbers (any number that would be reported after the 15th one would not be considered).

We will now play a practice round of this task with only 5 numbers. You will not earn anything from this practice round but please follow the instructions carefully.

*--Practice: please listen to the 5 numbers and report them on your reporting sheet--*

If Task 1 is the one randomly selected for payment, then you get Rs.10 per number you recall correctly in the 3 minutes. For example, if you recall correctly 2 numbers, you will earn  $2 \times 10 = \text{Rs. } 20$ ; if you recall 10 numbers, you will earn  $10 \times 10 = \text{Rs. } 100$ . Your payment does not decrease if you report an

incorrect number.

We refer to this payment as the **piece rate payment**.

If you have any question, please raise your hand and we will answer your question in private.

*--Task 1 will start now. Please listen to the dictated numbers carefully and do not write anything before you are invited to do so. --*

*-- Now, please write down as many of the dictated numbers as you can recall in the next 3 minutes. --*

*-- Three minutes are over. Please stop writing immediately. --*

### **Question 1.1**

*-- Please indicate on your reporting sheet in the box in front of "Question 1.1" how many numbers out of those you have reported you think you have correctly recalled. If this task is selected for payment, you will receive an additional Rs. 50 if your prediction matches your actual score. --*

### **Task 2. Tournament**

As in Task 1, after listening to a series of 15 dictated numbers, you will be given 3 minutes to write down as many recalled numbers as possible (in the limit of 15). However, for this task your payment depends on your performance relative to that of a group of other participants.

Each group consists of six people. Thus, you are in a group with five other people present in this session. You will not know who the five other people in your group are. The composition of your group of six remains the same until you are no longer in a group of six.

If Task 2 is the one randomly selected for payment, then your earnings depend on your number of correct recalls compared to that of the five other people in your group. The two group members who correctly recall the most numbers are the winners. They will receive Rs. 30 each per correct recall, while the four other group members receive no payment. So if you are among the two top performers, then you will earn Rs. 30 for each correct number that you recall in this task

You will not be informed of how you did in the tournament relative to others until all four tasks have been completed. If there are ties the winner will be randomly determined.

We refer to this as the **tournament payment**.

If you have any question, please raise your hand and we will answer your question in private.

*--Task 2 will start now. Please listen to the dictated numbers carefully and do not write anything before you are invited to do so. --*

*-- Now, please write down as many of the dictated numbers as you can recall in the next 3 minutes. --*

*-- Three minutes are over. Please stop writing immediately. --*

**Question 2.1.** *Please indicate on your reporting sheet in the box in front of "Question 2.1" how many numbers out those you have reported you think you have correctly recalled. If this task is selected for payment, you will receive an additional Rs. 50 if your prediction matches your actual score.*

**Question 2.2.** *Please indicate on your reporting sheet in the box in front of "Question 2.2" which rank, between 1 and 6 you think you have got in Task 2, compared to the five other group members. A rank of 1 means you think you got the highest number of correct recalls in the group and rank 6 means you think you got the lowest number of correct recalls in the group and similar for ranks between 1 and 6. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct.*

—

**Question 2.3.** Please indicate on your reporting sheet in the box in front of “Question 2.3” what is the chance that you will be among the top two scorers in your group of six in this Task. Please indicate any number between 0 and 100, with 0 if you are absolutely sure you are not among the top two scorers in your group of six, 100 if you are absolutely sure that you are among the top two scorers, and some number in between 0 and 100 depending on how sure you are of being among the top two scorers. The higher this number, the more confident you are in being among the top two scorers. You will receive a maximum bonus of Rs.50 and a minimum bonus of 0 for answering this question. The more truthful you are in your report, the higher the bonus will be. In other words, your best interest is in truthfully reporting what you think your chances of being among the top two are. If you are interested in knowing how your bonus is calculated, ask us after the study is over.

### Task 3. Choice

As in the previous two tasks, after listening to a series of 15 dictated numbers, you will be given 3 minutes to write down as many recalled numbers as possible. However, before that, you will get to choose which of the two previous payment modes you prefer to apply to your performance in Task 3. You can either choose to be paid according to the *piece rate*, or according to the *tournament*.

If Task 3 is randomly selected for payment, then your earnings for this task are determined as follows.

- If you choose the *piece rate* (i.e. the payment mode used in Task 1), you receive Rs. 10 per number correctly recalled.
- If you choose the *tournament* (i.e. the payment mode used in Task 2), your performance in Task 3 will be evaluated relative to the performance of the other five participants of your group in the Task 2 -Tournament. The Task 2-tournament is the one you just completed. If you correctly recall more numbers than four of your other group members in Task 2, then you receive Rs. 30 for each correctly recalled number. You will receive no earnings for this task if you choose the tournament and are not among the two winners. You will not be informed of how you did in the tournament until the end of the session. If there are ties the winner will be randomly determined.

If you have any question, please raise your hand and we will answer your question in private.

--Task 3 will start now.

**Question 3.1.** Please indicate on your reporting sheet which payment scheme you prefer to apply to your performance in Task 3. Strike through the option which you would not like to select and circle the option which you would like to select:

**Example 1:** If you want to be paid according to Piece rate and not according to Tournament, you should enter:

Piece rate

~~Tournament~~

**Example 2:** If you want to be according to Tournament and not according to Piece rate you should enter:

~~Piece rate~~

Tournament

Please select your payment option here:

1. *Piece rate*
2. *Tournament*

Now, please listen to the dictated numbers carefully and do not write anything before you are invited to do so. --

-- Now, please write down as many of the dictated numbers as you can recall in the next 3 minutes. --

-- Three minutes are over. Please stop writing immediately. --

**Question 3.2.** Please indicate on your reporting sheet in the box in front of “Question 3.2” how many numbers out of those you have reported you think you have correctly recalled. If this task is selected for payment, you will receive an additional Rs. 50 if your prediction matches your actual score.

**Question 3.3.** Please indicate on your reporting sheet in the box in front of “Question 3.3” which rank, between 1 for the highest number of correct recalls to 6 for the lowest number of correct recalls, you think you have got in Task 3, compared to the five other group members in Task 2. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. We ask you to answer this question even if you have chosen the piece rate payment mode. –

**Question 3.4.** Please indicate on your reporting sheet in the box in front of “Question 3.4” what is the chance that you will be among the top two scorers in your group of six in this Task. Please indicate any number between 0 and 100, with 0 if you are absolutely sure you are not among the top two scorers in your group of six, 100 if you are absolutely sure that you are among the top two scorers, and some number in between 0 and 100 depending on how sure you are of being among the top two scorers. The higher this number, the more confident you are in being among the top two scorers. You will receive a maximum bonus of Rs.50 and a minimum bonus of 0 for answering this question. The more truthful you are in your report, the higher the bonus will be. In other words, your best interest is in truthfully reporting what you think your chances of being among the top two are. If you are interested in knowing how your bonus is calculated, ask us after the study is over. We ask you to answer this question even if you have chosen the piece rate payment mode. --

#### **Task 4. Choice 2**

In contrast to the previous tasks, you will not have to recall numbers for this Task. Instead you will be paid one more time for the numbers you recalled in **Task 1-Piece rate**. However, you will have to choose which payment mode you prefer to apply to your performance in **Task 1** (when you were paid Rs. 10 per number correctly recalled). You can either choose to be paid according to the *piece rate* or according to the *tournament*.

If Task 4 is randomly selected for payment, then your earnings for this task are determined as follows.

- If you choose the *piece rate*, you receive Rs. 10 per number correctly recalled in **Task 1**.
- If you choose the *tournament*, your performance in **Task 1** will be evaluated relative to the performance of the other five participants of your group in the Task 1. If you correctly recalled in Task 1 more numbers than four of your other group members in Task 1, then you receive Rs. 30 for each number that you correctly recalled. You will receive no earnings for this task if you choose the tournament and are not among the two winners. You will not be informed of how you did in the tournament until the end of the session. If there are ties the winner will be randomly determined.

If you have any question, please raise your hand and we will answer your question in private.

--Task 4 will start now.

**Question 4.1.** Please indicate on your reporting sheet which payment scheme you prefer to apply to your performance in **Task 1** and strike through the option which you would not like to select and circle the option which you would like to select.

1. *Piece rate*
2. *Tournament*

**Question 4.2.** Please indicate on your reporting sheet in the box in front of “Question 4.2” which rank, between 1 for the highest number of correct recalls to 6 for the lowest number of correct recalls,

you think you have got in Task 1, compared to the five other group members in Task 1. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. We ask you to answer this question even if you have chosen the piece rate payment mode. --

**Question 4.3.** Please indicate on your reporting sheet in the box in front of “Question 4.3” what is the chance that you will be among the top two scorers in your group of six in this Task. Please indicate any number between 0 and 100, with 0 if you are absolutely sure you are not among the top two scorers in your group of six and 100 if you are absolutely sure that you are among the top two scorers and some number in between 0 and 100 depending on how sure you are of being among the top two scorers. You will receive a maximum bonus of Rs.50 and a minimum bonus of 0 for answering this question. The more truthful you are in your report, the higher the bonus will be. In other words, your best interest is in truthfully reporting what you think your chances of being among the top two are. If you are interested in knowing how your bonus is calculated, ask us after the study is over. We ask you to answer this question even if you have chosen the piece rate payment mode. --

### Task 5-A Die (Unaligned condition)

You are no longer in a group of six participants. In this Task you are paired successively with two other participants of your group of six.

You have received two cups. Each cup contains a die. Do not open the cups but look under the lid. In one cup, the die is blue. In the other cup, the die is red.

- The cup with the **blue die** must be used to determine your payoff and the payoff of another participant
- The cup with the **red die** must be used to determine your payoff and the payoff of another participant

*What happens in the first pair?*

Both you and your co-participant will have to roll a die that is inside one of the cups. But only the outcome reported by one of you two will count to determine your payoffs in this Task. A random draw at the end of the session will determine whether it is the outcome that *you* report or the outcome reported by *the other participant* that will determine your payoffs.

