

# Gender Discrimination and Social Identity: Evidence from Urban Pakistan

**ADELINE DELAVANDE**

University of Technology Sydney and Nova School of Business and Economics

**BASIT ZAFAR**

Arizona State University and National Bureau of Economic Research

## I. Introduction

Gender-unequal treatment in developing countries—be it in, labor market earnings, or asset ownership—is well documented (e.g., Sen 2001; Duflo 2012). Beyond the implication for women's well-being, this unequal treatment also has ramifications for the economic development of these countries. For example, the International Monetary Fund reports that reducing the gender wage gap in the Middle East, North Africa, Afghanistan, and Pakistan region to levels twice as large as those found in emerging markets could generate extra gross domestic product (GDP) of \$1 trillion in a decade to the region (AFP 2013). In this paper, we use economic decision-making experiments from Pakistan (1) to investigate whether and how young educated Pakistani women of heterogeneous backgrounds are discriminated against by socially disparate groups of highly educated young men, (2) to evaluate the nature of this discrimination (taste based vs. statistical), and (3) to analyze how the nature of the discrimination varies by the social status of both genders.

We focus on Pakistani society because gender inequality is particularly pronounced in South Asia. Klasen (1994) and Sen (2001) have highlighted Pakistan as a country where this imbalance is the starkest, with a population sex ratio most recently estimated to be 108.5 males for every 100 females (Pakistan

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Census Organization 1998). In the labor market, women ages 20–30 with a college degree earn on average 28% less than their male counterparts.<sup>1</sup> Moreover, gender discrimination in Pakistan appears paradoxical, with women having prominent political leadership (e.g., Pakistan's former Prime Minister Benazir Bhutto was the first woman to lead an Islamic state) but also facing severe discrimination. For example, an estimated 13% of women are missing, the gender gap in literacy is increasing, the rate of violence against women is alarming, and the female labor force participation rate is 15%, which is low compared with other countries with similar GDP per capita (Klasen and Wink 2003; Coleman 2004; Human Rights Commission of Pakistan 2009).

To investigate the interplay between gender discrimination and social identity, we recruited 2,836 students pursuing bachelor-equivalent degrees from three types of educational institutions in urban Pakistan that represent three very different identities in terms of socioeconomic background, religiosity, and exposure to Western ideas. Our focus on interactions of interelite groups (defined as college-level students) is of particular interest because individuals belonging to these groups are likely to become policy makers or be influential in their communities. We use the student's institutional affiliation as a measure of his or her social identity. Our definition of social status is therefore based on real groups rather than induced groups (see, e.g., Fershtman and Gneezy 2001; Goette, Huffman, and Meier 2006; Bhattacharya and Dugar 2014). The first type of institution consists of male-only madrassas (religious seminaries). The madrasa curriculum uses ancient religious texts and does not impart any secular teaching. Islamic universities (the second type of institution) teach a liberal arts curriculum combined with Islamic teachings in gender-segregated campuses. The third type is liberal universities, which are similar to American universities: campuses are mixed, classes are taught in English, and students are widely exposed to Western ideas. While madrassas tend to be free and thus cater primarily to the poor, Islamic universities are usually public and therefore are accessible to low- and middle-income groups. Liberal universities, on the other hand, charge expensive tuitions and thus serve the wealthy segment of the population. On the socioeconomic status (SES) scale, students at liberal universities rank on average highest, followed by Islamic university students, with madrasa students being lowest on this scale. In addition, these three groups also differ in their levels of religiosity. Self-reported religiosity (on a scale from 0 to 10) is 9.2 among madrasa students, 6.3 among male Islamic university students, and 5.3 among male liberal university students.

To investigate gender discrimination, we study a particular aspect of social and economic interactions: trust. Our focus on trust stems from a large

<sup>1</sup> Authors' calculations based on the 2007–8 and 2008–9 Pakistan Labour Force Survey.

literature showing that trust enhances efficiency and promotes economic growth, financial development, and production efficiency (e.g., Knack and Keefer 1997; La Porta et al. 1997; Guiso, Sapienza, and Zingales 2004; Özer, Zheng, and Ren 2014). Moreover, trust is particularly important in developing countries where, because of the failure of the state, informal and traditional institutions matter considerably more (Ostrom 1990; Fukuyama 1995). In fact, evidence points to economic development being highly correlated with the ability to trust and cooperate with strangers (Buchan et al. 2009). We measure trust by randomly matching students with each other (on the basis of gender and institutional affiliation [our measure of their social identity]) to participate in a trust game (Berg, Dickhaut, and McCabe 1995). In the trust game, a player (sender) can decide to send (invest) money to a partner (receiver). If the sender invests the money, the experimenter triples that amount and gives it to the receiver, who is asked to choose whether (s)he transfers any money back to the sender. Systematic differences in the decision to invest the money based on the gender of the partner would imply gender discrimination. This type of game captures important behavioral aspects of social and economic interactions (including those taking place in the labor market) and is therefore well suited to investigate gender discrimination.

Effective policies to address discrimination cannot be crafted without understanding the nature of discrimination, that is, whether it is motivated by preferences (taste-based discrimination) or statistical inference on payoff-relevant information (statistical discrimination). For this purpose, we use a multiple-game design. We also ask respondents to participate in other experiments of decision-making that measure expected trustworthiness (expectations in the trust game) and unconditional other-regarding behavior, such as altruism or inequity aversion (dictator game). In the dictator game, the sender is asked to split an amount of money between himself and another player, who takes no further action. Therefore, systematic differences in the amount sent to males and females in the dictator game measure taste-based discrimination (Becker 1957). In the trust game, expectations about how much participants anticipate getting back on average from their partner allow us to measure whether the discrimination is statistical.

Our main finding is that the intensity and nature of gender discrimination depend on the social identity of both individuals in the match. Liberal university male students (who are on average the wealthiest, least religious, and most exposed to Western ideas) do not discriminate against women of any social identity. Madrasa students (who come from more humble backgrounds and are more religious and relatively unexposed to Western ideas) tend to discriminate against Islamic university (i.e., middle SES) women but not liberal

university (high SES) women in the trust game. Moreover, this discrimination is entirely taste based. However, although madrassa students treat men relatively better than women because they give and trust more than other male groups, they actually treat women the best in absolute terms. Finally, Islamic university male students (who fare in the middle in terms of wealth and religiosity) have a less uniform behavior: in the trust game, they favor liberal university (high SES) females but do not favor Islamic university females (middle SES) compared with their respective male counterparts. Importantly, while we cannot rule out taste-based discrimination playing some role, the differential behavior by gender of Islamic university students is primarily attributable to statistical discrimination.

These findings are in contrast to what we find from Delavande and Zafar (2015), in which we use the same experiments and the same institutions but focus on male-to-male interactions: the behavior of our male respondents matched with male partners does not differ by the institution of their match; that is, social identity is irrelevant in the male-male interactions. In particular, there is no evidence of in- or out-group bias for madrassa students interacting with males from other segments of Pakistani society. Moreover, counter to common stereotypes (and those of our sample), male madrassa students are found to exhibit the most other-regarding and trusting behavior. So in this context, social identity matters only in the male-female interactions.<sup>2</sup>

It has been argued that pushing for policies favoring economic development (such as education policy) will lead to an improvement in women's rights and status (Doepke and Tertilt 2009; Duflo 2012). Our findings—based on a subject pool where all respondents are pursuing bachelor-equivalent degrees (and thus belong to an elite group in the society)—show that higher SES females (liberal university females) are not discriminated against and are even favored in some instances by males and that women of (relatively) lower SES (Islamic university females) are discriminated against by certain groups of men. This suggests that educating women may not be a sufficient condition for women's position to improve, as their social identities continue to matter. This further suggests that social policies aimed at improving women's underrepresentation in the political sphere or the labor market through gender quotas (e.g., Beaman et al. 2009; Beath, Christia, and Enikolopov 2013; Bertrand et al. 2014) may need to account for the interaction of gender with social identity and possibly allocate gender quotas on the basis of the socioeconomic background of women.

<sup>2</sup> Similar asymmetries have been found in other contexts. For example, in the United States, Newton and Simutin (2014) find that older and male CEOs are more likely to set higher wages for male rather than female officers, whereas little evidence shows that female CEOs set wages according to the gender of the officer.

Our paper complements the large body of empirical evidence on gender unequal treatment in South Asia (e.g., Qian 2008; Duflo 2012), with a specific focus on the role of the social identities of the interacting parties, for which the evidence is mixed for within-household interactions and scant beyond intra-household interactions. Our paper also relates to a large literature on gender discrimination in the labor market and other market interactions, mostly in developed countries (see Altonji and Blank 1999; List and Rasul 2011). Audit studies or sex-blind hiring (e.g., Ayres and Siegelman 1995; Neumark 1996; Goldin and Rouse 2000) and estimates of differential marginal productivity (Hellerstein, Neumark, and Troske 1999) have been used to identify gender discrimination. Given lack of data, however, it is generally difficult to identify the nature of this discrimination. Recent studies using either field or laboratory experiments have been able to directly address the nature of gender discrimination by using a multigame design, which is able to measure both preferences and beliefs or to manipulate the market under study (e.g., Fershtman and Gneezy 2001; List 2004; Slonim and Guillen 2010; Castillo et al. 2013). Fershtman and Gneezy (whose study is the closest in approach to that used in this paper) match students with typical ethnic names in Israel and find strong evidence that Ashkenazic women (who tend to have higher economic status) are less trusted than Ashkenazic men, whereas eastern women (who tend to have lower economic status) are more trusted than eastern men. This suggests (unlike in the Pakistani context) that discrimination against females is reduced and even reversed when they belong to lower SES groups.

As part of the large body of empirical evidence on gender unequal treatment in South Asia, there has been some investigation into the relationship between gender discrimination and SES or social class of the households. However, the resulting empirical evidence is rather mixed. In some cases, higher economic status households are found to discriminate less against girls: Rose (1999) finds that landholdings increase the survival of girls relative to boys, and Behrman (1988) and Alderman and Gertler (1997) find that households with more income treat boys and girls more equally in terms of allocation of nutrients and medical care, respectively. However, Basu (1989) and Miller (1997) find that higher SES households (as measured by caste or income) discriminate more against girls, especially in the northwestern plains of Asia, where the society is patrilineal. Similarly, Bhalotra and Cochrane (2010) show that prenatal sex detection and female feticide are greater in relatively wealthy and educated families. Our paper contributes to the understanding of the relationship between social status and gender discrimination in South Asia beyond the one found within the household and in a setup relevant to labor markets.

