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Abu Siddique
Michael Vlassopoulos

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Abu Siddique
University of Southampton

Michael Vlassopoulos
University of Southampton and IZA

ABSTRACT

Competitive Preferences and Ethnicity: Experimental Evidence from Bangladesh*

In many countries, ethnic minorities have a persistent disadvantageous socioeconomic position. We investigate whether aversion to competing against members of the ethnically dominant group could be a contributing factor to this predicament. We conducted a lab-in-the-field experiment in rural Bangladesh recruiting males from the ethnic majority (Bengali) and an underprivileged ethnic minority group (Santal) that is severely discriminated against. We randomly assign participants into groups with different ethnic composition and elicit a measure of their competitiveness. We find that when compelled to compete, there are no ethnic differences in performance and that both ethnic groups perform better in ethnically-mixed groups than in homogeneous groups. We also find that the ethnic composition of the group of competitors is an important determinant of competitive entry and its effect varies by ethnic group. Members of the ethnic minority group are less likely to compete in groups where they are a numerical minority than when all competitors are co-ethnic, whereas the reverse is true for members of the ethnic majority group. This difference is not explained by heterogeneity in performance, risk preferences, beliefs about relative ability or various socioeconomic characteristics; instead, observed behavior seems to be driven by ethnic differences in preference for interethnic competition.

Corresponding author:
Michael Vlassopoulos
Department of Economics
Social Sciences
University of Southampton
Southampton, SO17 1BJ
United Kingdom
E-mail: M.Vlassopoulos@soton.ac.uk

1 Introduction

A number of recent studies have found ample evidence of gender differences in competitive preferences (Croson and Gneezy, 2009; Niederle and Vesterlund, 2011).[1] Subsequent studies have shown that measures of competitiveness elicited experimentally can explain economic outcomes outside the laboratory such as career and educational choices, earnings and investment decisions (Buser et al., 2014; Zhang, 2013; Reuben et al., 2015; Berge et al., 2015; Flory et al., 2014).[2] Like women, ethnic minorities in many countries and contexts (e.g. African Americans in the US, Roma in Europe, indigenous people in various parts of the world) also fare badly in the labor market and are lagging behind the respective ethnically dominant group in various socioeconomic indicators. Extending the insight about the explanatory power of competitive preferences for gender differences, one could conjecture that competitive preferences might help us understand the persistent disadvantageous position of ethnic minorities. That is, if members of ethnic minority groups are reluctant to compete against members of the ethnically dominant group, they might be refraining from taking actions, such as, investing in education, applying for positions of authority or accessing scarce resources that would help them elevate their socioeconomic status. A good starting point to address these issues is to examine empirically whether differences in preferences for interethnic competition exist between the majority (dominant) and minority (subordinate) ethnic groups, which is the main aim of this paper.

We conducted a lab-in-the-field experiment in rural Bangladesh, drawing participants from the ethnic majority (Bengali) and a minority group (Santal). Bangladesh is a suitable context for our purposes, as it is home to many ethnic minority/indigenous communities that do severely poorly in several socioeconomic outcomes and are subject to exploitation and discrimination by members of the ethnic majority group.[3] In this

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[1] Findings from this growing literature suggest that women and men react to competition differently, with women exhibiting distaste for competition and performing less well in competitive environments (Gneezy et al., 2003; Niederle and Vesterlund, 2007), while a handful of studies have further provided evidence that both women and men dislike competing against men in particular (Datta Gupta et al., 2013; Geraldes, 2016).

[2] Zhang (2013) and Buser et al. (2014) find that students who are more inclined towards competition are more likely to take competitive high school entry exams and opt to choose prestigious study tracks. Also, exhibiting competitive tendencies in the lab has been shown to be associated with higher (expected and actual) earnings and working in high-paying industries (Reuben et al., 2015, 2017), as well as investing more in businesses in the field (Berge et al., 2015). Finally, Flory et al. (2014) provide field experimental evidence that women are less likely to apply for jobs in which compensation is based on relative performance.

[3] See, for example, AIPP (2007) and Roy (2012) for unfair treatments of ethnic minorities in Bangladesh. We describe these in detail in Section 2.

environment, it is very likely that the two ethnic groups are indoctrinated from a young age to form opposing stereotypes regarding non-co-ethnic members: Santals grow up to believe that they are inferior to the majority ethnic group, while the latter are nurtured to look-down-upon the minority group.[4] Consequently, this socialization process could shape the norms surrounding interethnic interactions, including attitudes towards engaging in competition with each other. Indeed, recent studies have shown that culture, socialization, the local environment, social and economic institutions and even local work experiences play significant role in the shaping of competitive preferences (Gneezy et al., 2009; Booth and Nolen, 2012; Cárdenas et al., 2012; Andersen et al., 2013; Leibbrandt et al., 2013; Zhang, 2015; Booth et al., 2016). We, thus, expect that given the ethnic background of our setting, the two ethnic groups will have developed tastes for interethnic competition that mirror the clear hierarchical relationship that exists between them.

In the experiment, we randomly assign participants into groups of six, and we obtain a measure of their competitive preferences following the design of Niederle and Vesterlund (2007). In particular, we first ask our participants to perform a simple manual task (separating lentils from rice) under a piece-rate and then a competitive compensation scheme (winner-take-all tournament). In a third stage, we ask them to select their preferred compensation scheme, which reveals their preferences with respect to competition. Our experimental design involves three treatment groups: a *homogeneous* group where subjects are all co-ethnics, a group where ethnic minority people are a numerical *minority* (2 to 4), and a 'reversed' group where ethnic minority people are a numerical *majority* (4 to 2). Ethnicity in our context is easily identifiable by physical markers and hence is unambiguous. Thus, even though ethnic composition was never discussed in the course of the experiment, our subjects could easily identify the ethnicity of their group members and hence the ethnic composition of their group. We expect that while there should not be an overall difference in competitive inclination towards co-ethnics across the two ethnic groups, in ethnically diverse groups, we would see ethnic differences in preferences for engaging in competition.

We find that in the compulsory tournament stage, there are no ethnic differences in performance and that both ethnic groups perform better in ethnically-mixed groups than in *homogeneous* groups. This suggests that participants are more willing to internalize the negative externality their effort imposes on a group of co-ethnics under a

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[4]Tribal minorities are seen as 'inferior races' by the ethnic majority (Hardiman, 1987; Bal, 2007), which is believed to be a product of multi-generational socialization process (Barndt, 2007). On children internalizing socialized lies regarding superiority and inferiority, Joseph R. Barndt (2007, p. 125) says, "...If I am consciously and unconsciously taught from the moment of my birth that I am inferior (superior) and a member of an inferior (superior) race, I will believe and act according to this message."

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relative performance incentive scheme and is consistent with previous lab and field evidence of an in-group bias in people's social preferences (Bandiera et al., 2005; Chen and Li, 2009). We also find that ethnic composition of group of competitors is an important determinant of self-selection into the competitive scheme is stage 3. Despite the fact that overall competitiveness is similar across ethnic groups, group composition affects tournament entry decisions by members of the two ethnic groups differently. When compared to choices made in *homogeneous* groups, members of the ethnic minority show a distaste for competition in groups where they are a *minority*, whereas ethnic majority members demonstrate a preference for competition in groups where they are a *minority*. To be more precise, ethnic minorities are 25 percentage points less likely to compete in groups where they are a *minority* (decrease of 60 percent) than when all competitors are co-ethnic, whereas ethnic majorities are 22 percentage points more likely to compete in groups where they are a *minority* (increase of 80 percent) than when all competitors are co-ethnic. We show that these patterns are not explained by heterogeneity in task proficiency, risk preferences, beliefs about relative ability on the task, or a host of demographic characteristics. Hence, our study points to participants from the two ethnic groups having a genuinely different attitude toward entering competitive environments in which the pool of potential competitors is multiethnic.

Beyond the literature on competitive preferences mentioned above, our study connects to the literature on social identity, the formation of stereotypes and their impact on behavior that has a long history in psychology and sociology (Tajfel, 2010; Greenwald and Banaji, 1995; Steele and Aronson, 1995; Shih et al., 1999). In economics, the seminal paper by Akerlof and Kranton (2000) introduces a theoretical framework that connects social identity based on social differences, e.g. race, class, ethnicity, etc. with economic behavior and outcomes. More recently, experimental studies have shown that making ethnic or racial identity salient affects risk and time preferences (Benjamin et al., 2010), and induced group identity affects social preferences (Chen and Li, 2009). Furthermore, a few more recent studies have shown experimentally that social identity can affect the performance of a deprived group or the treatment that they receive from out-group members. In particular, two related studies of caste in India find that publicly revealing the social identity of the lower-caste diminishes their performance in a cognitive task (Hoff and Pandey, 2006, 2014), while Afridi et al. (2015) find similar effects for rural workers in China. Finally, Fershtman and Gneezy (2001) find that behavior in experimental games (trust, dictator, ultimatum game) conducted with opponents from different ethnic groups in Israel to be consistent with ethnic stereotypes. Our results extend this line of research by showing that ethnic group identity (majority or minority)

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matters for one's willingness to engage in interethnic competition.

This paper is organized as follows. Section 2 provides background on the ethnic minority group studied. Section 3 describes the design of our study and the hypotheses to be tested. In Section 4, we present our results. Section 5 concludes.

2   Background on Ethnic Groups in Bangladesh

In Bangladesh, besides the ethnic majority group (Bengali) there are around 45 different indigenous/tribal communities that constitute about 2 million of the country's total population of 150 million, including many of the country's extreme poor (IMF, 2013; People's Republic of Bangladesh, 2016). These groups are culturally, racially, ethnically and linguistically distinct from the majority Bengali population, and are the most persecuted of all minorities.[5] They have restricted access to basic social services such as health, food and nutrition, education, employment, justice and politics (AIPP, 2010; Roy, 2012; IMF, 2013), and are subject to extortion by the ethnic majority land grabbers (Roy, 2012). They also receive unfair prices for their products (AIPP, 2010) and have been at the receiving end of crimes for generations (Roy, 2012; D'Costa, 2014). Illegal dispossession of tribal people from their lands is widespread (in both Bangladesh and India) where the dispossessed receive nominal to no compensation in some instances, even though the State Acquisition and Tenancy Act 1950 (Section 97, 1950) strictly prohibits alienation of such lands. Figure 1 illustrates the geographic concentration of the tribal population in Bangladesh.

Ethnic minority participants in our study are entirely comprised of people who identified themselves as Santals - the second most populous tribal community in Bangladesh.[6] Santals predominantly reside in Rajshahi, Dinajpur, Chapai Nawabganj and Borgra districts in the north-western region of Bangladesh, although the largest portion of Santals lives in Jharkhand of India (Ali, 1998; Cavallaro and Rahman, 2009; Ahmed, 2010). Like the ethnic majority people in Bangladesh, Santals also follow patriarchy (Upadhyay and Pandey, 1993). They have their own tribal religion (worship a Supreme Deity called *Thakur*) (Risley, 1891), although many also follow Hinduism or Christianity; the ethnic majority Bengali, however, follow Islam (86.6 percent) (People's Republic of Bangladesh, 2016). The majority of Santals are involved in farming, working for landlords as day

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[5]Tribal people in India face similar treatments by the ethnic majority population (Kijima, 2006; Shah, 2007; Bhengra et al., 1999).