You will roll the die twice by shaking the cup and flipping it over. You have to report the outcome of the **first** roll only. To see the outcome, just look under the lid.

Your **first** roll decides on how much you and the other participant earn in this part (if it is your report that is selected at the end of the session). The second roll only serves to make sure that the die is working properly. You may of course roll the die more than twice. However, **only the first roll counts.**

You can see the payoffs from the following chart.

Outcome of the 1 <sup>st</sup> roll	1	2	3	4	5	6
Payoff of the participant rolling	Rs. 10	Rs. 20	Rs. 30	Rs. 40	Rs. 50	Rs. 60
Payoff of the other participant	Rs. 60	Rs. 50	Rs. 40	Rs. 30	Rs. 20	Rs. 10

For example, if 1 is the reported outcome from the die roll, the participant who rolls the die earns Rs.10 and the other participant earns Rs.60. If 2 is the reported outcome from the die roll, the participant who rolls the die earns Rs.20 and the other participant earns Rs.50. And so on.

*What happens in the second pair?*

The rules are exactly the same as for the first pair, except that you are paired with a different participant.

When the experimenter will instruct you to start, you can start either by rolling the blue die or by

rolling the red die.

Please wait for the experimenter to instruct you to roll the dice. If you have any question, please raise your hand.

**Question 5.1.** Please report on your reporting sheet in front of question 5.1 the outcome of the first two die rolls:

Blue die: the outcome of the first blue die roll is: 1 2 3 4 5 6

Red die: the outcome of the first red die roll is: 1 2 3 4 5 6

### Task 5-B Die (Aligned condition)

You are no longer in a group of six participants. In this Task you are paired successively with two other participants of your group of six.

You have received two cups. Each cup contains a die. Do not open the cups but look under the lid. In one cup, the die is blue. In the other cup, the die is red.

- The cup with the **blue die** must be used to determine your payoff and the payoff of another participant
- The cup with the **red die** must be used to determine your payoff and the payoff of another participant

*What happens in the first pair?*

Both you and your co-participant will have to roll a die that is inside one of the cups. But only the outcome reported by one of you two will count to determine your payoffs in this Task. A random draw at the end of the session will determine whether it is the outcome that *you* report or the outcome reported by *the other participant* that will determine your payoffs.

You will roll the die twice by shaking the cup and flipping it over. You have to report the outcome of the **first** roll only. To see the outcome, just look under the lid.

Your **first** roll decides on how much you and the other participant earn in this part (if it is your report that is selected at the end of the session). The second roll only serves to make sure that the die is working properly. You may of course roll the die more than twice. However, **only the first roll counts**.

You can see the payoffs from the following chart.

Outcome of the 1 <sup>st</sup> roll	1	2	3	4	5	6
Payoff of the participant rolling	Rs. 10	Rs. 20	Rs. 30	Rs. 40	Rs. 50	Rs. 60
Payoff of the other participant	Rs. 10	Rs. 20	Rs. 30	Rs. 40	Rs. 50	Rs. 60

*For example, if 1 is the reported outcome from the die roll, the participant who rolls the die earns Rs.10 and the other participant (whose the reported outcome does not count) earns Rs. 10. If 2 is the reported outcome from the die roll, the participant who rolls the die earns Rs.20 and the other participant earns Rs. 20. And so on.)*

*What happens in the second pair?*

The rules are exactly the same as for the first pair, except that you are paired with a different participant.

When the experimenter will instruct you to start, you can start either by rolling the blue die or by rolling the red die.

Please wait for the experimenter to instruct you to roll the dice. If you have any question, please raise your hand.

**Question 5.1.** Please report on your reporting sheet in front of question 5.1 the outcome of the first

two die rolls:

Blue die (pair with a participant from the same caste): the outcome of the first blue die roll is:

1 2 3 4 5 6

Red die (pair with a participant from the other caste): the outcome of the first red die roll is:

1 2 3 4 5 6

### **Instructions for Treatment 1 (T1)**

#### **Task 1. Piece rate [Common for T0, T1, T2 and T2-F]**

#### **Task 2. Tournament**

As in Task 1, after listening to a series of 15 dictated numbers, you will be given 3 minutes to write down as many recalled numbers as possible (in the limit of 15). However, for this task your payment depends on your performance relative to that of a group of other participants.

Each group consists of six people, out of which three are from the General Category and three are from the Scheduled Caste category. Thus, you are in a group with five other people present in this session. You will not know who the five other people in your group are. The composition of your group of six remains the same until you are no longer in a group of six.

If Task 2 is the one randomly selected for payment, then your earnings depend on your number of correct recalls compared to that of the five other people in your group. The two group members who correctly recall the most numbers are the winners. They will receive Rs. 30 each per correct recall, while the four other group members receive no payment. So, if you are among the two top performers, then you will earn Rs. 30 for each correct number that you recall in this task

You will not be informed of how you did in the tournament relative to others until all four tasks have been completed. If there are ties the winner will be randomly determined.

We refer to this as the **tournament payment**.

If you have any question, please raise your hand and we will answer your question in private.

*--Task 2 will start now. Please listen to the dictated numbers carefully and do not write anything before you are invited to do so. --*

*-- Now, please write down as many of the dictated numbers as you can recall in the next 3 minutes. --*

*-- Three minutes are over. Please stop writing immediately. --*

*-- **Question 2.1.** Please indicate on your reporting sheet in the box in front of “Question 2.1” how many numbers out of those you have reported you think you have correctly recalled. If this task is selected for payment, you will receive an additional Rs. 50 if your prediction matches your actual score.*

***Question 2.2a.** Please indicate on your reporting sheet in the box in front of “Question 2.2a” which rank, between 1 and 6 you think you have got in Task 2, compared to the five other group members. A rank of 1 means you think you got the highest number of correct recalls in the group and rank 6 means you think you got the lowest number of correct recalls in the group and similar for ranks between 1 and 6. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct.*

–

***Question 2.2b.** Please indicate on your reporting sheet in the box in front of “Question 2.2b” which rank, between 1 and 3 you think you have got in Task 2, compared to the three other group members of your own caste. A rank of 1 means you think you got the highest number of correct recalls within your own caste in your group and rank 3 means you think you got the lowest number of correct recalls within your caste in the group and similar for ranks between 1 and 3. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. –*

**Question 2.3.** Please indicate on your reporting sheet in the box in front of “Question 2.3” what is the chance that you will be among the top two scorers in your group of six in this Task. Please indicate any number between 0 and 100, with 0 if you are absolutely sure you are not among the top two scorers in your group of six, 100 if you are absolutely sure that you are among the top two scorers, and some number in between 0 and 100 depending on how sure you are of being among the top two scorers. The higher this number, the more confident you are in being among the top two scorers. You will receive a maximum bonus of Rs.50 and a minimum bonus of 0 for answering this question. The more truthful you are in your report, the higher the bonus will be. In other words, your best interest is in truthfully reporting what you think your chances of being among the top two are. If you are interested in knowing how your bonus is calculated, ask us after the study is over.

### Task 3. Choice

As in the previous two tasks, after listening to a series of 15 dictated numbers, you will be given 3 minutes to write down as many recalled numbers as possible. However, before that, you will get to choose which of the two previous payment modes you prefer to apply to your performance in Task 3. You can either choose to be paid according to the *piece rate*, or according to the *tournament*.

If Task 3 is randomly selected for payment, then your earnings for this task are determined as follows.

- If you choose the *piece rate* (i.e. the payment mode used in Task 1), you receive Rs. 10 per number correctly recalled.
- If you choose the *tournament* (i.e. the payment mode used in Task 2), your performance in Task 3 will be evaluated relative to the performance of the other five participants of your group in the Task 2 -Tournament. Remember, out of the six people in each group, three are from General Category and three are from Scheduled Caste category. The Task 2-tournament is the one you just completed. If you correctly recall more numbers than four of your other group members in Task 2, then you receive Rs. 30 for each correctly recalled number. You will receive no earnings for this task if you choose the tournament and are not among the two winners. You will not be informed of how you did in the tournament until the end of the session. If there are ties the winner will be randomly determined.

If you have any question, please raise your hand and we will answer your question in private.

--Task 3 will start now.

**Question 3.1.** Please indicate on your reporting sheet which payment scheme you prefer to apply to your performance in Task 3. Strike through the option which you would not like to select and circle the option which you would like to select:

**Example 1:** If you want to be paid according to Piece rate and not according to Tournament, you should enter:

Piece rate

~~Tournament~~

**Example 2:** If you want to be according to Tournament and not according to Piece rate you should enter:

~~Piece rate~~

Tournament

Please select your payment option here:

1. *Piece rate*



## 2. Tournament

Now, please listen to the dictated numbers carefully and do not write anything before you are invited to do so. --

-- Now, please write down as many of the dictated numbers as you can recall in the next 3 minutes. --

-- Three minutes are over. Please stop writing immediately. --

--**Question 3.2.** Please indicate on your reporting sheet in the box in front of “Question 3.2” how many numbers out of those you have reported you think you have correctly recalled. If this task is selected for payment, you will receive an additional Rs. 50 if your prediction matches your actual score.

**Question 3.3a.** Please indicate on your reporting sheet in the box in front of “Question 3.3a” which rank, between 1 for the highest number of correct recalls to 6 for the lowest number of correct recalls, you think you have got in Task 3, compared to the five other group members in Task 2. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. We ask you to answer this question even if you have chosen the piece rate payment mode.

