Gender Discrimination and Social Identity: Experimental Evidence from Urban Pakistan

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Abstract

Gender discrimination in South Asia is a well-documented fact. However, gender is only one of an individual's many identities. This paper investigates how gender discrimination depends on the social identities of interacting parties. We use an experimental approach to identify gender discrimination by randomly matching 2,836 male and female students pursuing bachelor's-equivalent degrees in three different types of institutions—Madrassas (religious seminaries), Islamic universities, and liberal universities—that represent distinct identities within the Pakistani society. Our main finding is that gender discrimination is not uniform in intensity and nature across the educated Pakistani society and varies as a function of the social identity of both individuals who interact. While we find no evidence of higher-socioeconomic-status men discriminating against women, men of lower socioeconomic status and higher religiosity tend to discriminate against women— but only women of lower socioeconomic status who are closest to them in social distance. Moreover, this discrimination is largely taste-based. Our findings suggest that social policies aimed at empowering women need to account for the intersectionality of gender with social identity.

Key words: trust, discrimination, expectations, identity, gender, other-regarding preferences

1. Introduction

Gender-unequal treatment in developing countries – be it in early childhood investments, labor market earnings, educational attainment, or asset ownership–is well documented (e.g., Sen, 2001; Duflo, 2011). However, individuals generally have multiple identities. Then, to what extent does women's social identity matter in how they are treated? In addition, does the gender and social identity of the individuals interacting matter? In this paper, we use economic decision-making experiments from Pakistan to investigate (i) whether and how young educated Pakistani women of heterogeneous backgrounds are discriminated against by socially disparate groups of highly-educated young men, (ii) evaluate the nature of this discrimination (taste-based versus statistical), and (iii) analyze how this discrimination varies by the social status of both genders.

We focus on the 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 Census Organization, 1998). However, gender discrimination in Pakistan appears rather paradoxical. On the one hand, women have prominent political leadership: Pakistan's former Prime Minister Benazir Bhutto was the first woman to lead an Islamic state, and a third of Pakistan's local legislative seats and 10 percent of all government offices are reserved for women (Zissis, 2007). On the other hand, there is excess female mortality with an estimated 13 percent of the women "missing"[1], an increasing gender gap in literacy (a literacy rate of 29 percent for women versus 58 percent for men in 2001), an alarming rate of violence against women, and a female labor force participation rate of 15% that is low compared to other countries with similar GDP per capita (Klasen and Wink, 2003; Coleman, 2004; Human Right Commission of Pakistan, 2008). On top of this, Pakistani society is one that is fragmented and polarized along social, economic, religious, and ethnic lines (Talbot, 2009).

Given the social divide and paradoxical gender discrimination of the Pakistani society, we investigate the interplay between gender discrimination and social identity in Pakistan. We recruited 2,836 students pursuing bachelors-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. We use the student's institution affiliation as a measure of

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[1] This phenomenon was noted by Sen (1990) who estimated that more than a 100 million women were missing worldwide. These women are missing in the sense that their existence had been eliminated either through sex selective abortion, infanticide or unequal access to nutrition and other essential resources.

his/her social identity. The first type of institution consists of male-only Madrassas (religious seminaries). The Madrassa curriculum uses ancient religious texts and does not impart any secular teaching. The second type of institution—Islamic Universities—teach a Liberal Arts curriculum combined with Islamic teachings in gender-segregated campuses. The third type are Liberal Universities which are similar to American universities—classes are taught in English, campuses are mixed and students are widely exposed to Western ideas. While Madrassas tend to be free and hence cater primarily to the poor, Islamic Universities are usually public and are therefore accessible to low and middle income groups. Liberal Universities, on the other hand, charge expensive tuition and thus serve the wealthy segment of the population. Thus, on the socioeconomic status scale, students at Liberal Universities on average would be ranked highest, followed by Islamic University students, with Madrassa students being the 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 the Madrassa students, 6.3 among male Islamic University students and 5.3 among the male Liberal University students. Our focus on interactions of inter-elite 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.

To investigate gender discrimination, we study a particular aspect of social and economic interactions: trust. Our focus on trust stems from a large literature showing that trust enhances efficiency and promotes economic growth and financial development (Knack and Keefer, 1997; La Porta et al., 1997; Guiso, Sapienza, and Zingales, 2004). 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). We measure trust by randomly matching students with each other (based on 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, i.e., whether it is motivated by preferences (taste-base 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 expect back on average from their partner allow us to measure whether the discrimination is statistical.