[6]Three of the most populous tribal communities in Bangladesh are the Chakma, the Marma and the Santal; the former two are usually known as 'hill-people' (live in high altitudes) and the latter is known as 'plains-dwelling' (live in the plains).

Figure 1: Map of Bangladesh
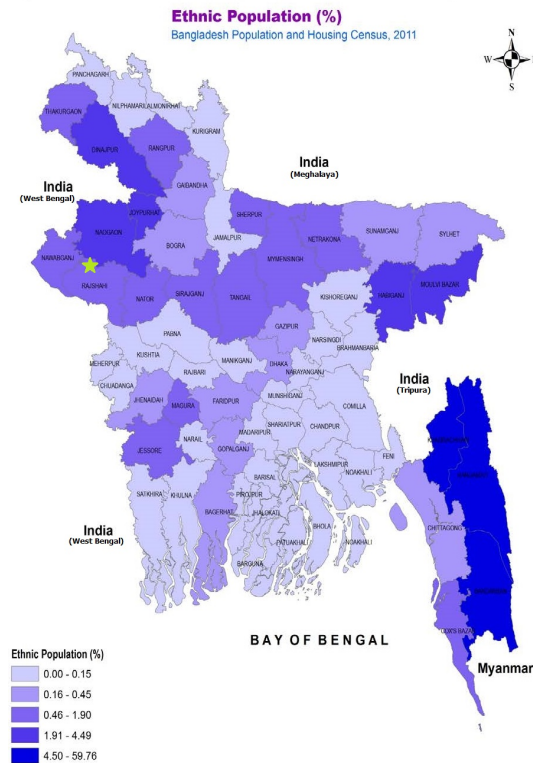
laborers as most of them are landless (Ali, 1998). They speak Santali language within their community, though they learn to speak Bangla to communicate with the ethnic majority population. One of the first and oldest accounts of ethnic origins and physical characteristics of Santals by Herbert H. Risley (1891, p. 225) describes them as "pure Dravidians", having very dark and "...almost charcoal like" complexion, "large mouth" and "thick lips".[7] They are among the poorest tribal groups and are severely disadvantaged in terms of employment, land ownership and education (Cavallaro and Rahman, 2009; Samad, 2006). In schools, Santal children face discrimination and physical abuse from their teachers and classmates, e.g. Bengali classmates avoid sitting beside their Santal peers in classrooms, which results in dropouts from schools at a very young age (Samad, 2006; Sarker and Davey, 2009). Their lack of literacy is considered one of the major reasons for easy forgery and illegal dispossession by the ethnic majority popula-

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[7]These features are different than that of the ethnic majority, which makes their ethnicity easily identifiable. See Risley (1891, p. 224-235) for a more detailed explanation of physical characteristics and ethnic origins of Santals. Also, see Orans (1965) and Ali (1998) for more details on customs and lifestyle of Santals.

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tion ([Sarker and Davey](), [2009]()). In this regard, [Cavallaro and Rahman]() ([2009](), p. 204) stated:

"... in Bangladesh the Santals face discrimination from the majority community, and the Bangla speaking population and the government has done little to help the Santals protect themselves from the continuous land grabbing and dispossessions. Indeed there is a feeling among the minority people of Bangladesh that they are continuously being overlooked in favor of the majority group in all facets of life. These include employment opportunities and education. These issues have led to a deep sense of social insecurity."

3 The Experiment

3.1 Recruitment and Procedures

We conducted a lab-in-the-field experiment ([Gneezy and Imas](), [2016]()) in the summer of 2016 in six different multi-ethnic villages in the Rajshahi district of rural Bangladesh. We recruited our participants from the two distinct ethnic groups that populate these villages: the ethnic majority Bengali and the ethnic minority Santal. In total, 252 male adults of equal proportion from the two ethnic groups participated in our experiments. Our subjects came from fourteen different multi-ethnic villages; although multi-ethnic, segregation within villages is commonplace, as Santal/Bengali houses cluster around their co-ethnics (each cluster is known as a *para*) ([Ali](), [1998]()). In these villages, 19 percent of the population (and households) are Santals whereas the rest are the ethnic majority Bengali.[8] Also, exogamy or interethnic marriages are not prevalent. People tend to work collectively with their co-ethnics, i.e. generally with family, extended family or relatives, but not with their non-co-ethnic fellow villagers. Since all villagers are considerably poor and do not posses the capacity to hire others for work, members of one ethnic group do not employ members of the other; hence, personal and professional attachments are trivial among members of the two ethnic groups.

Participants were recruited through in-person advertisements: experiment helpers of both ethnicities visited random marketplaces, houses, and crop fields, and advertised our experiment by reading out an experiment advert. Through the advert, people were informed about the pecuniary incentives involved, the conditions for participation and the location for registration. Initial registration was carried out in seven different locations where we also set up our laboratories. During registration, participants were only asked to provide their full name, age, and ethnicity. Prospective subjects also had the

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[8]We obtain these figures from the Household Survey Report 2012 assembled by *Ashrai*, an NGO.

option to choose their preferred location and time for a session from seven different location options. All people chose their initial registration location as their preferred location for their experiment session. This was expected because all seven of our locations are quite far from one another, which was intentionally done to minimize contamination. Furthermore, people were also expected to know each other because our villages are small, so some degree of social networks within and across ethnic groups were expected.

After the initial registrations were complete, potential subjects were given a piece of paper that contained their name, age, and ethnicity, which they were asked to bring to the laboratory. Registration was done on a first-come-first basis, so people who were registered were all invited to the experiment and any 'extra' arrivals at the registration desk were asked to go to our next registration location on another day to register for a session. In total, 296 people were initially registered (four extra for each session). In the experimental sessions, participants were also enrolled in the lab on a first-come-first basis. Four over-recruited individuals for each session were asked to leave with a show-up fee. All people who initially registered arrived at the lab on time.

The location of each lab was a central place in the village, e.g. either primary schools, churches or public office spaces. Upon arrival, participants were asked to form a queue outside the lab, on a first-come-first basis. Five minutes prior to the experiment's start time, participants were asked to enter the lab and report to the enrolment table, one by one. At enrolment, they were asked to hand in their initial registration paper as well as state their full name and ethnicity, and then based on that information, they were asked to pick their ID numbers from a bowl. In order to ensure that we had the desired number of Santals and Bengalis in each group, we prepared two bowls with ID numbers; one for Santals, in which IDs were matched with seats that were only for Santal participants, and another for Bengali participants. After randomly picking their ID numbers, they were taken to their respective seats by our assistants.

3.2   Experimental Design

The experiment follows the standard experimental protocol of eliciting competitive preferences developed by Niederle and Vesterlund (2007). We introduce two main changes: (i) we implemented a different task that is more appropriate for the participant pool in hand, and (ii) we manipulated the ethnic composition of the groups to which participants were randomly assigned to, in order to test for whether the ethnic affiliation of competitors matters for willingness to compete.

The task used in this experiment was separating red lentils from white rice grains. Specifically, each person received a bowl with a mixture of rice and lentils, and another

empty bowl to place the separated lentils.[9] We used red colored bowls for separated lentils so that color of lentils matches with the bowl and make it difficult for our subjects to count/guess the other person's score. Each separated lentil won participants points, while each rice grain picked along with lentils made them lose points. Hence, performance is measured by the number of lentils minus any rice grains placed in the red bowl. This task was selected because it was very simple to explain and implement. Since most of the participants were uneducated and from the unskilled labor force, with the majority of them working as farmers, a task involving everyday grains and pulses was comprehensible to our average participant. In addition, this task was ethnicity neutral (as was found in a pilot and further established in the first stage of the experiment), so no differences in ability were expected across ethnicity. Furthermore, our subjects were all men coming from patriarchal societies where women are mostly considered homemakers and are involved in cooking, so men were expected to know very little about cooking and hence sorting rice and lentils. So, this task was completely new to our subjects, as also confirmed in the exit survey. See Appendix B for a detailed explanation of the task and experimental instructions.

Each session lasted about ninety minutes and was attended in equal proportions by members of the two ethnic groups. Therefore, by design, our sample is balanced across ethnicity in all sessions and the experiment overall.

Participants were assigned to groups of six and each session had four groups in total. Thus, twenty-four participants in total participated in each session, of which half were Santals and half Bengalis.[10] In the lab, there were four big rectangular tables with six chairs around, so each group was assigned to a table. By varying the ethnic composition of a group, our design involves three group treatments: *homogeneous*, *majority*, and *minority*. A *homogeneous* group was composed of participants from a single ethnicity, i.e. either they had six Santals or six Bengalis in the group. Mixed groups comprised participants of both ethnic identities. They either had two Santals and four Bengalis (i.e. a group where Santals are a numerical *minority*) or four Santals and two Bengalis (i.e. a group where Santals are a numerical *majority*). Moreover, in mixed groups, a minority member of that group was always seated next to or in front of their ethnic peer. For example, a Bengali in a *minority* group was always seated next to or in front

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[9]The mix was always one-fifth lentils and four-fifth rice in terms of volume. Since lentils are smaller and lighter than rice grains, this ratio gave us a near fifty-fifty ratio of numbers of rice and lentils in each bowl.

[10]The only exception was one session where there were twelve participants in mixed groups, a Santal-majority (where Santals are a numerical *majority*) and a Santal-minority (where Santals are a numerical *minority*).

Figure 2: Group Composition in Each Session
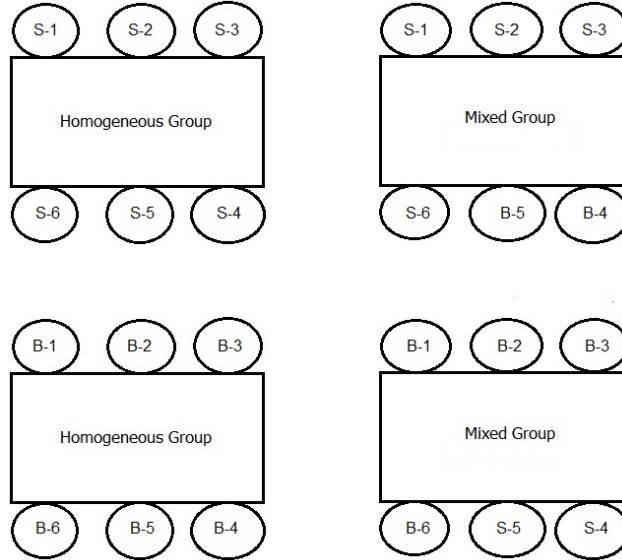
Note: S is for Santal and B is for Bengali; Numbers 1-6 correspond to the last digit of a subject's ID.

of another Bengali.[11] Figure 2 depicts the arrangement of participants and groups in each session.