**Question 3.3b.** Please indicate on your reporting sheet in the box in front of “Question 3.3b” which rank, between 1 and 3 you think you have got in Task 2, compared to the three other group members of your own caste. A rank of 1 means you think you got the highest number of correct recalls within your own caste in your group and rank 3 means you think you got the lowest number of correct recalls within your caste in the group and similar for ranks between 1 and 3. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. --

**Question 3.4.** Please indicate on your reporting sheet in the box in front of “Question 3.4” what is the chance that you will be among the top two scorers in your group of six in this Task. Please indicate any number between 0 and 100, with 0 if you are absolutely sure you are not among the top two scorers in your group of six, 100 if you are absolutely sure that you are among the top two scorers, and some number in between 0 and 100 depending on how sure you are of being among the top two scorers. The higher this number, the more confident you are in being among the top two scorers. You will receive a maximum bonus of Rs.50 and a minimum bonus of 0 for answering this question. The more truthful you are in your report, the higher the bonus will be. In other words, your best interest is in truthfully reporting what you think your chances of being among the top two are. If you are interested in knowing how your bonus is calculated, ask us after the study is over. We ask you to answer this question even if you have chosen the piece rate payment mode. --

### Task 4 - Choice 2

In contrast to the previous tasks, you will not have to recall numbers for this Task. Instead you will be paid one more time for the numbers you recalled in **Task 1-Piece rate**. However, you will have to choose which payment mode you prefer to apply to your performance in **Task 1** (when you were paid Rs. 10 per number correctly recalled). You can either choose to be paid according to the *piece rate* or according to the *tournament*.

If Task 4 is randomly selected for payment, then your earnings for this task are determined as follows.

- If you choose the *piece rate*, you receive Rs. 10 per number correctly recalled in **Task 1**.
- If you choose the *tournament*, your performance in **Task 1** will be evaluated relative to the performance of the other five participants of your group in the Task 1. Remember, out of the six people in each group, three are from General Category and three are from Scheduled Caste category. If you correctly recalled in Task 1 more numbers than four of your other group members in Task 1, then you receive Rs. 30 for each number that you correctly recalled. You will receive no earnings for this task if you choose the tournament and are not among the two winners. You will not be informed of how you did in the tournament until the end of the session. If there are ties the winner will be randomly determined.

If you have any question, please raise your hand and we will answer your question in private.

--Task 4 will start now.

**Question 4.1.** Please indicate on your reporting sheet which payment scheme you prefer to apply to your performance in **Task 1** and strike through the option which you would not like to select and circle the option which you would like to select.

1. Piece rate
2. Tournament

**Question 4.2a.** Please indicate on your reporting sheet in the box in front of “Question 4.2” which rank, between 1 for the highest number of correct recalls to 6 for the lowest number of correct recalls, you think you have got in Task 1, compared to the five other group members in Task 1. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. We ask you to answer this question even if you have chosen the piece rate payment mode. –

**Question 4.2b.** Please indicate on your reporting sheet in the box in front of “Question 4.2b” which rank, between 1 and 3 you think you have got in Task 2, compared to the three other group members of your own caste. A rank of 1 means you think you got the highest number of correct recalls within your own caste in your group and rank 3 means you think you got the lowest number of correct recalls within your caste in the group and similar for ranks between 1 and 3. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct.

**Question 4.3.** Please indicate on your reporting sheet in the box in front of “Question 4.3” what is the chance that you will be among the top two scorers in your group of six in this Task. Please indicate any number between 0 and 100, with 0 if you are absolutely sure you are not among the top two scorers in your group of six and 100 if you are absolutely sure that you are among the top two scorers and some number in between 0 and 100 depending on how sure you are of being among the top two scorers.. We ask you to answer this question even if you have chosen the piece rate payment mode. You will receive a maximum bonus of Rs.50 and a minimum bonus of 0 for answering this question. The more truthful you are in your report, the higher the bonus will be. In other words, your best interest is in truthfully reporting what you think your chances of being among the top two are. If you are interested in knowing how your bonus is calculated, ask us after the study is over. We ask you to answer this question even if you have chosen the piece rate payment mode. --

#### **Task 5-A – Die (Unaligned condition) [Common for T1, T2 and T2-F]**

You are no longer in a group of six participants. In this Task you are paired successively with two other participants of your group of six. In one case, you are paired with someone from the same caste as you and in the other case you are paired with someone from the other caste.

You have received two cups. Each cup contains a die. Do not open the cups but look under the lid. In one cup, the die is blue. In the other cup, the die is red.

- The cup with the **blue die** must be used to determine your payoff and the payoff of another participant from **your own caste**.
- The cup with the **red die** must be used to determine your payoff and the payoff of another participant from **the other caste**.

*What happens in the first pair?*

Both you and your co-participant will have to roll a die that is inside one of the cups. But only the outcome reported by one of you two will count to determine your payoffs in this Task. A random draw at the end of the session will determine whether it is the outcome that *you* report or the outcome reported by *the other participant* that will determine your payoffs.

You will roll the die twice by shaking the cup and flipping it over. You have to report the outcome of the **first** roll only. To see the outcome, just look under the lid.

Your **first** roll decides on how much you and the other participant earn in this part (if it is your report that is selected at the end of the session). The second roll only serves to make sure that the die is working properly. You may of course roll the die more than twice. However, **only the first roll counts**.

You can see the payoffs from the following chart.

Outcome of the 1 <sup>st</sup> roll	1	2	3	4	5	6
Payoff of the participant rolling	Rs. 10	Rs. 20	Rs. 30	Rs. 40	Rs. 50	Rs. 60
Payoff of the other participant	Rs. 60	Rs. 50	Rs. 40	Rs. 30	Rs. 20	Rs. 10

For example, if 1 is the reported outcome from the die roll, the participant who rolls the die earns Rs.10 and the other participant earns Rs. 60. If 2 is the reported outcome from the die roll, the participant who rolls the die earns Rs.20 and the other participant earns Rs. 50. And so on.

*What happens in the second pair?*

The rules are exactly the same as for the first pair, except that you are paired with a different participant.

When the experimenter will instruct you to start, you can start either by rolling the blue die or by rolling the red die.

Please wait for the experimenter to instruct you to roll the dice. If you have any question, please raise your hand.

**Question 5.1.** Please report *on your reporting sheet in front of question 51* the outcome of the first two die rolls:

Blue die (pair with a participant from the same caste): the outcome of the first blue die roll is:  
1 2 3 4 5 6

Red die (pair with a participant from the other caste): the outcome of the first red die roll is:  
1 2 3 4 5 6

### **Task 5-B Die (Aligned condition) [Common for T1, T2 and T2-F]**

You are no longer in a group of six participants. In this Task you are paired successively with two other participants of your group of six. In one case, you are paired with someone from the same caste as you and in the other case you are paired with someone from the other caste).

You have received two cups. Each cup contains a die. Do not open the cups but look under the lid. In one cup, the die is blue. In the other cup, the die is red.

- The cup with the **blue die** must be used to determine your payoff and the payoff of another participant from **your own caste**.
- The cup with the **red die** must be used to determine your payoff and the payoff of another participant from **the other caste**.

*What happens in the first pair?*

Both you and your co-participant will have to roll a die that is inside one of the cups. But only the outcome reported by one of you two will count to determine your payoffs in this Task. A random draw at the end of the session will determine whether it is the outcome that *you* report or the outcome reported by *the other participant* that will determine your payoffs.

You will roll the die twice by shaking the cup and flipping it over. You have to report the outcome of the **first** roll only. To see the outcome, just look under the lid.

Your **first** roll decides on how much you and the other participant earn in this part (if it is your report that is selected at the end of the session). The second roll only serves to make sure that the die is working properly. You may of course roll the die more than twice. However, **only the first roll counts**.

You can see the payoffs from the following chart.

Outcome of the 1 <sup>st</sup> roll	1	2	3	4	5	6
Payoff of the participant rolling	Rs. 10	Rs. 20	Rs. 30	Rs. 40	Rs. 50	Rs. 60
Payoff of the other participant	Rs. 10	Rs. 20	Rs. 30	Rs. 40	Rs. 50	Rs. 60

*For example, if 1 is the reported outcome from the die roll, the participant who rolls the die earns Rs.10 and the other participant (whose the reported outcome does not count) earns Rs. 10. If 2 is the reported outcome from the die roll, the participant who rolls the die earns Rs.20 and the other participant earns Rs. 20. And so on.)*

*What happens in the second pair?*

The rules are exactly the same as for the first pair, except that you are paired with a different participant.

When the experimenter will instruct you to start, you can start either by rolling the blue die or by rolling the red die.

Please wait for the experimenter to instruct you to roll the dice. If you have any question, please raise your hand.

**Question 5.1.** Please report *on your reporting sheet in front of question 5.1 the outcome of the first two die rolls:*

Blue die (pair with a participant from the same caste): the outcome of the first blue die roll is:

1 2 3 4 5 6

Red die (pair with a participant from the other caste): the outcome of the first red die roll is:

1 2 3 4 5 6

## Instructions for Treatment 2 (T2)

### Task 1. Piece rate [Common for T0, T1, T2 and T2-F]

### Task 2. Quota-Tournament

As in Task 1, after listening to a series of 15 dictated numbers, you will be given 3 minutes to write down as many recalled numbers as possible (in the limit of 15). However, for this task your payment depends on your performance relative to that of a group of other participants through a method called *Quota-Tournament*.

Before proceeding, we explain the rules of *Quota-Tournament*.

Each group consists of six people, out of which three are from the General Category and three are from the Scheduled Caste category. Thus, you are in a group with five other people present in this session. You will not know who the five other people in your group are. The composition of your group of six remains the same until you are no longer in a group of six. In Quota-Tournament the winners are determined as follows:

- *If you belong to the Scheduled Caste category:* you are a winner and receive Rs. 30 for each correctly recalled number if you have a better Task 2 - performance than (i) the other two participants from the Scheduled Caste category in your group in Task 2, **or** (ii) at least four members of your group in Task 2. If you are not a winner, then you do not earn anything.
- *If you belong to the General category:* you receive Rs. 30 for each correctly recalled number if you have a better Task 2 - performance than (i) the other two participants from the General category in your group in Task 2, **and** (ii) four members of your group in Task 2. If you are not a winner, then you do not earn anything.