Finally, our paper is related to the sociological theory of intersectionality (Crenshaw 1991; Collins 2000). This theory argues that women experience discrimination in varying levels of intensity, which is determined by intersectional systems of society (e.g., race, ethnicity, social class). In line with this theory, studies have found that labor market discrimination and stereotyping tend to be worse for women who fall to the bottom of the social hierarchy in terms of race (Browne and Misra 2003). Our findings that higher SES women in Pakistan are less discriminated against are consistent with this theory.

This paper is organized as follows. We provide some background information on the institutions we surveyed and the sample in Section II. Section III outlines a simple theoretical model that provides a guide for the empirical analysis. Section IV explains the experimental design, and Section V presents the empirical results. Section VI discusses some potential mechanisms for the findings, and Section VII presents concluding remarks.

## II. Background

### A. The Educational Institutions

Higher education in Pakistan takes place in universities and madrassas (religious seminaries). The enrollment rate for students ages 17–23 is 5.1%. One-third of the students enrolled in universities are female (AEPAM 2011). There are now 138 universities in the country recognized by the Higher Education Commission Pakistan (2012), of which 75 are public and 63 are private. There remains considerable disagreement over the extent of the penetration of madrassas because few are registered. However, Ahmad (2004) estimates that there are about 6,000 secondary and higher madrassas, educating about 600,000 students.

We conducted experiments in four male madrassas, one public Islamic university, and two private liberal universities located in Islamabad/Rawalpindi and Lahore between May and October 2010.<sup>3</sup> We describe each of those institutions.

Madrassas base their studies on texts dating to before the fourteenth century and teach classes in Urdu (Fair 2006; Rahman 2008). The majority of madrassas do not impart any secular or vocational training, and it has been argued (albeit with scant evidence) that they deliberately educate their students in narrow worldviews and rejection of Western ideas and do not train them sufficiently for the real world (Ali 2009). Claims made by policy makers and in the popular press suggest that they may be responsible for fostering militancy and Islamic

<sup>3</sup> There are few female madrassas, and the proportion of females pursuing a bachelor-equivalent degree (the relevant population for our purposes) is even smaller. Because large sample sizes are needed for the randomizations in the experiment, we did not include them in our sample.

extremism (see Delavande and Zafar 2015). Because madrassas generally tend to be free, they attract students from modest backgrounds (Rahman 2004). Advanced study within the madrassas produces an Alim (Islamic scholar and/or teacher). Most students who graduate from a madrassa go on to work in the religious sector.

Islamic universities provide a liberal arts curriculum combined with Islamic teachings and courses. For example, economics is taught with a focus on Islamic principles of finance. These universities have segregated campuses for males and females, and classes are taught in Arabic or English. They tend to be public and are therefore accessible to low- and middle-income groups. Moreover, a relatively large proportion of students at such universities have typically studied for some time at madrassas before enrolling. Females account for about 40% of the student body at an Islamic university.

Liberal universities are similar to American colleges. They provide a liberal arts curriculum, teach classes in English, and have gender-mixed campuses. Tuition at such institutions tends to be very expensive, so they cater to wealthy students. Females account for about 25%–30% of the student body at the two institutions we surveyed.<sup>4</sup>

### ***B. Descriptive Statistics of the Sample***

Data collection was conducted by the survey center affiliated with the Islamic university. The institutions in our sample are among the five largest and most well-regarded institutions in their respective category in each city. Among all the institutions we contacted, one university and one madrassa refused to participate. We sampled the senior-most students in the four madrassas because they are similar in age to university students and are pursuing degrees that are equivalent to bachelor degrees. Although participation was voluntary, almost everyone in the madrassas participated in the study. At the other institutions, a random sample of students (unconditional on gender) was selected to participate on the basis of a listing of students provided by the registrar's office. The average response rate at the universities was about 70%. To signal credibility of the study to the students, members of the staff of the institution at which data were being collected were also hired for the data collection. Overall 2,836 students participated in the experiments, of which 489 were female. The ethnic composition of students is quite similar across the institutions.

<sup>4</sup> In a previous study (Delavande and Zafar 2015), we separate the two liberal universities where we interviewed. In the present context, we find very similar behavior toward females and therefore keep them as one group to simplify the presentation of results.

Table 1 presents the characteristics of the participants by group (educational affiliation) and gender. For comparison purposes, the table also shows the characteristics of a random sample of respondents from Islamabad/Rawalpindi and Lahore (city sample) obtained from a separate survey we conducted in 2010. The average age of students varies between 21 and 22 years.

Table 1 highlights the differences across the three types of institutions.<sup>5</sup> The sorting in terms of observables into these institutions is very drastic but not unexpected. As we move across the columns from the liberal university (denoted as HighSES) toward the Islamic university (denoted as MidSES) and the madrassas in table 1, the average socioeconomic characteristics deteriorate. For example, the monthly parental income of male and female students at HighSES is about seven times that of students in the madrassas, and fathers' years of education are almost twice as many. If we compare the students with the city sample (cols. 6, 7), we see that madrassa students seem to come from less well-off backgrounds than the general populations in the cities, whereas all other institutions fare better in terms of most indicators of wealth. Females at HighSES and MidSES tend to come from slightly more privileged backgrounds than their male counterparts: on average, they have higher parental income, parental education, and asset ownership. This difference is more marked at MidSES.

Students from the various groups also show different levels of self-reported religiosity and the number of prayers per day. Students were asked to rate how religious they considered themselves to be on a scale from 0 (not religious at all) to 10 (very religious). Religiosity increases as we move across columns of table 1; the average religiosity is 5.6–5.7 for HighSES males and females compared with 9.2 in the madrassas. The former also pray much less frequently each day (2–2.4 vs. 4.9 times).

Finally, students are exposed to different types of information and different peer groups. While only 23% of the madrassa students report watching BBC and CNN, at least 59% of the students of the other groups report watching it. Within HighSES, female students tend to watch those international news channels more than male students. Also, the proportion of male respondents who have ever attended a religious institution on a full-time or part-time basis increases from 35% for HighSES students to 45% for MidSES students. In addition, whereas fathers of only 11% (5%) of male (female) students attending HighSES spent more than 2 years studying in a madrassa on either a part-time or a full-time basis, the corresponding proportion for madrassa students is

<sup>5</sup> Because we find no significant differences within the madrassas in terms of either demographic characteristics or their experimental behavior, we combine the four madrassas into one group to keep the tables and analysis simple.



**TABLE 1**  
SUMMARY CHARACTERISTICS

	HighSES		MidSES		Madrasa	City	
	Male (1)	Female (2)	Male (3)	Female (4)	Male (5)	Male (6)	Female (7)
Number of observations	758	203	444	286	1,145	394	341
Age	21 (2.8)	21 (3.4)	22 (2.5)	22* (2.2)	22 (3)	34 (13)	31** (12)
Years of education:							
Father	12 (5.2)	12 (5.4)	11 (4.2)	13*** (3.2)	7.1 (5)	7.7 (5.4)	11*** (4.7)
Mother	12 (4.4)	13*** (3.6)	7.1 (5.1)	9*** (4.5)	3.4 (4.4)	4 (4.9)	7.5*** (5.3)
Parent income (thousands of Rs)	127 (182)	155* (212)	42 (52)	66*** (121)	20 (60)	25 (24)	30 (31)
Income (%): <sup>a</sup>							
Middle	27.0	17.7***	53.0	42.6***	33.8	55.2	45.0*
High	69.0	79.3***	32.3	48.2***	8.0	14.7	22.9**
Number of siblings	3.5 (2)	3*** (1.7)	4.5 (2.3)	4.2* (2)		5.1 (3)	4.3*** (2.5)
Attend religious school (%) <sup>b</sup>	35	19***	45	30***	100	9	12
Father madrasa (%) <sup>c</sup>	11	5**	12	8*	20	1	1
Parents own (%):							
Home	88	87	82	79	82	100	100
Television	85	87	79	93***	30	84	56***
Cell phone	83	85	80	87**	74	97	84***
Computer	74	78	59	74***	25	70	51***
Internet access	57	67**	39	52***	7	45	35***
Motorbike	59	48***	50	42**	33	61	19***
Car	72	81**	41	57***	10	37	25***
Religiosity (0–10) <sup>d</sup>	5.7 (1.8)	5.6 (1.6)	6.3 (1.7)	6.3 (1.6)	9.2 (1.6)	6.1 (2.4)	6.3 (1.8)
Middle religiosity (6–8; %)	43.7	40.7	53.3	58.8	16.9	30.2	47.6***
High religiosity (9–10; %)	5.8	4.2	8.3	5.6	77.5	19.0	12.7**
Number of times praying per day	2 (1.7)	2.4*** (1.7)	2.9 (1.7)	3.6*** (1.3)	4.9 (.42)	2.9 (1.9)	3.6*** (1.5)
Proportion that fast Ramadhan	.91 (.21)	.87** (.25)	.96 (.15)	.94* (.17)	.98 (.12)	.89 (.24)	.88 (.25)
Trust <sup>e</sup>	4.6 (2.4)	4*** (2.4)	4.6 (2.7)	3.9** (2.8)	5.1 (3.4)		
Risk general <sup>f</sup>	6.8 (2.3)	7 (2.1)	6.6 (2.4)	6.1** (2.5)	5.2 (3.9)		
Watch (%):							
English news	84	88	83	83	25	24	53***
BBC or CNN	59	70***	60	59	23	12	25***

**Note.** Shown are pairwise t-tests for male vs. female characteristics within each institution. Asterisks are shown in female columns.

<sup>a</sup> Middle income: Rs 9,000–32,500; high income: >Rs 32,500.

<sup>b</sup> Percentage of respondents who have ever attended a religious institution (full-time or part-time).

<sup>c</sup> Percentage of respondents whose father attended a madrasa or any religious institution for more than 2 years (either part-time or full-time).

