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Discrimination in the Agricultural Market: The Case of Bangladeshi Rice Farmers

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Abstract

We carry out an experiment in Bangladesh to capture ethnic discrimination in the agricultural market. We organize a competition among rice farmers followed by a series of rice evaluation programs. To determine the winner, we recruit rice buyers from various marketplaces to assess rice quality and determine their willingness to pay for each rice sample collected from participants. To measure discrimination, we randomly assign ethnic majority and minority sounding names on each rice sample prior to evaluation to implicitly reveal the farmer's ethnic identity to the buyer. We find that buyers are willing to pay 2% less to ethnic minority farmers than what they are willing to pay to ethnic majority farmers, albeit not discriminating in terms of the quality of rice produced. We interpret this finding as being consistent with the *taste-based* model of discrimination. We also find that discrimination reported is driven exclusively by buyers from the villages whereas city buyers do not discriminate ethnic minority farmers. Further analyses suggest that lack of interethnic interaction might be an underlying source of prejudice. Finally, we show that ethnic minority farmers would benefit from selling rice to city buyers only, an initiative that would help avoid discrimination while also generate a week's additional income every year.

Keywords: Discrimination, Ethnicity, Agricultural Market, Intergroup Interaction, Bangladesh, Field Experiment

JEL Classification: C93, J15, J43, J71, O15, Q13, Z13

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1 Introduction

The agricultural sector is crucial for creating employment, food production, fighting poverty, and fostering economic development around the world (World Bank, 2015). Countries during the early stages of development predominantly rely on the agricultural sector in terms of income and labor force participation, which serves as a major player in its subsequent structural transformations and poverty reduction (Johnston & Mellor, 1961; Schultz, 1964; Christiaensen, Demery & Kuhl, 2011; Irz, Lin, Thirtle & Wiggins, 2001; Herrendorf, Rogerson & Valentinyi, 2014; McArthur & McCord, 2017). Moreover, agricultural technologies, such as adopting improved crop varieties, have been successful at reducing poverty across many developing countries (Minten & Barrett, 2008; Becerril & Abdulai, 2010; Kassie, Shiferaw & Muricho, 2011). Despite being a key sector in promoting economic growth and development and reducing poverty, agricultural farmers continue being some of the poorest in the world (IFAD, 2014, 2016). Farmers in developing countries still face numerous challenges to make a living, such as accessing markets, information, technologies, etc. (Chambers & Ghildyal, 1985; Altieri, 2002), whilst farmers from disadvantaged social groups are also subject to social, political, and economic exclusions, and still continue to face unfair treatment that limits their access to various opportunities and resources (Curtis, 2009; AIPP, 2010; IFAD, 2016). Agriculture has proved to be an effective tool to improve well-beings of individuals and escape poverty, yet we do not know enough about why ethnic minorities, such as indigenous groups, continue being one of the poorest and the most vulnerable social groups around the world (IFAD, 2016; United Nations, 2018). One explanation is that they are severely discriminated against in the agricultural sector.¹ Literature in social science suggest that discrimination, exploitation, and extortion of ethnic minority farmers by the dominant majority population exists; however, social researchers have largely relied on survey measures of unfair treatment of ethnic minority farmers. This might be problematic as other unobservable characteristics, such as farming skills or rice quality, might also be correlated with ethnicity. Therefore, the two major questions that still remain unanswered are that whether there is ethnic discrimination in the agricultural market when factors other than the ethnic identity of farmers remain constant and, if so, why.

In this paper, we investigate discrimination towards ethnic minority farmers and explore its underlying mechanisms through a field experiment that we carried out in

¹Ethnic and racial discrimination is a deep-rooted phenomenon in our society and has been widely studied in economics and social sciences to determine its nature and consequences. For reviews, see Altonji & Blank (1999), Riach & Rich (2002), Pager (2007), Guryan & Charles (2013), Bertrand & Duflo (2017), and Neumark (2018).

Bangladesh. Bangladesh is a suitable field for this study due to its dependence on the agricultural sector, where 41 percent of its total labor force depends on agriculture for livelihood (Bangladesh Bureau of Statistics, 2017). Furthermore, Bangladesh is also home to 45 different indigenous communities who are mostly swidden agriculturists and sedentary rice farmers, and, according to survey results, are also severely discriminated in everyday life by the ethnic majority, Bengali, population (AIPP, 2010; Roy, 2012; IMF, 2013; Chakma & Maitrot, 2016). To measure discrimination, we organized a competition among rural rice farmers where the winner was determined based on the quality of rice produced and the potential price at which one could sell the rice to buyers. Following rice collection from participants, we recruited ethnic majority rice buyers (i.e. people who buy rice from farmers to sell it in the market) to evaluate the physical quality of rice and state how much they would be willing to pay for a kilogram of that rice. These two assessment outcomes determined the winner of the rice competition. To test for discrimination, on each rice sample given to buyers for assessment, instead of revealing the actual name of participants, we randomly assigned ethnic majority and minority sounding names on each sample to implicitly reveal the farmer's ethnic identity to buyers. This way, we break any systematic relationship that the ethnicity of farmers might have with the quality of rice they produce, and, thus, finding any association between ethnicity and assessment outcomes would be documenting discrimination.

In recent studies on discrimination, manipulation of perceived group identity (e.g. race, ethnicity, etc.) through names have been successful in documenting discrimination in the field setting. For instance, Bertrand & Mullainathan (2004) randomly assigns African-American and White-sounding names to resumes to capture discrimination in the labor market. Likewise, among many other subsequent studies, Zussman (2013) uses manipulation of names in email inquiries to capture ethnic discrimination in the used car market; Giuliatti, Tonin & Vlassopoulos (2017) use distinctly Black and White sounding names in emails to document racial discrimination in public service delivery; Ahmed & Hammarstedt (2008), Ewens, Tomlin & Wang (2014) and Edelman, Luca & Svirsky (2017) capture discrimination in long-term and short-term housing rental markets using a similar methodology; Carlsson & Rooth (2007), Booth, Leigh & Varganova (2012) and Kaas & Manger (2012) also manipulate names on resumes to capture ethnic discrimination in labor markets across different countries; likewise, Siddique (2011) captures caste-based discrimination using the same methodology. Other correspondence studies that randomize other characteristics through different experimental designs, such as caste (Hanna & Linden, 2012), gender (Lahey, 2008), criminal records (Pager, 2003), immigrant status (Oreopoulos, 2011), sexual orientation (Ahmed & Hammarstedt, 2009),

attending for-profit institutions for degree (Deming, Yuchtman, Abulafi, Goldin & Katz, 2016), long unemployment history (Ghayad, 2013), and so on, have also been successful at capturing discrimination based on such characteristics. Therefore, what field correspondence studies do is that it keep characteristics other than race, ethnicity, caste, etc. of all individuals statistically the same throughout, so that any observed differences in treatment between the two varying characteristics (e.g. different ethnicities) would be evidence of discrimination. Also, it captures discrimination in the actual market by measuring the behavior of agents making real decisions.

In field experiments, discrimination is either measured using auditors (single-blinded experiments, as in Fix & Turner (1998) and Gneezy, List & Price (2012)) or by correspondence tests (double-blinded experiments, as in Bertrand & Mullainathan (2004) and Banerjee, Bertrand, Datta & Mullainathan (2009)). Since auditors in single-blinded studies are aware of the study purpose, they are likely to behave in a biased way to fit their audit agencies' goals and, thus, it might lead to superfluous findings (Heckman & Siegelman, 1993; Heckman, 1998). In comparison, double-blinded studies do not possess such threats to internal validity. In an actual marketplace, List (2004) takes advantage of both audit studies and double-blindness to capture discrimination against non-Whites, women, and elderly agents. In another field study that deviates from the conventional audit and correspondence studies, Hanna & Linden (2012) uses an exam competition in India to determine discrimination in grading against low-caste children. It measures behavior of actual teachers making real decisions that have factual consequences. Our study also possesses such advantages. Firstly, in the actual market, buyers evaluate and set reservation prices to rice prior to buying it from farmers; so, in our experiment, they also do the same during the rice evaluation program. Secondly, their decisions have factual consequences since the farmer with the highest assessment score receives a monetary reward. Thirdly, buyers are unaware of being part of an experiment and, hence, behave in the same way as they would behave in the real market. Finally, research assistants were not informed about the true nature of this study and, hence, worked for a rice evaluation program. This ensures that they do not imply the true purpose of this study to buyers neither during advertisement nor during the experiment, which makes it double-blinded.

In our study, randomizing names were sufficient to signal buyers about ethnic identities of farmers because, in Bangladesh, ethnic minorities either have tribe or clan patronyms – surnames that are named after their tribes or septs (Risley, 1891), whereas ethnic majority Bengalis are mostly Muslims with names that are very different from

that of ethnic minorities.² Findings from our experiment show that ethnic majority rice buyers are willing to pay significantly less for rice that had ethnic minority sounding names attached. Specifically, buyers are willing to pay 2% less than what they are willing to pay to ethnic majority farmers. However, in terms of quality assessment, we do not find any evidence of discrimination against ethnic minority farmers. Our main finding is in accordance with findings from correspondence studies on job recruitments, such as Carlsson & Rooth (2007), Kaas & Manger (2012), Booth et al. (2012), etc., in which ethnic minorities are discriminated by the recruiters. Our result is also consistent with studies that explore ethnic discrimination using laboratory experiments (Fershtman & Gneezy, 2001; Fershtman, Gneezy & Verboven, 2005). These studies use dictator, ultimatum, trust, etc., games to determine its existence and use their combinations to deduce its nature (Lane, 2016). We also find that discrimination reported overall is entirely driven by buyers from both multi-ethnic and mono-ethnic villages (where buyers and village residents are co-ethnics), whereas city buyers do not discriminate ethnic minority farmers. This finding is in line with findings on (racial) discrimination as reported in Loureiro, Carneiro & Sachside (2004) and Giulietti et al. (2017), where Blacks are discriminated more in rural than in urban areas.

Furthermore, the buyers' behavior towards ethnic minority farmers is consistent with the *taste-based* model of discrimination (Becker, 1957). Buyers were found to not discriminate against ethnic minority farmers in terms of the quality of rice they produce, suggesting that their judgments are not driven by stereotypes associated with skills and ability of ethnic minority farmers in terms of rice cultivation. Instead, buyers are willing to pay less to ethnic minority farmers that are not driven by holding wrong beliefs about farming skills, rather they might have a preference for not paying higher to ethnic minority farmers. Since our data show that buyers discriminate ethnic minority farmers only in terms of willingness to pay and not in terms of the quality of rice they produce, this certainly isolates *statistical* discrimination from the lot. Moreover, we do a second test to determine the robustness of our initial finding. We investigate whether the order in which rice samples were evaluated have any relationship with the assessment outcomes. We find that assessment outcomes to be constant regardless of the order, suggesting that there is no correlation between the two and, hence, discrimination is *taste-based*. If discrimination was *statistical*, we would have observed some pattern. For instance, discriminating at the early stages of assessment would mean buyers use the ethnic identity of farmers as a signal to where the quality of a particular rice sample will

²For simplicity, we have only used Santal and Bengali sounding names on our rice samples to measure discrimination.

end up in the yet unknown distribution, whereas discrimination at the end would mean that boredom or fatigue might be inducing them to reduce the amount of time spent evaluating by quickly predicting rice quality based on farmer’s ethnic identity.

Having established the existence and nature of ethnic discrimination in the agricultural market, we turn our attention to further investigating reasons behind the discrimination we observe. Firstly, we find that the frequency of interacting with ethnic minority farmers matter for discrimination. For instance, ethnic majority buyers who interact very less with ethnic minority farmers discriminate minority farmers more than those who have more frequent interactions. This result is consistent with the theory and empirical evidence that show how the frequency of intergroup interactions might affect prejudice between majority and minority groups (Allport, 1954; Pettigrew & Tropp, 2006; Rao, 2018; Paluck, Green & Green, 2018). Besides, this result is further supported by our main results where we find discrimination to be more profound in mono-ethnic villages than in multi-ethnic villages, suggesting that having less social interaction have a negative impact on discriminatory attitudes towards out-group members. Interestingly, we do not observe any discrimination in the city, where intergroup interactions are also minimal as in mono-ethnic villages; however, according to Becker (1957), it is very likely that competitive market pressures in the city might have driven out discrimination against ethnic minority farmers. This leads to our final finding, which suggests that ethnic minority farmers would benefit significantly if they sell rice only to the city buyers, as it would help minorities avoid discrimination while also generate a week’s additional income every year.