You will not be informed of how you did in the tournament until the end of the session. If there are ties, the winner will be randomly determined.

--Task 2 will start now. Please listen to the dictated numbers carefully and do not write anything before you are invited to do so. --

-- Now, please write down as many of the dictated numbers as you can recall in the next 3 minutes. --

-- Three minutes are over. Please stop writing immediately. --

-- **Question 2.1.** Please indicate on your reporting sheet in the box in front of "Question 2.1" how many numbers out of those you have reported you think you have correctly recalled. If this task is selected for payment, you will receive an additional Rs. 50 if your prediction matches your actual score.

**Question 2.2a.** Please indicate on your reporting sheet in the box in front of "Question 2.2a" which rank, between 1 and 6 you think you have got in Task 2, compared to the five other group members. A rank of 1 means you think you got the highest number of correct recalls in the group and rank 6 means you think you got the lowest number of correct recalls in the group and similar for ranks between 1 and 6. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct.

**Question 2.2b.** Please indicate on your reporting sheet in the box in front of "Question 2.2b" which rank, between 1 and 3 you think you have got in Task 2, compared to the three other group members of your own caste. A rank of 1 means you think you got the highest number of correct recalls within your own caste in your group and rank 3 means you think you got the lowest number of correct recalls within your caste in the group and similar for ranks between 1 and 3. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct.

**Question 2.3.** Please indicate on your reporting sheet in the box in front of “Question 2.3” what is the chance that you will be among the “winners” in your group of six in this Task. Please indicate any number between 0 and 100, with 0 if you are absolutely sure you are not among the winners in your group of six, 100 if you are absolutely sure that you are among the winners, and some number in between 0 and 100 depending on how sure you are of being among the winners. The higher this number, the more confident you are in being among the winners. You will receive a maximum bonus of Rs.50 and a minimum bonus of 0 for answering this question. The more truthful you are in your report, the higher the bonus will be. In other words, your best interest is in truthfully reporting what you think your chances of being among the winners are. If you are interested in knowing how your bonus is calculated, ask us after the study is over.

### Task 3. Choice

As in the previous two tasks, after listening to a series of 15 dictated numbers, you will be given 3 minutes to write down as many recalled numbers as possible. However, before that, you will get to choose which of the two previous payment modes you prefer to apply to your performance in Task 3. You can either choose to be paid according to the *piece rate*, or according to the *tournament*.

If Task 3 is randomly selected for payment, then your earnings for this task are determined as follows.

- If you choose the *piece rate* (i.e. the payment mode used in Task 1), you receive Rs. 10 per number correctly recalled.
- If you choose the *Quota-tournament*, your performance in **Task 3** will be evaluated relative to the performance of the other five participants of your group in the Task 2.
  - \* *If you belong to the Scheduled Caste category:* you receive Rs. 30 for each correctly recalled number if you are a winner i.e. you have a better Task 3-performance than (i) the other two participants from the Scheduled Caste category in your group in Task 2, **or** (ii) four members of your group in Task 2. If you are not a winner, then you do not earn anything.
  - \* *If you belong to the General category:* you receive Rs. 30 for each correctly recalled number if you are a winner i.e. you have a better Task 3- performance than (i) the other two participants from the General category in your group in Task 2, **and** (ii) four members of your group in Task 2. If you are not a winner, then you do not earn anything.

You will not be informed of how you did in the tournament until the end of the session. If there are ties the winner will be randomly determined.

If you have any question, please raise your hand and we will answer your question in private.

--Task 3 will start now.

**Question 3.1.** Please indicate on your reporting sheet which payment scheme you prefer to apply to your performance in Task 3. Strike through the option which you would not like to select and circle the option which you would like to select:

**Example 1:** If you want to be paid according to Piece rate and not according to Quota-Tournament, you should enter:

Piece rate  
~~Quota-Tournament~~

**Example 2:** If you want to be according to Quota-Tournament and not according to Piece rate you should enter:

~~Piece rate~~  
Quota-Tournament

Please select your payment option here:

3. *Piece rate*
4. *Quota-Tournament*

*Now, please listen to the dictated numbers carefully and do not write anything before you are invited to do so. --*

*-- Now, please write down as many of the dictated numbers as you can recall in the next 3 minutes. --*

*-- Three minutes are over. Please stop writing immediately. --*

**--Question 3.2.** *Please indicate on your reporting sheet in the box in front of “Question 3.2” how many numbers out of those you have reported you think you have correctly recalled. If this task is selected for payment, you will receive an additional Rs. 50 if your prediction matches your actual score.*

**Question 3.3a.** *Please indicate on your reporting sheet in the box in front of “Question 3.3a” which rank, between 1 for the highest number of correct recalls to 6 for the lowest number of correct recalls, you think you have got in Task 3, compared to the five other group members in Task 2. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. We ask you to answer this question even if you have chosen the piece rate payment mode. –*

**Question 3.3b:** *Please indicate on your reporting sheet in the box in front of “Question 3.3b” which rank, between 1 and 3 you think you have got in Task 2, compared to the three other group members of your own caste. A rank of 1 means you think you got the highest number of correct recalls within your own caste in your group and rank 3 means you think you got the lowest number of correct recalls within your caste in the group and similar for ranks between 1 and 3. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct.*

**Question 3.4.** *Please indicate on your reporting sheet in the box in front of “Question 3.4” what is the chance that you will be among the “winners” in your group of six in this Task. Please indicate any number between 0 and 100, with 0 if you are absolutely sure you are not among the winners in your group of six, 100 if you are absolutely sure that you are among the winners, and some number in between 0 and 100 depending on how sure you are of being among the winners. The higher this number, the more confident you are in being among the winners. You will receive a maximum bonus of Rs.50 and a minimum bonus of 0 for answering this question. The more truthful you are in your report, the higher the bonus will be. In other words, your best interest is in truthfully reporting what you think your chances of being among the winners are. If you are interested in knowing how your bonus is calculated, ask us after the study is over. We ask you to answer this question even if you have chosen the piece rate payment mode.*

#### **Task 4A - Choice 2**

In contrast to the previous tasks, you will not have to recall numbers for this Task. Instead you will be paid one more time for the numbers you recalled in **Task 1-Piece rate**. However, you will have to choose which payment mode you prefer to apply to your performance in **Task 1** (when you were paid Rs. 10 per number correctly recalled). You can either choose to be paid according to the *piece rate* or according to the *Quota-tournament*.

If Task 4A is randomly selected for payment, then your earnings for this task are determined as follows.

- If you choose the *piece rate*, you receive Rs. 10 per number correctly recalled in **Task 1**.
- If you choose the *Quota-tournament*, your performance in **Task 1** will be evaluated relative to the performance of the other five participants of your group in the Task 1.
  - \* *If you belong to the Scheduled Caste category:* you receive Rs. 30 for each correctly

recalled number if you are a winner *i.e.* you have a better Task 1-performance than (i) the other two participants from the Scheduled Caste category in your group in Task 1, **or** (ii) at least four members of your group in Task 1. If you are not a winner, then you do not earn anything

- \* *If you belong to the General category:* you receive Rs. 30 for each correctly recalled number if you are a winner *i.e.* you have a better Task 1- performance than (i) the other two participants from the General category in your group in Task 1, **and** (ii) four members of your group in Task 1. If you are not a winner, then you do not earn anything

You will not be informed of how you did in the tournament until the end of the session. If there are ties, the winner will be randomly determined.

If you have any question, please raise your hand and we will answer your question in private.

--Task 4A will start now.

**Question 4A.1.** Please indicate on your reporting sheet which payment scheme you prefer to apply to your performance in **Task 1** and strike through the option which you would not like to select and circle the option which you would like to select.

1. Piece rate

2. Quota-Tournament

**Question 4A.2a.** Please indicate on your reporting sheet in the box in front of “Question 4A.2a” which rank, between 1 for the highest number of correct recalls to 6 for the lowest number of correct recalls, you think you have got in Task 1, compared to the five other group members in Task 1. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. We ask you to answer this question even if you have chosen the piece rate payment mode. --

**Question 4A.2b.** Please indicate on your reporting sheet in the box in front of “Question 4A.2b” which rank, between 1 for the highest number of correct recalls to 3 for the lowest number of correct recalls, you think you have got in Task 1, compared to the two other group members from the same caste as you in Task 1. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. We ask you to answer this question even if you have chosen the piece rate payment mode.

**Question 4A.3.** Please indicate on your reporting sheet in the box in front of “Question 4A.3” what is the chance that you will be among the “winners” in your group of six in this Task. Please indicate any number between 0 and 100, with 0 if you are absolutely sure you are not among the winners in your group of six, 100 if you are absolutely sure that you are among the winners, and some number in between 0 and 100 depending on how sure you are of being among the winners. The higher this number, the more confident you are in being among the winners. You will receive a maximum bonus of Rs.50 and a minimum bonus of 0 for answering this question. The more truthful you are in your report, the higher the bonus will be. In other words, your best interest is in truthfully reporting what you think your chances of being among the winners are. If you are interested in knowing how your bonus is calculated, ask us after the study is over. We ask you to answer this question even if you have chosen the piece rate payment mode.

### **Task 4B. Choice 3**

Like in Task 4A, you will not have to recall numbers for this Task and you will be paid one more time for the numbers you recalled in Task 1-Piece rate. You will again have to choose which payment mode you prefer to apply to your performance in **Task 1**. The only difference is that the rules for the tournament are now different. The two winners of the tournament are the two group members who had the highest scores in Task 1, *regardless of their caste*.

You can either choose to be paid according to the *piece rate* or according to the *tournament*.



If Task 4B is randomly selected for payment, then your earnings for this task are determined as follows.