Our main finding is that the intensity and the nature of gender discrimination depend on the social identity of *both* individuals in the match. Liberal University students, who are (on average) the wealthiest, least religious and most exposed to Western ideas, do not discriminate against women of any social identity. Madrassa students, who come from more humble backgrounds, and are more religious and relatively unexposed to Western ideas, tend to discriminate against Islamic University (but not Liberal University) 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 males, who fare in the middle in terms of wealth and religiosity, have a less uniform behavior: they favor Liberal University females but they do not favor Islamic University females, compared to their respective male counterparts, in the trust game. 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,

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, 2011). Our findings, based on a subject pool where all respondents are pursuing bachelors-equivalent degrees (and hence belong to an elite group in the society), that higher socioeconomic status females (Liberal University females) are not discriminated against and are even favored in some instances by males, and that women of lower socioeconomic status (Islamic University females) are discriminated against by certain groups of men suggests that education 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 under-representation in the political sphere or the labor market through gender quotas (e.g., Beaman et al., 2009, Beath, Christia, Enikolopov, 2012) may need to account for the intersectionality of gender with social identity, and possibly allocate gender quotas based on the socio-economic background of women.

As part of the large body of empirical evidence on gender unequal treatment in South Asia[2], there have been some investigations into the relationship between gender discrimination and socio-economic status or social class of the households. 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 (1989) find that households with more income treat boys and girls more equally in terms of allocation of nutrients and medical care, respectively. However, Miller (1997) and Basu (1989) find that higher socio-economic status households (as measured by caste or income) discriminate against girls more, especially in the northwestern plains of Asia where the society is patrilineal. Our paper contributes to the understanding of the relationship between social status and discrimination in South Asia beyond the one found within the household, and importantly highlights that the nature and intensity of discrimination depends on the social identity of *both* the men and women involved. Even within elite groups, higher status women in Pakistan are less discriminated against, and lower socio-economic and more religious men tend to discriminate more.

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, and List and Rasul, 2011 for a review). 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 et al., 1999) have been used to identify gender discrimination. Due to lack of data, however, it is generally difficult to identify the nature of this discrimination. Recent studies using either field or lab experiments have been able to directly address the nature of gender discrimination by using a multi-game design, which is able to measure both preferences and beliefs or to manipulate the market under study (e.g., Fershtman and

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[2] Many papers find evidence that boys are treated more favorably than girls within the household: they receive more nutrition, more healthcare, more childcare time, and are more likely to be vaccinated (Chen, Huq and D'Souza, 1981; Das Gupta, 1987; Basu, 1989; Hazarika 2000; Borooah 2004; Barcellos at al., 2011; Kuziemko and Jayachandran, 2011). Son preferences is often cited for this unequal treatment, due either to pure taste for having a boy or because parents respond to gender difference in expected returns as adults by selectively allocating available resources (Rosenzweig and Schultz, 1982; Qian, 2008). Beyond unequal treatments at young age, women are also found to lack behind in terms of literacy, educational attainment, labor force participation and earnings (e.g., Holmes, 2003; Aslam, 2009; Duflo, 2011).

Gneezy, 2001; List, 2004; Slonim and Guillen, 2010; Castillo et al., 2011). Freshtman and Gneezy (2001), 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, while Eastern women (who tend to have lower economic status) are more trusted then Eastern men. This suggests, unlike in the Pakistani context, that discrimination against female is reduced, and even reversed, when they belong to lower socio-economic status groups.

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 tends to be worse for women who fall into the bottom of the social hierarchy in terms of race or gender (Browne and Misra, 2003). Our findings that higher socioeconomic status women in Pakistan are less discriminated against are consistent with this theory.

This paper is organized as follows. We provide details on the educational institutions, the sample and the experimental design in Section 2. Section 3 outlines a simple theoretical model that provides a guide for the empirical analysis. Sections 4 present the empirical analysis, and Section 5 discusses the results and implications. Finally, Section 6 presents concluding remarks.

2. Data Collection

2.1 The educational institutions

We conducted experiments in four male Madrassas (religious seminaries), one Islamic University (IU), and two Liberal Universities (LU) located in Islamabad/Rawalpindi and Lahore between May and October 2010.[3] Below we describe each of those institutions.

Madrassas base their studies on texts dating to before the 14th 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

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[3] There are few female Madrassas, and the proportion of females pursuing a Bachelor-equivalent degree (the relevant population for our purposes) is even smaller. Since large sample sizes are needed for the randomizations in the experiment, we did not include them in our sample.

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 extremism (see discussion in Delavande and Zafar, 2011). Since 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, therefore, are 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 IU.

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 to 30% of the student body the two institutions we surveyed.[4]

The institutions in our sample are amongst the five largest and 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 4 Madrassas since they are similar in age to university students, and are pursuing degrees that are equivalent to Bachelor degrees. Though 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 based on a listing of students provided by the registrar's office. The average response rate at the universities (IU and the two LUs) was about 70%. Except for lower response rates for females relative to males at IU, there were no differences in response rates by gender. Overall 2,836 students participated in the experiments, of which 489 were female. Our focus in this paper is on how males treat males and females differently.

2.2. Descriptive statistics of the sample

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[4] In Delavande and Zafar (2011), we separate the two Liberal Universities we interviewed. In the present context, we find very similar behaviour toward females so 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 purpose, 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.