<sup>d</sup> Self-reported religiosity on a scale of 0 (not religious at all) to 10 (very religious).

<sup>e</sup> Response to question “Most people can be trusted?” on a scale of 0 (all people cannot be trusted) to 10 (all people can be trusted).

<sup>f</sup> Self-reported risk preference on a scale of 0 (totally unwilling to take risk) to 10 (fully prepared to take risks).

\*  $p < .10$ .

\*\*  $p < .05$ .

\*\*\*  $p < .01$ .

20%. This suggests that the various groups in our setting interact with and have exposure to each other at some level but that the extent of exposure varies by institution.

In short, table 1 shows that there is substantial sorting on observables into institutions. Students attending these three types of institutions clearly represent very different social and religious identities within Pakistani society. At one end of the spectrum, we have young males from poorer backgrounds who attend religious schools. At the other end of the spectrum, we have wealthy students exposed to a Western style of education and high exposure to international media.

### C. *Earnings Expectations of Female Students*

We speculate that women's social identity influences the discrimination they may suffer—in particular, in the labor market. As a motivating fact for our experiments, we look at women and men's expected earnings at age 30. These expectations were elicited as follows: "Consider the situation where you graduate from [current institution]. Look ahead to when you will be 30 years old and suppose that you are working then. Think about the kinds of jobs that will be available to you. How much do you think you could earn per month on average at the age of 30 at these jobs?"

We find that at HighSES, women and men expect very similar earnings at age 30 on average (Rs 46,694 for females and Rs 45,310 for males,  $p = .524$  when testing equality of means), whereas at MidSES, females expect significantly lower earnings than men on average (Rs 37,136 for females vs. Rs 44,079 for males,  $p < .001$  when testing equality of means). Note that these expectations are conditional on working. Therefore, these patterns suggest that females graduating from MidSES are on average more likely to expect less favorable outcomes in the labor market (relative to their male counterparts) than females graduating from HighSES. This is consistent with these MidSES females expecting to be discriminated against in the labor market, and if these expectations are predictive of actual future realizations (as has been shown in the literature; e.g., Dominitz 1998), then this also means that they will actually be discriminated against in the labor market. We will assess whether the experimental results are consistent with this.

### III. Theoretical Framework

Here we present a simple stylized model of behavior. The trust and dictator games with identity (i.e., social background, in reference to the student's institution) illustrate the mechanisms that can lead to observed choices in these

games. Incorporating identity directly into the utility function was introduced into economic analysis by Akerlof and Kranton (2000).

Consider a player with social background  $s$  and gender  $g$ . His utility  $u_{sg}(\cdot, \cdot)$  is assumed to depend on his own payoff and that of his partner of characteristics  $(s', g')$ . Several papers have modeled the motivation for other-regarding behavior, that is, deriving utility from others' payoffs. It could take the form of altruism (Andreoni and Miller 2002), warm glow (Andreoni 1990), inequity aversion (Fehr and Schmidt 1999; Bolton and Ockenfels 2000), or maximum preferences (Charness and Rabin 2002). We are agnostic here about these underlying motivations.

For simplicity, we assume that the player's utility is linear in both his payoff and in a strictly concave function  $\beta_{s,g,s',g'}(\cdot)$  of his partner's payoff ( $\beta'_{s,g,s',g'}(\cdot) > 0$  and  $\beta''_{s,g,s',g'}(\cdot) < 0$ ), which equals zero if the partner has zero payoff ( $\beta_{s,g,s',g'}(0) = 0$ ). The function  $\beta_{s,g,s',g'}(\cdot)$  depends on the characteristics of both players and captures how much a player with characteristics  $(s, g)$  values the payoff of a partner with characteristics  $(s', g')$ . To keep the illustration simple, we further assume that the utility is separable in both one's own and a partner's payoffs. The hypotheses that we test are similar if they are relaxed. So if  $a$  and  $b$  are the payoffs of the player and his partner, respectively, the utility the player gets is given by

$$u_{sg}(a, b) = a + \beta_{s,g,s',g'}(b).$$

With this setup, we present the decision rule for each game.

**A. Trust Game**

In the trust game, the player must decide whether to invest the amount  $P$  in his partner, in which case the partner may return some amount  $r \in [0, 3P]$  back to him or keep everything. We assume that the player formulates subjective expectations about how much the partner will send back and that this expectation  $E_{s,g,s',g'}(\cdot)$  depends on the gender and social background of both the player and the partner.

The player's expected utility is thus given by

$$\begin{aligned} & \max\{P, E_{s,g,s',g'}[r + \beta_{s,g,s',g'}(3P - r)]\} \\ & = \max\{P, E_{s,g,s',g'}(r) + \beta_{s,g,s',g'}(3P - E_{s,g,s',g'}(r))\}. \end{aligned}$$

The player will choose to invest in the trust game ( $i_{s,g,s',g'} = 1$ ) if

$$P < E_{s,g,s',g'}(r) + \beta_{s,g,s',g'}(3P - E_{s,g,s',g'}(r)).$$

Note that the utility function of the player depends on both the player's expectations about how much the partner will send back as well as the function  $\beta(\cdot)$ . Consider two players with characteristics  $(s, g)$ , both matched with a partner of background  $s'$  but of different genders. We may observe the same decision rule, but the students could still have different expectations  $E_{s,g,s',m}(r)$  and  $E_{s,g,s',f}(r)$  and different functions  $\beta_{s,g,s',m}(\cdot)$  and  $\beta_{s,g,s',f}(\cdot)$ . In other words, observing no gender discrimination in the trust game does not rule out that expectations and tastes  $\beta_{s,g,s',g'}(\cdot)$  do not differ by gender. Similarly, if we do observe different investment decisions in the trust game, we cannot conclude whether the nature of the discrimination is taste based (i.e., different  $\beta'$ s) and/or whether it is statistical (i.e., different expectations about returns). However, using other games can allow us to tease this out. We discuss them next.

### B. Dictator Game

In the dictator game, the player must decide how to allocate an amount  $A$  between himself and his partner. His decision problem of how much to allocate to the partner (i.e.,  $d$ ) is therefore

$$\max_d \{A - d + \beta_{s,g,s',g'}(d)\} \text{ such that } d \in [0, A].$$

We have a corner solution where the player allocates zero to the other player if the function  $\beta_{s,g,s',g'}(d) < 1 \forall d \in [0, A]$  and  $A$  if the function is greater than 1 over the range of  $d$ . Otherwise, the first-order condition gives the optimal amount  $d^{s,g,s',g'}$  as follows:

$$\beta'_{s,g,s',g'}(d^{s,g,s',g'}) = 1.$$

Consider two players with characteristics  $(s, g)$ , both matched with a partner of background  $s'$  but of different genders. Observing different allocations to the partners of different genders means that there is gender discrimination. Moreover, this discrimination is taste based.

### C. Expectations

Respondents are asked to guess the average amount that students from the partner's institution chose to send back to their matched partner from the respondent's institution in the trust game. They should report  $E_{s,g,s',g'}(r)$ . Consider two players with characteristics  $(s, g)$  both matched with a partner of background  $s'$  but of different genders. Different reports of expectations by gender would mean that there is gender discrimination; moreover, this discrimination is statistical.

## IV. Experimental Design

### A. Procedure

The experiments were conducted at the students' institutions in sessions of 50–100 students in a classroom large enough to ensure respondent anonymity. The instructions were given to each participant, read aloud by the experimenters, and projected on a computer projector. Respondents played the games on a paper questionnaire and were matched with an actual partner *ex post*, so they did not learn the identity or action of their partner while playing the game. The questionnaire was administered in Urdu at all places except one of the liberal universities where it was conducted in English because students there are more used to reading and writing in English.<sup>6</sup> Moreover, the questionnaires were identical across all of the institutions up to the section leading into the experiments.

### B. Games

Students were asked to play the following games.

#### 1. Trust Game

Player A (the sender) is given a fixed amount of money (Rs 300) and decides whether to keep it or invest it by giving it to player B (the receiver). If the money is given to player B, the experimenter triples that amount and gives it to player B, who is asked to choose whether to transfer any money back to player A (which can be any amount between zero and Rs 900). The efficient outcome is for player A to invest the money by transferring it to player B, whereas the subgame perfect equilibrium is to keep the money. Lack of trust toward the partner may lead to inefficiencies. This is a binary version of the trust game introduced by Berg et al. (1995)—it is binary in the sense that player A can choose to send either nothing or the entire amount. In our setting, all respondents played the role of player A and the role of a player B (but as we explain later, students were compensated at most for one of these roles chosen at random). When put in the role of player B, we use the strategy method and ask the respondent to report the amount he/she would like to send back, conditional on player A deciding to invest.

#### 2. Dictator Game

This is a one-stage game in which player A (the sender) decides on the division of a fixed amount of money (Rs 400) between himself or herself and player B

<sup>6</sup> The translation was supervised by B. Zafar (who speaks English and Urdu fluently) to ensure that nothing was lost in translation.

(the receiver). Player B does not make any choice. Again, respondents play the role of both player A as well as player B.<sup>7</sup>

### 3. Expectations

Respondents were asked to guess the average amount that students from their partner's institution (i.e., institution of the student in the role of player B) chose to send back to their matched partners—player A (who were all students at the respondent's own institution)—in the trust game. Note that when students were asked to provide their expectations, they were asked about the average payoffs for a pair of partners that is identical in terms of gender and institution of the match. Also, expectations were elicited after the respondents had made the decision in the games and were incentivized.<sup>8</sup>

### C. Treatment

The treatment in this experiment is the randomization of institution and gender of the matched player. Each student was randomly matched with one of the five following partners: a male student from a liberal university, a female student from a liberal university, a male student from an Islamic university, a female student from an Islamic university, or a male madrasa student. The description of the match (with the exact name of the match's educational institution and the partner's gender) was already printed on the paper questionnaire received by each participant, so students were not aware that other participants in their session could possibly be matched with partners of a different gender and educational institution.<sup>9</sup> Each student was informed that they

<sup>7</sup> We chose a binary trust game and a continuous dictator game in order to make the differences in the decisions salient to the respondents. Because our sample pool is quite different from standard experimental settings and we were concerned about the literacy of the respondents and their ability to understand the decisions, we kept the games as simple and as distinct as possible from each other.