- If you choose the *piece rate*, you receive Rs. 10 per number correctly recalled in **Task 1**.
- If you choose the *tournament*, your performance in **Task 1** will be evaluated relative to the performance of the other five participants of your group in the Task 1 –Piece rate. If you correctly recalled in Task 1 more numbers than four of your other group members in Task 1, then you are a “winner” and receive Rs. 30 for each number that you correctly recalled. You will receive no earnings for this task if you choose the tournament and are not among the two “winners”. You will not be informed of how you did in the tournament until the end of the session. If there are ties the winner will be randomly determined.

If you have any question, please raise your hand and we will answer your question in private.

--Task 4B will start now.

**Question 4B.1.** Please indicate on your reporting sheet which payment scheme you prefer to apply to your performance in **Task 1**. Strike through the option which you would not like to select and circle the option which you would like to select.

1. *Piece rate*
2. *Tournament*

**Question 4B.2a.** Please indicate on your reporting sheet in the box in front of “Question 4B.2a” which rank, between 1 for the highest number of correct recalls to 6 for the lowest number of correct recalls, you think you have got in Task 1, compared to the five other group members in Task 1. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. We ask you to answer this question even if you have chosen the piece rate payment mode. –

**Question 4B.2b.** Please indicate on your reporting sheet in the box in front of “Question 4B.2b” which rank, between 1 for the highest number of correct recalls to 3 for the lowest number of correct recalls, you think you have got in Task 1, compared to the two other group members from the same caste as you in Task 1. If this task is selected for payment, you will receive an additional Rs.50 if your guess is correct. We ask you to answer this question even if you have chosen the piece rate payment mode.

**Question 4B.3.** Please indicate on your reporting sheet in the box in front of “Question 4B.3” what is the chance that you will be among the “winners” in your group of six in this Task. Please indicate any number between 0 and 100, with 0 if you are absolutely sure you are not among the winners in your group of six, 100 if you are absolutely sure that you are among the winners, and some number in between 0 and 100 depending on how sure you are of being among the winners. The higher this number, the more confident you are in being among the winners. You will receive a maximum bonus of Rs.50 and a minimum bonus of 0 for answering this question. The more truthful you are in your report, the higher the bonus will be. In other words, your best interest is in truthfully reporting what you think your chances of being among the winners are. If you are interested in knowing how your bonus is calculated, ask us after the study is over. We ask you to answer this question even if you have chosen the piece rate payment mode.

## Exit Survey [Common T0, T1, T2 and T2-Feedback]

### Demographic questionnaire

Please answer the following questions. We remind you that your responses are anonymous.

1. What is your age \_\_\_\_\_ years
2. What is your gender? Male / Female \_\_\_\_\_
3. Are you married?  Yes  No
4. Do you have children?  Yes  No
  - a. If yes how many? \_\_\_\_\_
  - b. How many of these children are under age 5? \_\_\_\_\_
5. Religion: • Hindu • Muslim • Others
6. If you have a religion, do you pray  
 several times per day  once per day  every week  rarely  never
7. Caste: • General • OBC • SC • ST • Others/No Caste
8. Education level:
  - a. Class \_\_\_\_\_ (if passed Class 12 or below)
  - b. Bachelors
  - c. Masters or above
9. Gross Monthly Family Income (before tax): Rs. \_\_\_\_\_
10. If you compare your family's economic conditions to the others in your village, your family is (tick as appropriate):  
 very poor,  poor,  average,  rich,  very rich
11. Employment status:
12. No. of years of employment in total
13. No. of years of employment in current job
14. Does your family own a TV?  1=yes, 2=no
15. Does your family own a motorbike or car  1=yes, 2=no.
16. Does your family own a bicycle?  1=yes, 2=no

### Risk attitudes

Please answer the following questions. Are you a person who is fully prepared to take risks or do you try to avoid taking risks in the following situations?

Please tick the circle that describes you the best on the following scale, where the value 0 means: 'not at all willing to take risks' and the value 10 means: 'very willing to take risks'.

17. In general

0 1 2 3 4 5 6 7 8 9 10

not at all willing to take risks            very willing to take risks

18. When it comes to financial matters?

0 1 2 3 4 5 6 7 8 9 10

---

not at all willing to take risks             very willing to take risks

---

19. When it comes to health matters?

0 1 2 3 4 5 6 7 8 9 10

---

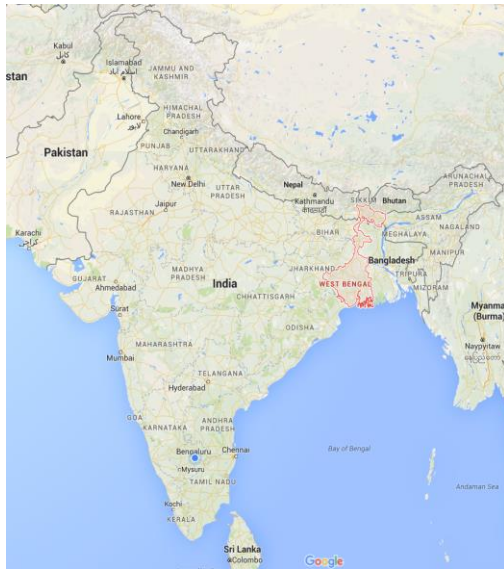
not at all willing to take risks            very willing to take risks

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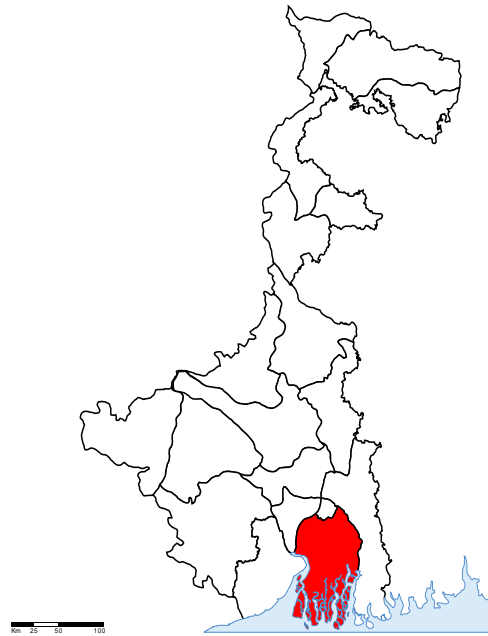
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## Appendix 2. Experimental sites: West Bengal and South 24 Paraganas

(a) West Bengal



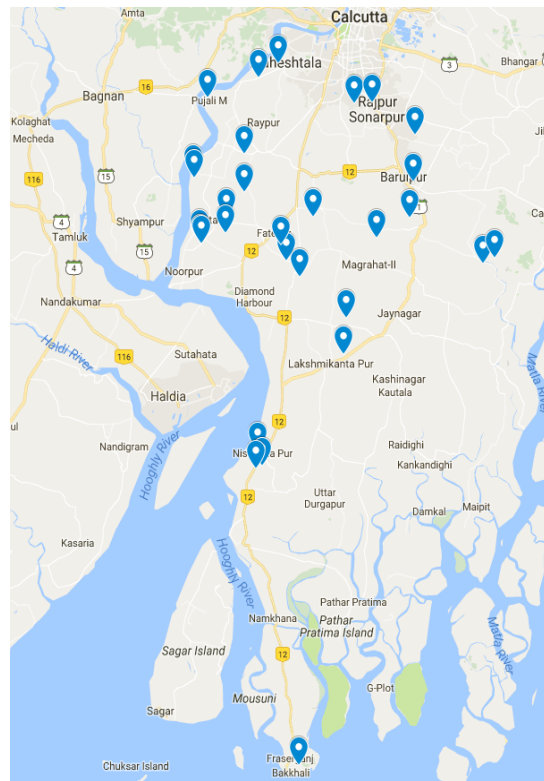
(b) South 24 Paraganas



(c) Blocks within South 24 Paraganas



(d) Sampled Villages and Wards



### Appendix 3. Tables

Table A1. Summary Statistics

	T0	T1	T2	T2F	Diff. (T1-T0)	Diff. T2-T0)	Diff. T2F-T0)
Female	0.48	0.48	0.44	0.45	0.00 (0.91)	0.04 (0.51)	-0.02 (0.66)
Caste	87,3,77,1	85,1,79,3	81,4,82,1	87,3,77,1	-	-	-
SC	0.48	0.49	0.52	0.48	0.01 (0.83)	0.03 (0.51)	0.00 (0.99)
Risk	41.46	40.86	37.91	45.98	0.30 (0.56)	3.55 (0.66)	43.72 (0.11)
Age	21.86	20.38	21.04	21.94	1.49 (<0.01)	0.82 (0.14)	0.08 (0.85)
Education	12.40	11.98	12.59	14.16	0.42 (0.15)	0.19 (0.31)	1.76 (<0.01)
Log (Family Income)	8.48	8.43	8.50	8.83	-0.05 (0.27)	0.02 (0.99)	0.36 (<0.01)

*Notes:* The Table report mean values. Diff. denotes the treatment differences. The numbers in parentheses denote  $p$ -values reported from Mann-Whitney rank sum tests. <sup>a</sup>: Caste data is presented as General, OBC, SC, ST. <sup>b</sup>: SC is equal to 1 if a subject is either OBC, SC or ST, and 0 otherwise. <sup>c</sup>: Years of education completed.