Table 1 highlights the differences across the three types of institutions.[5] The sorting in terms of observables into these institutions is very drastic but as expected. As we move across the columns from LU towards Madrassas in Table 1, the average socioeconomic characteristics deteriorate. For example, the monthly parental income of male and female students in LU is about 7 times that of students in the Madrassas, and father's years of education is almost twice as many. If we compare the students to the City sample (last two columns of the table), we see that Madrassa students seem to hail from less well-off backgrounds than the general populations in the cities, while all other institutions fare better in terms of most indicators of wealth. Females at LU and IU, seem to hail from more privileged backgrounds than their male counterparts: they have higher parental income and parental education and much higher asset ownership. This difference is more marked at IU.

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 LU males and females compared to 9.2 in the Madrassas. The former also pray much less frequently each day (2-2.4 times vs. 4.9). When looking at the number of times a respondent prays per day, we note that females pray more often than their male counterparts within each institution.

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 Liberal Universities, 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 LU students to 45% for IU students. In addition, while fathers of only 11% (5%) of male (female) students attending LU spent more than 2 years studying in a Madrassa on either a part-time or full-time basis, the

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[5] Since we find no significant differences within the Madrassas either in terms of demographic characteristics or in their experimental behavior, we combine the four Madrassas into one group to keep the tables and analysis simple.

corresponding proportion for Madrassa students is 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, the table shows that there is substantial sorting on observables into institutions, and that selection within an institution differs by gender. Students attending these three types of institutions clearly represent very different social and religious identities within the 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 Western-type of education and high exposure to international media.

2.3. Experimental design

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 retro-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 LUs where it was conducted in English, since students there are more used to reading and writing in English.[6] Moreover, the questionnaires were identical across all the institutions up to the section leading into the experiments.

Games: Students were asked to play the following games:

- *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 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, while the subgame perfect equilibrium is to keep the money. Lack of trust towards the partner may lead to inefficiencies. This is a binary version of the "trust game" introduced by Berg, Dickhaut, and McCabe (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

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[6] The translation was supervised by Zafar who speaks English and Urdu fluently to ensure that nothing was lost in translation.

B. 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.

- *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/herself and Player B (the receiver). Player B does not make any choice. Again, respondents play the role of both Player A as well as Player B.

- *Expectations:* Respondents were asked to guess (i) the average amount that students from their institution chose to give to their matched partner and (ii) the average amount that students from the partner's institution chose to give to their matched partner (who were from the respondent's institution). Note that when students are asked to provide their expectations, they are 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 respondent had made the decision in the games.[7]

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 Madrassa 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 different gender and educational institutions.[8] Each student was informed that they would play all the games with the same partner. Students were given a short description of the institution they were matched with but since the selected institutions are among the most well-known institutions, most students would have some prior knowledge of them. In terms of implementation, the pairing was carried out 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

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[7] While we want to measure the respondent's expectation of the amount his partner sends back, 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 hence superior.

[8] As mentioned in Section 2.1, we had two participating liberal universities. Students hailing from those and matched with someone from a liberal university were matched with someone of their own university.

have been matched with the same student. Table 2 presents the sample sizes for each institution, and for the various matches.[9] Because we use a one-way match, the sum in a given row does not need to match the sum in the corresponding column.

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 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 determined the payoffs. Subjects could pick up their compensation starting about one 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 USD 10. The 2009 per capita GNI at purchasing power parity in Pakistan was $2,710, compared to $46,730 in the US. This means the average compensation of USD 10 corresponds to 0.4% of the GNI per capita. The US equivalent would be approximately USD 170. Therefore, the stakes involved in the experiments were very large.

3. Theoretical Framework

In this section, we present a simple stylized model of behavior in the trust and dictator games with identity (which we call social background below and refers to the institution a student belongs to) to 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 $u_{sg}(.,.)$ 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, i.e. deriving utility from others' payoff. It could take the form

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[9] Students at Madrassas who were assigned a "Male Madrassa treatment" were matched either with a student at their own Madrassa or a different Madrassa (but one that 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. Since it combines two treatments, more Madrassa students are matched with Madrassa students than with LU and IU students in Table 2.

of altruism (Andreoni and Miller, 2002), warm glow (Andreoni, 1990), inequity-aversion (Fehr and Schmidt, 1999; Bolton and Ockenfeld, 2000) or maximin 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 $\beta_{s,g,s',g'}(.)$ of his partner's payoff ($\beta'_{s,g,s',g'}(.) > 0$ and $\beta''_{s,g,s',g'}(.) < 0$). The function $\beta_{s,g,s',g'}(.)$ depends on the characteristics of both partners and captures how much a player with characteristics (s,g) values the payoff of a partner with characteristics (s',g'). We further assume that the utility is separable in both own and partner's payoffs, to keep the illustration simple. 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 set-up, we present the decision rule for each game.

3.1. 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 $E_{s,g,s',g'}(.)$ depends on the gender and social background of both the player and the partner. The player's expected utility is thus given by:

$$\text{Max}\{P, E_{s,g,s',g'}[r + \beta_{s,g,s',g'}(3P - r)]\}$$
$$= \text{Max}\{P, E_{s,g,s',g'}(r) + \beta_{s,g,s',g'}(3P - E_{s,g,s',g'}(r))\}.$$

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 expectations about how much the partner will send back as well as the function $\beta(.)$. 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 $\beta_{s,g,s',m}(.)$ and $\beta_{s,g,s',f}(.)$. In other words, observing no gender discrimination in the trust game does not rule out that expectations and tastes $\beta_{s,g,s',g'}(.)$ 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 βs) 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 below.