We organize the rest of the paper as follows. After briefly explaining the field background in Section 2, we explain our experimental design in Section 3. We summarize our results in Section 4 and then discuss it further in Section 5. Finally, we conclude in Section 6 with some policy implications.

2 Rice Farmers and Buyers in Bangladesh

Bangladesh is dependent on the agricultural sector, where 41 percent of its total labor force depends on it for livelihood and 75 percent of cultivated crops are rice (Bangladesh Bureau of Statistics, 2017). It is also home to 45 different ethnic minorities who also primarily depend on agriculture for livelihood. These ethnic minorities are different in terms of race and culture, speak a different language, and follow customs and religion that are distinct from that among the ethnic majority (Bengali) population (Roy, 2012). In the Northwestern region (i.e. in Rajshahi and Rangpur divisions), rice

farmers living there are mostly plain-land sedentary farmers. Besides, this region is home to the second largest ethnic minority community, Santal, who are also primarily agriculturalists. Both ethnic majority and minority farmers from this region that are living in remote villages use traditional farming methods for land preparation, sowing seeds, harvesting, drying, storing, and husking prior to selling it to buyers (Bäckman, Islam & Sumelius, 2011; Shelley, Takahashi-Nosaka, Kano-Nakata, Haque & Inukai, 2016). For instance, plowing is either done by the farmer or by the help of bulls and buffaloes, sowing and harvesting is carried out by hand using tools like sickles and knives, and husking to remove husk from the paddy grain to produce edible rice grains is also done at home using traditional methods (Zaman, Mishima, Hisano & Gergely, 2001). Therefore, small farmers from remote villages usually go through such labor-intensive tasks mostly due to unavailability of machinery or to avoid additional costs. Therefore, in this region, the skills and ability of farmers are directly reflected on the rice they cultivate and, hence, organizing a rice competition among such farmers is plausible. Moreover, ethnic minorities in Bangladesh are severely discriminated against in terms of access to healthcare, education, employment, etc. over generations (Roy, 2012; D'Costa, 2014).³ Therefore, these villages in the Northwestern region serve as a suitable field for this study.

The majority of ethnic minorities, who are known as *Adivasis* in South Asia, live in remote villages, which are not easily accessible and, hence, remain outside the range of basic services. Another major drawback of living in remote areas is having less access to information about the market, which, as a result, might lead to difficulty in getting fair prices for products to be sold. The rice buyers, who are mostly Bengali, have storehouses in marketplaces that are commonly known as *arots*. Farmers could either sell rice by directly visiting an *arot* or buyers, usually in villages, visit farmer households to buy rice from them directly. These buyers in the villages are locally known as *foriyas*. Rice buyers who are owners of *arots* usually operate as the middlemen between farmers and grocery shops – where rice is sold for final consumption.

It is widely known that buyers usually take advantage of ethnic minority farmers by buying their rice at a lower price than what they generally offer to ethnic majority farmers (AIPP, 2010). However, this could be due to various reasons: (i) minority farmers travel from home to the local market and back, and are sometimes forced to sell rice at lower prices; (ii) buyers usually travel to households to buy rice, so they ask for a lower price to compensate for the cost that had incurred; (iii) ethnic minority farmers have inferior bargaining abilities; (iv) differential treatment is based on buyer's

³We broadly discuss economic and social conditions of ethnic minorities in Bangladesh in Section 2 of Chapter 2 in this dissertation.

profit motives; (v) buyers either use observable characteristics, such as ethnicity, to make inference about farmers' rice cultivating skills or they take advantage of the lack of market information, such as latest market prices, available to ethnic minority farmers (*statistical* discrimination); (vi) they prefer to pay minority farmers less in general (*taste-based* discrimination). Therefore, in our study, under a controlled field setting, we are able to discard reasons (i), (ii), (iii), and (iv), and test whether discrimination against ethnic minority farmers exist and, if so, of what nature (*statistical* or *taste-based*).

3 The Experiment

We organized a rice competition followed by a series of rice evaluation programs in the Northwestern part of Bangladesh in April 2018 with the support of the NGO *Ashrai* that works on ethnic minority issues in Bangladesh.⁴ The ethnic majority, Bengali, rice buyers participated in these events to assess rice quality and state how much they are willing to pay (for one kilogram of rice) for 30 different rice samples that were collected from 30 different farmer households. To ensure that rice quality is not correlated with the actual ethnicity of farmers, we randomly assigned ethnic majority and minority sounding names to each rice sample to implicitly reveal the farmer's ethnic identity to the buyer. This way, if we find any correlation between the assigned ethnicity and the assessment outcomes, then that would be capturing discrimination. We have organized our study design into six categories: rice competition and sample collection, randomizing ethnic identities, locations for rice evaluation, the evaluation program, experimental procedure and, finally, research hypotheses.

3.1 Rice Competition and Sample Collection

We organized a rice competition in multi-ethnic villages with the help of our NGO, where the farmer who produced the "best" rice won a 2,000 Taka (or USD 25) cash prize. The average daily income of farmers in the Northwestern part is around 225 Taka. So, the prize money was about 30 percent of their monthly income. In total, 30 farmers (15 ethnic majorities and 15 ethnic minorities) from 30 different households took part in the competition.⁵ To determine the "best" rice produced, actual rice buyers from both villages and the city assessed rice quality and then also declared how must they

⁴*Ashrai*: <<http://ashrai.org.bd/>>

⁵Competitions involving farmers are not uncommon in Bangladesh. *Channel i*, Bangladesh's first digital TV channel, organize competitions with farmers twice every year. Such competitions (where farmers compete with other farmers in different games) are widely televised and known around the country. However, such competitions are only organized during the *Eid* festivals.

are willing to pay for one kilogram of rice. Both rice quality and willingness to pay were given equal weight to determine the winner. For the competition, we collected rice samples by randomly visiting farmer households. After entering each farmer household, we asked if the male head of the household is a farmer, asked their ethnicity, and then asked to speak to the head (if the door was attended by someone else). Then we invited him to take part in the rice competition and mentioned the cash prize involved. We also informed him about the assessment process, which would be carried out by rice buyers from different (and not their own) villages and the city, but never mentioned the ethnicity of assessors. If someone was willing to participate then he had to submit 500 grams of his most recently produced rice. This way we went to 15 Bengali households and 15 Santal households to collect 30 different rice samples.⁶ In total, we went to three different multi-ethnic villages to collect rice samples for the competition. The outcome of the competition was later announced by visiting all 30 households separately and one’s absolute quality score and price was only revealed to the winner. No relative feedback about the achieved score and price was given to any participants and the winner’s identity was never revealed to non-winners.

3.2 Randomizing Farmers’ Names

For each assessor or rice buyer, we made 30 different small rice samples that were collected from 30 different farmers. We then attached these packets on a large hardboard and assigned ID numbers to each sample. We call these hardboards, rice boards. We used transparent packets so that buyers could easily examine the rice. In this case, the quality of rice samples are likely to be uneven, so if the ethnicity of a farmer is labeled to his original rice sample then it would be difficult to disentangle discrimination from quality. It would also be difficult to identify what quality score and willingness to pay a buyer would have attached to the sample had another farmer, with different ethnicity, produced the same rice. Hence, to solve this issue, we randomized ethnic majority and minority sounding names of farmers on each rice sample that are observed by buyers so that ethnicity is uncorrelated with rice quality. Specifically, next to each rice ID on a rice board, we randomly attached either a Bengali (ethnic majority) or a Santal (ethnic minority) sounding name. In Bangladesh, ethnic minorities have either tribe or clan patronyms, which are surnames that are named after their tribes or septs. For example, Santals have 12 clans or septs (Risley, 1891), so a male Santal’s name could be Horen Tudu (if from the *Tudu* clan), Horen Hasda (if from the *Hasdak* clan),

⁶Rice were of 9 different varieties. Please see Table 1 in Appendix A for the list of names and their market prices. See Appendix B for the advert.

Horen Kisku (if from the *Kisku* clan), and so on. Similarly, ethnic majority Bengalis are mostly Muslims with names either starting “Muhammad” or ending “Rahman”, “Ahmed” or “Islam”. Therefore, for simplicity, we have only used Santal and Bengali sounding names on our rice samples to measure discrimination. We told buyers that the name attached on each rice sample was that of the farmer who produced that particular rice and was a participant in the rice competition. This way, if we find a correlation between the ethnicity of farmers and assessment outcomes, then that would be capturing discrimination. We provide the list of names in Table 2 in Appendix A and a picture of the rice board in Figure 1 in Appendix A. Please note that we did not use the actual names of farmers. Instead, we created some widely common Bengali and Santal sounding names. For Santal sounding names, we sought help from [Risley \(1891\)](#) and [Ali \(1998\)](#).

3.3 Locations for Rice Evaluation

As a field, the Northwestern part of Bangladesh has several advantages. To begin with, Rajshahi Division is home to the Santal and the Oraon ethnic minorities, who are two of the largest ethnic minority communities in Bangladesh and are mostly agriculturists ([Ali, 1998](#); [Ahmed, 2010](#)). Hence, this makes their ethnic minority sounding names widely known and, thus, are easily identifiable by ethnic majority rice buyers from the same region. Our buyers all come from the Northwestern part. To invite buyers for rice evaluation sessions, we randomly selected marketplaces from the main city, multi-ethnic villages, and mono-ethnic villages. In this case, the city is the region within the Rajshahi City Corporation, multi-ethnic villages are villages where residents are both ethnic minorities and the majority, and mono-ethnic villages are villages where residents are only the ethnic majority. We selected such locations for two reasons: firstly, it increases the external validity of our study and, secondly, it allows us to explore any geographic heterogeneity behind any discrimination that we might capture.⁷ To invite buyers, we randomly selected villages from the list provided by the NGO and then randomly went to marketplaces to invite ethnic majority rice buyers for the rice evaluation program. In total, we went to nine marketplaces in nine different villages (five multi-ethnic and four mono-ethnic) and six marketplaces in the main city.

⁷Mono-ethnic villages with only ethnic minority residents would have further increased our external validity and made the study more interesting, but such villages were not available according to the NGO we worked with.

3.4 The Rice Evaluation Program

120 ethnic majority rice buyers were invited as independent assessors to evaluate the physical quality of a set of rice samples and then state their willingness to pay for one kilogram of each of the rice samples (e.g. 30 rice samples in total). According to International Food Policy Research Institute (IFPRI), physical quality of rice is evaluated based on its physical appearance that depends on its shape, color, chalkiness, proportion of dead rice in a batch, and so on, and is different from chemical quality (Ayeduvor, 2018). To make such assessments, we invited buyers who were all males, as having female buyers in Bangladeshi villages is very uncommon. Also, only ethnic majority, Bengali, rice buyers took part in the rice evaluation program because it is very uncommon for ethnic minorities to be rice buyers in the Northwestern region. Through advertisements, buyers were asked to visit a central location (usually a primary school or a resting place within marketplaces) at a given time to take part in the rice evaluation program in exchange for a participation fee (200 Taka or USD 2.50) and a chance to earn more by evaluating 30 different rice samples (5 Taka for evaluating each rice sample).⁸ Buyers were informed that the evaluation program is part of a competition and their assessment would determine the winner, who would win a 2,000 Taka cash prize. This was important because it ensured that buyers' assessment had a real impact on the well-being of farmers, the same way their day-to-day assessments affect farmers' earnings when they buy rice in the actual market. They were also informed that both quality score and willingness to pay would be given equal weight while determining the winner.⁹

Buyers rated the rice quality on a scale from 0 to 10, with 10 being the highest quality, and then stated how much they are willing to pay for one kilogram of that particular rice (which could be any amount). Since each buyer evaluated 30 rice samples in total, with a sample size of 120 buyers, we had 3,600 observations in total. In addition, with both quality scores and prices, we had two measures of discrimination. We also obtained blind assessments from three rice buyers (one from each location type: city, multi-ethnic village, and mono-ethnic village), which allows us to check for the internal validity of the experiment (i.e. successful randomization) and also control for the "actual" quality of rice in the regression analysis.