Table A2. Mean performance

A) Subjects choosing the piece-rate in part 3								
Treatment	T0		T1		T2		T2-Feedback	
Caste	GC	SC	GC	SC	GC	SC	GC	SC
- Mean score	8.06	8.22	8.09	7.56	8.09	8.19	8.04	8.22
- Diff. T1-T0/Ti-T1			0.03	-0.66	0.00	0.61	-0.05	0.63*
- Diff. GC-SC	-0.16		0.53		-0.1		-0.18	
<i>Memory score in part 2</i>								
- Mean score	8.28	8.74	8.59	8.38	9.07	8.26	9.14	8.87
- Diff. T1-T0/Ti-T1			0.31	-0.36	0.48	-0.12	0.55	0.49
- Diff. GC-SC	-0.46		0.21		0.81		0.27	
<i>Memory score in part 3</i>								
- Mean score	7.38	7.27	7.5	7.00	7.47	7.04	8.13	8.00
- Diff. T1-T0/Ti-T1			0.12	-0.27	-0.02	0.04	0.63*	1.00**
- Diff. GC-SC	0.11		0.5		7.43		0.13	
<i>Memory score in all parts</i>								
- Mean score	23.72	24.24	24.19	22.97	24.64	23.49	25.32	25.10
- Diff. T1-T0/Ti-T1			0.47	-1.27	0.45	0.52	1.13	2.13**
- Diff. GC-SC	-0.52		1.22		1.13		0.22	

B) Subjects choosing the tournament in part 3								
Treatment	T0		T1		T2		T2-Feedback	
Caste	GC	SC	GC	SC	GC	SC	GC	SC
<i>Memory score in part 1</i>								
- Mean score	8.71	7.33	7.76	7.77	8.43	8.3	9.11	8.07
- Diff. T1-T0/Ti-T1			0.94	0.44	0.67	0.53	1.35	0.29
- Diff. GC-SC	1.38		-0.01		0.13		1.04	
<i>Memory score in part 2</i>								
- Mean score	9.41	8.53	9.00	8.00	9.86	10.00	9.67	8.91
- Diff. T1-T0/Ti-T1			-0.41	-0.53	0.85	2.00**	0.67	0.91
- Diff. GC-SC	0.88		1.00		-0.14		0.76	
<i>Memory score in part 3</i>								
- Mean score	7.82	7.06	7.90	8.23	7.57	8.4	7.94	8.31
- Diff. T1-T0/Ti-T1			0.08	1.17	-0.33	0.17	0.04	0.08
- Diff. GC-SC	0.76		-0.33		-0.83		-0.37	
<i>Memory score in all parts</i>								
- Mean score	25.94	22.93	24.67	24.00	25.86	26.7	26.72	25.28
- Diff. T1-T0/Ti-T1			-1.27	1.07	1.19	2.7	2.05	1.28
- Diff. GC-SC	3.01		0.67		-0.84		1.44	

Notes: Within each variable, the top row represents the mean actual score; the middle row presents the mean differences between treatment T1 and treatment T0 and treatment  $T_i$  and treatment T0, with  $i=1,2,2$ -Feedback; and bottom row presents the mean difference between General category (GC) and Scheduled Castes (SC) subjects. A  $t$ -test is used to test statistical significance for difference and standard errors are clustered at the village level. \*\* indicates significance at the 0.05 level.

Table A3. Belief on chance of winning the tournament, by treatment and caste

A) All subjects									
Treatment	T0		T1		T2		T2-Feedback		
Caste	GC	SC	GC	SC	GC	SC	GC	SC	
<i>Part 2</i>									
- Mean	57.90	55.34	61.50	51.08	57.48	61.93	56.37	62.93	
- Diff. T1-T0/Ti-T1			3.60	-4.26	-4.02	10.89*	-5.21	11.84**	
- Diff. GC-SC	2.64		10.50**		-4.50		-6.55		
<i>Part 3</i>									
- Mean	49.45	49.16	49.38	43.83	53.02	58.42	53.97	61.12	
- Diff. T1-T0/Ti-T1			-0.07	-5.33	3.63	13.82**	4.70	17.29**	
- Diff. GC-SC	0.29		5.55		-5.40		-7.16**		
<i>Part 4††</i>									
- Mean	51.87	53.67	54.00	48.28	51.30	61.21	55.60	60.88	
- Diff. T1-T0/Ti-T1			2.13	-5.39	-2.70	12.56**	1.59	12.59**	
- Diff. GC-SC	-1.80		5.72		-9.91*		-5.28		
<i>Part 4B</i>									
- Mean	51.87	53.67	54.00	48.28	56.07	54.58	56.89	53.27	
- Diff. T1-T0/Ti-T1			2.13	-5.39	2.07	6.30	2.89	4.99	
- Diff. GC-SC	-1.80		5.72		1.49		3.62		
B) Subjects choosing the piece-rate in part 3									
Treatment	T0		T1		T2		T2-Feedback		
Caste	GC	SC	GC	SC	GC	SC	GC	SC	
<i>Part 2</i>									
- Mean	55	57.12	57.32	51.2	55.41	57.98	53.04	56.65	
- Diff. T1-T0/Ti-T1			2.32	-5.92	-1.91	6.78	-4.28	5.45	
- Diff. GC-SC	-2.12		6.12		-2.56		-3.60		
<i>Part 3</i>									
- Mean	44.24	47.12	43.78	41.64	5.88	51.63	51.92	54.97	
- Diff. T1-T0/Ti-T1			-0.46	-5.47	5.41	9.99**	8.15**	13.34**	
- Diff. GC-SC	-2.87		2.13		-1.97		-3.05		
<i>Part 4</i>									
- Mean	48.4	52.45	49.90	47.37	47.98	58.49	53.12	54.55	
- Diff. T1-T0/Ti-T1			1.50	-5.08	-1.92	11.12**	3.22	7.18	
- Diff. GC-SC	-4.05		2.53		-10.50**		-1.42		
<i>Part 4B</i>									
- Mean	48.4	52.45	49.90	47.37	53.53	50.33	54.71	50.71	
- Diff. T1-T0/Ti-T1			1.50	-5.08	3.63	2.97	4.80	3.34	
- Diff. GC-SC	-4.05		2.53		3.19		3.99		
C) Subjects choosing the tournament in part 3									
Treatment	T0		T1		T2		T2-Feedback		
Caste	GC	SC	GC	SC	GC	SC	GC	SC	
<i>Part 2</i>									
- Mean	70.29	47.53	74.57	50.46	67.85	69.56	69.12	72.53	
- Diff. T1-T0/Ti-T1			4.27	2.92	-6.71	19.11*	-5.44	22.07*	
- Diff. GC-SC	22.76*		24.10*		-1.70		-3.40		
<i>Part 3</i>									
- Mean	70.88	58.13	66.47	55.61	69.14	69.1	62.38	70.53	
- Diff. T1-T0/Ti-T1			-4.40	-2.51	2.67	13.48	-4.09	14.92	
- Diff. GC-SC	12.74		10.86		0.04		-8.14		
<i>Part 4</i>									

- Mean	66.17	59	66.47	53.15	67.14	65.29	64.94	70.56
- Diff. T1-T0/Ti-T1			0.29	-5.84	0.67	12.14	-1.53	17.41
- Diff. GC-SC	7.17		13.32		1.84		-5.61	
<i>Part 4B</i>								
- Mean	66.17	59	66.47	53.15	68.21	62.5	65.22	57.18
- Diff. T1-T0/Ti-T1			0.29	-5.84	1.74	9.34	-1.25	4.03
- Diff. GC-SC	7.17		13.32		5.71		8.03	

Notes: Panel A) reports mean belief about chance of winning for all subjects, Panel B) for subjects who have chosen piece rate in Part 3, Panel C) for subjects who have chosen tournament in Part 3. Within each variable, the top row represents the mean belief about chance of winning; the middle row presents the mean differences between treatment 1 and treatment 0 or treatment  $T_i$  and treatment  $T_0$ , with  $i=2,2$ -Feedback; and bottom row presents the mean difference between General category (GC) and Scheduled Castes (SC) subjects. A  $t$ -test with errors clustered at the village level is used to test statistical significance for difference. \*, \*\* indicates significance at the 0.10, 0.05 level, respectively.

Table A4. Beliefs on absolute performance

Treatment	T0		T1		T2		T2-Feedback	
Caste	GC	SC	GC	SC	GC	SC	GC	SC
<i>ALL SUBJECTS</i>								
<i>Part 2</i>								
- Mean prediction error	1.14	1.22	1.78	0.90	1.37	1.31	1.34	1.35
- Diff. $T_i$ -T0			0.64**	-0.32	-0.36	0.41	-0.43	0.45
- Diff. GC-SC	-0.08		0.88**		0.06		-0.01	
<i>Part 3</i>								
- Mean prediction error	1.47	1.54	1.63	1.36	1.70	1.73	1.57	1.73
- Diff. $T_i$ -T0			0.16	-0.18	0.07	0.37	-0.06	0.37
- Diff. GC-SC	-0.07		0.27		-0.03		0.15	
<i>SUBJECTS CHOSING PIECE-RATE IN PART 3</i>								
<i>Part 2</i>								
- Mean prediction error	1.02	1.06	1.53	0.74	1.34	1.49	1.20	0.97
- Diff. $T_i$ -T0			0.51	-0.32	-0.19	0.75*	-0.39	0.24
- Diff. GC-SC	-0.04		0.79**		-0.15		0.23	
<i>Part 3</i>								
- Mean prediction error	1.3	1.39	1.45	1.34	1.56	1.86	1.45	1.55
- Diff. $T_i$ -T0			0.15	-0.05	0.11	0.52	0.00	0.21
- Diff. GC-SC	-0.09		0.11		-0.3		-0.1	
<i>SUBJECTS CHOSING TOURNAMENT IN PART 3</i>								
<i>Part 2</i>								
- Mean prediction error	1.59	1.93	2.52	1.77	1.78	0.97	1.89	1.93
- Diff. $T_i$ -T0			0.93	-0.16	-0.74	0.80**	-0.63	0.17
- Diff. GC-SC	0.54		0.75		0.81		-0.04	
<i>Part 3</i>								
- Mean prediction error	2.17	2.2	2.19	1.46	2.36	1.5	2.06	2.00
- Diff. $T_i$ -T0			0.02	-0.74	0.17	0.04	-0.13	0.54
- Diff. GC-SC	-0.03		0.73		0.86		0.06	

Notes: Panel A) reports mean belief about numbers correctly recalled, Panel B) for subjects who have chosen piece rate in Part 3, Panel C) for subjects who have chosen tournament in Part 3. Within each variable, the top row represents the mean belief about chance of winning; the middle row presents the mean differences between treatment  $T_1$  and treatment  $T_0$  or treatment  $T_i$  and treatment  $T_0$ , with  $i=1,2,2$ -Feedback; and bottom row presents the mean difference between General category



(GC) and Scheduled Castes (SC) subjects. A *t*-test with errors clustered at the village level is used to test statistical significance for difference. \*, \*\* indicate significance at the 0.10, 0.05 level, respectively.