3.2. 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 (that is, d) is therefore:

$$\text{Max}_d\{A - d + \beta_{s,g,s',g'}(d)\} \text{ s.t. } d \in [0, A].$$

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.

3.3. Expectations

Respondents were asked to guess the average amount that students from the partner's institution chose to give 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.

4. Experimental results

Our main goals are to (i) test for gender discrimination in the trust game, i.e., whether behavior differs by the gender of the matched partner, (ii) analyze the nature (statistical versus taste-based) of this potential discrimination, and (iii) investigate whether potentially discriminatory behavior varies according to the institutions of both the primary player and of the institution of his/her partner. 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.

4.1. Gender discrimination

We begin by testing the following hypothesis in our data:

Hypothesis 1: There is no gender discrimination in the trust game within 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 matched partner, keeping institution of the partner and gender and institution of the primary respondent fixed. For respondents belonging to a row institution, testing this hypothesis means testing for differences in the investment behavior when matched with LU male versus LU female, and for testing for differences when matched with IU male versus IU female. As a robustness check, we also test for differences when aggregating LU and IU males versus LU and IU females.

Table 3 provides two important results. First, LU 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 female of a given institution type is statistically significant at conventional levels of significance for LU males. Second, holding the institution of the matched partner fixed, we notice statistically significant differences by gender in the behavior of IU and Madrassa students, which reveals important interaction between gender and institutions. IU male students treat IU males and IU females similarly, but treat LU females *more* favorably that they treat LU males: 55% of the IU males sent money when matched with an LU male compared to 68% when matched to an LU female (the difference is statistically different from zero at 10%). We also find that Madrassa students treat LU males and LU females similarly, but treat IU females *less* favorably than IU males: 80% of the Madrassas students sent money when matched with an

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IU male compared to only 68% when matched to an IU female (the difference is statistically significant at 1%).

4.2. 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; Schecter, 2007).

Empirically, determining which one has the largest weight in influencing behavior is important to understand the nature of players' discriminatory behavior.[10] For example, the lower likelihood of Madrassa students to send money to IU females in Table 3 could be because they either believe IU females to be less trustworthy (in which case this would be statistical discrimination) or because they exhibit lower unconditional other-regarding behavior towards IU females (in which case this would be taste-based discrimination), or both. Moreover, while LU males exhibit similar investment behavior in the trust game towards males and females conditional on match institution, as we explain above in Section 3, their action could still be consistent with different levels of trust and of unconditional other-regarding behavior towards males and females. For example, they may think that females are not as trustworthy as males, but then invest equally with the two genders because of stronger unconditional other-regarding preferences towards females.[11] Results from the trust game alone do not allow the identification of the relative roles of those dimensions (Cox, 2004).

Our multiple-game experimental design, however, allows us to separately measure unconditional other-regarding behavior and expected trustworthiness, and therefore to isolate the nature of discrimination. In the dictator game, the only motive for sending money to the partner is preferences

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[10] While understanding the nature of discrimination is of interest to academics, it is of particular relevance to policy-makers since effective policies and legislation to deal with gender discrimination can be crafted only if the nature of discrimination is understood.

[11] Since students were randomly assigned a treatment (i.e., match type), differences in risk preferences cannot explain any of the results since there is no reason to believe that risk preferences would change by match type. We, therefore, do not focus on this explanation when decomposing behavior in the trust game. 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.

(unconditional other-regarding behavior). We can thus learn more about taste-base discrimination by analyzing how students play that game. In addition, the elicitation of expected average amount sent back by each match group to students from their own institution gives us a measure of expected trustworthiness towards each group, and therefore gives us an indication of statistical discrimination. We then test the following hypothesis:

Hypothesis 2: There is no statistical discrimination against any one of the genders conditional on partners' institutions.

In this framework, statistical discrimination would arise if students had different expectations of trustworthiness of the two genders. Data on expectations reported by individuals regarding the average amount expected from the matched group allow us to investigate this in Table 4. Note that respondents choose an interval for the average 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 expected average 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 more than 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, LU students believe males and female within an institution to be equally trustworthy: none of the three sets of pairwise hypothesis tests that we conduct—Wilcoxon rank-sum, t-test, and Kolmogorov-Smirnov—between having a match with a male versus female of a given institution type (LU male versus LU female; IU male versus IU female) are statistically significant at conventional levels of significance for LU males.[12] Second, we again note some differences by gender of the matched partner for IU students. IU males believe IU females to be less trustworthy than IU males (difference in the mean is statistically significant from zero at 10%), while they expect LU females to be more trustworthy than LU 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 LU females in the trust game, so positive statistical discrimination may explain this. Note,

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[12] 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, respectively, in the relevant female column.

however, that there was no difference in their investment behavior by gender for partners hailing from IU. Third, Madrassa students expect females to be more trustworthy than males. In particular, Madrassa students expect females to return about Rs. 25 more on average than their male counterparts (this difference is statistically significant at 5% when aggregating LU and IU), and assign a 8 percentage-point higher probability to females sending back more than Rs. 300 than males (this difference is statistically significant at 10% for both IU and LU). Recall that Madrassa students were less likely to send money to IU females in the trust game. The results presented in Table 4 indicate 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 entirely 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: There is no taste-based discrimination against one of the genders conditional on partner's institution.