⁸1 USD = 80 Taka at the time of the fieldwork.

⁹Most of the rice buyers from the city participated in their shop, individually, and did not go to a central place.

3.5 Experimental Procedure

Buyers were sent to tables on arrival and were given unique ID cards. They were informed that their identity would be kept anonymous, and, hence, they should always use their ID numbers on each evaluation sheet. During the evaluation, a rice board with 30 attached rice samples (in transparent plastic bags) were given to the buyer. Each rice sample on the rice board had an ID and a randomly assigned farmer name. A separate paper (an evaluation sheet), with blank columns to write down rice IDs, assigned farmers' names, quality scores, and willingness to pay, were also given to each buyer. Under each category, buyers had to write ID numbers of each rice sample, the full name of the farmer, the quality score, and their willingness to pay (always in this order). An example of the evaluation sheet is provided in Table 3 in Appendix A. This had two advantages: firstly, we knew in which order buyers assessed rice samples; and secondly, writing down farmer's name ensured that buyers had read the full name. After completion, buyers were asked to fill out a short survey before getting paid in cash. Each session ran for around 60 minutes.

3.6 Hypotheses

The primary goal in this study is to check whether discrimination against ethnic minority farmers exist. Existing correspondence studies on ethnic discrimination suggest that members of the ethnic minority group are often discriminated during recruitment in the labor market (Carlsson & Rooth, 2007; Booth et al., 2012; Kaas & Manger, 2012), which is also consistent with findings from the laboratory (Fershtman & Gneezy, 2001). Moreover, other audit studies with testers also suggest the same (Jowell & Prescott-Clarke, 1970; Riach & Rich, 2002). Similarly, discrimination against minority groups are also profound in various product markets (List, 2004; Zussman, 2013). Based on the existing evidence, we formulate the following hypothesis.

Hypothesis 1: Buyers discriminate ethnic minority farmers both in terms of quality assessment and willingness to pay.

To explore whether the frequency of interethnic interaction induce any heterogeneity in terms of discrimination, we recruited buyers from three types of locations: multi-ethnic villages (where different ethnic groups live together, hence buyers are likely to have higher interaction with ethnic minority farmers), mono-ethnic villages (where only the ethnic majority reside, hence buyers are likely to have very low or no interaction

with ethnic minority farmers), and the city (most of the residents are ethnic majorities as minorities primarily live in remote villages, hence buyers are likely to have very low or no interaction with ethnic minority farmers). Research in social psychology, and very recently in economics, suggest that increasing intergroup contact can reduce discrimination towards out-group members (Allport, 1954; Brown, Brown, Jackson, Sellers & Manuel, 2003; Rao, 2018). This is because, higher contacts between different groups promote positive and tolerant attitudes towards out-group members that can curb discrimination. Based on the theory and empirical evidence, we formulate our second hypothesis.

Hypothesis 2: (i) Buyers from multi-ethnic villages discriminate ethnic minority farmers the least; (ii) Buyers from mono-ethnic villages and the city discriminate ethnic minority farmers the most.

We test these two hypotheses based on the experimental design laid out in this section. The following section discusses our main results.

4 Results

Since we randomize farmers' ethnicity on the rice boards while other farmers' characteristics remain unknown to the buyer, we decided not to collect any demographics of farmers for this study. Instead, through a brief survey that was administered at the end of the evaluation program, we collected a range of individual information from buyers on their demographics, business experiences, shop locations, level of intercultural competence, and so on. This information later allows us to check whether discrimination (if any) varies by any of their characteristics.

4.1 Descriptive Statistics

We present descriptive statistics of rice buyers in Table 1. The first column (All) provides the summary of characteristics of the total sample and then in the next three columns (i.e. A, B, and C) we disaggregate the sample by locations: multi-ethnic villages, mono-ethnic villages, and the city respectively. In the last three columns, we present two sample Mann-Whitney U test (MW-test hereinafter) results that compare differences in the average characteristic of buyers across locations.

The average age of buyers is 40 years with 15 years of experience in the current occupation. 88 percent of buyers work for themselves, 68 percent buys rice by visiting farmer households, and buy around 5,900 kilograms of rice for their businesses every

year. When we disaggregate the sample by locations, we observe some heterogeneity in terms of demographics and the amount of rice bought every year. For instance, buyers from the city are significantly more educated, earn a higher income, and buy more rice from farmers every year relative to buyers from multi-ethnic and mono-ethnic villages. Moreover, none of the city buyers buy rice by going door-to-door whereas village buyers mostly buy rice by visiting farmer households. In terms of the frequency of interactions with ethnic minority farmers for business purposes (i.e. buying rice), we see that buyers from multi-ethnic villages interact significantly more than buyers from mono-ethnic villages and the city. We also asked buyers some questions to understand how well they know about the Santali culture, which we call it the level of intercultural competence (Fantini, 2010).¹⁰ We see that multi-ethnic and mono-ethnic village buyers have both scored roughly 0.50 whereas city buyers received an average score of around 0.30, and this difference is statistically significant. Also, there are significantly more Muslim buyers in mono-ethnic villages compared to the other two locations, although these differences are marginal. In terms of land possession, owning the business, and the number of years living in the current residence, we do not find any differences between locations.

In Table 2, we provide the summary of rice quality scores and willingness to pay (WTP) that were given by buyers to randomized farmer names. Throughout the rest of the paper, we would address ethnic majority sounding names as Bengali farmers and ethnic minority sounding names as Santal farmers, unless stated otherwise. Out of a score of 10, both Bengali and Santal farmers received a quality score of 6.68 for their rice, which is not significantly different. When disaggregated by location, both multi-ethnic village and city buyers gave statistically the same quality scores to Bengali and Santal farmers, which we test using a two-sample T-test with unequal variances (T-test: p -values are 0.339 and 0.899); however, buyers from mono-ethnic villages gave 0.16 points more to Bengali farmers compared to Santal farmers and this difference is marginally significant (T-test: p -value= 0.081).¹¹ These suggest that ethnic majority buyers who are only from mono-ethnic villages (marginally) discriminate ethnic minority farmers in terms of the quality of rice produced, whereas buyers from multi-ethnic villages and the

¹⁰We asked 4 simple questions about the Santali culture, e.g. we asked what is the language spoken by Santals, what is their main religious festival called, etc. For each correct answer, we assigned 0.25 points so that 0 would mean having no knowledge and 1 would mean having excellent knowledge. These questions are simplified versions of Fantini’s intercultural competence assessment questions that only focus on the “awareness dimensions” of individuals. Please see the survey in Appendix C for all four questions.

¹¹We show results using T-tests only as the number of observations are large. Please note that we also carry out a MW-test for robustness and our results remain the same throughout, unless stated otherwise.

Table 1: Rice Buyer Characteristics

Buyer Characteristics	All (Std. Dev.)	A: Multi-Ethnic (Std. Dev.)	B: Mono-Ethnic (Std. Dev.)	C: City (Std. Dev.)	MW-test (A vs B) p-values	MW-test (B vs C) p-values	MW-test (A vs C) p-values
Age	40.38 (12.80)	38.76 (14.14)	44.24 (11.90)	38.43 (10.18)	0.046	0.052	0.885
Education	7.80 (3.83)	7.22 (3.67)	7.59 (4.15)	9.21 (3.45)	0.735	0.085	0.020
Income	14,166 (7,321)	13,286 (8,517)	12,068 (3,224)	18,668 (6,977)	0.882	0.000	0.003
Land	24.11 (4.375)	22.94 (34.72)	20.46 (30.87)	31.25 (68.40)	0.628	0.915	0.739
% Married	0.90 (0.30)	0.84 (0.37)	0.97 (0.16)	0.93 (0.26)	0.040	0.402	0.244
Children	1.92 (1.35)	1.80 (1.41)	2.00 (1.22)	2.04 (1.43)	0.410	1.000	0.476
Years in Current Profession	15.46 (10.41)	14.13 (10.40)	16.41 (11.65)	16.82 (8.59)	0.355	0.494	0.107
% Own Business	0.88 (0.32)	0.84 (0.37)	0.92 (0.28)	0.93 (0.26)	0.252	0.886	0.244
Years Living in Current Location	33.19 (15.50)	33.51 (17.90)	33.84 (15.56)	31.71 (9.59)	0.905	0.715	0.678
% Door to Door	0.68 (0.47)	0.82 (0.39)	0.97 (0.16)	0.00 (0.00)	0.026	0.000	0.000
Rice Quantity	5,864 (24,819)	2,214 (3,266)	2,733 (2,914)	17,171 (50,090)	0.033	0.004	0.000
IC Competence	0.48 (0.32)	0.56 (0.29)	0.48 (0.34)	0.31 (0.32)	0.281	0.037	0.001
Business Interaction	0.17 (0.29)	0.31 (0.35)	0.03 (0.12)	0.06 (0.16)	0.000	0.235	0.000
% Muslim	0.78 (0.42)	0.73 (0.45)	0.89 (0.31)	0.71 (0.46)	0.057	0.070	0.901
Sample Size	120	55	37	28	-	-	-

Note: Age and Education are in years; Income is monthly (in Bangladeshi taka); Land Possession is the amount of land owned in 'katha', where 1 katha = 730 square feet; % Married is the proportion of buyers who are married; Children is the number of children one has; Years in Current Profession is the number of years a buyer is in his current profession; % Own Business is the proportion of buyers who also own their rice buying business; Years Living in Current Location is the number of years one is living in their current village; % Door to Door is the proportion of buyers who buy rice by going door to door; Rice Quantity is the amount of rice (in kilograms) one buys every month for business purpose; IC Competence is the inter-cultural competence score regarding the Santal culture; Business Interaction shows the average frequency of interacting with ethnic minority farmers for business purposes (i.e. buying rice), where 0 means no interaction, 0.33 means some interaction, 0.67 means moderate interaction, and 1 means very frequent interaction; % Muslim is a dummy that equals to 1 if a buyer is a Muslim and 0 otherwise; MW-test is a two-sided Mann-Whitney U test.

city do not show any unfairness in terms of rice quality assessment.

Moving to discrimination in terms of WTP, buyers are willing to pay significantly more to Bengali than to Santal farmers (T-test: p -value= 0.008). Specifically, Santal farmers are likely to receive 0.58 Taka less for selling one kilogram of rice relative to Bengali farmers. When we break down WTP by locations, we find that buyers from multi-ethnic villages are willing to pay 0.69 Taka less to Santal farmers than what they would pay to Bengali farmers and this difference is marginally significant (T-test: p -value= 0.066). Likewise, buyers from mono-ethnic villages are willing to pay 1.13 Taka less to Santal farmers than to Bengali farmers (T-test: p -value= 0.001), which is almost double the difference we found among buyers from multi-ethnic villages. While we find large gaps in terms of WTP among village buyers, buyers from the city do not discriminate Santal farmers in terms of WTP. Instead, we see that city buyers are willing to pay 0.34 Taka more to Santal farmers than what they would pay to Bengali farmers, although this difference is not statistically significant at conventional levels.

Further to the actual quality scores and WTP given to randomized farmer names, we also look at whether blind assessment of rice quality and WTP differ between actual ethnicity of farmers. We provide these results in Table 4 in Appendix A. Although we have a small number of observations from blind assessments, as expected, we find that blind assessment of rice quality and WTP do not differ across actual ethnicity of farmers, neither overall nor within different locations (MW-test: all p -values > 0.10). This suggests that ethnic majority and minority farmers might be producing rice of very similar qualities and, in a fair world, they would also receive the same price for their product.