Table A5. Determinants of tournament choice in part 4B

	(1)	(2)
<i>Step 2: Dep. Variable: Tournament choice in part 4B</i>		
Predicted belief on being a winner	0.34*** (0.14)	0.35*** (0.15)
Socio-demographic variables	<i>No</i>	<i>Yes</i>
<i>Step 1: Dep. Variable: Belief on being a winner in part 4B</i>		
Scheduled Caste subjects (SC)	-0.10 (0.07)	-0.10 (0.07)
Treatment T2	0.07 (0.08)	0.06 (0.08)
Treatment T2-Feedback	0.06 (0.08)	0.02 (0.08)
SC*T2	0.00 (0.09)	0.01 (0.09)
SC* T2-Feedback	-0.01 (0.10)	-0.01 (0.10)
Score in part 2	0.05*** (0.01)	0.04*** (0.01)
Socio-demographic variables	<i>No</i>	<i>Yes</i>
Number of observations	504	504
Log pseudo-likelihood	-555.50	-546.11
Prob>chi2	<0.001	<0.001

*Notes:* Clustered standard errors at the village level are in parentheses. The two columns report marginal effects. Treatment effects are estimated with respect to Treatment 1. In the first step estimation, the dependent variable in columns (1) and (2) is the belief that the subject will be among the winners in part 4B. In the second step, a probit model estimates the probability to choose the tournament in part 4B. T0 and T1 did not have part 4B, so data from part 4 is used. \*\*\*, \*\*, and \* indicate significance at the 0.01, 0.05, and 0.1 level, respectively.

Table A6. Determinants of tournament choice in part 4B in the T2-Feedback treatment

<i>Dep. variable: Choice of the tournament in 4B</i>	(1)	(2)
Scheduled Caste subject (SC)	-0.16 (0.08)	-0.17 (0.08)
Winner in T2-Feedback	0.14 (0.10)	0.17 (0.11)
Winner in T2-Feedback x SC	0.04 (0.10)	0.03 (0.06)
Score in part 2	0.001 (0.02)	-0.01 (0.02)
Socio-demographic variables	<i>No</i>	<i>Yes</i>
Number of observations	168	167
Log pseudo-likelihood	-96.60	-93.53
Prob>chi2	<0.01	<0.01

Notes: Standard errors clustered at the village level are in parentheses. The two columns report marginal effects from probit regression. T0 and T1 did not have part 4B, so data from part 4 is used. \*\*\*, \*\*, and \* indicate significance at the 0.01, 0.05, and 0.1 level, respectively.

Table A7. Determinants of the reported die outcome

Reported outcome	Aligned interests		Unaligned interests	
	In-group match (1)	Out-group Match (2)	In-group match (3)	Out-group match (4)
T2	0.236 (0.240)	0.081 (0.091)	0.074 (0.192)	-0.247 (0.168)
T2-Feedback winner	-0.267 (0.259)	-0.289 (0.251)	-0.497 (0.344)	-0.648*** (0.227)
T2-Feedback loser	-0.489** (0.222)	0.323** (0.134)	0.082 (0.241)	0.051 (0.228)
T1*GC	0.179 (0.215)	-0.041 (0.134)	0.026 (0.127)	0.175 (0.286)
T2*GC	-0.110 (0.241)	-0.398* (0.235)	-0.098 (0.109)	0.419* (0.217)
T2-Feedback winner*GC	0.308 (0.317)	-0.407 (0.418)	0.146 (0.277)	0.137 (0.308)
T2-Feedback loser*GC	0.493*** (0.142)	-1.024*** (0.156)	-0.158 (0.309)	0.507** (0.254)
Number of observ	252	252	255	255
Log pseudo-lik.	-391.194	-427.304	-450.992	-421.020
Wald Chi2	22.45	56.35	6.29	51.60
Prob>chi2	0.001	<0.001	0.506	<0.001
Pseudo R2	0.012	0.024	0.006	0.025

Notes: Ordered probit models with clustered standard errors at the village level in parentheses. T for treatment, GC for General Category. \*\*\*, \*\*, and \* indicate significance at the 0.01, 0.05, and 0.1 level, respectively.

#### Appendix 4. Pictures of some experimental sessions

(a)



(b)



(c)



## Appendix 5. Figures

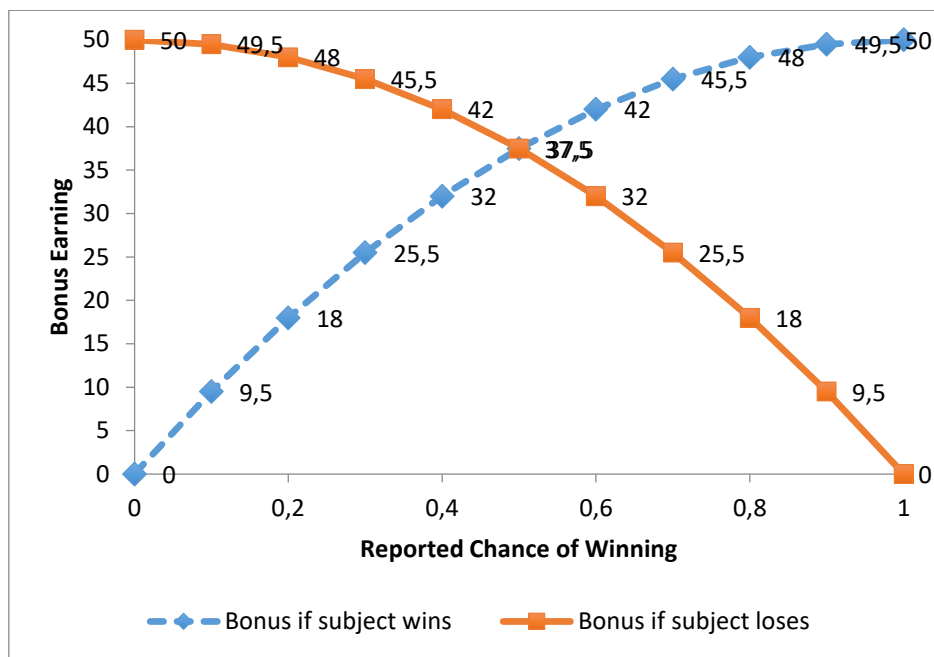


Figure A1: Proper Scoring Schedule

*Note:* Subjects reported their beliefs about their chance of winning. Depending on whether they won or lost, they received a bonus according to the scoring schedules plotted above. The amounts indicated are in INR. The  $x$ -axis represents the reported belief about the chance of winning and the  $y$ -axis represents the amount of the bonus.

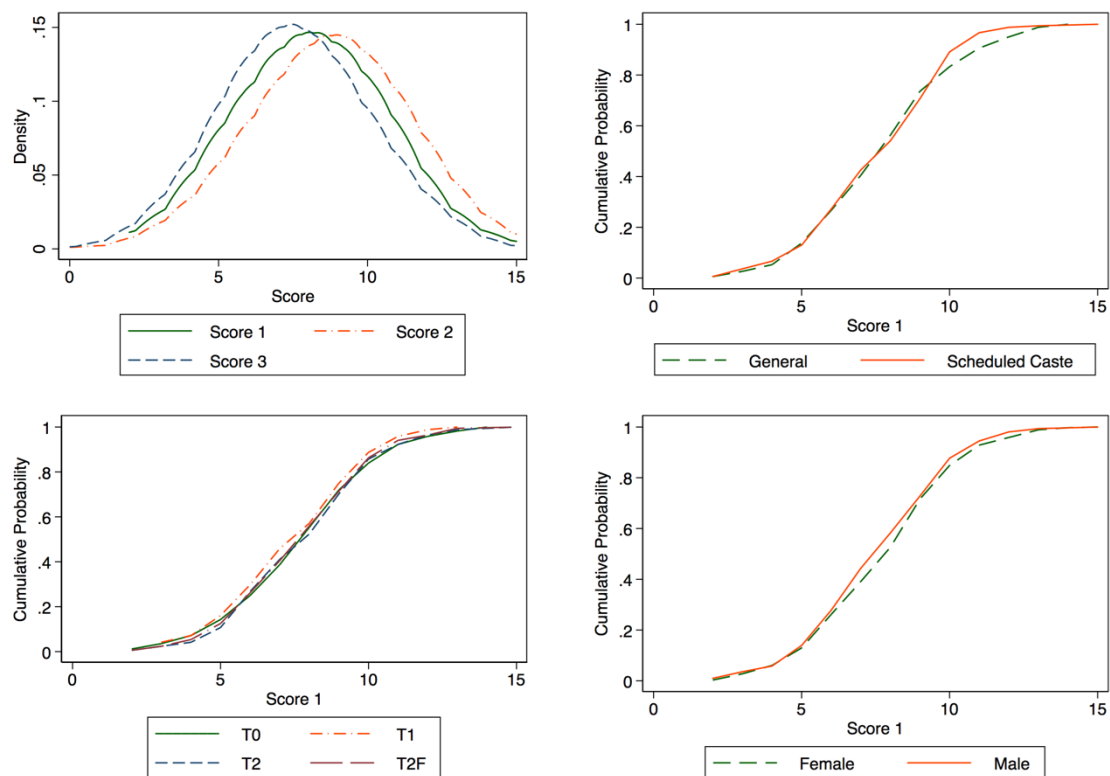


Figure A2: Distribution of scores in the memory task

Notes: The top left panel plots the distribution of the scores obtained in parts 1, 2 and 3, namely score1, score2 and score3. The mean scores are 8.06, 8.64 and 7.43, respectively. The figure in the top right panel compares score in part 1 across castes. The mean score in part 1 is 8.13 for the GC subjects and 7.98 for the SC subjects ( $t$ -test,  $p=0.40$ ). The figure in the bottom right panel compares scores across gender. Mean score in part 1 is 8.16 for males and 7.93 for females ( $t$ -test,  $p=0.30$ ). The figure in the bottom left panel plots the distribution of scores in part 1 for each treatment. Score in part 1 does not vary either between T1 and T0 ( $t$ -test,  $p=0.34$ ), or T2 and T0 ( $t$ -test,  $p=0.84$ ), or T2F and T0 ( $t$ -test,  $p=0.73$ ). All standard errors are clustered at the village level. We rely only on score in part 1 to illustrate balance across treatments since treatments can potentially affect scores in subsequent parts.