To sum up, in each session, there were two *homogeneous* groups, one with all Santals and another with all Bengalis; and two mixed groups, one with Santals as a numerical *minority* and another with Santals as a numerical *majority*.[12] These ethnic compositions were never discussed with or revealed to participants, and the ethnicity of participants was never made salient before or during the experiment. However, participants could see each other and hence could identify the ethnicity of their group members. Later, in the exit survey, we asked our subjects about ethnic identities and compositions of their groups to ensure correct identification.

After having seated, participants were asked to remain silent and then the instructions were read aloud. All instructions were translated from English into the local common language, Bangla, and were also back-translated to evaluate the equivalence of meaning between both instructions.[13] After having read out the instructions, participants were asked to raise hands if they had any questions or doubts. To ensure participants had understood all compensation schemes perfectly, at the end of each in-

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[11]Only exception was in group 1 in the first session where the numerical minority members were not seated adjacently. This occurred due to a swap of two ID numbers in the ID bowls by mistake.

[12]Only in one session there were two mixed groups.

[13]All Santal participants were fluent in Bangla, so only Bangla instructions were used. We confirmed their fluency and their understanding of Bangla during the initial registration.

struction, a range of frequently asked questions and their answers were also read out to participants. They were advised to listen to them very carefully and were told to raise hands if they had any questions or doubts. Then, after answering any questions, the experimenter asked the participants to rub their hands twice and then gave the signal to start the task. After 60 seconds, participants had to stop performing the task and immediately put their hands up (the same as when someone is called to surrender).[14] Participants were informed at the start of the experiment that they would perform the task in three stages and one of these stages would be randomly chosen for payment. Additionally, participants received detailed instruction on each stage only prior to performing the task in that stage and were never given feedback on absolute or relative performance between stages. At the end, participants were told how well they had done in each stage, but they were not informed about their relative performance. The incentive structure of each stage is laid out below.

- *Stage 1: Piece-rate* Participants performed the task for 60 seconds and received a piece rate of 5 Takas for each separated lentil.[15]

- *Stage 2: Tournament* Participants performed the task for 60 seconds. Only the group member with the highest lentil count would receive payment, while others in the group would receive no payment. For each separated lentil (net score) the winner received 30 Takas. In the case of ties, winning amounts were divided equally among winners.

- *Stage 3: Choice* Before performing the task, participants chose which of the two compensation schemes would be applied to their performance in this stage. If a participant were to choose piece-rate, then he would receive 5 Takas for each separated lentil. However, if a participant chose tournament, then he would receive 30 Takas for each separated lentil only if his stage 3 score exceeded the stage 2 scores of his five group members.

Note that performance of those who opted to compete in stage 3 was evaluated

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[14]The gesture of rubbing hands before performing the task ensured that no one was cheating by hiding lentils in their hands. Likewise, putting hands up after completing the task ensured all subjects took equal time. Also putting hands up diverted their attention towards performing the action and look at others who have done it, and away from checking other group members' scores right after completing the task, which gave our assistants enough time to move the bowls away from their sights.

[15]The Bangladeshi currency is called Taka (pl. Takas). USD 1 was equal to 80 Takas during the time of the experiment.

against those who had already competed under the competitive compensation scheme in stage 2. Therefore, beliefs regarding choices of others in stage 3 would not affect someone's decision to enter into competition. Moreover, choice of entering into competition would not affect payments of other participants, which ruled out the possibility of imposing negative externalities on others by winning in stage 3 (Niederle and Vesterlund, 2007). In addition, it also ensured that consequences, such as fear of being punished by other group members outside the lab would not affect choice.

It should also be mentioned that all assistants were male Bengalis working as anthropology researchers (who were well respected among villagers) from a local public university in collaboration with a local NGO, which was also well respected and trusted for providing micro-loans, eradicating poverty and fighting for human rights for the needy. We can thus be confident that behavior of Santals would not be affected by fear of being discriminated by experimenters in terms of payment.

3.3 Confidence and Risk Preferences

The decision to enter into competition in stage 3 could be affected by individuals' beliefs about their relative performance in their group. So, to control for this we elicited these beliefs for performance in stage 2, the compulsory tournament stage, paying participants for correct reports.[16] Another important factor that might affect one's willingness to compete in stage 3 is attitudes towards risk. We elicited risk attitudes through a standard risk game (Gneezy and Potters, 1997; Gneezy et al., 2009), immediately after completing stage 3.[17]

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[16]Immediately after stage 2, we randomly asked our participants to go to the registration desk, one by one, where we showed them a picture with six heads. Heads were arranged vertically where the topmost head represented the 'best' (or rank 1) and that at the bottom represented the 'worst' (or rank 6) performer in stage 2. Participants only had to point to a head with their finger, and then return to their respective desks. They received 50 Takas if their guesses were correct and no money if incorrect. See Appendix B for the heads' arrangements.

[17]In this one-shot independent game, we asked our subjects to bet a proportion [0, 100] of their endowment of 100 units, or 20 Takas, into a lottery. The bet had a fifty-fifty chance of winning which was determined by a coin toss. Subjects received six times the amount invested if there was a head but lost the bet money if there was a tail. If the proportion of the bet was less than 100 percent, then subjects received the remaining un-bet amount, irrespective of the coin-toss outcome. Following Gneezy et al. (2009), stakes in the risk game overlap the stakes in the competitiveness game, wherein the initial endowment is equivalent to the payment for separating four lentils under the piece-rate scheme. Likewise, the maximum payoff is equivalent to the payment for separating the same amount of lentils under the tournament scheme. After the instruction was read aloud, subjects were asked to raise hands if they had any queries. Then, after clearing any confusions, the experimenter asked the subjects to go to the registration desk, one by one, in random order, where they were asked to state their risk choices. The coin toss was performed immediately after a bet was placed and the outcome of the toss was always confirmed by the subject. See Appendix B for the Risk Game instructions. Registration desks were located outside the lab room (though on few occasions it was inside when the room was large enough),

3.4 Exit Survey and Payment

After completing the risk game, participants were asked to go to an assistant to complete an exit survey. For each subject, we obtained data on their socioeconomic background and some other individual level data, namely marital status, the level of intercultural competence, land possessions, handedness and so on. In addition to money earned from the games, each subject received a show-up fee of 100 Takas. For 90 minutes of their time, our average subject earned about 1.5 times more (320 Takas) than their average daily income (207 Takas) and six times more than the daily national minimum wage (Minimum Wage Board Bangladesh, 2015). At the end of the experiment, participants were paid in cash, individually and in private.

3.5 Hypotheses

We formulate three hypotheses. The first hypothesis concerns performance in the first stage of the experiment. Since our study is concerned with ethnic differences in preferences for competing on a task, it is important that the chosen task is not associated with an ethnic stereotype attached to a specific group. Indeed, we selected a simple manual task that was expected to be novel and neutral to participants of both ethnicities and hence we do not expect (and pretests confirmed this) to see any ethnic differences in performance in the first stage of the experiment.

Hypothesis 1: There is no difference in performance across ethnic groups in the piece-rate stage.

Our second hypothesis concerns performance in the tournament stage. Here, we expect participants to perform differently in homogeneous and mixed treatments. This is because under a tournament scheme an individual's effort negatively affect others, so subjects are more likely to internalize the negative externality their effort imposes on a group of co-ethnics as opposed to that of non-co-ethnics (Bandiera et al., 2005).

Hypothesis 2: In the tournament stage, performance would be lower in homogeneous treatment than in mixed treatments.

Our last hypothesis, concerns behavior in the third stage. Given the power structure that connects the two ethnic groups, we expect the ethnic minority Santals to respond differently to the ethnic composition of potential competitors than the ethnic

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so other subjects could not see or hear any risky choices and outcomes that were made at the desk. Hence, choices for risky bets were individual decisions that did not affect decisions or payoffs of others, which is analogous to the mechanism of making choices in stage 3.

majority Bengalis.

Hypothesis 3: (i) Santals would be less willing to compete in mixed treatments; (ii) Bengalis would be more willing to compete in mixed treatments.

This hypothesis is consistent with the evidence from the literature on gender differences in competitive preferences, which has found that the gender of a competitor significantly affects one's inclination towards competition (Booth and Nolen, 2012; Datta Gupta et al., 2013; Geraldes, 2016).

4   Results

4.1   Participant Summary Statistics

Table 1 presents summary statistics of the participants' characteristics that we collected through the exit survey by ethnic group. The average age of our participants is around 36 years, the average education attainment is in the range of 5-6 years, and around 80 percent of the participants were married at least once. None of these characteristics is significantly different across the two ethnic groups. However, the average daily income and land possessions of Bengalis are significantly higher than those of Santals. It means that, as expected, Santals are rather poorer and from a lower social class, as land holdings are good indicators of one's social status in a village (Rao, 2001). Another good indicator of socioeconomic status is one's family background. Santal parents are significantly less educated and their fathers' earn less than Bengali fathers, while the opposite is true of their mothers.[18] Note, however, that these comparisons rely on information on parental income reported by only about half of participants.

With regards to the occupation of participants, around 60 percent of Bengalis and 80 percent of Santals engage in farming; this difference is statistically significant according to a Pearson's Chi-Squared test (CS-test hereinafter) ($p < 0.01$). The rest are either students, owners of small businesses or working in other non-farming areas such as weaving baskets, making bamboo furniture and so on. In terms of income, farmers earn significantly less than non-farmers according to a two sided Mann-Whitney U test (MW-test hereinafter) ($p < 0.01$).[19]

Almost all participants were able to correctly identify the ethnicity of members in

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[18]This difference may be explained by the fact that Bengali women (who are Muslims) are mostly homemakers and hence might engage in paid-work less than Santal women.

[19]It should be noted that, since students have no income and are better educated than individuals who are working, income and education have a negative relationship in our sample. In addition, the majority of farmers work as day laborers for a fixed daily wage, which is independent of educational attainment.