4.2 Main Results

Using a regression framework, we examine whether the judgment of rice quality and price depends on the ethnic identity of the farmer while also controlling for “actual” rice quality, the market price of the rice, rice variety and buyer fixed effects. Here we use blind quality scores as a proxy for actual rice quality. Moreover, assuming buyers are fully aware of rice varieties available in the market, controlling for rice variety captures any inference made by buyers about farming quality or skills of farmers. For instance, buyers might have experiences of buying rice variety A mostly from highly skilled farmers and B mostly from low skilled farmers. Hence, knowing the variety might induce buyers to (wrongly) guess the quality or skills of the farmer. Similarly, the market price of the rice captures any further indication of the quality or skills of the producer because, for example, low skilled farmers might mostly produce cheaper rice varieties than high

Table 2: WTP and Quality Score Given to Randomized Farmer Names

	All			Multi-Ethnic			Mono-Ethnic			City		
	Bengali (<i>Std. Dev.</i>)	Santal (<i>Std. Dev.</i>)	T-test <i>p</i> -values	Bengali (<i>Std. Dev.</i>)	Santal (<i>Std. Dev.</i>)	T-test <i>p</i> -values	Bengali (<i>Std. Dev.</i>)	Santal (<i>Std. Dev.</i>)	T-test <i>p</i> -values	Bengali (<i>Std. Dev.</i>)	Santal (<i>Std. Dev.</i>)	T-test <i>p</i> -values
Quality Score	6.68 (1.76)	6.68 (1.76)	0.872	6.65 (1.91)	6.74 (1.95)	0.339	7.12 (1.48)	6.96 (1.49)	0.081	6.18 (1.64)	6.17 (1.61)	0.899
WTP	37.92 (6.58)	37.34 (6.58)	0.008	37.64 (7.74)	36.95 (7.39)	0.066	37.75 (5.65)	36.62 (6.09)	0.001	38.70 (4.99)	39.04 (5.07)	0.321
Observations	1,800	1,800	-	825	825	-	555	555	-	420	420	-

Note: Bengali (Santal) means a rice sample had a Bengali (Santal) sounding name; Quality Score is the quality score (between 0 to 10) given to a rice sample where 10 corresponds to the highest quality; WTP is a buyer's willingness to pay (in taka) for 1 kilogram of a particular rice sample; T-test is a two-sample t-test with unequal variances.

skilled farmers. Therefore, such inference might also affect the buyer’s rice quality assessment score and willingness to pay. Since only the quality of rice and the name of the farmer is visible to the buyer, other farmer characteristics, such as age, years of experience, the location of farming, and so on, that might affect stated quality score and willingness to pay are ambiguous to the assessor. Please also note that all assigned names were male-sounding names, eliminating possibilities of gender discrimination. Also, even though we have randomized names of farmers, adding control variables may give us more precise effects. To capture such effects, we estimate the following OLS regression for rice quality assessment:

$$QualityScore_{ij} = \beta Minority_{ij} + \gamma BlindScore_{ij} + \delta MarketPrice_{ij} + v_i + b_j + \epsilon_{ij} \quad (1)$$

For willingness to pay, besides the same set of regressors, we also add quality scores as a control, because buyers assess rice quality prior to stating their willingness to pay. So, the score that has been assigned might also affect buyers’ willingness to pay. Our OLS regression for willingness to pay is provided below:

$$WTP_{ij} = \beta Minority_{ij} + \gamma BlindScore_{ij} + \delta MarketPrice_{ij} + QualityScore_{ij} + v_i + b_j + \epsilon_{ij} \quad (2)$$

where *QualityScore* is the quality score (a number between 0 and 10, where 10 corresponds to the best quality) given to rice sample *i* by the buyer *j*, *WTP* is the buyer’s willingness to pay for one kilogram of rice, *Minority* is a dummy variable that indicates whether a rice sample was assigned an ethnic minority name, *BlindScore* is the blind quality score given to each rice sample, *MarketPrice* is the actual market price of the rice, and *v* are dummies for each variety of rice. In addition, *b* is the buyer fixed effects, allowing us to hold the buyers’ individual standards fixed. Standard errors are clustered at the shop location level, which was the unit of advertising (or initial randomization) in our study.

In Table 3, we provide our main regression results of rice quality scores on the ethnicity of farmers. In column 1, we show the results of specification without any control variables. Then we incrementally add controls in the subsequent columns. Specifically, we control for blind quality score of rice in column 2, the market price of rice in column 3 and then control for rice varieties in column 4. Finally, in column 5 we have a full set of controls that also have buyer fixed effects.

Our results show that buyers do not discriminate Santal farmers by giving them a lower quality score. While adding controls incrementally increases the difference in quality scores between Santal and Bengali farmers, but this difference never reaches

Table 3: Effect of Assigned Ethnicity on Rice Quality Assessment

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	-0.009 (0.054)	-0.034 (0.057)	-0.062 (0.054)	-0.041 (0.052)	-0.041 (0.053)
Blind Score	-	0.318*** (0.060)	0.325*** (0.061)	-0.023 (0.046)	-0.023 (0.046)
Market Price	-	-	0.074*** (0.012)	0.038*** (0.007)	0.038*** (0.007)
Constant	6.684*** (0.149)	4.697*** (0.462)	1.098 (0.940)	5.090*** (0.518)	4.543*** (0.494)
Rice Variety	No	No	No	Yes	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	3,600	3,600	3,600	3,600	3,600
R-squared	0.000	0.025	0.111	0.141	0.377

Robust standard errors clustered at the shop location level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: OLS regression estimates reported; the dependent variable is quality assessment score given to rice samples (any number between 0 and 10, where 10 corresponds to the highest quality); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; a shop location is the village/locality where a shop is located; in total, 3,600 rice samples were assessed by 120 rice buyers (each assessed 30 rice samples).

statistical significance at conventional levels.¹² In other words, buyers do not seem to discriminate ethnic minority farmers in terms of quality assessment, but it is still to be seen whether this holds true for all locations or whether there are any geographic heterogeneity in terms of discrimination. To explore this, we disaggregate our sample by location and estimate our baseline specification for quality score on each of the locations: multi-ethnic villages, mono-ethnic villages, and the city. We summarize these results in Table 5. Columns 1, 2, and 3 show effects on buyers' quality assessment scores in multi-ethnic villages, mono-ethnic villages, and the city respectively. Similar to the raw test results provided in Table 2, we find that buyers from mono-ethnic villages give, on average, 0.15 points less to Santal farmers than to Bengali farmers (2% less score), which is significant at the 5% level. However, buyers from multi-ethnic villages and city buyers

¹²Controlling for actual ethnicity of farmers has no significant effect and does minimal to no change to the coefficient of our variable of interest. Although we do not present the results, for robustness, we control for the actual ethnicity in all specifications and none of our results change.

do not seem to discriminate Santal farmers in terms rice quality assessment and these effect sizes are neither statistically significant nor large in terms of magnitude.¹³ To check if these effect sizes statistically differ between locations, we interact locations with the assigned ethnicity of farmers. We do this on a restricted sample where we always leave out a third location that we do not wish to compare, e.g. if the comparison is between multi-ethnic and mono-ethnic villages, then we leave out the city from the analysis. This way, the estimated coefficient of the interaction term would give us the difference between the two effects of ethnicity from two locations (i.e. difference-in-difference). We provide these results in Tables 6-8 in Appendix A. We find that only the difference in effect sizes between multi-ethnic and mono-ethnic villages is marginally significant at the 10% level. However, we do not find any differences in effect sizes between multi-ethnic villages and the city, and mono-ethnic villages and the city.¹⁴ Therefore, our results suggest that, while the magnitude of discrimination in terms of quality assessment is small within mono-ethnic villages, it is significantly higher than that in multi-ethnic villages but not so much than that in the city.

Table 4 summarizes results of our baseline specification for willingness to pay. In column 1, without any control variables, we find that buyers are willing to pay Santal farmers 0.58 Taka less than Bengali farmers, which is significant at the 5% level. Adding control variables in subsequent columns improve the precision of estimates, which finally shows that buyers are willing to pay Santal farmers, on average, 0.64 Taka less than Bengali farmers which is also significant at the 5% level (column 5). When we split our sample by location, we find that buyers from both types of villages are willing to pay less to Santal farmers relative to Bengali farmers (both are statistically significant at then 5% level). However, we do not find any effect of assigned ethnicity on willingness to pay by buyers from the city. Therefore, our results suggest that discrimination captured overall are entirely driven by buyers from villages, whereas city buyers do not seem to discriminate ethnic minority farmers in terms of willingness to pay. Instead, although statistically insignificant, they seem to offer more to Santal farmers compared to Bengali farmers.¹⁵ Furthermore, while investigating differences in effect sizes between locations, we find that there are no differences between multi-ethnic and mono-ethnic villages

¹³However, when we combine both villages together, we do not find any statistically significant effect of assigned ethnicity of farmers on rice quality assessment. This result is shown in Table 5 in Appendix A.

¹⁴We also compare effect sizes between villages (combined) and the city and found that this difference is also statistically insignificant. This result is shown in Table 9 in Appendix A.

¹⁵Combining both villages together to look at discrimination only within villages, we find that buyers from villages are willing to pay, on average, 0.91 Taka less to Santal farmers compared to Bengali farmers (significant at the 1% level). This result is provided in Table 10 in Appendix A.

Table 4: Effect of Assigned Ethnicity on Buyer’s Willingness to Pay

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	-0.582** (0.257)	-0.671** (0.264)	-0.784*** (0.271)	-0.702*** (0.227)	-0.637** (0.235)
Blind Score	-	1.148*** (0.102)	1.178*** (0.102)	0.743*** (0.101)	-0.026 (0.091)
Market Price	-	-	0.305*** (0.042)	0.206*** (0.035)	0.100*** (0.021)
Quality Score	-	-	-	1.338*** (0.266)	1.634*** (0.201)
Constant	37.920*** (0.514)	30.743*** (1.000)	15.962*** (2.383)	14.492*** (1.684)	22.648*** (1.249)
Rice Variety	No	No	No	No	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	3,600	3,600	3,600	3,600	3,600
R-squared	0.002	0.025	0.129	0.243	0.612

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is the buyer’s willingness to pay for one kilogram of each rice samples (in Bangladeshi Taka); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; Quality Score is the rice quality assessment score given to each rice sample (any number between 0 and 10); a shop location is the village/locality where a shop is located; in total, 3,600 rice samples were assessed by 120 rice buyers (each assessed 30 rice samples).

(Table 11 in Appendix A). However, effect sizes are significantly different between multi-ethnic villages and the city, and mono-ethnic villages and the city, where both differences are statistically significant (at the 5% level and the 1% level respectively). These results can be found in Tables 12-13 in Appendix A.¹⁶ Following our raw test results from Table 2, our regression results also suggest that Bengali buyers discriminate Santal farmers in terms of how much they are willing to pay for one kilogram of rice and such unequal treatment is only prevalent in the villages.¹⁷

¹⁶The difference in effect sizes between villages (combined) and the city is also statistically significant. This result is shown in Table 14 in Appendix A.

¹⁷Since we have two regressions with a very similar set of regressors, it is likely that the error terms in the regressions would be correlated. Also, the dependent variable in one regression equation is an independent variable in the other, which makes the two equations related to one another. Therefore, to allow for correlation between the error terms across the two regression equations, we also run a seemingly unrelated regression analysis to check if our initial results hold. We find that all our results remain robust throughout.

Table 5: Effect of Assigned Ethnicity, by Location

VARIABLES	Quality Score			Willingness to Pay		
	Multi-ethnic (1)	Mono-ethnic (2)	City (3)	Multi-ethnic (4)	Mono-ethnic (5)	City (6)
Minority	0.015 (0.072)	-0.153** (0.047)	-0.063 (0.119)	-0.997** (0.355)	-0.893** (0.341)	0.204 (0.249)
Blind Score	-0.076 (0.094)	0.040 (0.065)	-0.005 (0.055)	-0.124 (0.121)	0.246 (0.241)	-0.090 (0.142)
Market Price	0.064*** (0.005)	0.015 (0.014)	0.019** (0.007)	0.088*** (0.020)	0.086*** (0.018)	0.115 (0.082)
Quality Score	-	-	-	2.036*** (0.264)	1.597*** (0.392)	0.429** (0.122)
Constant	3.212*** (0.705)	5.152*** (1.069)	3.846*** (0.455)	22.430*** (1.357)	21.825*** (2.291)	34.000*** (3.415)
Rice Variety	Yes	Yes	Yes	Yes	Yes	Yes
Buyer Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,650	1,110	840	1,650	1,110	840
R-squared	0.460	0.284	0.379	0.739	0.517	0.352

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable for columns 1-3 is Quality Score and that for columns 4-6 is Willingness to Pay (in Bangladeshi Taka); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; Quality Score is the rice quality assessment score given to each rice sample (any number between 0 and 10); a shop location is the village/locality where a shop is located; in total, 3,600 rice samples were assessed by 120 rice buyers (each assessed 30 rice samples).