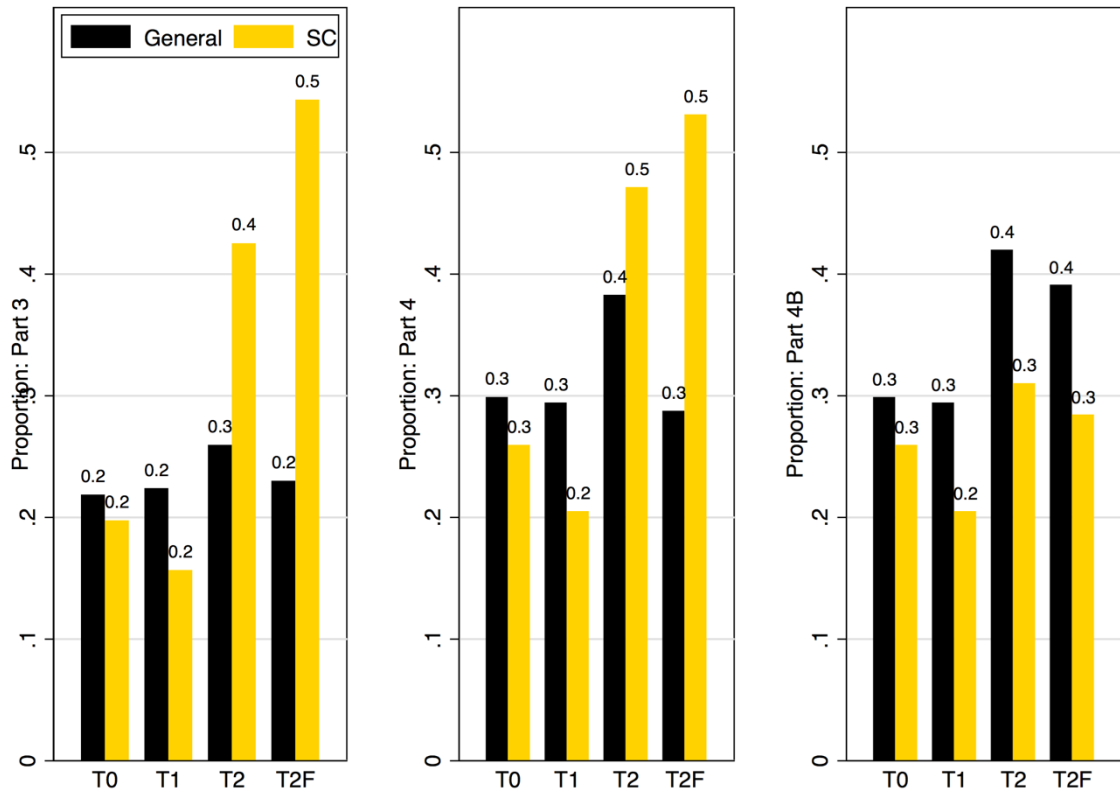


Figure A3: Relative self-confidence: prediction about being a winner

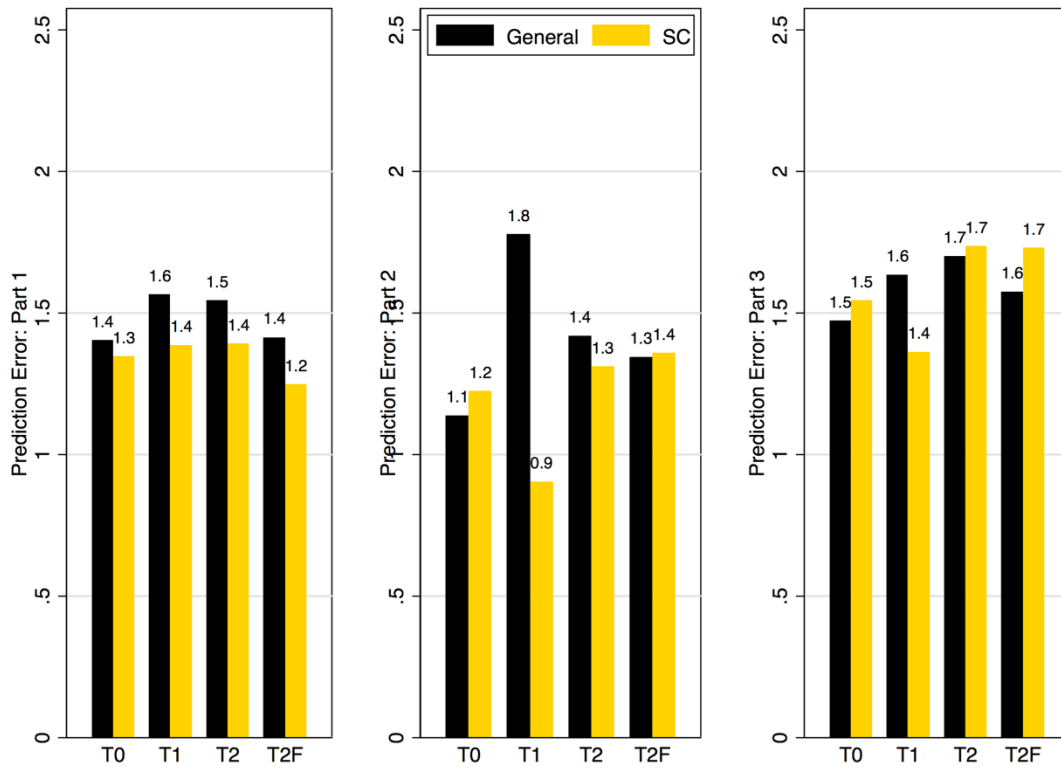
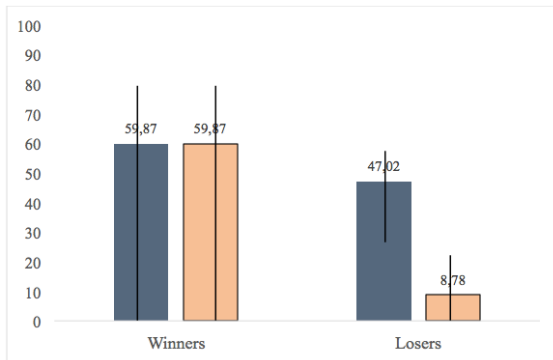


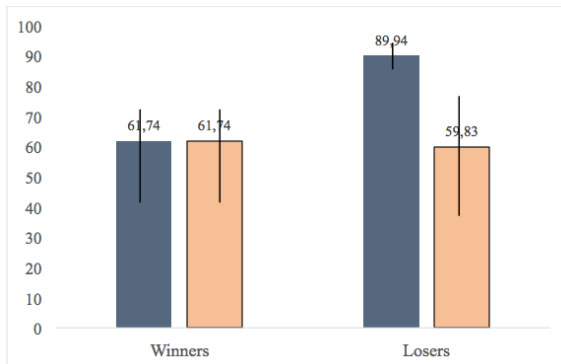
Figure A4: Absolute self-confidence: prediction errors



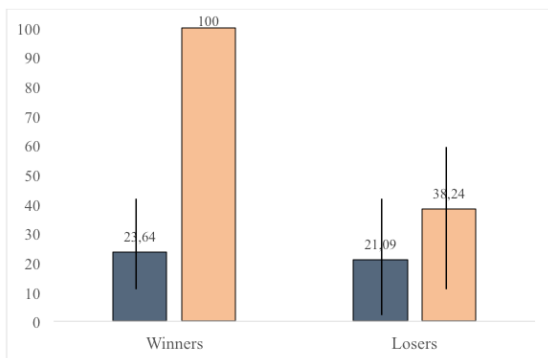
*A. General Category, aligned payoffs*



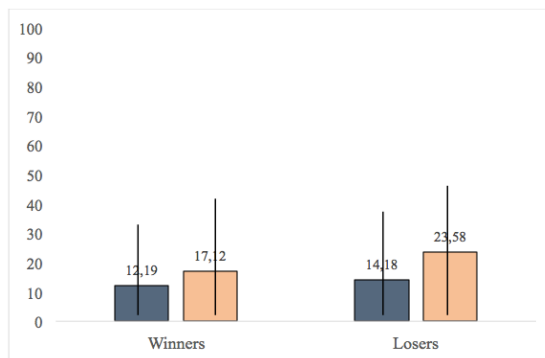
*B. Scheduled Caste, aligned payoffs*



*C. General Category, unaligned payoffs*



*D. Scheduled Caste, unaligned payoffs*



Matched subject from the same caste
  Matched subject from the other caste

Figure A5: Mean lying rates in the T2 treatment, by caste and condition (counterfactual)

*Notes:* 95% confidence intervals are indicated in each bar. Subjects were not informed on whether they were winners or losers in the T2 treatment.