Table 1: Participant Characteristics and Beliefs

Individual Characteristics & Beliefs	Bengali Mean (*Std. Dev.*)	Santal Mean (*Std. Dev.*)	MW-test *p*-values	T-test *p*-values	N
Age	34.59 (*13.95*)	37.04 (*14.15*)	0.106	0.167	252
Education	5.58 (*4.57*)	5.37 (*4.58*)	0.626	0.711	252
Profession	0.58 (*0.50*)	0.77 (*0.42*)	0.001	0.001	252
Daily Income	232.9 (*200.5*)	179.9 (*77.61*)	0.059	0.007	250
Land Possession	17.89 (*39.65*)	12.07 (*33.40*)	0.049	0.209	252
Marriage	0.79 (*0.41*)	0.83 (*0.37*)	0.337	0.338	252
Mother's Education	2.43 (*2.96*)	0.56 (*1.75*)	0.000	0.000	211
Father's Education	2.51 (*3.33*)	1.54 (*3.02*)	0.021	0.033	201
Mother's Income	583.3 (*1,571*)	1,551 (*1,908*)	0.000	0.002	138
Father's Income	6,578 (*3,692*)	4,434 (*2,205*)	0.000	0.000	111
Mother's Profession	0.17 (*0.38*)	0.53 (*0.50*)	0.000	0.000	211
Father's Profession	0.89 (*0.31*)	0.93 (*0.25*)	0.320	0.315	188
Parents' Income	7,162 (*3,830*)	6,330 (*3,358*)	0.386	0.243	104
Parents' Education	5.01 (*5.54*)	2.12 (*4.39*)	0.000	0.000	200
IC Competence	0.48 (*0.27*)	0.88 (*0.21*)	0.000	0.000	252
Know Other Participants' Name	4.31 (*0.86*)	4.34 (*0.87*)	0.695	0.824	240
Met Group Members Before	0.93 (*0.26*)	0.86 (*0.35*)	0.067	0.067	252
Identify Ethnicity of Other Group Members	0.98 (*0.13*)	0.99 (*0.09*)	0.562	0.563	252

Note: All educations and age are in years; all professions are dummy variables where 1 equals farming and 0 otherwise; apart from Daily Income, all other incomes are monthly (in Bangladeshi Taka); Land Possession is the amount of land owned in 'katha', where 1 katha = 720 square feet; Marriage is a dummy variable where 1 equals married (at least once) and 0 otherwise; Parents' Education and Income are accumulated education and incomes of mothers and fathers; IC Competence is the level of inter-cultural competence among Santals and Bengalis, where 0 means no knowledge about the other ethnic group, 0.25 means some knowledge, 0.5 means good knowledge, 0.75 means very good knowledge and 1 means excellent knowledge; Know Other Participant's Name shows the number of group members' names a participant knew, where 5 implies knowing everyone's name and 0 means not knowing anyone's name; Met Group Members Before is a dummy variable that shows the proportion of individuals who have met/known their group members from before; Identifying Ethnicity of Other Group Members is a variable that shows the proportion of individuals who could identify all their group members' ethnic identities correctly; MW-test is a two sided Mann-Whitney U test and T-test is a two-sample t-test with unequal variances.

their group and hence the ethnic composition of their group,[20] while around 50 percent

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[20]Only three participants could not identify the ethnicity of at least one of their group members.

of our subjects knew all five names of their group members and around 80 percent knew at least four of them. There is no significant difference in these measures across ethnic groups (MW-test $p = 0.57$ and $p = 0.70$ respectively). We also asked participants some questions to assess their knowledge of the other ethnic group's culture. We call this the level of intercultural competence (Fantini, 2010).[21] There is a significant difference in intercultural competence across ethnic groups (MW-test $p < 0.01$), with the Santals displaying significantly better knowledge about their non-co-ethnic peers. All background characteristics, and in particular the ones that differ across ethnicity that we have underlined here, will be directly controlled for in our regression analysis.

We next turn to experimentally elicited characteristics. In terms of beliefs regarding relative performance in the tournament stage, we compute the perceived probability of winning the tournament in stage 2 following Sutter et al. (2016). We construct a dummy variable which equals 1 if a subject has reported a perceived rank of either 1 or 2 for his own performance in stage 2 and 0 otherwise. One's perceived probability of winning in the compulsory tournament can be a proxy for the probability of winning in the discretionary tournament in stage 3, assuming no expected increase in ability from stage 2 to 3. There are no significant differences across group compositions and ethnic groups in this measure (CS-test $p > 0.10$ for all). See Table 1 in Appendix A for the summary and test results. Summary of guessed ranks is available in Table 2 in Appendix A.

Finally, Table 2 summarizes elicited risk attitudes by ethnic group. The two ethnic groups demonstrate almost identical attitude towards risk (CS-test $p = 0.543$).[22] We also control for these elicited attributes in our regression analysis.

Excluding these three participants from our analysis does not affect the main results of the paper.

[21]Our questions are a very simplified version of Fantini's intercultural competence assessment questions, focusing only on the 'awareness dimension' of individuals. During the exit survey, we asked four simple questions regarding the opposite culture and produced a score from 0 to 1 for each participant, by assigning 0.25 to each correct answer.

[22]Since the Risk Game was conducted as a separate 'bonus' game which took place immediately after the main game ended, participants knew they were not part of their group any longer prior to making risky investment decisions. Also, participants made their risky decisions individually and away from their group table, so group composition should not have affected their behavior. However, test results suggest otherwise. Between ethnic groups tests show that Santals, who were in a *homogeneous* treatment, invested significantly more than Bengalis (CS-test $p = 0.011$); investments in other groups, however, were not significantly different between ethnicity (CS-test $p > 0.10$ for all other groups). Likewise, within ethnic groups tests show that Santals from the *homogeneous* treatment invested significantly more than their co-ethnics in *majority* and *minority* treatment groups. Although among Bengali subjects, all investments were equal (CS-test $p > 0.10$ for all).

Table 2: Summary of Risky Investment

Panel A: Compares Risky Investment Between Ethnic Groups

	Bengali (Std. Dev.)	N_B	Santal (Std. Dev.)	N_S	MW-test p-values	CS-test p-values
Proportion Invested	**0.85** (*0.23*)	**126**	**0.88** (*0.22*)	**126**	**0.219**	**0.543**
Homogeneous	0.81 (*0.26*)	60	0.93 (*0.20*)	60	0.002	0.011
Majority	0.91 (*0.20*)	44	0.83 (*0.24*)	44	0.095	0.402
Minority	0.85 (*0.23*)	22	0.85 (*0.24*)	22	0.823	0.597
Mixed	0.89 (*0.21*)	66	0.84 (*0.24*)	66	0.231	0.631

Panel B: Compares Risky Investment Within Ethnic Groups

	Group Treatment		Group Treatment	MW-test p-values	CS-test p-values
Bengali	Homogeneous	*vs*	Majority	0.052	0.136
	Homogeneous	*vs*	Minority	0.749	0.420
	Majority	*vs*	Minority	0.180	0.253
	Homogeneous	*vs*	Mixed	0.114	0.280
Santal	Homogeneous	*vs*	Majority	0.006	0.025
	Homogeneous	*vs*	Minority	0.047	0.073
	Majority	*vs*	Minority	0.729	0.879
	Homogeneous	*vs*	Mixed	0.005	0.022

Note: 'Proportion Invested' is the proportion of endowment invested in the risky lottery; Mixed group combines risky investments of both *Minority* and *Majority* group treatments; N_B is the sample of Bengali and N_S is the sample of Santal.

4.2 Performance in Stages 1 and 2

Summary statistics of performance in stages 1 and 2 and tests of the equality of means and distributions across ethnic groups and treatments are presented in Table 3. Overall, when comparing performance across ethnic groups, there are no differences in either stage. The same is true when we make interethnic comparisons of performance for each treatment separately (Panel A of Table 3), with the exception of the *majority* treatment in stage 1, in which Bengali subjects perform better than Santal subjects, though the difference is marginally significant (MW-test: $p = 0.054$). Thus, we confirm that there are no significant differences in ability to perform the task across the two ethnic groups.

Figure 3: Performance: Comparing Performances Within Ethnic Groups
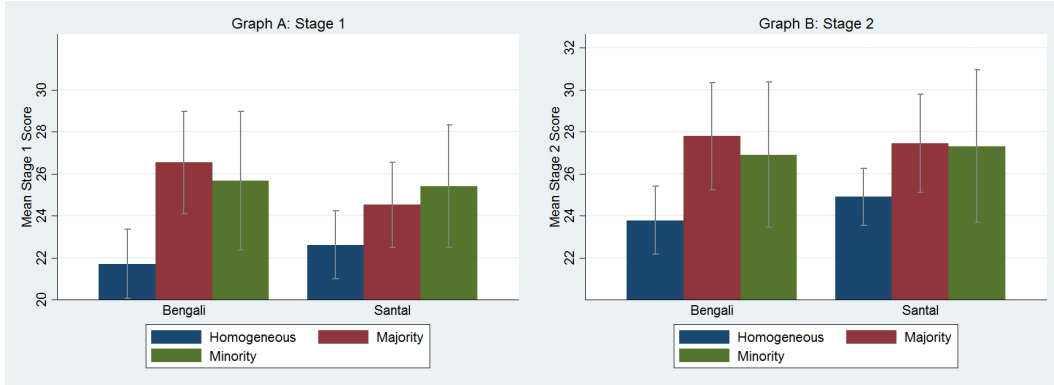
Note: Each bar represents the mean score of participants in Stages 1 and 2 with 95 percent confidence interval.

We next examine whether there are across treatment differences in performance in stage 1; see Graph A in Figure 3 for a visualization of these differences for each ethnic group separately. What emerges is a similar pattern for both ethnic groups: performance is higher in the mixed (*majority* and *minority*) treatments than the *homogeneous* treatment, though the differences are statistically significant only for Bengalis (tests are reported in Panel B of Table 3). The fact that in mixed groups performance is higher when compensation is not competitive is surprising.

Regarding stage 2 performance, we find a similar pattern as in stage 1 (see Figure 3; Graph B). For both ethnic groups, performance in *majority* and *minority* treatments is higher compared to the *homogeneous* treatment. Furthermore, the difference in performance between *homogeneous* and mixed treatments is statistically significant for both ethnic groups, when we pool scores from *majority* and *minority* treatments together (MW-test: $p = 0.071$ for Santals and $p < 0.01$ for Bengalis).[23] This finding is expected in this stage with a competitive incentive structure in place, as participants may be more likely to internalize the negative externality imposed on their co-ethnic as opposed to members of the other ethnicity.

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[23]There is no statistically significant difference in performance across the *majority* and the *minority* treatments (MW-test: $p > 0.10$ for both ethnic groups).