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 IU and LU against males from IU and LU (last two columns), we find a statistically significant difference in average amount sent using a t-test (P-value=0.0508) and using the Wilcoxon rank-sum test (P-value=0.0321). These patterns are also noticeable in the histogram of splits offered by Madrassa students in the dictator game (Figure 1). This suggests that Madrassas student exhibit taste-based discrimination against females.

Regarding LU males and IU males, the three sets of pairwise hypothesis tests between having a match with a male versus female of a given institution type (LU male versus LU female; IU male versus IU 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 IU males send

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nothing in the dictator game to IU females compared to IU males (26.7% versus 16.3%) and the difference is statistically significant at 10%. This is consistent with some form of taste-based discrimination against IU females.

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

RESULT 1 (Liberal University)*: Male LU students do not exhibit any statistical or taste-based gender discrimination.*

RESULT 2 (Islamic University): *IU male students favor LU females in the trust game but treat IU males and IU females similarly. They exhibit statistical discrimination in favor of LU females, but exhibit (primarily statistical) discrimination against IU females compared to their male counterparts.*

RESULT 3 (Madrassa males)*: Madrassa students discriminate against IU females (but not LU females) in their investment behavior in the trust game. This is despite the fact that they believe females to be more trustworthy than males, and because they exhibit taste-based discrimination against both IU and LU females.*

4.3. Relative versus absolute position

Thus far, the focus of our study led us to analyze behavior and perceptions towards 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 to 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 et al. 2008) and reported job satisfaction and turnover (e.g., Clark and Oswald, 1996; Card et al., 2010). 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 towards IU and LU 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 Madrassa students invest with female partners at both IU and LU compared to LU and IU males. A similar pattern is observed in the dictator game: Madrassa students give more to female students in the dictator game than any other groups of males. This is because Madrassas 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, **c**olumn (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 (columns 2, 4, 6, and 7 of the tables), we see that Madrassa students exhibit significantly higher trust and stronger unconditional other-regarding behavior. We do not explore this point in this paper since here the focus is on gender discrimination. This issue is discussed in detail in our companion paper, Delavande and Zafar (2012).

It should also be pointed out that, compared to existing studies, we find very high levels of trust and other-regarding behavior in our sample. About 70% of the respondents invest in the trust game. This is in the higher range of what respondents have been found to send in the few studies that use a version of the binary trust game, where the investment rate varies from 32% (Bohnet and Huck, 2004) to 91% (Engle-Wornick and Slonim, 2004).[13] Our average split of Rs. 164.5 (~40% of endowment) in the dictator game is also quite high when compared to the standard of dictators typically sending between 20% and 30% of their endowment in both developed as well as developing countries (Camerer, 2003; Cardenas and Carpenter, 2008). In Delavande and Zafar (2012), 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.

4.4. 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 or not. However, if expectations are incorrect for a particular group, it implies incorrect stereotypes for that

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[13] One needs to be cautious in making any comparisons with the few studies that employ a binary trust game, since small modifications in the design (such as stake size, stake increase in the investment game—in our case three times, specifics of the match that the respondent is informed about, sample characteristics) can result in large differences. The continuous trust game has been employed by more studies. Players A (trustors) send about 50% of their endowment in such games in developed as well as developing countries (Camerer, 2003; Cardenas and Carpenter, 2008).

group, which could result in inefficiencies in actual interactions in the society. Inaccurate expectations also imply there may be a case for policy interventions which disseminate accurate information. We therefore next 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 expected amount received from the match with the average amount actually sent back. We show the proportion of 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, i.e., those who chose the interval that contained the actual average, and the proportion of students who under-estimated the amount sent, i.e., those who chose an interval whose upper-bound was below the actual average.

We first focus on the accuracy about LU and IU students. Table 6 shows that LU 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. IU males tend to underestimate the trustworthiness of LU males, but there are no systematic patterns by gender of the match. In contrast, Madrassa students have inaccurate expectations by gender. While their expectations about receiving more than Rs. 300 when matched with males are fairly similar to actual receipts, they over-estimate this probability for females by at least 15 percentage points. This overestimation is driven by both Madrassa 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 IU males and Madrassa students, underestimate the trustworthiness of Madrassa students.

5. Discussion of the role of Madrassas

We find that Madrassa students are the only group of males who discriminate against females 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 Madrassa teachings and environment in explaining our results. The relationship between Islam and

treatment of women remains contentious (see discussion in Adida, Laitin, and Valfort, 2011[14]). 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, 2002).[15] 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 Madrassa students towards females is driven by selection or teaching, or both.