<sup>8</sup> While we want to measure the respondent's expectation of the amount his partner sends back in the trust game, we ask the respondent to guess the average amount sent back by all students of the same gender as the match from the partner's institution (who are matched with students in the respondent's institution). This is because asking the respondent for his expectation of the amount sent back by his partner may prompt the respondent to report expectations that rationalize his own investment decision in the trust game. We believe our approach mitigates this concern of ex post rationalization and is thus superior. The exact wording of the question was as follows: "If you, the sender, sent Rs 300 in this game, the responder would receive Rs 900 and had to decide how much to return to the sender and how much to keep for himself. Now we ask you to guess the average amount (out of Rs 900) that students of gender (where gender = {male, female}) from institution X chose to return to students from your institution. Your reward will depend on your accuracy. You would receive Rs 50 for choosing the correct interval and zero otherwise. The interval that contains the average amount is. . ."

<sup>9</sup> As mentioned in Sec. II.A, we had two participating liberal universities. Students belonging to those and matched with someone from a liberal university were matched with someone of their own university.

**TABLE 2**  
NUMBER OF RESPONDENTS BY MATCH

Respondent	HighSES		MidSES		Madrasa	Total
	Male	Female	Male	Female		
HighSES:						
Male	153	145	141	158	161	758
Female	40	47	57	33	26	203
MidSES:						
Male	89	87	86	87	95	444
Female	57	56	54	53	66	286
Madrasa	236	217	198	132	362	1,145
Total	575	552	536	463	710	2,836

would play all the games with the same partner. Students were given a short description of the institution they were matched with, but because the selected institutions are among the most well-known institutions, most students would have some prior knowledge of them. We therefore have a between-subject design. Each student was matched with only one partner of a given gender and institution and could not have known whether other students were matched with someone from a different institution or of a different gender (and what other potential institutions may have been involved). In terms of implementation, the pairing was carried out after the experiment with replacement, and the match was one way. This means that multiple students could possibly have been matched with the same partner, and the partner with whom the student was matched may or may not have been matched with the same student. Table 2 presents the sample sizes for each institution and for the various matches.<sup>10</sup> Because we use a one-way match, the sum in a given row does not need to match the sum in the corresponding column.

#### D. Payoffs

Respondents received financial compensation for their participation in the survey and the games. Each received a show-up fee of Rs 200 given on the day of the session. Some tasks were then randomly chosen for determining the additional payoffs. One of the four roles (sender or receiver in the trust game, sender or receiver in the dictator game) was randomly selected for compensation along with one of the four expectations questions (Rs 50 if the respondent correctly

<sup>10</sup> Students at madrassas who were assigned a male madrasa treatment were matched with a student at either their own madrasa or a different madrasa (but one who belonged to the same school of thought). Because we do not find any systematic differences between the two in our analysis, the two groups are combined. Because it combines two treatments, more madrasa students are matched with madrasa students than with HighSES and MidSES students in table 2.

identified the interval where the actual average lies). Before making their decisions, students were informed that they would receive compensation for one of the four roles chosen at random. Once the sessions were completed, we randomly matched students with a particular partner from the institution/gender indicated in their questionnaire (and who also had to be matched with a partner of those characteristics) and determined the payoffs. Subjects could pick up their compensation starting about 1 week after the completion of the experiment. Respondents earned an average of Rs 600 from the games. The overall average compensation of Rs 800 corresponds to about \$10. This is the equivalent of about three meals at inexpensive restaurants or a monthly pass of local transport. The 2009 per capita gross national income (GNI) at purchasing power parity in Pakistan was \$2,710 compared with \$46,730 in the United States. This means the average compensation of \$10 corresponds to 0.4% of the GNI per capita. The US equivalent would be approximately \$170. Therefore, the stakes involved in the experiments were large.

## V. Experimental Results

Our main goals are (1) to identify whether there is gender discrimination in the trust game, that is, whether players' behavior differs by the gender of the partner; (2) to analyze the nature (statistical vs. taste based) of this potential discrimination; and (3) to investigate whether potentially discriminatory behavior varies according to the institutions of both the primary player and his or her partner. The theoretical model in Section III highlights the challenge we face in the identification of discrimination. We therefore start by establishing whether there is any discrimination in the trust game and then move on to analyze the behavior in the dictator game and the expectations data.

Because participants may treat partners from different institutions differently for reasons unrelated to gender, our test for gender discrimination will always be done by comparing how males and females from the same institution are treated. This comparison relies on the assumption that our respondents have the same beliefs about the distribution of observable characteristics of males and females at a given institution. Instead, for example, if individuals believed that MidSES females were from higher-income households (compared with MidSES males) and other-regarding preferences were declining in the partner's SES background, then the propensity to send less to MidSES females (than corresponding males) would be statistical discrimination. As shown in Section II.B, at both MidSES and HighSES, females tend to come from slightly more advantaged backgrounds than their male counterparts. We believe it is quite unlikely that students are aware of these small differences (the gender difference in characteristics within the institutions was a surprise to us and



our survey team), but we cannot rule this out entirely. Our focus is on gender discrimination by males, so in what follows, players are always male, whereas partners can be male or female.

**A. Gender Discrimination**

We begin by testing the following hypothesis:

HYPOTHESIS 1. There is no gender discrimination in the trust game, conditional on partners' institutions.

Table 3 presents the overall proportion of senders who chose to send the Rs 300 in the trust game, conditional on the institution and gender of both the sender and the responder. In order to test for gender discrimination, we investigate whether investment behavior in the trust game varies by gender of the partner, keeping the institution of the partner and gender and institution of the primary player fixed. For respondents belonging to a row institution, testing this hypothesis means testing for differences in the investment behavior

**TABLE 3**  
PROPORTION OF RESPONDENTS WHO SEND MONEY IN TRUST GAME

Respondent	Matched with							
	Total (1)	HighSES		MidSES		Madrasa Male (6)	HighSES Male + MidSES Female	
		Male (2)	Female (3)	Male (4)	Female (5)		(7)	(8)
HighSES male:								
Proportion	.718	.667	.703	.787	.709	.727	.725	.706
N	758	153	145	141	158	161	294	303
MidSES male:								
Proportion	.631	.551	.689* <sup>+</sup>	.628	.621	.663	.589	.655
N	444	89	87	86	87	95	175	174
Madrasa male:								
Proportion	.790	.826	.816	.808	.682*** <sup>++</sup>	.782	.818	.765* <sup>+</sup>
N	1,145	236	217	198	132	362	434	349
<i>p</i> -value: <sup>a</sup>								
F-test	.0000	.0000	.0165	.0011	.3532	.0164	.0000	.0077
Kruskal-Wallis test	.0000	.0000	.0168	.0012	.352	.0165	.0000	.0078

**Note.** Shown is the proportion of respondents who send money in the trust game. We also report two types of pairwise tests for equality of proportions (who send money) for those having a match with a HighSES male vs. a HighSES female and those matched with a MidSES male vs. a MidSES female. The *p*-values for these tests are not reported but are denoted by asterisks (t-test) and plus signs (Wilcoxon rank sum test) in columns for female matches.

<sup>a</sup> The *p*-values of tests for equality of means (F-test) and distributions (Kruskal-Wallis test) across institutions.

\* *p* < .10.

\*\*\* *p* < .01.

+ *p* < .10.

+++ *p* < .01.

when matched with HighSES males versus HighSES females and for testing for differences when matched with MidSES males versus MidSES females. As a robustness check, we also test for differences when aggregating HighSES and MidSES males versus HighSES and MidSES females.

Table 3 provides two important results. First, HighSES males do not discriminate in their behavior according to the gender of the matched partner, even after taking into consideration the institution of the match. This is demonstrated by the fact that none of the two sets of pairwise hypothesis tests that we conduct (Wilcoxon rank sum and  $t$ -test) between having a match with a male versus a female of a given institution type is statistically significant at conventional levels of significance for HighSES males. Second, holding the institution of the matched partner fixed, we notice statistically significant differences by gender in the behavior of MidSES and madrassa students, which reveals important interaction between gender and institutions. MidSES male students treat MidSES males and MidSES females similarly, but they treat HighSES females more favorably than they treat HighSES males: 55% of the MidSES males sent money when matched with a HighSES male compared with 68% when matched with a HighSES female (the difference is statistically different from zero at 10%). We also find that madrassa students treat HighSES males and HighSES females similarly, but they treat MidSES females less favorably than MidSES males: 80% of the madrassa students sent money when matched with a MidSES male compared with only 68% when matched with a MidSES female (the difference is statistically significant at 1%).

Columns 1 and 2 of table A1 analyze behavior in the trust game using a linear regression framework. The dependent variable is a dummy for whether a participant sent money in the trust game. In column 1, the independent variables include dummies for every potential pair of partners. For example, the first dummy variable—HighSES player  $\times$  MidSES partner—equals 1 for a pair in which the player is a HighSES male and the partner is from MidSES. Similarly, the second dummy—HighSES player  $\times$  (MidSES partner  $\times$  female)—equals 1 for a pair in which the player is a HighSES male and the partner is from MidSES and is female. The average behavior of a HighSES male student matched with a male MidSES student is captured by the first variable, whereas the average behavior of a HighSES male student matched with a female MidSES student is reflected by the sum of these two variables. By comparing these two coefficients, we can test for whether MidSES females are treated differently than MidSES males by HighSES males. We do find similar results as in table 3: madrassa males are found to treat MidSES females less favorably than they treat MidSES males. The coefficient madrassa player  $\times$  (MidSES partner  $\times$  female) indicates that they are 13.4 percentage points less likely to send money to MidSES females in the trust game (relative to when matched with MidSES males),

and the coefficient is statistically significant at 5%. We also see that MidSES males treat HighSES females more favorably than HighSES males (coefficient statistically significant at 1%), whereas they treat MidSES males and females similarly. Notably, in column 2 when we add demographic characteristics as controls, we see that the coefficient of the dummies for the pairs is essentially unchanged.