4.3 Underlying Nature of Discrimination

Our design provides two measures of discrimination, one via capturing rice quality scores and another through one's willingness to pay for a kilogram of rice. Through these two measures, we are able to distinguish between the two models of discrimination: a *taste-based* model of discrimination where buyers might have a preference for a certain ethnic group (Becker, 1957) or a *statistical* model of discrimination where buyers might use the ethnicity of farmers as a proxy for skills that are unobservable to them (Phelps, 1972; Arrow, 1973). Our first measure of discrimination, rice quality scores, captures a buyer's belief about the skills or competence of farmers in cultivating rice. For instance, if a buyer believes that a rice is of lower quality, hence produced by a low skilled farmer, he would certainly give it a low quality score irrespective of its variety or market price. Therefore, capturing discrimination in terms of rice quality assessment would be consistent with the *statistical* model of discrimination, where buyers' judgments would be entirely driven by stereotypes associated with skills or ability of ethnic minority farmers

Figure 1: Ethnic Discrimination, by Order of Assessment



Note: This figure shows the relationship between the order in which buyers have assessment rice samples and assigned ethnicity of farmers.

in terms of rice production. On the other hand, our second measure of discrimination, willingness to pay, captures both buyers' preferences for a certain ethnic group as well as their judgments about skills of that particular group. For example, buyers might be willing to pay less for rice produced by Santal farmers because either they dislike paying more to Santal farmers or they believe Santal farmers produce lower quality rice and, hence, deserves to get a lower price for their product. Therefore, capturing discrimination in terms of willingness to pay would be backing both theories of discrimination. Since our data show that buyers discriminate ethnic minority farmers only in terms of willingness to pay and not in terms of the quality of rice they produce, this certainly isolates *statistical* discrimination from the lot. Therefore, our finding seems consistent with the *taste-based* discrimination model.

An alternative way to test if discrimination is due to animus or due to making statistical inference about skills is to check the order in which rice samples were assessed (Hanna & Linden, 2012). If there is any correlation between quality scores/willingness to pay and the order of assessment, then that would suggest discrimination is *statistical*. For example, if buyers discriminate at the beginning of the evaluation then that would suggest that buyers use the ethnic identity of farmers as a signal to where the quality of a particular rice sample will end up in the distribution, since the quality distribution is still unknown to buyers at the beginning. Then again, if buyers discriminate at the

Table 6: Effect on Assessment Outcomes, by the Order of Assessment

VARIABLES	Quality Score		Willingness to Pay	
	(1)	(2)	(3)	(4)
Minority	-0.106 (0.114)	-0.029 (0.080)	-0.806* (0.407)	-0.632** (0.292)
Minority×Order	0.004 (0.007)	-	0.005 (0.018)	-
Order	0.005 (0.004)	-	0.045** (0.017)	-
Minority×First Half Order	-	-0.028 (0.110)	-	-0.186 (0.346)
First Half Order	-	-0.042 (0.065)	-	-0.512** (0.248)
Constant	4.494*** (0.525)	4.631*** (0.508)	29.489*** (1.175)	31.022*** (1.245)
All Other Controls	Yes	Yes	Yes	Yes
Rice Variety	Yes	Yes	Yes	Yes
Buyer Fixed Effects	Yes	Yes	Yes	Yes
Observations	3,600	3,600	3,600	3,600
R-squared	0.377	0.377	0.495	0.494

Robust standard errors clustered at the shop location level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: OLS regression estimates reported; the dependent variable in column 1 is quality score and that in column 2 is willingness to pay; Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 otherwise; Order is the order in which rice samples were assessed; First Half Order is a dummy variable that equals 1 if the order is equal or below 15 and 0 otherwise; a shop location is the village/locality where a shop is located.

end of the evaluation process then that would mean boredom/fatigue might be inducing them to reduce the amount of time spent evaluating by quickly predicting rice quality based on farmer’s ethnic identity. However, the order of rice assessment would not affect the rice quality scores if discrimination is *taste-based*. This is because, buyers would have a “distaste” for ethnic minority farmers throughout the evaluation process, so their assessment outcomes should be constant regardless of the order. Although this exercise is more desirable when the process of assessment is time-consuming as in [Bertrand & Mullainathan \(2004\)](#) or [Hanna & Linden \(2012\)](#), this alternative test nevertheless would assure that our conclusion regarding the mechanism behind discrimination is robust.

In [Figure 1](#), we show the relationship between assessment order and quality score (A)/willingness to pay (B). The x -axis is the order in which rice samples were assessed

and the y -axis for graph A is the quality score and that for graph B is the willingness to pay for one kilogram of rice. The solid line is the assessment outcome of Bengali farmers and the dotted line is the assessment outcome of Santal farmers. From both figures, it is quite evident that there is no particular pattern in the assessment order, suggesting discrimination must be constant regardless of the order. To formally test this, we regress quality scores (willingness to pay) on assigned ethnicity, the order of assessment and their interaction, while also controlling for variables from our baseline specifications. This result is provided in Table 6. The ‘Minority’ term shows the average given score (column 1) or stated willingness to pay (column 3) to Santal farmers that are independent of any assessment order. With increasing order, we find that it does not have any effect on neither quality score nor willingness to pay to Santal farmers. Similarly, in columns 2 and 4, we provide results of an interaction between assigned ethnicity and an indicator variable that indicates whether the order of assessment was below or equal to 15. With the interaction term being statistically insignificant, it shows that the difference in assessment outcomes between Santal and Bengali farmers does not differ across the first half and the last half of assessment. Therefore, we can conclude that our first conclusion on the mechanism behind discrimination is indeed robust.

4.4 Does Assessment Vary by Buyer Characteristics?

We have found our results to be consistent with *taste-based* discrimination, now it is to be seen whether such discrimination varies by characteristics of buyers, such as their age, years of education, monthly income, years of experience in the current business, level of interaction with ethnic minority farmers, and the level of intercultural competence. For example, older buyers might hold traditional values and might respond to negative social norms associated with ethnic minorities strongly relative to younger buyers who might be more tolerant of minorities. Likewise, having higher interaction with ethnic minority farmers in business might make buyers more welcoming towards the minority people. Similar arguments could also be made for the remaining characteristics. Therefore, here we formally test whether such characteristics have any influence on discrimination.

We present these results in Table 15 (quality score) in Appendix A and in Table 7 (willingness to pay). In both tables, column 1 shows estimates for rice samples assessed by buyers who belong to the panel title category, whereas column 2 shows estimates for rice samples assessed by buyers who do not belong to the panel title category. For example, Panel A title category is “Above Median Age”, so column 1 (2) shows estimates by buyers who are above (below) the median age. The final column, column 3, shows

the estimates of interaction between the buyer’s characteristics and farmer’s ethnicity (i.e. difference-in-difference). According to Table 15 in Appendix A, we find that buyers above the median age marginally discriminates Santal farmers in terms of quality assessment, while buyers below the median age do not. Instead, buyers below the median age category give a higher score to Santal farmers relative to Bengali farmers, although this is statistically insignificant at conventional levels. Moreover, the gap in discrimination between older and younger buyers is statistically significant at the 5% level (Panel A). Also, having relatively fewer years of experience in the business induces discrimination towards Santal farmers; however, the coefficients of the effects for less experienced buyers do not differ from that for highly experienced buyers (Panel D). In terms of interacting with ethnic minority farmers for business purpose, we find that, although both differences being statistically insignificant, buyers who interact more give higher score to Santal farmers and buyers who interact less give less score to Santal farmers compared to Bengali farmers, and the difference between these two coefficients of effects are statistically significant at the 5% level (Panel E). In terms of religious difference (Panel G), we see that neither Muslim nor non-Muslim buyers discriminate Santal farmers. For the rest (Panels B, C, and F), we do not observe ethnic discrimination varying with buyer characteristics.

In terms of discrimination based on willingness to pay (Table 7), we find that buyers who are both above and below the median age category discriminate Santal farmers, where younger buyers seem to discriminate more than older buyers, but their difference does not statistically differ (Panel A). In terms years of education, monthly income, years of experience, and the frequency of interaction with ethnic minority farmers, we see a very similar pattern: all buyers who fall below the median level in these characteristics are willing to pay, on average, less to Santal farmers relative to Bengali farmers (Panels B-E). However, differences between above and below categories in all but the frequency of interaction (Panel E, column 3) are not statistically significant at conventional levels. The difference between high and low interacting buyers is large and significant at the 5% level. In terms of intercultural competence level, both well and poorly informed buyers discriminate Santal farmers; however, discrimination seems much larger among well-informed buyers relative to poorly informed buyers, but this difference do not reach statistical significance (Panel F). Finally, with regards to religious differences, we see that Muslim buyers are willing to pay less to Santal farmers than what they would pay to Bengali farmers but we do not observe any bias among non-Muslim buyers (Panel G). Therefore, Muslim buyers seem to have an in-group bias towards ethnic majority farmers (who all have Muslim sounding names) whereas non-Muslims do not. However,

Table 7: Effect on Willingness to Pay by Buyer's Characteristics

VARIABLES	Belongs to panel title category?		Difference (3)
	Yes (1)	No (2)	
Panel A: Above Median Age			
Minority	-0.497* (0.267)	-0.786* (0.401)	0.294 (0.487)
Panel B: Above Median Education			
Minority	-0.553 (0.317)	-0.722** (0.257)	0.212 (0.317)
Panel C: Above Median Income			
Minority	-0.408 (0.280)	-0.817** (0.314)	0.524 (0.396)
Panel D: Above Median Years in Business			
Minority	-0.380 (0.260)	-0.866** (0.334)	0.685 (0.436)
Panel E: Higher Interaction			
Minority	-0.171 (0.232)	-0.876** (0.312)	0.778** (0.348)
Panel F: Above Median IC Competence			
Minority	-0.899** (0.367)	-0.460* (0.253)	-0.507 (0.386)
Panel G: A Muslim			
Minority	-0.693** (0.254)	-0.451 (0.385)	-0.255 (0.375)
All Other Controls	Yes	Yes	Yes
Rice Variety	Yes	Yes	Yes
Buyer Fixed Effects	Yes	Yes	Yes

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is the buyer's willingness to pay for one kilogram of each rice samples (in Bangladeshi Taka); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; all panel title categories are dummies where it is equal to 1 if it belongs to the panel title category and 0 otherwise; Column 1 shows estimates for rice samples assessed by buyers who belong to the panel title category; Column 2 shows estimates for rice samples assessed by buyers who do not belong to the panel title category; Column 3 shows the estimates of interaction between buyer's characteristics and farmer's ethnicity (i.e. difference-in-difference); a shop location is the village/locality where a shop is located; in total, 3,600 rice samples were assessed by 120 rice buyers (each assessed 30 rice samples).

the difference observed among Muslim buyers is not statistically different from that among non-Muslim buyers.

4.5 Can Ethnic Minority Farmers Avoid Discrimination?

By design, we decided to run experiments on three types of locations: multi-ethnic villages, mono-ethnic villages, and the main city in the district. This not only makes our study more externally valid but also allows us to check for geographic heterogeneity of discrimination. Our results suggest that ethnic discrimination in terms of willingness to pay is only present in the villages but not in the city. Moreover, for rice sold by ethnic minority farmers, city buyers seem to be willing to pay significantly higher price relative to buyers from the villages (although this is not statistically significant at conventional levels). Hence, one could argue that ethnic minority farmers from villages might benefit if they avoid selling their products to local buyers and instead go to the city to sell their products at a higher price, where they can receive a higher price while also avoid being discriminated. Therefore, the main aim of this subsection is to analyze this possibility.