Table 3: Summary of Performance in Stages 1 and 2

Panel A: Compares Performance Between Ethnic Groups

Group Treatment	Mean Score of Bengali & Santal (Std. Dev.)	Mean Score of Bengali (Std. Dev.)	Mean Score of Santal (Std. Dev.)	MW-test p-values	T-test p-values		Group Treatment	Mean Score of Bengali & Santal (Std. Dev.)	Mean Score of Bengali (Std. Dev.)	Mean Score of Santal (Std. Dev.)	MW-test p-values	T-test p-values	N
Stage 1	**23.93** (7.19)	**24.10** (7.67)	**23.77** (6.69)	**0.566**	**0.720**	**Stage 2**		**25.97** (7.36)	**25.73** (7.71)	**26.21** (7)	**0.904**	**0.602**	**252**
Homogeneous	22.17 (6.43)	21.72 (6.51)	22.62 (6.37)	0.242	0.446		Homogeneous	24.34 (5.88)	23.78 (6.35)	24.90 (5.38)	0.383	0.301	120
Majority	25.53 (7.60)	26.55 (8.22)	24.52 (6.87)	0.054	0.214		Majority	27.63 (8.20)	27.80 (8.61)	27.45 (7.86)	0.871	0.847	88
Minority	25.55 (7.32)	25.68 (7.85)	25.41 (6.93)	0.707	0.903		Minority	27.11 (8.34)	26.91 (8.23)	27.32 (8.64)	0.526	0.873	44
Mixed	25.54 (7.48)	26.26 (8.05)	24.82 (6.85)	0.057	0.271		Mixed	27.45 (8.22)	27.5 (8.44)	27.41 (8.07)	0.662	0.950	132

Panel B: Compares Performance Within Ethnic Groups

Stage 1

	Group Treatment		Group Treatment	MW-test p-values	T-test p-values			Group Treatment		Group Treatment	MW-test p-values	T-test p-values
Bengali	Homogeneous	vs	Majority	0.000	0.002	**Stage 2**	**Bengali**	Homogeneous	vs	Majority	0.006	0.011
	Homogeneous	vs	Minority	0.005	0.042			Homogeneous	vs	Minority	0.024	0.117
	Majority	vs	Minority	0.605	0.680			Majority	vs	Minority	0.989	0.687
	Homogeneous	vs	Mixed	0.000	0.001			Homogeneous	vs	Mixed	0.002	0.006
Santal	Homogeneous	vs	Majority	0.363	0.153		**Santal**	Homogeneous	vs	Majority	0.051	0.067
	Homogeneous	vs	Minority	0.163	0.108			Homogeneous	vs	Minority	0.444	0.230
	Majority	vs	Minority	0.629	0.626			Majority	vs	Minority	0.658	0.951
	Homogeneous	vs	Mixed	0.185	0.064			Homogeneous	vs	Mixed	0.071	0.041

Note: Mixed group combines scores of both Minority and Majority group treatments; N is the total sample size, wherein ethnic groups are in equal proportions in each group composition; MW-test is the two sided Mann-Whitney U test; T-test is the unpaired t-test with unequal variances; test p-values are comparing performance differences between ethnic groups in Panel A and within ethnic groups in Panel B.

Comparing performance across stages 1 and 2, we see a significant performance improvement from stage 1 to stage 2 for both ethnic groups (Wilcoxon signed-rank test (SR-test): $p < 0.01$ for both). Among Bengalis, this improvement is entirely driven by members of the *homogeneous* group, however, this is not the case among Santals. See Table 3 in Appendix A for the summary and test results. The increase in performance moving from piece-rate to competitive incentive is consistent with existing studies on performance and competitiveness, which show that participants, on average, perform significantly better in tournaments as compared to piece-rate schemes (Gneezy et al., 2003; Niederle and Vesterlund, 2007; Buser et al., 2014).

In summary, we find no significant differences, overall or by treatment, in performance across the two ethnic groups, which is consistent with the first hypothesis. At the same time, we do see that for both groups performance is higher in ethnically-mixed as compared to *homogeneous* treatments, which provides strong evidence for the second hypothesis.

4.3 Competitive Choice

Overall, we do not find any differences in competitive choices across ethnic groups in stage 3. As shown in Table 4, an equal fraction of Santals and Bengalis (37 percent) opted to compete in the choice stage (CS-test: $p = 0.896$). However, when we look across treatments, we see some marked differences between the two ethnic groups. In particular, in *homogeneous* treatment more Santals opted to compete (CS-test: $p = 0.087$), whereas in *minority* treatment more Bengalis opted to compete (CS-test: $p = 0.026$). Considering all treatment groups, there is a completely reverse pattern in competitive choices made by the two ethnic groups, which is evident in Figure 4. We see that Santals choose to compete the most in *homogeneous* treatment and the least in *minority* treatment, whereas this relationship is reversed for Bengalis, who opted to compete the most in *minority* treatment and the least in *homogeneous* treatment.[24] While half of Bengalis chose to compete in a *minority* treatment, only 18 percent of Santals opted to compete in that same treatment, and for both ethnic groups, these differences are statistically significant when compared against choices made in *homogeneous* treatment (CS-test: $p = 0.067$ for Bengalis and $p = 0.036$ for Santals), which is consistent with our final hypothesis.

This implies that as groups get more populated by Santals, Bengalis show higher tendency to compete; on the other hand, as the number of Bengalis increases in a group, Santals are less likely to compete. It is noteworthy that for the Bengalis the pattern

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[24]Tests of treatment differences for each ethnic group are presented in Panel B of Table 4.

Figure 4: Competitive Choice: Comparing Choices Within Ethnic Groups
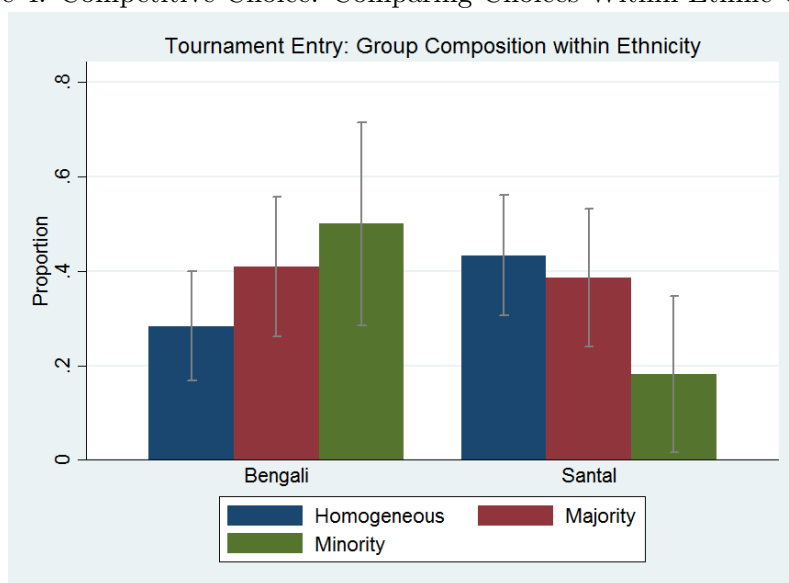
Note: Each bar represents the proportion of participants who opted to compete in stage 3 with 95 percent confidence interval. *Homogeneous* is a group composition where all individuals are co-ethnics; *Majority* is a group composition where either Santals or Bengalis are numerical majorities; *Minority* is a group composition where either Santals or Bengalis are numerical minorities.

of entry across treatment we see in Figure 4 is consistent with performance in stage 2, namely, there is more entry in the mixed treatment that performed better in stage 2 than the *homogeneous* treatment. For the Santals, however, it is not, as we see more entry in the *homogeneous* treatment that performed the worst in stage 2.

To probe further what drives the patterns underscored above, it is instructive to examine whether there are differences between ethnic group within treatment or within ethnic group between treatment in the optimality of the decisions made in this stage, both for entrants and non-entrants. We first examine those who opted to compete. Out of the total 93 competitors in stage 3, 47 were Santals and 46 were Bengalis, of which, 10 Santals (21 percent of Santal competitors) and 13 Bengalis (28 percent of Bengali competitors) won; there is no statistically significant difference in the probability of winning conditional on entry across ethnic groups (CS-test: $p = 0.438$). We also find no significant difference in winning conditional on entering in any other pairwise comparison, whether between ethnic groups within treatment or within ethnic group between treatments. These results suggest that the patterns of competitive entry underlined above cannot be explained by differences in the optimality of the decision of entrants. Summary and test results are available in Table 4 in Appendix A.

Table 4: Summary of Competitive Choice

Panel A: Compares Competitive Choice Between Ethnic Groups

	Proportion of Bengali (*Std. Dev.*)	N_B	Proportion of Santal (*Std. Dev.*)	N_S	MW-test *p*-values	CS-test *p*-values
Compete	**0.37** **(0.48)**	**126**	**0.37** **(0.49)**	**126**	**0.896**	**0.896**
Homogeneous	0.28 (0.45)	60	0.43 (0.50)	60	0.088	0.087
Majority	0.41 (0.50)	44	0.39 (0.49)	44	0.829	0.828
Minority	0.50 (0.51)	22	0.18 (0.39)	22	0.028	0.026
Mixed	0.44 (0.50)	66	0.32 (0.47)	66	0.153	0.151

Panel B: Compares Competitive Choice Within Ethnic Groups

	Group Treatment		Group Treatment	MW-test *p*-values	CS-test *p*-values
Bengali	Homogeneous	*vs*	Majority	0.182	0.180
	Homogeneous	*vs*	Minority	0.069	0.067
	Majority	*vs*	Minority	0.486	0.483
	Homogeneous	*vs*	Mixed	0.070	0.069
Santal	Homogeneous	*vs*	Majority	0.633	0.631
	Homogeneous	*vs*	Minority	0.037	0.036
	Majority	*vs*	Minority	0.095	0.093
	Homogeneous	*vs*	Mixed	0.184	0.182

Note: 'Compete' is a dummy variable and is equal to 1 if the individual opted to compete and 0 otherwise; Mixed group pools both Minority and Majority groups together; N_B is the Bengali sample; N_S is the Santal sample; test *p*-values are comparing choices horizontally.

Turning attention to those who opted not to compete, it turns out that for 22 out of 159 participants (12 Santals or 13 percent of Santal non-competitors and 10 Bengalis or 15 percent of Bengali non-competitors) this was not the optimal decision, as they would have won the tournament had they selected to enter.[25] There is no statistically significant difference in this regard between the two ethnic groups (CS-test: $p = 0.623$). Looking

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[25]Participants who would have won in stage 3 are the participants who chose not to compete but outperformed their group competitors' stage 2 score in stage 3. Hence, if they had chosen to compete, they would have won in the choice stage.

at ethnic group differences by treatment, we see that in the *minority* treatment, Santals are more likely to be in this group than Bengalis, the difference being near-marginally significant (CS-test: $p = 0.153$). Therefore, there is some evidence of suboptimal non-entry of the Santals in the *minority* treatment relative to Bengalis in the same position. Table 5 in Appendix A contains the summary and test results of non-entrants who would have won in stage 3 if they had opted to compete.