We conduct the following thought experiment within the pool of Madrassa 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 the Madrassa students stated that they would choose to attend a non-Madrassa 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 since they would have attended another institution without budget or qualification requirements constraints. That is, the difference in behavior between these students and those who would attend a Madrassa regardless should 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 respectively 93.6% and 72.9% (p-value of 0.0021 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.[16] While the decision of how many years to spend in a Madrassa is not

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[14] Adida et al. (2011) use dictator games supplemented with survey data to isolate the Muslim effect, and present causal evidence on the relationship between Islam and gender discriminatory behavior.

[15] In fact, medieval Islamic societies were far more progressive with regards to female rights than their European counterparts (Shatzmiller, 1997; Lewis, 2002).

[16] 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 percent of the students have spent less than 4 years in a Madrassa, and 10 percent have spent more than 12 years in a Madrassa.

fully exogenous, we describe the differences in behavior for illustration purposes.[17] Conditional on being matched with female students, the investment rate of Madrassa students who have spent more than 8 years in a Madrassa (about a third of our sample) was 73.9%, compared to 78.3% for those who had spent 8 or fewer years in a Madrassa (with the difference not statistically different; p-value = 0.351). Therefore, more time spent in a Madrassa environment does not seem to be correlated with less trust of females. Based on these pieces of suggestive evidence, it seems that selection into institutions, rather than the teaching imparted at these institutions, is an important factor in explaining the different behavior towards women (relative to comparable men) that we observe across institutions.

6. Conclusion

Women in South Asia lag behind men in many domains. In the Pakistani context, our paper shows interesting interactions between social identity and gender discrimination: gender discrimination is not uniform across the 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 students—who are wealthier, less religious and more exposed to Western ideas—discriminating against women. Madrassa students, who come from more humble backgrounds, are more religious and relatively unexposed to Western ideas, exhibit taste-base discrimination against women. However, because they give and trust more than any other groups, they actually treat women almost as well or better (in absolute terms) than other groups of males in the society. Islamic University students, who fare in the middle in terms of wealth and religiosity, have a less uniform behavior: their behavior towards males and females depends on the institutions (or social identity) of the person with whom they interact. Islamic University males favor Liberal University females while they do not favor Islamic University females compared to their male counterparts in the trust game, and exhibit mostly statistical discrimination against Islamic University females.

Our results are based on an experimental approach. One reason for using this approach is that experiments illustrate actual behavior rather than what respondents believe and report to be their own behaviour. 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

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[17] 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 upwards.

using these games generalizable to real-world interactions? We do not have a clear answer to this question, since we do not observe naturally-occurring interactions in real settings for the respondents in our sample. However, evidence from few studies that combine data from laboratory games that measure social capital and pro-social behaviour, and behaviour in real settings indicate that laboratory measures tend to be good predictors of behaviour in real-world situations (Karlan, 2005; Benz and Meier, 2008; Baran, Sapienza, and Zingales, 2010). That our results are consistent with sociological theories of intersectionality, which argue that gender discrimination is only fully understood by taking into account other social constructs like race and class, also indicate that our findings are, to some extent, generalizable. 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.

Because socio-economic status is negatively correlated with religiosity and lack of exposure to Western idea in our data, we cannot categorically determine the mechanisms that explain the gender taste-based discrimination that we identify. 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, Islamic University students may feel that they need to behave differently when facing someone from a higher socioeconomic status in order to reach a position similar to that of individuals from that status. This may explain why, in the trust game, Islamic University 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. Independently of the 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 education by itself may lead to empowerment of women 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 secular subjects (though the Islamic University curriculum puts additional emphasis on Islamic teachings).Yet, wealthier and less religious females are favoured in some instances while less wealthy 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 socio-economic status 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, i.e., social class seems to be irrelevant in the male-male interactions.[18] This then 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, since we focus on interactions of highly-educated individuals in a country where less than 10% of adults have a Bachelor's degree (Pakistan Labor Force Survey, 2008/2009).

Our findings present a conundrum to policy-makers. Women belonging to 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 out with are further marginalized. This suggests that social identities (such as class, ethnicity, race, etc.) 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 intersectionality 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 towards women, and such policies may need to incorporate other social constructs—such as socio-economic background—along with gender.

The taste-based nature of the discriminatory behavior of Madrassa students is also a challenge for policy design. In developed countries such as the US, 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.[19] On the other hand, successful policies for altering gender tastes are less clear—they require understanding the causes of such behavior, which is a challenging task.

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[18] This can be seen by comparing the investment levels across male matches within an institution (that is, 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 (2011) which focuses on male-male matches only.

[19] 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.