### **B. Nature of Discrimination**

These results highlight differences in how males invest (i.e., whether they send money to the matched partner) in the trust game depending on the gender of their partners, holding institutions fixed. As highlighted in the theoretical framework, there are several dimensions of preferences and beliefs that may motivate a subject to invest in the trust game. One motivation could be unconditional other-regarding preferences. Another one could be beliefs about trustworthiness of the partner (Dufwenberg and Gneezy 2000; Cox 2004; Ashraf, Bohnet, and Piankov 2006). Finally, risk preferences may play a role in the decision (Karlan 2005; Schechter 2007).<sup>11</sup>

Empirically, determining which one has the largest weight in influencing behavior is important to understand the nature of players' discriminatory behavior. This is of interest to academics but of particular relevance to policy makers because effective policies and legislation to deal with gender discrimination can be crafted only if the nature of discrimination is understood. For example, although HighSES males exhibit similar investment behavior in the trust game toward males and females conditional on match institution, as we explain in Section III, their action could still be consistent with different levels of trust and of unconditional other-regarding behavior toward males and females. Results from the trust game alone do not allow the identification of the relative roles of those dimensions (Cox 2004). However, our multiple-game experimental design allows us to separately measure unconditional other-regarding behavior and expected trustworthiness and therefore informs us about the nature of discrimination under the assumption that the only difference between men and women within an institution is gender. In the dictator game, the only motive for sending money to the partner is preferences (unconditional other-regarding behavior). We can thus learn more about taste-based discrimination by analyzing how students play that game. In addition, the elicitation of expected average

<sup>11</sup> Students were randomly assigned a treatment (i.e., match type). Therefore, differences in risk preferences cannot explain any of the results (across match types). We have qualitative measures of risk preferences from the respondents, and they are in fact similar within each treatment, conditional on the student's institution.

amount sent back by each match group to students from their own institution gives us a measure of expected trustworthiness toward each group and therefore an indication of statistical discrimination.

We test the following hypothesis:

HYPOTHESIS 2. Conditional on the partner's institution, expectations of the partner's trustworthiness do not differ by the partner's gender.

We collected data on respondents' expectations regarding the average amount anticipated from the matched group. Note that respondents choose an interval for the average expected amount and do not report a point estimate for the exact average. The mean and median amounts presented in table 4 are those obtained by allocating as average expected amount the middle of the chosen interval. To show the distribution of expectations, we also present the proportion of respondents who expect to receive more than Rs 200 and Rs 300. Those are obtained directly from respondents' answers without any assumption. Again, we focus on the differences in expectations by gender, keeping the institution of the match fixed.

Three points from this table are of note. First, HighSES students believe males and females within an institution are equally trustworthy: none of the three sets of pairwise hypothesis tests—*t*-test, Wilcoxon rank sum, and Kolmogorov-Smirnov—for having a match of a male versus female for a given institution type (HighSES male vs. HighSES female; MidSES male vs. MidSES female) are statistically significant at conventional levels of significance for HighSES males.<sup>12</sup> Second, we again note some differences by gender of the matched partner for MidSES students. MidSES males believe MidSES females to be less trustworthy than MidSES males (difference in the mean is statistically significant from zero at 10%), whereas they expect HighSES females to be more trustworthy than HighSES males (the proportion expected to send back more than Rs 200 is statistically significant at 10%). Recall that they were more likely to send money to HighSES females in the trust game, so positive statistical discrimination may explain this. Note, however, that there was no difference in their investment behavior by gender for partners from MidSES. Third, madrasa students

<sup>12</sup> The *p*-values for these tests are not reported in the table. Instead, they are denoted by asterisks on the mean, median, and sample size in the relevant female column. The *t*-test is a parametric test for the equality of the means (under the assumption that the variable is normally distributed); the Wilcoxon rank sum test is a nonparametric analog to the *t*-test and is a rank sum test. The Wilcoxon test ranks all observations from both groups and then sums the ranks from one of the groups, which is compared with the expected rank sum. It is possible for groups to have different rank sums (and thus the test of equality being rejected) and yet have equal or nearly equal medians. Finally, the Kolmogorov-Smirnov test is a nonparametric test for the equality of continuous distributions.

**TABLE 4**  
**AMOUNT EXPECTED BACK FROM MATCH OF RS 900**

Respondent	Matched with							
	Total (1)	HighSES		MidSES		Madrasa Male (6)	HighSES Male + HighSES Female (7) (8)	
		Male (2)	Female (3)	Male (4)	Female (5)			
HighSES male:								
Mean	369.79	363.1	374.8	387.6	383.5	342.6	374.8	379.4
Median	350.00	350.0	450.0	450.0	450.0	350.0	350.0	450.0
Proportion expecting:								
>Rs 200	.897	.895	.917	.901	.905	.870	.898	.911
>Rs 300	.722	.712	.766	.745	.759	.634	.728	.762
N	758	153	145	141	158	161	294	303
MidSES male:								
Mean	354.28	333.2	355.8	379.1	341.9*	361.6	355.7	348.9
Median	350.00	350.0	350.0	350.0	350.0	450.0	350.0	350.0
Proportion expecting:								
>Rs 200	.869	.787	.885*	.930	.828**	.916	.857	.856
>Rs 300	.694	.640	.667	.756	.701	.705	.697	.684
N	444	89	87	86	87	95	175	174
Madrasa male:								
Mean	412.22	404.1	425.4	405.9	429.4	406.8	404.9	426.9**
Median	450.00	450.0	450.0	450.0	450.0	450.0	450.0	450.0*
Proportion expecting:								
>Rs 200	.923	.919	.926	.919	.947	.917	.919	.934
>Rs 300	.799	.750	.839**	.783	.856*	.796	.765	.845***
N	1,133	233	215	195	131	359	428	346
<i>p</i> -value:								
<i>F</i> -test <sup>a</sup>	.000	.000	.000	.297	.000	.000	.000	.000
Median test <sup>b</sup>	.000	.003	.000	.075	.001	.001	.000	.000
Kruskal-Wallis test <sup>c</sup>	.000	.000	.000	.110	.000	.000	.000	.000

**Note.** We report the following pairwise tests for having a match with a HighSES male vs. a HighSES female and having a match with a MidSES male vs. a MidSES female: (1) for the amount expected in the trust game, *t*-test on the means, Wilcoxon rank sum test on the medians, and Kolmogorov-Smirnov test on the sample sizes; (2) for the proportion expecting >Rs 200 and >Rs 300, Wilcoxon rank sum test. The *p*-values for these tests are not reported, but their significance is denoted by asterisk in columns for female matches.

<sup>a</sup> *F*-test for the equality of means across institutions.

<sup>b</sup> Nonparametric median test for the equality of medians across institutions.

<sup>c</sup> Kruskal-Wallis test for the equality of distributions across institutions.

\*  $p < .10$ .

\*\*  $p < .05$ .

\*\*\*  $p < .01$ .

expect females to be more trustworthy than males. In particular, madrasa students expect females to return about Rs 25 more on average than their male counterparts (this difference is statistically significant at 5% when aggregating HighSES and MidSES) and assign an 8 percentage point higher probability to females sending back more than Rs 300 than males (this difference is statistically significant at 10% for both MidSES and HighSES). Similar qualitative results are

shown in a regression framework with and without demographic controls in columns 3 and 4 of table A1. Recall that madrassa students were less likely to send money to MidSES females in the trust game. The results presented in table 4 suggest that statistical discrimination cannot explain their differential behavior by gender in the trust game. In fact, keeping unconditional other-regarding behavior constant, given that madrassa students expect females to be more trustworthy than males, they should be investing more in the trust game when matched with females than with males.

Overall, this would suggest that the gender discrimination observed in the trust game by madrassa students is unlikely to be statistical and most likely taste based. Behavior in the dictator game—where the main motivation for sending money to the matched partner is unconditional other-regarding behavior—allows us to investigate this further.

We next test the following hypothesis:

**HYPOTHESIS 3.** Conditional on the partner's institution, the amount sent in the dictator game does not differ by the partner's gender.

Table 5 shows the average amounts sent in the dictator game for all pairs of partners. Madrassa students send lower amounts on average to females than males. The differences appear not to be statistically significant when we consider each institution separately, but if we compare females from MidSES and HighSES against males from MidSES and HighSES (cols. 7, 8), we find a statistically significant difference in average amount sent using a  $t$ -test ( $p = .051$ ) and using the Wilcoxon rank sum test ( $p = .032$ ). This suggests that madrassas students exhibit taste-based discrimination against females.

Regarding HighSES and MidSES males, the three sets of pairwise hypothesis tests between having a match with a male versus female of a given institution type (HighSES male vs. HighSES female; MidSES male vs. MidSES female) that we conduct are not statistically significant, suggesting that there is no significant taste-based discrimination by those groups of students. However, a much higher proportion of MidSES males send nothing in the dictator game to MidSES females compared with MidSES males (26.7% vs. 16.3%), and the difference is statistically significant at 10%. This is consistent with some form of taste-based discrimination against MidSES females. Columns 5 and 6 of table A1 investigate this within a regression framework and show similar qualitative (though less precisely estimated) results.

We now summarize all our results presented so far by institutions:

*Result 1.* HighSES male students do not discriminate by gender in the trust game and the dictator game, and they believe males and females within

**TABLE 5**  
**AMOUNT SENT IN DICTATOR GAME**

Respondent	Total (1)	HighSES				Matched with				HighSES Male + MidSES Female		
		Male (2)		Female (3)		MidSES		Madrasa				
		Male (4)	Female (5)	Male (6)	Female (7)	Male (8)	Female (9)	Male (10)	Female (11)			
HighSES male:												
Mean	163.13	151.30	145.67	180.63	171.35	166.68	165.37	159.06				
Median	200	200	200	200	200	200	200	200				
N	758	153	145	141	158	161	294	303				
Do not send (%)	.088	.111	.110	.050	.076	.093	.082	.092				
MidSES male:												
Mean	140.27	141.59	150.07	135.49	118.24	154.53	138.58	134.06				
Median	200	200	200	185	100	200	200	200				
N	440	88	85	86	86	95	174	171				
Do not send (%)	.161	.159	.128	.163	.267*	.095	.161	.198				
Madrasa male:												
Mean	181.74	187.39	178.12	189.44	179.24	176.93	188.34	178.55*				
Median	200	200	200	200	200	200	200	200**				
N	1,139	233	217	198	132	359	431	349				
Do not send (%)	.032	.038	.032	.030	.038	.028	.034	.034				
p-value:												
F-test	.000	.000	.0007	.000	.000	.0064	.000	.000				
Median test	.0006	.1574	.4776	.0037	.0131	.7535	.0024	.0311				
Kruskal-Wallis test	.000	.000	.0042	.000	.000	.0025	.000	.000				

**Note.** We report four pairwise tests for having a match with a HighSES male vs. a HighSES female and having a match with a MidSES male vs. a MidSES female: (1) t-test for equality of the means (reported on the mean), (2) Wilcoxon rank sum test for equality of the medians (reported on the median), (3) Kolmogorov-Smirnov for equality of the distribution (reported on the sample size), and (4) t-test for equality of proportions who do not send (reported on the percentage who do not send). The p-values for these tests not reported, but their significance is denoted by asterisks in columns for female matches.