4.4 Regression Analysis of Compensation Choice in Stage 3

The foregoing analysis provides some insight on how group compositions influence inclinations towards competition. In this subsection, we further scrutinize the choice made in stage 3 in a regression framework that allows us to control for other factors that might affect a subject's tournament entry decision such as previous performance, risk preference, perceived probability of winning a tournament and various socioeconomic characteristics (age, income, education and so on). Firstly, to examine whether the two ethnic groups differ in terms of the across treatments differences in willingness to compete, we estimate the following equation:

$$
\begin{aligned}
Compete_i = \alpha &+ \beta_1 Santal_i + \beta_2 Minority_i + \beta_3 Majority_i + \beta_4 Santal_i \times Minority_i \\
&+ \beta_5 Santal_i \times Majority_i + S'\gamma + \lambda p_i + \sigma r_i + X'\theta + \epsilon_i
\end{aligned}
$$

$$(1)$$

The dependent variable *Compete* is equal to 1 if a participant chooses to compete in stage 3 and 0 otherwise. *Santal* is an indicator variable for the ethnic minority. *Minority* and *Majority* are indicator variables for *minority* and *majority* treatments, respectively. S is a vector of previous performances. p and r are perceived probability of winning and risk respectively, which are described in section 3 and summaries are given in Table 1 in Appendix A and Table 2. X is a vector of all other controls, which include age, income, education, land possession, profession, the level of intercultural competence, having met other participants and the village of the participant. Standard errors are clustered at the session level.[26] Columns 1-6 in Table 5 contain estimated average marginal effects from a probit regression. All results are robust to using logit and linear probability models.

Column 1 only includes the main effects of interest, and we incrementally add con-

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[26] Clustering standard errors at the group and at the village of participants level yields very similar results.

Table 5: Treatment Effects on Willingness to Compete: Ethnic Group Differences

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Santal	0.146	0.127	0.131	0.089	-0.008	0.005
	(0.110)	(0.107)	(0.108)	(0.109)	(0.138)	(0.124)
Minority	0.212	0.150	0.163	0.149	0.084	0.038
	(0.153)	(0.175)	(0.171)	(0.166)	(0.177)	(0.161)
Majority	0.127	0.047	0.066	0.026	0.006	-0.022
	(0.133)	(0.156)	(0.154)	(0.148)	(0.153)	(0.155)
Santal×Minority	-0.343***	-0.338***	-0.337***	-0.318***	-0.308***	-0.309***
	(0.053)	(0.057)	(0.057)	(0.066)	(0.066)	(0.063)
Santal×Majority	-0.157	-0.125	-0.132	-0.060	-0.088	-0.145
	(0.157)	(0.169)	(0.168)	(0.178)	(0.168)	(0.152)
Stage 1 Score	-	0.003	0.002	0.002	0.003	0.002
		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Stage 2 Score	-	0.014***	0.013**	0.012**	0.012*	0.009
		(0.005)	(0.006)	(0.006)	(0.006)	(0.006)
Perceived Probability of Winning	-	-	0.075	0.053	0.064	0.049
			(0.058)	(0.061)	(0.069)	(0.068)
Risk	-	-	-	0.004**	0.004**	0.003**
				(0.002)	(0.002)	(0.001)
IC Competence	-	-	-	-	0.286*	0.290*
					(0.149)	(0.153)
Daily Income	-	-	-	-	0.000***	0.000**
					(0.000)	(0.000)
Profession	-	-	-	-	-0.004	0.010
					(0.060)	(0.037)
Land Possession	-	-	-	-	-0.001	-0.001
					(0.001)	(0.001)
Other Controls	No	No	No	No	No	Yes
Village Fixed Effects	No	No	No	No	No	Yes
Observations	252	252	252	252	250	250
Pseudo R^2	0.026	0.073	0.077	0.103	0.128	0.213

Robust standard errors clustered by sessions are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: Probit regressions with average marginal effects reported; dependent variable is "compete", which equals 1 when the individual opted to compete and 0 otherwise; two observations were dropped in Column 5 and 6 because a Santal and a Bengali in a *homogeneous* treatment did not provide their income level; 'Other Controls' include age, education and having met other group members before. Table 1 describes all control variables.

trols as we proceed from Column 2-6 to see whether each subsequently affects our main results. The rightmost column has the full set of controls as laid out in our probit regression equation 1. What we see is that without any controls, the $Santal \times Minority$ interaction is statistically significant and negative, suggesting that the Santals are significantly less likely to enter competition in the *minority* treatment relative to the *homogeneous* treatment than the Bengalis (a difference-in-difference of almost 34 percentage

points), while Santals in the *minority* treatment are 20 percentage points less likely to enter competition than the Bengalis in the same treatment. As we add to the specification previous performances, perceived probability of winning a tournament and attitudes towards risk in Columns 2-4, respectively, we observe a small reduction in the size of the marginal effect which remains though large and negative.[27] When we further add background characteristics such as daily income, profession, land possession and knowledge regarding other culture as controls (Column 5) as well as other controls (Column 6), our main marginal effects of interest remain robustly negative and sizeable.[28] With a full set of controls, in Column (6), the difference in competitive inclination between Santals in a *minority* treatment and a *homogeneous* treatment is 30.9 percentage points less than the difference in competitive inclination between Bengali in a *minority* treatment and a *homogeneous* treatment. Note that this difference-in-difference is fully accounted by the across ethnic group difference in the *minority* treatment as the across ethnic group difference in the *homogeneous* treatment has been reduced almost to zero. Hence, with regard to ethnic differences, our regression results are consistent with our third hypothesis.

Next, to obtain a clear picture of the size of the group composition effects, we estimate another probit regression model for each ethnic group separately. Table 6 shows our estimated results: Columns S1-S3 for Santals and Columns B1-B3 for Bengalis. As expected, we observe heterogeneous effects of group composition across the two ethnic groups. Results for the Santal subsample, presented in Columns S1-S3, suggest that Santals in both *minority* and *majority* treatments are less likely to enter competition than if they are in the *homogeneous* treatment. The size of the estimated differences increase in size and statistical significance as we add controls in Columns S2 and S3, such that, with a full set of controls, we find that Santals in the *minority* treatment are 41.3 percentage points less likely to compete than Santals in the *homogeneous* treatment. Likewise, Santals in the *majority* treatment are 29.9 percentage points less likely to compete than Santals in *homogeneous* treatment. Of the rest of the controls, inter-

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[27]Our results are robust to using guessed rank (see Table 2 in Appendix A for summary statistics) or the difference between actual and guessed rank (a measure of overconfidence used in Niederle and Vesterlund (2007) and other subsequent studies) as a measure of beliefs about relative ability instead of the perceived probability of winning. Also, controlling for the average score of adjacent peers (those seated next to, in front of and in the adjacent corner of a subject a well as all peers in the group) in stage 2 does not affect the results.

[28]When we also add stage 3 performance as a control, with a full set of controls, it has no significant effect on choosing to compete ($p = 0.895$) and leaves the average marginal effects of *minority* treatments and all other effects unchanged. This suggests, the anticipation of performing better/worse did not affect tournament entry decisions. Also, instead of village dummies, using percentage of Santal population (or household) for each village of participants yields identical results.

cultural knowledge seems to be the only one to have substantial explanatory power over competitive entry.

Results for the Bengali subsample, presented in Columns B1-B3, imply a reverse relationship as depicted in Figure 4. Bengalis are more likely to compete in *minority* and *majority* treatments than their co-ethnics in the *homogeneous* treatment; however, the difference is not statistically significant, and it reduces in size as we add controls in Columns B2-B3. Further, it seems, for Bengalis, income and risk preferences explain almost all their tournament entry decisions. Other factors, including overconfidence and intercultural knowledge factors, fail to explain tournament entry decisions by the ethnic majority members.

5   Conclusion

This paper extends the literature on competitive preferences by exploring whether there are differences in competitive choices across members of the dominant and of a vulnerable ethnic minority group in rural Bangladesh. By varying the ethnic composition of the group of competitors, we find that members of the ethnic minority group are more averse to competing in mixed-ethnicity groups than in groups of co-ethnics. We find the opposite pattern for members of the ethnic majority group, that is, they are more keen to compete in ethnically mixed groups than in *homogeneous* ones.

How important quantitatively are the ethnic differences in competitiveness that we find? After accounting for the influence of past performance, beliefs about relative performance, risk attitudes and socioeconomic characteristics, our regression analysis indicates that Santals in the *minority* treatment are 31 percentage points less likely to enter competition than the Bengalis in the same treatment, while Santals in the *minority* treatment are 41 percentage points less likely to enter competition than Santals in the *homogeneous* treatment. For comparison, the estimated gender gap is typically found to be about 30 percentage points (Niederle and Vesterlund, 2007), so the quantitative effect found here would appear to be of the same or greater magnitude than the gender gap.

The aversion to interethnic competition by the ethnic minority group may have its roots in the self-perception of the value of the ethnic identity of the particular group and the associated stereotypes that it evokes. Since, historically, one ethnic group has oppressed the other and the two have rarely coexisted peacefully, we might expect that the two ethnic groups have developed different identities and stereotypes. Assigning ethnic minority members into a group dominated by ethnic majority members might invoke

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Table 6: Within Ethnic Group Treatment Effects on Willingness to Compete

VARIABLES	Santal			Bengali		
	(S1)	(S2)	(S3)	(B1)	(B2)	(B3)
Santal-Majority	-0.047	-0.159	-0.299***	-	-	-
	(0.142)	(0.124)	(0.105)			
Santal-Minority	-0.252**	-0.339***	-0.413***	-	-	-
	(0.112)	(0.086)	(0.093)			
Bengali-Majority	-	-	-	0.126	-0.011	0.006
				(0.131)	(0.125)	(0.180)
Bengali-Minority	-	-	-	0.217	0.119	0.108
				(0.158)	(0.173)	(0.223)
Stage 1 Score	-	-0.004	-0.003	-	0.010	0.011
		(0.013)	(0.015)		(0.009)	(0.010)
Stage 2 Score	-	0.016**	0.012	-	0.004	0.002
		(0.008)	(0.009)		(0.011)	(0.012)
Perceived Probability of Winning	-	0.105	0.121	-	-0.008	-0.005
		(0.099)	(0.080)		(0.092)	(0.096)
Risk	-	0.002	0.002	-	0.006***	0.006***
		(0.002)	(0.001)		(0.002)	(0.002)
IC Competence	-	0.632***	0.647***	-	0.075	0.081
		(0.235)	(0.156)		(0.192)	(0.184)
Daily Income	-	-	0.000	-	-	0.000**
			(0.001)			(0.000)
Profession	-	-	-0.005	-	-	0.034
			(0.044)			(0.068)
Land Possession	-	-	-0.001	-	-	-0.001
			(0.001)			(0.001)
Other Controls	No	No	Yes	No	No	Yes
Village Fixed Effects	No	No	Yes	No	No	Yes
Observations	126	126	125	126	126	123
Pseudo R^2	0.029	0.139	0.314	0.023	0.141	0.190

Robust standard errors clustered by sessions are in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Probit regressions with average marginal effects reported; dependent variable is "compete", which equals 1 when the individual opted to compete and 0 otherwise; the omitted group for Santals (specifications S1-S3) is the Santal *homogeneous*, and that of Bengalis (specifications B1-B3) is the Bengali *homogeneous*; two observations were dropped in Columns S3 and B3 because a Santal and a Bengali in a *homogeneous* group refused to provide their income level. Also two villages were dropped in the Bengali data due to having single observations in each village; 'Other Controls' include age, education and having met other group members before. Table 1 describes all control variables.

the stereotype of being ethnically inferior, which might discourage them from choosing to compete. Likewise, assigning ethnic majority members into an ethnic minority dominated domain might invoke the stereotype of being ethnically superior, which might encourage them to compete more often than when being in a group of co-ethnics.