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Figure 1: Amount sent to match (out of Rs. 400) in Dictator Game by Madrassa Students
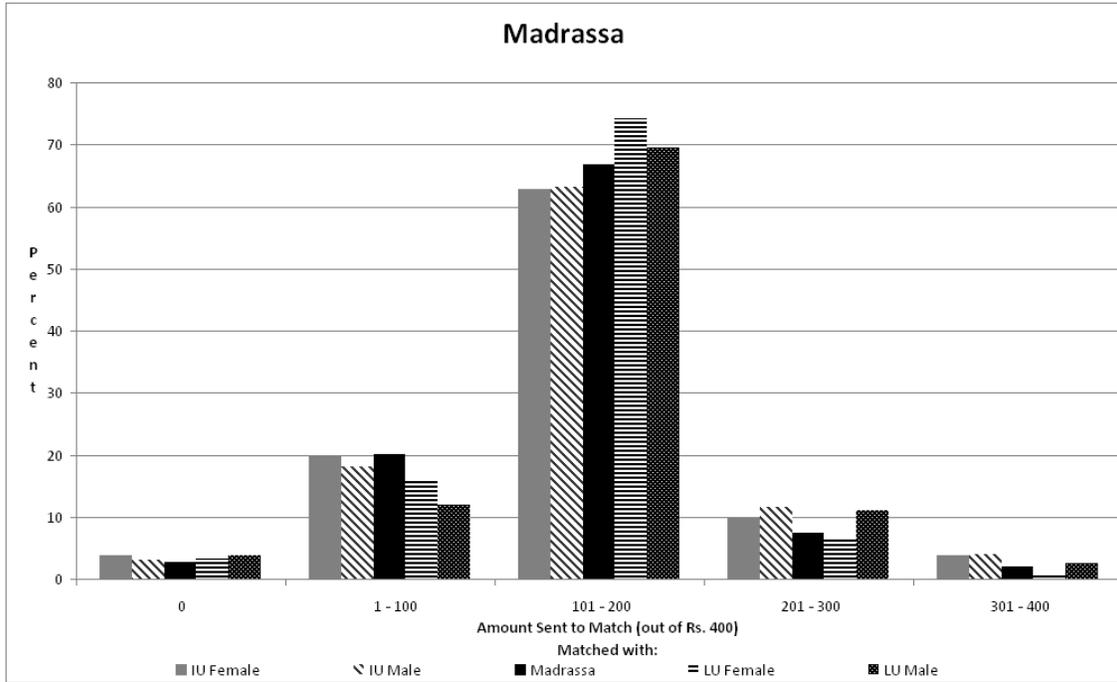
Table 1: Summary Characteristics

	LU		IU		Madrassa	City	
	Male	Fem	Male	Fem	Male	Male	Fem
# of Observations	758	203	444	286	1145	394	341
Age	21	21	22	22*	22	34	31**
	(2.8)	(3.4)	(2.5)	(2.2)	(3)	(13)	(12)
Father's yrs of education	12	12	11	13***	7.1	7.7	11***
	(5.2)	(5.4)	(4.2)	(3.2)	(5)	(5.4)	(4.7)
Mother's yrs of education	12	13 ***	7.1	9***	3.4	4	7.5***
	(4.4)	(3.6)	(5.1)	(4.5)	(4.4)	(4.9)	(5.3)
Parent income ('000s Rs)	127	155 *	42	66***	20	25	30
	(182)	(212)	(52)	(121)	(60)	(24)	(31)
# of siblings	3.5	3 ***	4.5	4.2*	.	5.1	4.3***
	(2)	(1.7)	(2.3)	(2)	(.)	(3)	(2.5)
% attend relig school[a]	35	19***	45	30***	100	9	12
% father Madrassa[b]	11	5**	12	8*	20	1	1
% mother Madrassa	21	19	20	18	.	1	2
% friend Madrassa	29	22**	41	31***	.	4	4
% sibling Madrassa	43	29***	63	64	.	5	5
% Parents own:							
home	88	87	82	79	82	100	100
tv	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)[c]	5.7	5.6	6.3	6.3	9.2	6.1	6.3
	(1.8)	(1.6)	(1.7)	(1.6)	(1.6)	(2.4)	(1.8)
Number of times pray/day	2	2.4 ***	2.9	3.6***	4.9	2.9	3.6 ***
	(1.7)	(1.7)	(1.7)	(1.3)	(.42)	(1.9)	(1.5)
Prop that fast Ramadhan	.91	.87 **	.96	.94*	.98	.89	.88
	(.21)	(.25)	(.15)	(.17)	(.12)	(.24)	(.25)
Trust (0-10)[d]	4.6	4 ***	4.6	3.9**	5.1	.	.
	(2.4)	(2.4)	(2.7)	(2.8)	(3.4)		(.)
Risk general (0-10)[e]	6.8	7	6.6	6.1**	5.2	.	.
	(2.3)	(2.1)	(2.4)	(2.5)	(3.9)		(.)
% watch:							
English news	84	88	83	83	25	24	53***
BBC or CNN	59	70***	60	59	23	12	25***
% know violence victim[f]	18	21	35	29*	.	14	15

[a] Percent of respondents who have ever attended a religious institution (full time or part time)

[b] Percent of respondents whose father attended a Madrassa or any religious institution for more than 2 years (either part time or full time).