A buyer's willingness to pay is the amount that farmers can expect to receive from buyers when they sell one kilogram of rice. Since selling to the village buyers incur no costs of transportation whereas selling to city buyers do, farmers' expected earnings is simply the amount received from buyers minus the cost of transportation (for simplicity, we assume this cost to be fixed).¹⁸ In this scenario, minority farmers are faced with two choices: either (i) sell to the village buyers or (ii) sell to the city buyers. To find the option that would generate the highest monetary benefit to minority farmers, we would compare earnings generated from selling a kilogram of rice at both locations. Through our experiment, we obtained willingness to pay of buyers from both villages and the city (summary available in Table 2). Then using the 2015 Bangladesh Integrated Household Survey (BIHS) data, we are able to find the cost of return travel from the city that includes both the opportunity cost of traveling (i.e. forgone income) and the cost of transportation. Assuming this cost to be fixed, from the BIHS data, we could use the difference in income generated from selling to city markets and selling from home or at local village markets as a proxy for the cost of travel.¹⁹ Therefore, if the net earnings for selling one kilogram of rice in the city is higher than that in villages, then it would

¹⁸From Table 1, we already know that around 90 percent of village buyers buy rice by visiting farmer households in person, which results in no transportation cost for farmers.

¹⁹For other types of costs, such as costs associated with mental stress, the anxiety of finding buyers, cost of searching buyers, etc., we assume that such costs are constant across the two locations as buyers' shops are always located at a central place, e.g. marketplaces, that is easy to find. Please also note that this cost is the same for both ethnic majority and minority farmers.

Table 8: Effect on Earnings of Farmers, by Location

VARIABLES	Village (1)	City (2)	Difference (3)
Minority	-0.914*** (0.249)	0.204 (0.249)	0.300 (0.227)
Village	-	-	0.342* (0.166)
Minority×Village	-	-	-1.223*** (0.346)
Constant	21.257*** (1.114)	33.690*** (3.415)	22.373*** (1.309)
Other Controls	Yes	Yes	Yes
Rice Variety	Yes	Yes	Yes
Buyer Fixed Effects	Yes	Yes	Yes
Observations	2,760	840	3,600
R-squared	0.671	0.352	0.612

Robust standard errors clustered at the shop location level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: OLS regression estimates reported; the dependent variable is the expected earnings of farmers for selling one kilogram of rice (in Bangladeshi Taka); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Village is a dummy where it is equal to 1 if a buyer’s business is in a village and 0 otherwise; a shop location is the village/locality where a shop is located; in total, 3,600 rice samples were assessed by 120 rice buyers (each assessed 30 rice samples).

be beneficial for farmers from villages to sell their products to city buyers.

We present the average willingness to pay and the cost of travel across locations in Table 16 in Appendix A, where column 1 shows the averages in the city and column 2 shows the averages in villages. The raw difference clearly suggests that ethnic minority farmers would make a gain of 1.94 Taka per kilogram of rice if they sell it to city buyers, whereas ethnic majority farmers would make a gain of around 0.69 Taka per kilogram of rice if they sell it to city buyers. As both ethnic majority and minority farmers seem to benefit from selling to city buyers, we now test it formally in a regression framework.

To investigate this, we deduct the cost of travel from city buyers’ willingness to pay only (as there are no costs involved when sold to villager buyers) and then regress the ‘modified’ willingness to pay on the assigned ethnicity of farmers, an indicator variable if the location is a village, and their interactions. Our regression output is given in Table 8. Columns 1 and 2 looks at the effects on earnings in villages and city separately, and then the interaction term in column 3 shows the difference-in-difference. As found earlier, Santal farmers are discriminated in the village (column 1) but not in the city (column 2). Here, adding ‘Minority×Village’ with ‘Village’ gives the difference in earnings by Santal

farmers in the villages relative to the city, which is statistically significant at the 1% level (joint test of ‘Village’ and the interaction: F-test p-values < 0.01). Whereas for Bengali farmers, it seems they are better off in the villages where they can get higher prices for selling rice (coefficient of ‘Village’ in column 3). Therefore, selling to city buyers seem to be a profitable strategy for ethnic minority farmers only, as it generates 1.94 Taka more for selling one kilogram of rice. According to the 2015 BIHS data, farmers in the Northwestern part of Bangladesh sell 831.17 kilograms of rice on average each year and have a daily income of 225 Taka. This translates to an increase in earnings of around 1,600 Taka each year, which is equivalent to their week’s income.

5 Discussion

Through our experiment, we find that ethnic majority rice buyers discriminate ethnic minority farmers by willing to pay them significantly less than what they are willing to pay ethnic majority farmers, and the main mechanism behind this behavior is due to buyers having a *taste* for not paying more to minority farmers relative to majority farmers. So, what could be the reasons behind developing such preferences towards ethnic minority farmers? One plausible reason is socialization of Bengalis from a very young age to dislike ethnic minorities. Ethnic minorities in Bangladesh are usually considered ‘inferiors’ by the ethnic majority (Bal, 2007), so it is very likely that Bengalis have developed negative attitudes toward minorities both consciously and unconsciously from their parents and the society, where such intolerance is an acceptable social norm. Bengalis socialize in an environment where discrimination and abuse of ethnic minorities across various social domains are not considered a crime, and their exclusion from social, political, and economic opportunities are seen as customary (AIPP, 2010; Roy, 2012; IMF, 2013). Such views and beliefs have been perpetuated from generations through blind imitation of previous attitudes, and, hence, the ethnic majority buyers might have simply developed a *distaste* towards ethnic minority farmers over time.²⁰ While our study lack precise data or measures of buyers’ socialization from the very young age, we deduce from existing literature on ill-treatment of ethnic minorities in Bangladesh that negative social learning might be a valid reason for developing such prejudicial attitudes (Bandura, 1977).

Another plausible reason is the lack of intergroup interaction. Allport (1954)’s *contact hypothesis* suggests that lack of intergroup contact might induce prejudice, and the

²⁰In Bangladesh, ethnic minorities also dislike the ethnic majority and have a very bitter relationship that often leads to interethnic violence. Therefore, we also cannot discard the idea that intergroup conflict might have developed prejudice towards ethnic minorities (Sherif, Harvey, White, Hood & Sherif, 1961).

most effective way to reduce prejudice is by increasing intergroup contact. Meta-analysis in both [Pettigrew & Tropp \(2006\)](#) and [Paluck et al. \(2018\)](#) show that the majority of studies investigating Allport’s intergroup contact theory have found a positive association between intergroup interaction and reduction in prejudice towards out-group members. [Brown et al. \(2003\)](#) tests the hypothesis among Black and White high school student athletes and finds that having more Black athletes in a team improves racial attitudes of White athletes toward Blacks. Moreover, in economics, [Rao \(2018\)](#) induce contact between rich and poor students that improve attitudes of rich students towards poor students. In our paper, we also exploit a natural experiment and a survey measure of social interaction to test this conjecture. Buyers in our study reside and conduct daily businesses in either multi-ethnic villages, mono-ethnic villages or the main city. While residents in multi-ethnic villages are likely to have regular contact and interaction with ethnic minorities, residents in mono-ethnic villages and the city hardly interact with ethnic minorities.²¹ Our regression results show that discrimination is more pronounced in mono-ethnic villages than in multi-ethnic villages, but this difference is statistically insignificant at conventional levels.²² Interestingly, we do not observe any discrimination in the city, where intergroup contacts are also likely to be minimal, but it is highly likely that competitive market pressures have driven out discrimination from the market ([Becker, 1957](#)). With rice being a staple food and farmers not always being able to produce the adequate amount of rice each year (mostly due to occasional natural disasters in Bangladesh), buyers in a high competition market, such as in the city that are densely populated, might want to look past any prejudice they may hold to store rice to meet the existing demand. However, in this case, we do not have any measure of competition across locations. Furthermore, when we individually look at buyers’ behavior who interact more often and compare it to that who interact less often with ethnic minorities, we see a significant difference between the two suggesting that buyers who interact more with ethnic minority farmers discriminate less often than buyers who hardly interact. Therefore, in our study, it is also highly likely that interethnic interaction has an impact on the prejudicial attitude formation of ethnic majority buyers.

According to literature in social psychology, other plausible reasons for developing prejudicial attitude towards ethnic minorities could be due to Bengalis having a “deep-

²¹We also confirm this using a survey measure of how often buyers interact with ethnic minority farmers for business purpose (shown in Table 1).

²²We are ruling out possibilities of buyers self-selecting into these locations in order to discriminate against ethnic minority farmers because, from Table 1, we see that their average age is 40 years and they have been residing in their present residences for a little over 33 years, and have been in their profession for around 15 years. Therefore, it is very unlikely that they have migrated to these locations at a very young age in order to discriminate against ethnic minority farmers.

seated” personality trait that make them hostile towards people of ‘inferior’ social status (Adorno, Frenkel-Brunswik, Levinson & Sanford, 1950) or they have developed disliking towards minorities as they “break physical and social patterns”, as minorities are very distinct from the majority in terms of race, culture, language, religion, customs, etc. (Gollwitzer, Marshall, Wang & Bargh, 2017). We believe a combination of the reasons that we discuss above might have developed a *distaste* among Bengali buyers towards ethnic minority farmers, wherein ethnic socialization and intergroup interaction play a significant role. Although we cannot explicitly claim which of the reasons truly affect prejudice that we document in this paper, we, nevertheless, find a way ethnic minority farmers could avoid being discriminated. Our analyses show that ethnic minorities would benefit significantly if they sell rice to the city buyers, a strategy that would also generate one week’s additional income per year for ethnic minority farmers. While Paluck & Green (2009) and Bertrand & Duflo (2017) provide a range of policies that could be implemented to reduce discrimination, our back-of-the-envelope calculation suggest that ethnic minorities participating into competitive markets would be a good start in reducing discrimination.

6 Conclusion

We organized a competition amongst rice farmers followed by a battery of rice evaluation programs in the Northwestern part of Bangladesh where ethnic majority rice buyers were invited to assess rice samples to determine the winner of the competition. To experimentally measure whether the ethnic identity of farmers has any relationship with assessment outcomes, we randomly attached ethnic majority and minority sounding names to each rice sample to implicitly signal buyers about the ethnicity of participants in the rice competition. We find that buyers do not discriminate ethnic minority farmers in terms of the quality of rice they produce; instead, they discriminate them in terms of how much they are willing to pay for their rice. We argue this behavior to be consistent with the *taste-based* model of discrimination. Also, this pattern can only be observed among village buyers, where city buyers do not seem to discriminate ethnic minority farmers.

Exploring our data patterns further, we find that intergroup interaction affects the severity of discrimination. We interpret that a combination of interethnic interaction and socialization of ethnic majority farmers as being the underlying sources of the observed *taste-based* discrimination against ethnic minorities. This provides some directions for future research that could further explore underlying sources of prejudicial

attitude formation. For instance, studying the behavior of individuals who have socialized differently in multi-ethnic and mono-ethnic environments with a varying level of intergroup interactions would certainly disentangle the effect of socialization from intergroup contact on prejudice formation. Similarly, exploring this over different age groups and generations would further elucidate its fundamental sources to help shape existing policies. While our findings suggest that encouraging ethnic minority farmers to seek buyers from the city would be a reasonable step towards circumventing discrimination in this context, other costs associated with leaving family behind, breaking traditions, emotional burden, and so on, might not always make this strategy effective. Therefore, future research that takes more costs into account would certainly shed more light on this strategy.

With recent strands of economic literature suggesting preference being endogenous (Bowles, 1998), it is crucial to pinpoint the main underlying sources behind developing a strict preference against a certain social group. Only then effective policies and interventions could be devised to reduce or eliminate it.

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1 Appendix A: Supplementary Tables

Table 1: List of Rice Varieties and Market Price

	Rice Variety	Market Price per kg
1.	Atash Grade 1	56
2.	Atash Grade 2	52
3.	Atash Grade 3	50
4.	Aush	45
5.	Gutishorna	42
6.	Jeera	58
7.	Paijam	60
8.	Parija	45
9.	Shorna	40

Note: All prices are in Bangladeshi Taka.

Table 2: List of Bengali and Santal Sounding Names

	Bengali Names	Santal Names
1.	Mohammad Mannan	Horen Hasda
2.	Rafiqul Islam	Hopna Kisku
3.	Jashim Ali	Swapon Murmu
4.	Abul Kalam	Anmel Hasda
5.	Ashraful Islam	Mungla Hembrom
6.	Khairul Islam	Phanichandra Hasda
7.	Mohammad Zakaria	Jogi Murmu
8.	Mazharul Islam	Piuch Tudu
9.	Mohammad Saifuddin	Robi Saren
10.	Imam Hossain	Joydeb Mardi
11.	Rajab Ali	Dhiren Hembrom
12.	Mohammad Rafique	Brijlal Kisku
13.	Borhan Hossain	Niren Mardi
14.	Mohammad Selim	Morme Tudu
15.	Amirul Islam	Philmon Saren

Figure 1: A Rice Board



Note: On top of each rice sample, on the left is the rice ID and next to it is the assigned name of the farmer.