Although more evidence of the differences in preferences for interethnic competition

is needed, a few pointers for policy stem from the findings we have. While policies to improve workplace diversity would be a good starting point, policy makers could also target improving competitiveness of members of minority groups through education and awareness. Educating minority members regarding self-worth, self-esteem and self-importance, and increasing public awareness to break negative stereotypes associated with minority members might improve their competitive attitude towards the dominant group. These possibilities remain interesting avenues for future research.

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Appendix A: Supplementary Tables

Table 1: Perceived Probability of Winning

Panel A: Compares Perceived Probability of Winning Between Ethnic Groups

	Proportion of Bengali (Std. Dev.)	Proportion of Santal (Std. Dev.)	MW-test p-values	CS-test p-values	N
Perceived Probability of Winning	**0.60**	**0.58**	**0.798**	**0.798**	**252**
	(0.49)	(0.50)			
Homogeneous	0.65	0.63	0.850	0.849	120
	(0.48)	(0.49)			
Majority	0.52	0.57	0.670	0.669	88
	(0.51)	(0.50)			
Minority	0.59	0.45	0.371	0.365	44
	(0.50)	(0.51)			
Mixed	0.55	0.53	0.862	0.861	132
	(0.50)	(0.50)			

Panel B: Compares Perceived Probability of Winning Within Ethnic Groups

	Group Treatment		Group Treatment	MW-test p-values	CS-test p-values
Bengali	Homogeneous	vs	Majority	0.193	0.191
	Homogeneous	vs	Minority	0.625	0.623
	Majority	vs	Minority	0.603	0.600
	Homogeneous	vs	Mixed	0.234	0.232
Santal	Homogeneous	vs	Majority	0.504	0.502
	Homogeneous	vs	Minority	0.148	0.145
	Majority	vs	Minority	0.387	0.383
	Homogeneous	vs	Mixed	0.244	0.242

Note: Mixed group combines perceived probability of winning of both Minority and Majority group treatments; N is the total sample size, wherein ethnic groups are in equal proportions in each group composition; MW-test is the two sided Mann-Whitney U test; CS-test is the Pearson's Chi-squared test; Test p-values are comparing choices horizontally.

Table 2: Summary of Guessed Ranks

Experiment Summary	Mean Guessed Rank of Bengali (Std. Dev.)	Mean Guessed Rank of Santal (Std. Dev.)	MW-test p-values	CS-test p-values	N
Guessed Rank	**2.51**	**2.55**	**0.867**	**0.834**	**252**
	(1.38)	**(1.41)**			
Homogeneous	2.43	2.38	0.656	0.806	120
	(1.32)	(1.43)			
Majority	2.66	2.52	0.687	0.993	88
	(1.48)	(1.41)			
Minority	2.41	3.05	0.093	0.012	44
	(1.40)	(1.33)			
Mixed	2.58	2.70	0.544	0.315	132
	(1.45)	(1.39)			

Note: 'Guessed Rank' is the relative guessed rank based on stage 2 performance, where 1 is the best and 6 is the worst; Mixed group combines ranks of both Minority and Majority group treatments; MW-test is the two sided Mann-Whitney U test; CS-test is the Pearson's Chi-squared test; Test p-values are comparing differences horizontally.

Table 3: Performance Improvement from Stage 1 to Stage 2

Groups	Mean Score in Stage 1	Mean Score in Stage 2	SR-test p-values	T-test p-values	N
Pooled	**23.93**	**25.97**	**0.000**	**0.000**	**252**
	(*7.19*)	(*7.36*)			
Bengali	**24.10**	**25.73**	**0.000**	**0.000**	**126**
	(*7.67*)	(*7.71*)			
Homogeneous	21.72	23.78	0.000	0.000	60
	(*6.51*)	(*6.35*)			
Majority	26.55	27.80	0.144	0.121	44
	(*8.22*)	(*8.61*)			
Minority	25.68	26.91	0.274	0.178	22
	(*7.85*)	(*8.23*)			
Mixed	26.26	27.5	0.058	0.042	66
	(*8.05*)	(*8.44*)			
Santal	**23.77**	**26.21**	**0.000**	**0.000**	**126**
	(*6.69*)	(*7*)			
Homogeneous	22.62	24.90	0.000	0.000	60
	(*6.37*)	(*5.38*)			
Majority	24.52	27.45	0.011	0.005	44
	(*6.87*)	(*7.86*)			
Minority	25.41	27.32	0.039	0.112	22
	(*6.93*)	(*8.64*)			
Mixed	24.82	27.41	0.002	0.001	66
	(*6.85*)	(*8.07*)			

Note: 'Pooled' includes scores of both Bengali and Santal sample; Mixed group combines scores of both Minority and Majority group treatments; SR-test is the Wilcoxon signed-rank test; T-test is the paired T-test with equal variances.

Table 4: Participants Who Chose to Compete and Won

Panel A: Compares Entrants Who Won Between Ethnic Groups

Experiment Summary	Proportion of Bengali & Santal (Std. Dev.)	N	Proportion of Bengali (Std. Dev.)	N_B	Proportion of Santal (Std. Dev.)	N_S	MW-test p-values	CS-test p-values
Those Who Won	**0.25** **(0.43)**	**93**	**0.28** **(0.46)**	**46**	**0.21** **(0.41)**	**47**	**0.438**	**0.435**
Homogeneous	0.26 (0.44)	43	0.29 (0.47)	17	0.23 (0.43)	26	0.646	0.642
Majority	0.26 (0.44)	35	0.33 (0.49)	18	0.18 (0.39)	17	0.296	0.289
Minority	0.20 (0.41)	15	0.18 (0.40)	11	0.25 (0.50)	04	0.778	0.770
Mixed	0.24 (0.43)	50	0.28 (0.45)	29	0.19 (0.40)	21	0.490	0.485

Panel B: Compares Entrants Who Won Within Ethnic Groups

Experiment Summary	Group Treatment		Group Treatment	MW-test p-values	CS-test p-values
Bengali	Homogeneous	vs	Majority	0.806	0.803
	Homogeneous	vs	Minority	0.510	0.503
	Majority	vs	Minority	0.384	0.376
	Homogeneous	vs	Mixed	0.896	0.894
Santal	Homogeneous	vs	Majority	0.672	0.669
	Homogeneous	vs	Minority	0.934	0.933
	Majority	vs	Minority	0.742	0.736
	Homogeneous	vs	Mixed	0.740	0.737

Note: 'Those Who Won' is the fraction of people who chose to compete and won; hence, it is the win rate of entrants; Panel A compares winners between ethnic groups; Panel B compares winners within ethnic groups; N is the total sample of those who chose to compete; N_B is the sample of Bengali who chose to enter competition; N_S is the sample of Santal who chose to enter competition; MW-test is the two sided Mann-Whitney U test; CS-test is the Pearson's Chi-squared test.

Table 5: Participants Who Would Have Won

Panel A: Compares Participants Who Would Have Won Between Ethnic Groups

Experiment Summary	Proportion of Bengali & Santal (Std. Dev.)	N	Proportion of Bengali (Std. Dev.)	N_B	Proportion of Santal (Std. Dev.)	N_S	MW-test p-values	CS-test p-values
Would Have Won	**0.14** **(0.35)**	159	**0.13** **(0.33)**	80	**0.15** **(0.36)**	79	**0.624**	**0.623**
Homogeneous	0.09 (0.29)	77	0.09 (0.29)	43	0.09 (0.29)	34	0.943	0.942
Majority	0.23 (0.42)	53	0.23 (0.43)	26	0.22 (0.42)	27	0.941	0.941
Minority	0.10 (0.31)	29	0 (0)	11	0.17 (0.38)	18	0.160	0.153
Mixed	0.18 (0.39)	82	0.16 (0.37)	37	0.20 (0.40)	45	0.661	0.659

Panel B: Compares Participants Who Would Have Won Within Ethnic Groups

Experiment Summary	Group Treatment		Group Treatment	MW-test p-values	CS-test p-values
Bengali	Homogeneous	vs	Majority	0.118	0.115
	Homogeneous	vs	Minority	0.298	0.293
	Majority	vs	Minority	0.086	0.082
	Homogeneous	vs	Mixed	0.354	0.351
Santal	Homogeneous	vs	Majority	0.146	0.143
	Homogeneous	vs	Minority	0.404	0.400
	Majority	vs	Minority	0.652	0.648
	Homogeneous	vs	Mixed	0.173	0.171

Note: 'Would Have Won' is the proportion of non-entrants who chose not to compete but outperformed their group competitors' stage 2 score in stage 3; hence, if they had chosen to compete, they would have won in stage 3; Panel A compares participants who would have won between ethnic groups; Panel B compares participants who would have won within ethnic groups; N is the total sample of those who chose not to compete; N_B is the sample of Bengali who did not enter competition; N_S is the sample of Santal who did not enter competition; MW-test is the two sided Mann-Whitney U test; CS-test is the Pearson's Chi-squared test.

Appendix B: Experimental Instructions

General Instructions

Welcome to this study of decision making. The experiment will take about 60 minutes during which you will be asked to play some basic games. There will be three stages with three different instructions. But all instructions are very simple, and if you follow them carefully, you can earn a considerable amount of money. Out of these three stages, you will only be paid according to one stage, which will be determined at the end using a lottery. For showing up today you will receive 100 Takas. All the money you earn will be paid to you, privately and in cash, at the end after you complete a short exit survey. You will also be told how well you have scored in the payoff stage at the end, in private. This experiment will only be considered complete when you complete the exit survey. If you fail to complete the exit survey, then you will only receive the show-up fee.

The game is to separate lentils from a mix of rice and lentils, and then gather those separated lentils into an empty bowl. Each lentil separated will earn you money but each rice grain picked will lose you money. In short, lentils will win you money but rice will lose you money. So, you have to be careful not to separate rice along with lentils. There will be three stages and each stage will last for 60 seconds or 1 minute. Instructions for each stage are different and will be read aloud before each stage.

If you do not agree to take part in this experiment, then please raise your hand now. If you do not raise your hand, then we will assume you do not have any questions regarding the nature of this study and we will proceed to collect consents. If you do not want to participate, then you will only receive the show-up fee. Only people who participate will receive any money they earn during the experiment along with the show up fee.

Now, to better understand our instructions, we will readout some frequently asked questions and their answers to you. Please listen carefully.