\*  $p < .10$ .  
\*\*  $p < .05$ .

an institution to be equally trustworthy. This is consistent with no (statistical or taste-based) gender discrimination.

*Result 2.* MidSES male students favor HighSES females in the trust game but treat MidSES males and MidSES females similarly. They believe MidSES females to be less trustworthy than MidSES males, but they believe HighSES females to be more trustworthy than HighSES males. They do not discriminate by gender in the dictator game (although they are more likely not to send anything to MidSES females). This is consistent with statistical discrimination in favor of HighSES females and (primarily statistical) discrimination against MidSES females compared with their male counterparts.

*Result 3.* Male madrasa students discriminate against MidSES females (but not HighSES females) in their investment behavior in the trust game. This is despite the fact that they believe females to be more trustworthy than males. They discriminate by gender in the dictator game, which is consistent with exhibiting taste-based discrimination against both MidSES and HighSES females.

The focus in this paper is on male behavior. We also have a small sample of women from MidSES and HighSES. We present some descriptive statistics in table A2 on their behavior and expectations for completeness. As we find for males, HighSES females do not discriminate by gender in the trust game and the dictator game, and they believe males and female within an institution to be equally trustworthy. However, MidSES females discriminate against HighSES females (but not MidSES females) in the trust game. They also have lower expectations of the trustworthiness of HighSES females relative to HighSES males. In addition, they send a significantly lower amount to HighSES females relative to HighSES males in the dictator game and a larger amount to females than to males at MidSES. This is consistent with taste-based discrimination in favor of MidSES females and both taste-based and statistical discrimination against HighSES females.

### C. *Relative versus Absolute Position*

Thus far, the focus of our study led us to analyze behavior and perceptions toward males and females within an institution (or social identity). From the women's perspective, such discrimination is relevant for their well-being if they care about their relative position compared with men of similar social identity. Recent empirical work has documented a systematic correlation between measures of relative income and happiness/subjective well-being (e.g., Luttmer 2005; Clark, Frijters, and Shields 2008) and reported job satisfaction and turnover (e.g., Clark and Oswald 1996; Card et al. 2012). Absolute position may also be relevant to women, and it is therefore interesting to evaluate which groups of males treat females better in absolute terms. The last few rows in



tables 3 and 5 report the  $p$ -values of the  $F$ -test and Kruskal-Wallis test, testing for equality of means and distribution for each column of matched partner (i.e., conditional on a match group, testing for equality of means and distribution across institutions). It enables us to investigate whether there are systematic differences by groups in their investment behavior for table 3 or other-regarding behavior for table 5 toward MidSES and HighSES females. Table 3 shows that there are statistically significant differences (as indicated by the low  $p$ -values of the two tests in the last two rows) and that a higher proportion of madrasa students invest with female partners at both MidSES and HighSES compared with HighSES and MidSES males. A similar pattern is observed in the dictator game: madrasa students give more to female students in the dictator game than any other groups of males. This is because madrasa students tend to invest more in the trust game and give more in the dictator game than the other groups of males. Thus, even though they treat females worse than males, they still treat females better than the other groups of males.

More generally, column 1 in both tables 3 and 5 shows that students in the various institutions differ significantly in their investment behavior and dictator game split, respectively. Conditional on matches with male students (cols. 2, 4, 6, and 7 of both tables), we see that madrasa students exhibit significantly higher trust and stronger unconditional other-regarding behavior. We do not explore this point in this paper because here the focus is on gender discrimination. This issue is discussed in detail in our previous study (Delavande and Zafar 2015).

It should also be pointed out that compared with existing studies, we find very high levels of trust and other-regarding behavior in our sample. In our previous study (Delavande and Zafar 2015), we present detailed evidence that these high levels of pro-social behavior are not a consequence of other confounds, such as students not understanding the games or not finding the incentives credible.

#### **D. Accuracy of Expectations**

If respondents act on their expectations and play according to social preferences equilibrium, it is these expectations that matter in explaining their choices, regardless of whether they are correct. However, if expectations are incorrect for a particular group, it implies incorrect stereotypes for that group, which could result in inefficiencies in actual interactions in the society. Inaccurate expectations also imply there may be a case for policy interventions that disseminate accurate information. We therefore investigate how the expectations of the partner's trustworthiness match with actual trustworthiness (amount sent back in the trust game from the trustee) and whether there are any systematic gender biases.

Table 6 compares the males' expected amount received from the match with the average amount actually sent back by males and females. We show the proportion of (male) students who expected more than Rs 300 from a given group and the proportion of students from that group who actually sent more than Rs 300. The third row in each panel reports the  $p$ -value for the equality of these two proportions. In addition, we also show the proportion of students who had accurate expectations, that is, those who chose the interval that contained the actual average.

Table 6 shows that HighSES males have more accurate expectations about females than about males: they expect both males and females to give more than Rs 300 on equal footing, but males actually tend to give less. MidSES males

**TABLE 6**  
HOW MALE STUDENTS' EXPECTATIONS COMPARE WITH ACTUAL CHOICES OF TRUSTEES

Respondent	Total (1)	Matched with				Madrasa Male (6)
		HighSES		MidSES		
		Male (2)	Female (3)	Male (4)	Female (5)	
<b>HighSES:</b>						
Proportion expecting >Rs 300	.722	.712	.766	.745	.759	.634
Proportion match sent >Rs 300	.715	.62	.775***	.584	.719	.814
Actual vs. expected <sup>a</sup>	1.000	.0901	.9006	.0108	.5508	.0001
Proportion accurate expectation	.365	.275	.517***	.241	.487***,+++	.304
N	758	153	145	141	158	161
<b>MidSES</b>						
Proportion expecting >Rs 300	.694	.640	.667	.756	.701	.705
Proportion match sent >Rs 300	.748	.745	.737	.756	.722	.758
Actual vs. expected <sup>a</sup>	.715	.0923	.3748	1	.7906	.3406
Proportion accurate expectation	.372	.303	.368	.442	.276**,++	.463
N	444	89	87	86	87	95
<b>Madrasa male:</b>						
Proportion expecting >Rs 300	.799	.750	.839**,++	.783	.856*,+	.796
Proportion match sent >Rs 300	.738	.708	.577	.779	.712	.757
Actual vs. expected <sup>a</sup>	.127	.3551	.0012	.9403	.0152	.2124
Proportion accurate expectation	.366	.127	.488***,+++	.455	.197***,+++	.461
N	1,145	236	217	198	132	362

**Note.** We report two pairwise tests for having a match with a HighSES male vs. a HighSES female and having a match with a MidSES male vs. a MidSES female: (1) Wilcoxon rank sum tests for equality of proportions (plus signs) and (2)  $t$ -tests for equality of proportions (asterisks).

<sup>a</sup>  $p$ -value of  $t$ -test for the equality of proportion that expect >Rs 300 and the proportion of match group that actually send back >Rs 300.

\*  $p < .10$ .

\*\*  $p < .05$ .

\*\*\*  $p < .01$ .

+  $p < .10$ .

++  $p < .05$ .

+++  $p < .01$ .

tend to underestimate the trustworthiness of HighSES males, but there are no systematic patterns by gender of the match. In contrast, madrasa students have inaccurate expectations by gender. Although their expectations about receiving more than Rs 300 when matched with males are fairly similar to actual receipts, they overestimate this probability for females by at least 15 percentage points. This overestimation is driven by both madrasa students expecting females to be more trustworthy than their male counterparts (table 4) and females actually sending back less than their male counterparts. Finally, it is interesting to note that all groups (except MidSES males and madrasa students) underestimate the trustworthiness of madrasa students; this is something that we explore in more detail in our previous study (Delavande and Zafar 2015).

## **VI. Discussion of Confounding Factors and Potential Mechanisms**

We find that madrasa students are the only group of males who discriminate against females (from MidSES) in the trust game. A relevant question for policy is the extent to which this result is a consequence of selection into institutions versus teaching at the institutions. It is hard to speculate about the role of madrasa teachings and environment in explaining our results. The relationship between Islam and treatment of women remains contentious (see Adida, Laitin, and Valfort 2014). Despite widespread gender imbalances observed in Muslim societies, Islamic teachings state that men and women are both equal, and Islam accords rights of inheritance and ownership to women (Badawi 1995; Lewis 2003).<sup>13</sup> However, many of the Islamic ancient texts and imperatives are open to interpretation, and there is considerable variation in how they are implemented. We also know little about how madrassas teach their students to interpret these texts and rulings. We present some suggestive evidence that may shed light on whether the behavior of madrasa students toward females is driven by selection, religious teaching, or both.

We conduct the following thought experiment within the pool of madrasa students. In another part of the survey, respondents were asked which type of institutions they would attend if they were admitted to all institution types and all expenses would be covered. Twelve percent of madrasa students stated that they would choose to attend a nonmadrasa institution under those conditions (i.e., would switch). We can think of these students as not selecting into madrassas on the basis of (observable and unobservable) characteristics because they would have attended another institution without budget or qualification

<sup>13</sup> In fact, medieval Islamic societies were far more progressive with regard to female rights than their European counterparts (Shatzmiller 1997; Lewis 2003).

requirements constraints. That is, the difference in behavior between these students and those who would attend a madrassa regardless could arguably identify the extent to which selection into madrassas drives our results. We find that this group of students invests at a significantly higher rate with female matches than students who would have chosen a madrassa anyway: conditional on having a female match, the proportion of madrassa students who invest in the trust game is 93.6% and 72.9%, respectively ( $p = .002$  for a pairwise  $t$ -test). This suggests that selection into madrassas plays a role in the gender-discriminating behavior of madrassa students.