Table 3: The Evaluation Sheet

Rice ID	Name of Farmer	Quality Score	Willing to Pay

Note: Buyers had to write the rice ID and then the farmer's name, and then give the quality score and write how much they are willing to pay for one kilogram of this particular rice (always in this order).

Table 4: Blind WTP and Quality Score Given to Actual Farmers

	All			Multi-Ethnic			Mono-Ethnic			City		
	Bengali (<i>Std. Dev.</i>)	Santal (<i>Std. Dev.</i>)	MW-test <i>p</i> -values	Bengali (<i>Std. Dev.</i>)	Santal (<i>Std. Dev.</i>)	MW-test <i>p</i> -values	Bengali (<i>Std. Dev.</i>)	Santal (<i>Std. Dev.</i>)	MW-test <i>p</i> -values	Bengali (<i>Std. Dev.</i>)	Santal (<i>Std. Dev.</i>)	MW-test <i>p</i> -values
Blind Quality Score	6.40 (1.03)	6.18 (1.40)	0.453	6.67 (0.98)	6.20 (1.32)	0.350	6.40 (1.24)	6.47 (1.51)	0.983	6.13 (0.83)	5.87 (1.41)	0.590
Blind WTP	36.93 (3.60)	36.27 (4.20)	0.122	34.87 (3.18)	35.00 (3.23)	0.770	35.80 (2.62)	34.80 (2.24)	0.161	40.13 (2.61)	39.00 (5.29)	0.200
Observations	45	45	-	15	15	-	15	15	-	15	15	-

Note: Bengali (Santal) means a rice sample was collected from a Bengali (Santal) farmer; Blind Quality Score is the quality score (between 0 to 10) given to a rice sample where 10 corresponds to the highest quality; Blind WTP is a buyer's willingness to pay (in taka) for 1 kilogram of a particular rice sample; MW-test is a two-sided Mann-Whitney U test.

Table 5: Effect of Assigned Ethnicity on Rice Quality Assessment: Village Only

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	-0.008 (0.065)	-0.031 (0.065)	-0.068 (0.054)	-0.042 (0.056)	-0.042 (0.057)
Blind Score		0.308*** (0.072)	0.316*** (0.073)	-0.029 (0.060)	-0.029 (0.061)
Market Price			0.086*** (0.014)	0.044*** (0.008)	0.044*** (0.008)
Constant	6.838*** (0.163)	4.914*** (0.563)	0.767 (1.196)	4.991*** (0.661)	4.291*** (0.585)
Rice Variety	No	No	No	Yes	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	2,760	2,760	2,760	2,760	2,760
R-squared	0.000	0.023	0.135	0.166	0.369

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is quality assessment score given to rice samples (any number between 0 and 10, where 10 corresponds to the highest quality); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; a shop location is the village/locality where a shop is located; in total, 2,760 rice samples were assessed by 92 rice buyers from the villages (each assessed 30 rice samples).

Table 6: Effect of Assigned Ethnicity on Rice Quality Assessment: Multi vs Mono Ethnic Villages

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	-0.155*** (0.048)	-0.187*** (0.046)	-0.167** (0.066)	-0.153*** (0.053)	-0.153** (0.054)
Multi-Ethnic	-0.464* (0.233)	-0.472* (0.235)	-0.424* (0.236)	-0.434* (0.229)	-0.526*** (0.045)
Minority×Multi-Ethnic	0.246** (0.099)	0.261** (0.096)	0.166 (0.099)	0.186** (0.089)	0.186* (0.090)
Blind Score	-	0.309*** (0.071)	0.317*** (0.073)	-0.030 (0.061)	-0.030 (0.062)
Market Price	-	-	0.085*** (0.014)	0.044*** (0.008)	0.044*** (0.008)
Constant	7.115*** (0.127)	5.190*** (0.488)	1.027 (1.144)	5.273*** (0.554)	4.368*** (0.594)
Rice Variety	No	No	No	Yes	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	2,760	2,760	2,760	2,760	2,760
R-squared	0.010	0.033	0.145	0.176	0.370

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is quality assessment score given to rice samples (any number between 0 and 10, where 10 corresponds to the highest quality); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Multi-Ethnic is a dummy variable that equals 1 if the location is a multi-ethnic village and 0 if the location is a mono-ethnic village; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; a shop location is the village/locality where a shop is located; in total, 2,760 rice samples were assessed by 92 rice buyers from multi and mono-ethnic villages (each assessed 30 rice samples).

Table 7: Effect of Assigned Ethnicity on Rice Quality Assessment: Multi-Ethnic vs City

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	-0.014 (0.101)	-0.048 (0.134)	-0.063 (0.159)	-0.072 (0.133)	-0.072 (0.135)
Multi-Ethnic	0.470* (0.249)	0.464* (0.257)	0.498* (0.255)	0.467* (0.251)	-0.989*** (0.075)
Minority×Multi-Ethnic	0.105 (0.136)	0.117 (0.160)	0.050 (0.171)	0.111 (0.148)	0.111 (0.150)
Blind Score	-	0.402*** (0.056)	0.412*** (0.056)	-0.053 (0.059)	-0.053 (0.060)
Market Price	-	-	0.093*** (0.012)	0.048*** (0.007)	0.048*** (0.007)
Constant	6.181*** (0.148)	3.668*** (0.370)	-0.841 (0.784)	4.378*** (0.574)	4.737*** (0.584)
Rice Variety	No	No	No	Yes	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	2,490	2,490	2,490	2,490	2,490
R-squared	0.018	0.054	0.176	0.222	0.419

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is quality assessment score given to rice samples (any number between 0 and 10, where 10 corresponds to the highest quality); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Multi-Ethnic is a dummy variable that equals 1 if the location is a multi-ethnic village and 0 if the location is the city; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; a shop location is the village/locality where a shop is located; in total, 2,490 rice samples were assessed by 83 rice buyers from multi-ethnic villages and the city (each assessed 30 rice samples).

Table 8: Effect of Assigned Ethnicity on Rice Quality Assessment: Mono-Ethnic vs City

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	-0.014 (0.102)	-0.033 (0.118)	-0.039 (0.125)	-0.046 (0.108)	-0.046 (0.110)
Mono-Ethnic	0.934*** (0.196)	0.937*** (0.201)	0.930*** (0.204)	0.920*** (0.202)	-0.344*** (0.059)
Minority×Mono-Ethnic	-0.141 (0.112)	-0.145 (0.129)	-0.132 (0.139)	-0.113 (0.117)	-0.113 (0.119)
Blind Score	-	0.226*** (0.071)	0.229*** (0.071)	0.021 (0.045)	0.021 (0.045)
Market Price	-	-	0.034*** (0.006)	0.017* (0.008)	0.017* (0.008)
Constant	6.181*** (0.148)	4.767*** (0.422)	3.107*** (0.485)	5.257*** (0.618)	5.617*** (0.649)
Rice Variety	No	No	No	Yes	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	1,950	1,950	1,950	1,950	1,950
R-squared	0.072	0.087	0.109	0.130	0.365

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is quality assessment score given to rice samples (any number between 0 and 10, where 10 corresponds to the highest quality); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Mono-Ethnic is a dummy variable that equals 1 if the location is a mono-ethnic village and 0 if the location is the city; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; a shop location is the village/locality where a shop is located; in total, 1,950 rice samples were assessed by 65 rice buyers from mono-ethnic villages and the city (each assessed 30 rice samples).

Table 9: Effect of Assigned Ethnicity on Rice Quality Assessment: Village vs City

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	-0.014 (0.100)	-0.041 (0.125)	-0.053 (0.144)	-0.060 (0.123)	-0.060 (0.125)
Village	0.657*** (0.222)	0.655*** (0.230)	0.666*** (0.228)	0.648*** (0.228)	-0.412*** (0.069)
Minority×Village	0.006 (0.121)	0.009 (0.143)	-0.011 (0.155)	0.025 (0.136)	0.025 (0.138)
Blind Score	-	0.318*** (0.060)	0.325*** (0.061)	-0.023 (0.046)	-0.023 (0.047)
Market Price	-	-	0.074*** (0.012)	0.038*** (0.007)	0.038*** (0.007)
Constant	6.181*** (0.146)	4.194*** (0.391)	0.588 (0.895)	4.595*** (0.495)	4.954*** (0.501)
Rice Variety	No	No	No	Yes	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	3,600	3,600	3,600	3,600	3,600
R-squared	0.025	0.050	0.136	0.166	0.377

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is quality assessment score given to rice samples (any number between 0 and 10, where 10 corresponds to the highest quality); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Village is a dummy variable that equals 1 if the location is a village and 0 if city; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; a shop location is the village/locality where a shop is located; in total, 3,600 rice samples were assessed by 120 rice buyers (each assessed 30 rice samples).

Table 10: Effect of Assigned Ethnicity on Buyer's Willingness to Pay: Village Only

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	-0.864*** (0.267)	-0.952*** (0.272)	-1.102*** (0.261)	-0.980*** (0.230)	-0.914*** (0.249)
Blind Score	-	1.170*** (0.117)	1.204*** (0.118)	0.642*** (0.106)	0.012 (0.128)
Market Price	-	-	0.343*** (0.038)	0.191*** (0.016)	0.090*** (0.012)
Quality Score	-	-	-	1.778*** (0.143)	1.908*** (0.187)
Constant	37.684*** (0.632)	30.367*** (1.169)	13.770*** (2.500)	12.407*** (0.742)	21.257*** (1.114)
Rice Variety	No	No	No	No	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	2,760	2,760	2,760	2,760	2,760
R-squared	0.004	0.025	0.143	0.321	0.671

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is the buyer's willingness to pay for one kilogram of each rice samples (in Bangladeshi Taka); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; Quality Score is the rice quality assessment score given to each rice sample (any number between 0 and 10); a shop location is the village/locality where a shop is located; in total, 2,760 rice samples were assessed by 92 rice buyers from the villages (each assessed 30 rice samples).

Table 11: Effect of Assigned Ethnicity on Buyer's Willingness to Pay: Multi vs Mono Ethnic Villages

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	-1.132*** (0.261)	-1.253*** (0.267)	-1.174*** (0.276)	-0.873*** (0.274)	-0.820** (0.300)
Multi-Ethnic	-0.116 (1.129)	-0.144 (1.129)	0.046 (1.142)	0.810 (0.798)	10.640*** (0.222)
Minority×Multi-Ethnic	0.447 (0.481)	0.502 (0.482)	0.122 (0.489)	-0.176 (0.446)	-0.158 (0.455)
Blind Score	-	1.172*** (0.116)	1.205*** (0.118)	0.635*** (0.104)	0.013 (0.127)
Market Price	-	-	0.343*** (0.038)	0.189*** (0.015)	0.090*** (0.012)
Quality Score	-	-	-	1.800*** (0.134)	1.909*** (0.186)
Constant	37.753*** (0.571)	30.441*** (1.071)	13.747*** (2.495)	11.898*** (0.784)	21.187*** (1.059)
Rice Variety	No	No	No	No	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	2,760	2,760	2,760	2,760	2,760
R-squared	0.004	0.026	0.143	0.324	0.671

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is the buyer's willingness to pay for one kilogram of each rice samples (in Bangladeshi Taka); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Multi-Ethnic is a dummy variable that equals 1 if the location is a multi-ethnic village and 0 if the location is a mono-ethnic village; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; Quality Score is the rice quality assessment score given to each rice sample (any number between 0 and 10); a shop location is the village/locality where a shop is located; in total, 2,760 rice samples were assessed by 92 rice buyers from multi and mono-ethnic villages (each assessed 30 rice samples); the omitted category is mono-ethnic villages.