- What do you need to separate from the mix, lentils or rice? [Answer: *Lentils*]

- What will earn you money, lentils or rice? [Answer: *Lentils*]
- What will lose you money, lentils or rice? [Answer: *Rice*]
- How many stages does this experiment have? [Answer: *Three*]
- For how many stages will you be paid at the end? [Answer: *One*]
- How will the payment-stage be determined at the end of the experiment? [Answer: *By a lottery*]
- What do you have to do if you have a question or want to withdraw? [Answer: *Raise hand*]
- Will you receive money if you decide to leave? [Answer: *No*]

Instruction: Stage 1

In this stage, you will have to separate lentils from a mix of rice and lentils which is in the bowl right in front of you. You have to pick lentils and put it into the empty bowl. For each lentil separated, you will earn 5 Takas but, if you also separate rice and put it into the empty bowl, where you are supposed to keep lentils only, then you will lose 5 Takas for each grain of rice. In short, each lentil will earn you 5 Takas and each rice will lose you 5 Takas.

So, if you separate 2 lentils, you will get 10 Takas. If you separate 5 lentils, you will get 25 Takas. If you separate 10 lentils, you will get 50 Takas. But if you separate 10 lentils along with 1 grain of rice, you will get 45 Takas, because you lose 5 Takas for separating 1 grain of rice. If you separate 10 lentils along with 10 grains of rice, you will get 0 Takas or no money, because you lose 50 Takas for separating 10 grains of rice. If you separate 10 lentils along with 11 rice, you still get no money, because you cannot earn less than zero. Therefore, the more lentils you pick, the more money you will earn.

You have 60 seconds to complete this task. We will tell you when to start and when to stop performing the task. Please stop immediately when we ask you to stop. If you do not stop, then you will not earn anything from this stage.

Now, to better understand our instructions, we will readout some fre-

quently asked questions and their answers to you. Please listen carefully.

- If you separate 10 lentils and no rice, what will be your final score? [Answer: *10*]
- If you separate 10 lentils and 1 grain of rice, what will be your final score? [Answer: *9*]
- If you separate 10 lentils and 10 grain of rice, what will be your final score? [Answer: *0*]
- If you separate 10 lentils and 15 grain of rice, what will be your final score? [Answer: *0*]
- How much will you earn per lentil? [Answer: *5 Takas*]
- How much will you lose per grain of rice? [Answer: *5 Takas*]
- What is the duration of this task? [Answer: *60 seconds*]

Do you have any question?

This is the first of three stages, so there will be two more stages after this. At the end, there will be a lottery which will determine the payoff stage out of the three and you will be paid according to your score in that stage only. So, if the lottery determines this stage, then you will be paid according to this stage only. You will be paid in cash at the end. If you have any questions then please raise your hand now. If you do not, then we will proceed with the task.

Instruction: Stage 2

In this stage, you will have to separate lentils from a mix of rice and lentils, which is in the bowl right in front of you. You have to pick lentils and put it into the empty bowl. However, in this task, you will have to outperform all the other members in your group. That means you can only receive money if you pick more lentils than the other 5 members in your group. If you succeed to score the highest and win this task, then for each lentil separated, you will earn 30 Takas but if you also separate rice and put it in the empty bowl, where you are only supposed to keep lentils, then you will lose 30 Takas per grain of rice. In short, if you pick the most number of

lentils, then each lentil will earn you 30 Takas. But if you cannot outperform your group members, then you will earn no money from this task. In case of a tie, the winning amount will be divided equally.

So, if you score the highest by picking 10 lentils, with all the other 5 members picking less than 10 lentils, then you will get 300 Takas and others will get no money. If you pick 10 lentils and 1 grain of rice and another member of your group picks 10 lentils but no rice, then it will mean that the other member has picked more lentils than you did, which means you lost the task and you will earn no money. That member, on the other hand, will win the task and will get 300 Takas with other members earning no money. If you score 11 lentils with 1 grain of rice and another member scores 10 lentils with no rice, then your score will be tied with that member and the winning amount will be divided equally. In this case, each tied winner will earn 150 Takas, with others earning no money at all.

Only the winner(s) will earn money, while the losers will get no money from this task. Therefore, the more lentils you pick compared to your group members, the higher your chances will be to win the task and earn 30 Takas per lentil.

You have 60 seconds to complete this task. We will tell you when to start and when to stop performing the task. Please stop immediately when we ask you to stop. If you do not stop, then you will not earn anything from this stage.

Now, to better understand our instructions, we will readout some frequently asked questions and their answers to you. Please listen carefully.

- Will you win the task if you pick the maximum number of lentils in your group? [Answer: *Yes*]
- Will you win the task if your group members pick more lentils than you? [Answer: *No*]
- What do you have to do to win this task and to win money? [Answer: *Pick the highest number of lentils*]
- If you separate 10 lentils and another group member separates 11 lentils, then who will win this task, you or your group member? [Answer: *Group member*]

- If you score 10 lentils and all other group members score 9 lentils or less, then who will win this task, you or your group members? [Answer: *You*]
- If you separate 10 lentils and 1 grain of rice, what will be your final score? [Answer: *9*]
- If you and another group member separate 10 lentils each, then what will happen to the winning money? [Answer: *Money will be divided equally*]
- How much will you earn per lentil if you win? [Answer: *30 Takas*]
- How much will you lose per rice if you win? [Answer: *30 Takas*]
- What is the duration of this task? [Answer: *60 seconds*]

Do you have any questions?

Instruction: Guessing Game

Thank you for completing the first two stages of this experiment. An assistant will privately ask you, one by one, to go to the registration desk and guess your relative rank according to lentils you picked in your group in Stage 2. To guess your rank, you will be shown an image with 6 heads placed vertically and you will have to point out where you think you belong. For example, if you think you have picked the highest number of lentils in your group in Stage 2, then you will have to point to the head at the top. If you think you were the second best then point to the head below the top. Similarly, if you think you performed the worst, then point to the head at the bottom. If you guess correctly, that is, if your guess matches with your actual rank in Stage 2, then you will get 50 Takas. If your guess does not match with your actual score from Stage 2 then you will get no money.
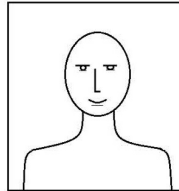
Do you have any questions? If not, then please be seated. An assistant will privately ask you to go to the registration desk where you can make your guesses.
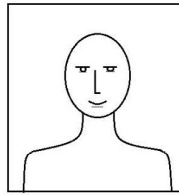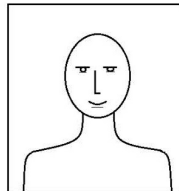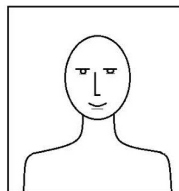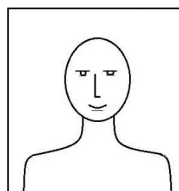
Rank 1
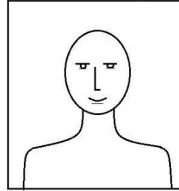
Rank 2

Rank 3

Rank 4

Rank 5

Rank 6

Instruction: Stage 3

In this stage, you will have to separate lentils from a mix of rice and lentils, which is in the bowl right in front of you. You have to pick lentils

and put it into the empty bowl. However, before performing the task, we will now ask you to choose one of the two options according to which you wish to be paid in this stage. The two options are:

Option 1:

If you choose this option, you will get 5 Takas for each lentil you pick and lose 5 Takas for each rice grain you pick. So, this is exactly like the first task you completed. If you pick 2 lentils, then you will get 10 Takas. If you pick 10 lentils, then you will get 50 Takas. But if you pick 10 lentils along with 1 grain of rice, then you will get 45 Takas, because you lose 5 Takas for picking 1 grain of rice. Therefore, the more lentils you pick, the more money you will earn.

Option 2:

If you choose this option, you will only earn money if your score is higher than your group members' scores from Stage 2. If you succeed to surpass your group members' lentil count from Stage 2, then you will get 30 Takas for each lentil you pick but also you will lose 30 Takas for every rice you pick. If you do not manage to score higher than your group members' scores from Stage 2, then you will earn no money in this task. So, this is very much like the second task you completed, but now you will try to pick more lentils than what your group members picked in the second stage.

So, if you pick 10 lentils, which is also higher than all other 5 members' scores from Stage 2, then you will win this task and you will get 300 Takas. If you pick 10 lentils, which is not higher than all 5 group members' scores from Stage 2, then you will lose this task and you will not get any money. Therefore, the more lentils you pick compared to your group members' score in Stage 2, the higher your chances will be to win the task and earn 30 Takas per lentil.

You have 60 seconds to complete this task. We will tell you when to start and when to stop performing the task. Please stop immediately when we ask you to stop. If you do not stop, you will not earn anything from this stage.

Now, to better understand our instructions, we will readout some frequently asked questions and their answers to you. Please listen carefully.

- In which option do you earn 5 Takas per lentil? [Answer: *Option 1*]
- In which option do you need to score higher than your group members' score from Stage 2 in order to win money? [Answer: *Option 2*]
- In which option do you earn 30 Takas per lentil if you score higher than your group members' scores from Stage 2? [Answer: *Option 2*]
- If you choose Option 1, then how much will you earn per lentil? [Answer: *5 Takas*]
- If you choose Option 2, and pick more lentils than your group members' scores from Stage 2, then how much will you earn per lentil? [Answer: *30 Takas*]
- If you choose Option 2, and pick less lentils than your group members' scores from Stage 2, then will you win any money? [Answer: *No*]
- What is the duration of this task? [Answer: *60 seconds*]

This is the final stage of this experiment. After this task, there will be a lottery which will determine the payoff stage and you will be paid according to your score in that stage only. You will be told how well you have performed in that stage and will be paid in cash at the end. If you have any questions, please raise your hand. If you do not, then we will proceed with the task.

Do you have any questions? If not, then an experimenter will ask you privately to go to the registration desk and make your choice on how you want to be paid: according to Option 1 or Option 2?

Instruction: Risk Game

Welcome to this study of decision-making. This is a bonus game which will take about 15 minutes. The instructions are simple, and if you follow them carefully, you can earn a considerable amount of money. All the money you earn is yours to keep and will be paid to you, in cash, immediately after the experiment ends.

At the beginning of this experiment, you will receive 20 Takas. You are asked to choose the portion of this amount (between 0 and 20) that you wish to invest in a risky option. The rest of the money will be accumulated in your total balance.

The risky investment: there is an equal chance that the investment will fail or succeed. If the investment fails, you lose the amount you invested. If the investment succeeds, you receive 6 times the amount invested.

How do we determine if you win? After you have chosen how much you wish to invest, we will toss a coin to determine whether you win or lose. If the coin comes up heads, you win 6 times the amount you chose to invest. If the coin comes up tails, you lose the amount invested.

Examples

- If you choose to invest nothing, you will get the 20 Takas for sure. That is, the coin flip would not affect your profits.
- If you choose to invest all of the 20 Takas, then if the coin comes up heads, you win 120 Takas, and if the coin comes up tails, you win nothing and end up with 0.
- If you choose to invest 10 Takas, then if the coin comes up heads, you win 70 Takas, and if the coin lands on tails, you end up with 10 Takas.

Do you have any questions? If not, then an experimenter will ask you privately to go to the registration desk and make your choice on how much you want to bet in the lottery.