We also look at how the behavior of madrassa students varies by how many years they have spent in a madrassa environment.<sup>14</sup> While the decision of how many years to spend in a madrassa is not fully exogenous, we describe the differences in behavior for illustration purposes.<sup>15</sup> Conditional on being matched with female students, the investment rate of madrassa students who have spent more than 8 years in a madrassa (about one-third of our sample) was 73.9% compared with 78.3% for those who had spent 8 or fewer years in a madrassa (with the difference not statistically different;  $p = .351$ ). Therefore, more time spent in a madrassa environment does not seem to be correlated with less trust of females. These pieces of evidence are suggestive at best but seem to indicate that selection into a madrassa rather than exposure to the religious teachings of madrassas is an important factor in explaining the different behavior toward women (relative to comparable men) that we observe in madrassa students.

The fact that MidSES males—who are closer to madrassa students in terms of religiosity and wealth but are exposed to very different teachings—exhibit some form of discrimination against MidSES females (although not in the trust game) is also consistent with background characteristics being important. We further investigate the role of SES and religiosity in table 7. Table 1 shows that within each institution type, there is heterogeneity in terms of income and religiosity. For example, the proportion of male students from a high-income family (parents earning more than Rs 32,500 per month) is 69% at HighSES, 32% at MidSES, and 8% at madrassas. Similarly, the proportion of students with high religiosity (reporting 9 or 10 on the 0–10 scale) is 6% at HighSES,

<sup>14</sup> The madrassa students in our sample are those pursuing an Alim degree, which is equivalent to a bachelor's degree. However, students enrolling in this degree come from different academic backgrounds. Some of them may have studied in a madrassa throughout, and others may have joined at different points in time. In our sample, students have spent 7.6 years on average in any madrassa. However, there is substantial heterogeneity in our sample: 10% of students have spent less than 4 years in a madrassa, and 10% have spent more than 12 years in a madrassa.

<sup>15</sup> If we assume that the selection into madrassas is negative (i.e., students likely to enroll and spend longer in madrassas are less likely to trust females to begin with)—of which we find some evidence above—then any difference that we find by years spent in a madrassa would be biased upward.

**TABLE 7**  
**BEHAVIOR IN GAME BY SOCIOECONOMIC AND RELIGIOSITY STATUS**

	Dummy for Invest in Trust Game Matched to <sup>a</sup>		Amount Sent in Dictator Game Matched to <sup>b</sup>		Amount Expected Back in Trust Game Matched to <sup>c</sup>	
	MidSES (1)	HighSES (2)	MidSES (3)	HighSES (4)	MidSES (5)	HighSES (6)
Female partner	-.157*	-.030	-25.82*	-5.10	26.44	-1.05
	(.084)	(.071)	(14.85)	(12.03)	(26.86)	(23.97)
Middle income	.008	-.002	-18.90*	5.90	-.721	11.21
	(.056)	(.053)	(9.99)	(8.88)	(18.14)	(17.76)
High income	-.053	-.075	-28.70**	-3.33	-4.09	-16.45
	(.067)	(.062)	(11.97)	(10.43)	(21.66)	(20.72)
Female partner × middle income	-.029	.011	29.86**	-6.92	-36.41	3.84
	(.083)	(.072)	(14.81)	(12.06)	(26.82)	(24.11)
Female partner × high income	.040	.208**	20.77	5.92	-41.97	21.70
	(.088)	(.080)	(15.60)	(13.44)	(28.20)	(26.76)
Moderate religiosity	-.012	.001	11.94	-3.64	-5.61	-6.33
	(.053)	(.051)	(9.40)	(8.52)	(17.00)	(17.06)
High religiosity	.067	-.024	11.97	-10.06	22.35	19.69
	(.060)	(.053)	(10.56)	(8.92)	(19.18)	(17.85)
Female partner × middle religiosity	.097	-.065	-12.06	-2.22	10.65	25.28
	(.075)	(.073)	(13.37)	(12.32)	(24.17)	(24.61)
Female partner × high religiosity	.125	.033	.094	3.07	1.41	8.13
	(.084)	(.073)	(14.92)	(12.34)	(26.99)	(24.59)
Risk general (0–10)	.011	.004	.277	-1.34	3.33	-.797
	(.008)	(.008)	(1.46)	(1.26)	(2.65)	(2.52)
Ownership index (0–8)	.008	.006	2.66*	-.595	.998	2.27
	(.009)	(.008)	(1.58)	(1.36)	(2.86)	(2.72)
Age	.000	.010*	1.31	.906	1.43	.615
	(.005)	(.005)	(.949)	(.878)	(1.70)	(1.76)
MidSES university	-.075	-.223***	-51.40***	-40.54***	-36.83**	-62.29***
	(.053)	(.050)	(9.41)	(8.38)	(16.90)	(16.70)
HighSES university	.066	-.149**	4.05	-36.65***	-7.00	-34.81**
	(.055)	(.050)	(9.78)	(8.44)	(17.63)	(16.83)
Constant	.682***	.597***	152.20***	177.85***	351.19***	376.75***
	(.133)	(.130)	(23.84)	(21.84)	(42.962)	(43.78)
Number of observations	793	904	792	898	789	900

**Note.** Standard errors are in parentheses.

<sup>a</sup> Ordinary least squares (OLS) regression of dummy for investment in trust game.

<sup>b</sup> OLS regression of amount sent in dictator game (Rs 0–400).

<sup>c</sup> OLS regression of amount expected back from partner in trust game (Rs 0–900).

\*  $p < .10$ .

\*\*  $p < .05$ .

\*\*\*  $p < .01$ .

8% at MidSES, and 77% at madrassas. The dependent variables in table 7 are the behavior in the games (dummy for investing in the trust game, amount sent in the dictator game, and amount expected back in the trust game). We conduct separate regressions by partner's institutions and evaluate how being matched with a female partner interacted by measures of SES and religiosity influence behavior in the games, while controlling for other characteristics

and, importantly, the main player's institution. Column 2 of table 7 shows that among players matched with a partner from HighSES, those from a high-income household are on average 20.8 percentage points more likely to invest in the trust game with females than those from a low-income family (the estimate is statistically significant at 5%). In column 3 we see that among players matched with a partner from MidSES, those from a low-income family on average give less in the dictator game to females compared with those from middle- or high-income families: males from middle- (high-) income families send Rs 30 (Rs 21) more to female partners from MidSES (however, only the estimate for female partner interacted with middle income is statistically significant). In table 7, we see that none of the interaction terms between female partner and religiosity are statistically different from zero. This is consistent with the idea that our results are driven by SES rather than religiosity: men from lower SES seem more prone to discriminate against women from poorer backgrounds.

It should be pointed out that the only institution where we find that males do not treat female partners differently—HighSES—has gender-mixed education. The limited interaction between genders in the gender-segregated MidSES and madrasa environments may lead to prejudice and incorrect beliefs about females. In the Indian context, Rao (2013) finds that being mixed with poor students makes other students overall exhibit more pro-social behavior. However, in our context, we also find that madrasa students severely overestimate the amount returned by female matches in the trust game (they expect on average 85% of women to send back more than Rs 300 in the trust game, whereas 67% do so), so it is not clear whether increased interactions with females would mitigate the discrimination that we observe.

Higher-SES children are likely to grow up in a very different family context that may shape their perception of gender difference. In a Western country context, Deckers et al. (2015) show that SES is a powerful predictor of many facets of a child's personality, including time preferences, risk preferences, and altruism. They discuss potential pathways and document that many dimensions of a child's environment (such as parenting style, quantity and quality of parent-child interactions, the mother's IQ and economic preferences, and family structure) differ significantly by SES. We do not have data to support this, but higher-SES Pakistani children may be brought up with a more equal notion of gender by their parents. In a similar vein, it is also worthwhile to point out that in our sample, students from higher-income families tend to live in households where the difference between the mother's and father's education is significantly smaller; the (mother minus father) difference is  $-1.6$  years of education in above-median income families compared with  $-3.6$  years of education in below-median

income families (differences statistically different at the <1% level). As a result, mothers in higher-SES families may have more bargaining power within the household, exposing children to a more balanced relationship between mothers and fathers.

In addition to individual characteristics, external factors (such as competition in the labor and marriage market) may also be responsible for some of the patterns in the data. For example, because they hail from a less privileged background, MidSES students may feel that they need to behave differently when facing someone from a higher SES in order to reach a position similar to that of individuals from that status. This may explain why in the trust game MidSES males favor females of higher social class (relative to men of higher social class) but not women who belong to the same social class as themselves.

In Section II.B, we note that at both MidSES and HighSES, females tend to come from slightly more advantaged backgrounds than their male counterparts. One may therefore wonder whether looking at gender discrimination while holding the institution fixed truly isolates gender discrimination. As we mentioned above, we believe it is quite unlikely that students are aware of these small differences. We also note that despite the fact that females have higher SES than men in both institutions, the discrimination we highlight is asymmetric: HighSES females tend to be favored compared with corresponding males, whereas MidSES females tend to be disadvantaged compared with MidSES males. If students are aware of these differences and if higher SES mitigates discrimination, this suggests that the discrimination we find against MidSES females would have been worse if they were perceived to be of similar socioeconomic characteristics as their male counterparts.

## VII. Conclusion

This paper shows interesting interactions between social identity and gender discrimination in the Pakistani context: gender discrimination is not uniform across educated Pakistani society and varies in nature and intensity as a function of the social identity of both individuals who interact. We fail to find evidence of liberal university (HighSES) male students—who are wealthier, less religious, and more exposed to Western ideas—discriminating against women. Madrassa students—who come from more humble backgrounds and are more religious and relatively unexposed to Western ideas—exhibit taste-based discrimination against women. However, because they give and trust more than any other group, they actually treat women almost as well or better (in absolute terms) than other groups of males in the society. Islamic university (MidSES) male students—who fare in the middle in terms of wealth and religiosity—have a less uniform behavior: their behavior toward males and females depends on the

institutions (or social identity) of the person with whom they interact. Islamic university males favor liberal university females and do not favor Islamic university females compared with their male counterparts in the trust game, and they exhibit mostly statistical discrimination against Islamic university females.