Table 12: Effect of Assigned Ethnicity on Buyer's Willingness to Pay: Multi-Ethnic vs City

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	0.345 (0.277)	0.243 (0.295)	0.187 (0.296)	0.277 (0.199)	0.304 (0.218)
Multi-Ethnic	-1.060 (1.201)	-1.077 (1.193)	-0.952 (1.188)	-1.661 (1.185)	0.828*** (0.263)
Minority×Multi-Ethnic	-1.030* (0.496)	-0.996* (0.504)	-1.246** (0.509)	-1.317*** (0.438)	-1.270** (0.445)
Blind Score	-	1.211*** (0.110)	1.246*** (0.109)	0.659*** (0.110)	-0.132* (0.071)
Market Price	-	-	0.347*** (0.053)	0.215*** (0.048)	0.106*** (0.032)
Quality Score	-	-	-	1.426*** (0.277)	1.636*** (0.250)
Constant	38.697*** (0.607)	31.129*** (1.135)	14.276*** (2.383)	15.474*** (1.600)	23.133*** (1.560)
Rice Variety	No	No	No	No	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	2,490	2,490	2,490	2,490	2,490
R-squared	0.014	0.037	0.161	0.282	0.646

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is the buyer's willingness to pay for one kilogram of each rice samples (in Bangladeshi Taka); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Multi-Ethnic is a dummy variable that equals 1 if the location is a multi-ethnic village and 0 if the location is the city; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; Quality Score is the rice quality assessment score given to each rice sample (any number between 0 and 10); a shop location is the village/locality where a shop is located; in total, 2,490 rice samples were assessed by 83 rice buyers from multi-ethnic villages and the city (each assessed 30 rice samples); the omitted category is the city.

Table 13: Effect of Assigned Ethnicity on Buyer's Willingness to Pay: Mono-Ethnic vs City

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	0.345 (0.277)	0.258 (0.291)	0.226 (0.275)	0.261 (0.218)	0.261 (0.235)
Mono-Ethnic	-0.944 (0.838)	-0.934 (0.834)	-0.972 (0.868)	-1.817** (0.687)	-0.178 (0.207)
Minority×Mono-Ethnic	-1.477*** (0.383)	-1.497*** (0.393)	-1.419*** (0.380)	-1.299*** (0.358)	-1.243*** (0.369)
Blind Score	-	1.036*** (0.137)	1.054*** (0.133)	0.845*** (0.142)	0.115 (0.127)
Market Price	-	-	0.199*** (0.051)	0.168*** (0.048)	0.098** (0.035)
Quality Score	-	-	-	0.909** (0.419)	1.085** (0.366)
Constant	38.697*** (0.608)	32.222*** (1.322)	22.556*** (1.548)	19.732*** (2.423)	25.567*** (2.885)
Rice Variety	No	No	No	Yes	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	1,950	1,950	1,950	1,950	1,950
R-squared	0.028	0.054	0.115	0.176	0.450

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is the buyer's willingness to pay for one kilogram of each rice samples (in Bangladeshi Taka); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Mono-Ethnic is a dummy variable that equals 1 if the location is a mono-ethnic village and 0 if the location is the city; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; Quality Score is the rice quality assessment score given to each rice sample (any number between 0 and 10); a shop location is the village/locality where a shop is located; in total, 1,950 rice samples were assessed by 65 rice buyers from mono-ethnic villages and the city (each assessed 30 rice samples); the omitted category is the city.

Table 14: Effect of Assigned Ethnicity on Buyer's Willingness to Pay: Village vs City

VARIABLES	(1)	(2)	(3)	(4)	(5)
Minority	0.345 (0.273)	0.249 (0.288)	0.199 (0.283)	0.276 (0.203)	0.300 (0.227)
Village	-1.013 (0.906)	-1.018 (0.899)	-0.976 (0.908)	-1.940* (0.953)	0.032 (0.166)
Minority×Village	-1.210*** (0.385)	-1.199*** (0.398)	-1.283*** (0.394)	-1.267*** (0.328)	-1.223*** (0.346)
Blind Score	-	1.148*** (0.103)	1.178*** (0.103)	0.706*** (0.096)	-0.016 (0.093)
Market Price	-	-	0.306*** (0.042)	0.198*** (0.032)	0.100*** (0.021)
Quality Score	-	-	-	1.448*** (0.231)	1.634*** (0.201)
Constant	38.697*** (0.600)	31.528*** (1.042)	16.699*** (2.073)	15.847*** (1.232)	22.683*** (1.309)
Rice Variety	No	No	No	No	Yes
Buyer Fixed Effects	No	No	No	No	Yes
Observations	3,600	3,600	3,600	3,600	3,600
R-squared	0.014	0.037	0.141	0.271	0.613

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is the buyer's willingness to pay for one kilogram of each rice samples (in Bangladeshi Taka); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; Village is a dummy variable that equals 1 if the location is a village and 0 if city; Blind Score is the blind (i.e. no name was assigned to rice samples) quality score given to each rice sample; Market Price is the actual market price of the rice; Quality Score is the rice quality assessment score given to each rice sample (any number between 0 and 10); a shop location is the village/locality where a shop is located; in total, 3,600 rice samples were assessed by 120 rice buyers (each assessed 30 rice samples); the omitted category is the city.

Table 15: Effect on Rice Quality Score by Buyer's Characteristics

VARIABLES	Belongs to panel title category?		
	Yes (1)	No (2)	Difference (3)
Panel A: Above Median Age			
Minority	-0.123* (0.061)	0.035 (0.062)	-0.160** (0.058)
Panel B: Above Median Education			
Minority	-0.079 (0.072)	-0.016 (0.062)	-0.059 (0.079)
Panel C: Above Median Income			
Minority	-0.004 (0.068)	-0.069 (0.084)	0.068 (0.113)
Panel D: Above Median Years in Business			
Minority	0.030 (0.076)	-0.109* (0.061)	0.132 (0.096)
Panel E: Higher Interaction			
Minority	0.077 (0.073)	-0.098 (0.058)	0.193** (0.088)
Panel F: Above Median IC Competence			
Minority	-0.079 (0.080)	-0.020 (0.071)	-0.062 (0.114)
Panel G: A Muslim			
Minority	-0.036 (0.056)	-0.060 (0.096)	0.026 (0.091)
All Other Controls	Yes	Yes	Yes
Rice Variety	Yes	Yes	Yes
Buyer Fixed Effects	Yes	Yes	Yes

Robust standard errors clustered at the shop location level are in parentheses

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

Note: OLS regression estimates reported; the dependent variable is quality assessment score given to rice samples (any number between 0 and 10, where 10 corresponds to the highest quality); Minority is a dummy variable that equals 1 if a rice sample was assigned an ethnic minority name and 0 if an ethnic majority name was assigned; all panel title categories are dummies where it is equal to 1 if it belong to the panel title category and 0 otherwise; Column 1 shows estimates for rice samples assessed by buyers who belong to the panel title category; Column 2 shows estimates for rice samples assessed by buyers who do not belong to the panel title category; Column 3 shows the estimates of interaction between buyer's characteristics and farmer's ethnicity (i.e. difference-in-difference); a shop location is the village/locality where a shop is located; in total, 3,600 rice samples were assessed by 120 rice buyers (each assessed 30 rice samples).

Table 16: Earnings Per Kilogram of Rice for Ethnic Minority Farmers

Panel A: Santal Farmers			
	City (1)	Village (2)	Difference (3)
Willingness to Pay	39.04	36.79	2.25
Cost of Travel	0.31	0	0.31
Net Earnings	38.73	36.79	1.94
Panel B: Bengali Farmers			
Willingness to Pay	38.70	37.70	1.00
Cost of Travel	0.31	0	0.31
Net Earnings	38.39	37.70	0.69

Note: All earnings reported are average earnings and are in Bangladeshi Taka.

Appendix B: Experimental Instructions

Advert for Rice Competition (Farmers)

[While talking to the male head of the household who is a farmer]

The NGO *Ashrai* is organizing a rice competition in your village. The idea is to reward the farmer who has cultivated the “best” rice in this region during the last rice growing season. To participate, all you have to do is submit 500 grams of rice that you cultivated during the most recent season. Your rice will be judged by rice buyers from various locations but they will not be from your own village. Based on buyers’ scores, the farmer with the highest total score would receive a cash prize of 2,000 Taka.

If you wish to take part then please submit 500 grams of your cultivated rice. We would only contact the winner after 6 weeks. If you have any questions then you can either ask me now or you can call Abu Siddique at [phone number].

Thank you!

Advert for Rice Assessment (Buyers)

We are organizing a competition on rice quality produced by local farmers in the Rajshahi region. Farmers have already submitted their rice for the competition. Now, we need rice buyers to assess these rice samples to determine the winner. Based on your assessment, the farmer who receives the highest total score would receive a monetary reward. Also, by taking part, you will receive 200 Taka in cash. In addition, you will have a chance to earn 150 Taka by assessing rice samples. Therefore, by taking part, you can earn up to 350 Taka for 60 minutes of your time.

If you wish to take part, then please go to [location] on the [date] at [time].

If you have any questions then you can either ask me now or you can call Abu Siddique at [phone number]. Further details will be provided at the time of the assessment.

Thank you!

Instructions (Evaluation Program)

Welcome to our rice quality assessment program. This session will last for 50 minutes during which you will be asked to assess rice quality of 30 different rice samples produced by 30 different farmers from villages of the Rajshahi region. These farmers are participants in a rice competition that we are organizing, where the farmer who

cultivated the best rice during the most recent rice season will win a cash prize of 2,000 Taka. We have recruited you to determine the winner of the competition.

We will give you a big board which will have 30 different rice samples attached to it [*show them a board*]. Each rice sample will have a rice ID and the name of the farmer who has cultivated that particular rice. All you have to do is to look at each rice sample closely to check its quality and then give a quality score of between 0 to 10 for each rice sample, where 0 is the lowest score (indicating the rice quality is extremely bad) and 10 is the highest score (indicating the rice quality is very good). Then for that same rice sample, you will also have to say how much you are willing to pay for one kilogram of that rice. In short, you will analyze each rice sample and then give that rice a quality score and a price that you are willing to pay per kilogram on a separate piece of paper that we will provide. Before writing scores and prices, you will have to copy the rice ID and the name of the farmer for each sample. For a final score, we would give 50% of the weight to quality score and the remaining 50% to price. Therefore, both quality score and price are equally important to determine the winner. In the end, the farmer with the highest overall score will win a cash prize of 2,000 Taka. Please see the example below:

Example: If you think a rice with rice ID 01 produced by [First Name] [Surname] is of excellent quality then you could give this sample a score of, for example, 8 or 9 or 10 and state how much you are willing to pay, for example, 38 or 48 or 58 Taka per kilogram of this rice. In that case, you will have to first copy the rice ID, the name of the farmer, then write the quality score and then state the price that you are willing to pay. You always have to write it in this order (from left to right):

Rice ID	Name of Farmer	Quality Score	Willing to Pay
01	[First Name] [Surname]	10	58

This is only an example. You can give any score or state any price you like. Please raise your hand if you have any questions.

Along with the participation fee of 200 Taka, you can also earn 5 Taka for assessing each rice sample. That means you can earn up to 150 Taka when you assess all 30 rice samples. After completing this task, we will ask you to fill out a short survey that will not take more than 10 minutes. You can leave blank any question that you are not willing to answer.

Please do not talk to other buyers or show them your scores. Please assess rice samples privately.

Do you have any questions?

Now we will distribute the boards with rice samples.

Short Survey

(Please leave blank if you do not want to answer a question)

ID Number:

Age (in years):

Marital Status:

Number of children (if any):

Ethnicity (tick one): Adivasi / Bengali

Maximum education obtained:

Occupation of mother (if known):

Occupation of father (if known):

Income of mother (if known):

Income of father (if known):

Education of mother (if known):

Education of father (if known):

Years in current occupation:

Is rice-buying your own business or do you work for someone else (tick one)? own / someone else

What is your monthly income (in Taka):

How much land do you own (in Katha):

When did your family last migrate (in years):

Which village are you from:

In which market is your rice shop:

How often do you buy rice from Adivasi farmers in a month (tick one):
very often / often / not that often / not at all

How often Adivasi farmers bargain while selling rice (tick one):
very often / often / not that often / not at all

How often Bengali farmers bargain while selling rice (tick one):

very often / often / not that often / not at all

Do you buy rice by going door-to-door (tick one)? Yes / No

What is the main feature you look at while assessing rice quality (tick one):

shape / colour / chalkiness / size / proportion of damaged grains / something else

How much rice do you buy in a month (in kilograms):