Our results are based on economic decision-making experiments. One reason for using this approach is that experiments illustrate actual behavior rather than what respondents believe and report to be their own behavior. Second, experiments allow us to investigate the nature of discrimination, something that is extremely challenging using observational data. To what extent is the discrimination that we document using these games generalizable to real-world interactions? We do not have a clear answer to this question because we do not observe naturally occurring interactions in real settings for the respondents in our sample. However, evidence from a few studies that combine data from laboratory games that measure social capital and pro-social behavior and data from real settings indicates that laboratory measures tend to be good predictors of behavior in real-world situations (Karlan 2005; Benz and Meier 2008; Baran, Sapienza, and Zingales 2010). While it is unclear how gender discrimination in trust exactly translates into discrimination in different situations, almost all bilateral exchanges—in the labor market or other market interactions—do require trust. For our results to have relevance, it suffices that trust matters and that some part of the discrimination in trust channels into different dimensions. Consistent with our experimental results and its potential ramification in the labor market, we do find that higher-SES women (from the liberal university) expect to earn as much as their male counterparts after completing their degree, whereas lower-SES women (from the Islamic university) expect to earn 18% less on average than their male counterparts.

Because SES is negatively correlated with religiosity and lack of exposure to Western ideas in our data, we cannot categorically determine the mechanisms that explain the taste-based gender discrimination that we identify. Yet we provide some suggestive evidence that SES (rather than religiosity or exposure to religious teachings) seems to be driving students' behavior toward women. Independent of the exact mechanisms, within elite groups, higher-status women are favored and less discriminated against in Pakistan, which may explain why some are able to reach important leadership positions.

Generally, it is believed that educating women may by itself lead to female empowerment and thus result in less gender discrimination. In our study, both groups of females are pursuing the same level of education (bachelor's degrees) and studying similar subjects. Yet higher-SES and less religious females are favored in some instances, and lower-SES and more religious females are discriminated against by certain male respondents. Since it is unclear why women would



be discriminated against because they are more religious, we speculate that the difference in SES is driving this difference in discrimination. Note, however, that the behavior of our male respondents matched with male partners does not differ by the institution of their match; that is, social identity seems to be irrelevant in the male-male interactions.<sup>16</sup> This suggests that when men interact with women, the woman's social class is such a powerful construct that it continues to remain salient. This is particularly striking because we focus on interactions of highly educated individuals in a country where less than 10% of adults have a bachelor's degree (Pakistan Bureau of Statistics 2008).

Our findings present a conundrum for policy makers. Women belonging to a lower socioeconomic class generally have fewer chances of upward social mobility and have greater constraints. That females—but only those belonging to the lower social class—are discriminated against by (certain) males indicates that those females who are already at a disadvantage to start with are further marginalized. This suggests that social identities (e.g., class, ethnicity, race) are a powerful construct, and simply educating women may not be enough to overcome the distortions that are introduced by these other dimensions. Our results then imply that policies aimed at empowering women need to take into account the interaction of gender with social class. For example, simply promoting education for girls or allocating quotas to women in political or other spheres may not be sufficient to change attitudes toward women, and such policies may need to incorporate other characteristics—such as socioeconomic background—along with gender.

The taste-based nature of the discriminatory behavior of madrasa students is also a challenge for policy design. In developed countries such as the United States, rules forbidding taste-based discrimination have been erected for decades and have been fairly effective at ameliorating taste-based discrimination (Gneezy, List, and Price 2012). However, in developing settings such as the one in this study, it is not clear how effective such legislation would be. In addition, it is generally easier to implement policies that attenuate statistical discrimination by removing information inefficiencies.<sup>17</sup> On the other hand, successful policies for altering gender tastes are less clear: they require understanding the formation of preferences, which is a challenging task.

<sup>16</sup> This can be seen by comparing the investment levels across male matches within an institution (i.e., a given row) in table 3 or behavior in the dictator game in table 5. The tables in this paper do not report results for pairwise comparisons of male matches (all of which are statistically insignificant). Interested readers are instead referred to Delavande and Zafar (2015), which focuses on male-male matches only.

<sup>17</sup> For example, Beaman et al. (2009) find that exposure to female leaders (through mandated quotas) erases statistical discrimination against them by male villagers in India but does not alter tastes for them.

## Appendix

TABLE A1  
BEHAVIOR IN GAMES CONDITIONAL ON MATCH AND OBSERVABLES

	Dummy for Invest in Trust Game		Amount Expected Back in Trust Game		Amount Sent in Dictator Game	
	(1)	(2)	(3)	(4)	(5)	(6)
HighSES player × MidSES partner	.009 (.043)	.033 (.050)	-17.59 (14.15)	-6.26 (16.14)	5.73 (7.49)	12.09 (8.55)
HighSES player × (MidSES partner × female)	-.084* (.051)	-.085* (.050)	-3.60 (16.41)	-3.31 (16.41)	-9.85 (8.69)	-10.65 (8.68)
HighSES player × madrassa partner	-.060 (.042)	-.026 (.048)	-62.90*** (13.53)	-49.43** (15.53)	-9.22 (7.17)	-2.10 (8.22)
HighSES player × HighSES partner	-.117** (.042)	-.089* (.048)	-41.66** (13.71)	-29.95* (15.64)	-24.18*** (7.26)	-17.80** (8.28)
HighSES player × (HighSES partner × female)	.043 (.051)	.050 (.051)	11.04 (16.51)	12.22 (16.54)	-7.88 (8.74)	-8.55 (8.75)
MidSES player × MidSES partner	-.164** (.053)	-.145** (.056)	-26.16 (17.18)	-15.84 (18.30)	-41.52*** (9.10)	-38.91*** (9.69)
MidSES player × (MidSES partner × female)	.002 (.067)	.000 (.067)	-36.62* (21.63)	-37.23* (21.65)	-15.72 (11.48)	-16.52 (11.48)
MidSES player × HighSES partner	-.233*** (.052)	-.208*** (.055)	-71.58*** (16.79)	-60.86*** (17.86)	-33.88*** (8.93)	-31.01** (9.49)
MidSES player × (HighSES partner × female)	.132** (.066)	.129** (.066)	23.91 (21.44)	23.41 (21.44)	7.87 (11.45)	7.59 (11.44)
MidSES player × madrassa partner	-.120** (.051)	-.097* (.054)	-42.77** (16.57)	-31.95* (17.70)	-21.35** (8.77)	-18.89** (9.37)
Madrassa player × MidSES partner	.030 (.039)	.034 (.039)	-1.04 (12.75)	-.361 (12.77)	13.69** (6.72)	13.84** (6.73)
Madrassa player × (MidSES partner × female)	-.134** (.049)	-.144** (.049)	27.09* (16.09)	25.60 (16.14)	-9.71 (8.47)	-10.51 (8.49)
Madrassa player × HighSES partner	.049 (.037)	.053 (.037)	-.506 (12.09)	-.050 (12.11)	11.64* (6.41)	12.16* (6.42)
Madrassa player × (HighSES partner × female)	-.019 (.042)	-.024 (.042)	21.14 (13.62)	19.37 (13.63)	-8.32 (7.20)	-8.78 (7.20)
Middle income		-.005 (.024)		-4.45 (7.98)		-3.23 (4.22)
High income		-.019 (.030)		-8.19 (9.93)		-10.16* (5.26)
Ownership index (0–8)		.006 (.005)		2.00 (1.66)		.315 (.879)
Age		.010** (.003)		1.61 (1.05)		1.49** (.556)
Moderate religiosity		.002 (.023)		2.26 (7.44)		.829 (3.94)
High religiosity		.041 (.027)		19.41** (8.67)		-.877 (4.59)
Risk general (0–10)		.008* (.005)		.843 (1.54)		-.932 (.815)

TABLE A1 (Continued)

	Dummy for Invest in Trust Game		Amount Expected Back in Trust Game		Amount Sent in Dictator Game	
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	.783*** (.023)	.500*** (.080)	404.73*** (7.57)	349.18*** (26.28)	175.48*** (4.01)	147.03*** (13.95)
Number of observations	2,299	2,299	2,289	2,289	2,289	2,289

**Note.** Standard errors are in parentheses.

<sup>a</sup> Ordinary least squares (OLS) regression of dummy for investment in trust game.

<sup>b</sup> OLS regression of amount sent in dictator game (Rs 0–400).

<sup>c</sup> OLS regression of amount expected back from partner in the trust game (Rs 0–900).

\*  $p < .10$ .

\*\*  $p < .05$ .

\*\*\*  $p < .01$ .

TABLE A2

## FEMALE STUDENTS' BEHAVIOR AND EXPECTATIONS

	Matched with			
	HighSES		MidSES	
	Male (1)	Female (2)	Male (3)	Female (4)
A. Proportion Who Send Money in Trust Game				
HighSES female	.575	.638	.737	.758
MidSES female	.632	.429**	.352	.491
B. Amount Expected Back from Match of Rs 900				
HighSES female:				
Mean	365.0	313.8	334.2	365.2
Proportion expecting >Rs 200	.900	.787	.895	.879
MidSES female:				
Mean	357.0	328.6	316.7	331.1
Proportion expecting >Rs 200	.965	.804***	.815	.868
C. Mean Amount Sent in Dictator Game				
HighSES female	164.4	172.3	176.3	192.4
MidSES female	153.9	124.9**	111.5	137.7*
N:				
HighSES female	40	47	57	33
MidSES female	57	56	54	53

**Note.** We report pairwise t-tests of having a match with a HighSES male vs. a HighSES female and having a match with a MidSES male vs. a MidSES female. The  $p$ -values for these tests are not reported, but their significance is denoted by asterisks.

\*  $p < .10$ .

\*\*  $p < .05$ .

\*\*\*  $p < .01$ .

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