[c] Self-reported religiosity on a scale of zero (not religious at all) to 10 (very religious).

[d] Response to question: "....most people can be trusted?" on a scale of zero (all people cannot be trusted) to 10 (all people can be trusted).

[e] Self-reported risk preference on a scale of zero (totally unwilling to take risk) to 10 (fully prepared to take risks).

[f] % of respondents who know an acquaintance who died or was injured in the violence in recent years.

This table shows pairwise t-tests for male versus female characteristics within each institution.

Significant at * p<0.10, ** p<0.05, *** p <0.01. Asterisks shown in the female column.

Table 2: Number of respondents by match

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

Table 3: Proportion of respondents who send money in the Trust game

Institution:	Total	Matched with						
		LU		IU		Madrassa	LU + IU	
		Male	Female	Male	Female	Male	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LU Male	0.718	0.667	0.703	0.787	0.709	0.727	0.725	0.706
N	758	153	145	141	158	161	294	303
IU Male	0.631	0.551	0.689*+	0.628	0.621	0.663	0.589	0.655
N	444	89	87	86	87	95	175	174
Madrassa Male	0.790	0.826	0.816	0.808	0.682***+++	0.782	0.818	0.765*+
N	1145	236	217	198	132	362	434	349
P-value for:[a]								
F-test	0.0000	0.0000	0.0165	0.0011	0.3532	0.0164	0.0000	0.0077
K-Wallis test	0.0000	0.0000	.0168	0.0012	0.352	0.0165	0.0000	0.0078

The table reports the proportion of respondents who send money in the trust game.

[a] P-values of tests for equality of means (F-test) and distributions (Kruskal-Wallis test) across institutions

In addition, the table also reports two types of pairwise tests for equality of proportions (who send money) between those having a match with LU Male versus LU Female, and those matched with IU Male versus IU Female. P-values for these tests not reported, but denoted by asterisks and plus signs on the columns for female matches:

(1) T-tests significant at *p<0.10,**p<0.05,***p<0.01,

(2) Wilcoxon rank-sum tests significant at $^+$p<0.10, $^{++}$p<0.05, $^{+++}$p <0.01.

Table 4: Amount Expected back from match out of Rs.900

| Institution: | Total | Matched with: | | | | | | |
| | | LU | | IU | | Madrassa | LU + IU | |
		Male	Female	Male	Female	Male	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LU 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
Prop. expect >200	0.897	0.895	0.917	0.901	0.905	0.870	0.898	0.911
Prop. expect >300	0.722	0.712	0.766	0.745	0.759	0.634	0.728	0.762
N	758	153	145	141	158	161	294	303
IU 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
Prop. expect >200	0.869	0.787	0.885*	0.930	0.828**	0.916	0.857	0.856
Prop. expect >300	0.694	0.640	0.667	0.756	0.701	0.705	0.697	0.684
N	444	89	87	86	87	95	175	174
Madrassa 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*
Prop. expect >200	0.923	0.919	0.926	0.919	0.947	0.917	0.919	0.934
Prop. expect >300	0.799	0.750	0.839**	0.783	0.856*	0.796	0.765	0.845***
N	1133	233	215	195	131	359	428	346
P-value for:								
F-test[a]	0.000	0.000	0.000	0.297	0.000	0.000	0.000	0.000
Median test[b]	0.000	0.003	0.000	0.075	0.001	0.001	0.000	0.000
K-Wallis test[c]	0.000	0.000	0.000	0.110	0.000	0.000	0.000	0.000

[a] F-test for the equality of means across institutions.

[b] Nonparametric median test for the equality of medians across institutions.

[c] Kruskal-Wallis test for the equality of distributions across institutions.

In addition, this table reports the following pairwise tests between having a match with LU Male versus LU Female, and between having a match with IU Male versus IU Female:

a) For the amount expected in the Trust game:(1) T-test on the means; (2) Wilcoxon rank-sum test on the medians; (3) Kolmogrov-Smirnov test on the sample sizes.

b) For the proportion expecting >200 and >300, Wilcoxon rank-sum test is reported.

P-values for these tests not reported, but their significance is denoted by asterisks in columns for female matches. For all tests,* p<0.10, ** p<0.05, *** p<0.01.

Table 5: Amount Sent in Dictator game

Institution:	Total	Matched with						
		LU		IU		Madrassa	LU + IU	
		Male	Fem	Male	Fem	Male	Male	Fem
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LU 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
% don't send	0.088	0.111	0.110	0.050	0.076	0.093	0.082	0.092
IU 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
% don't send	0.161	0.159	0.128	0.163	0.267^{*}	0.095	0.161	0.198
Madrassa 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	1139	233	217	198	132	359	431	349
% don't send	0.032	0.038	0.032	0.030	0.038	0.028	0.034	0.034
P-value for:								
F-test	0.000	0.000	.0007	0.000	0.000	.0064	0.000	0.000
Median test	.0006	.1574	.4776	.0037	.0131	.7535	.0024	.0311
K–Wallis test	0.000	0.000	.0042	0.000	0.000	.0025	0.000	0.000

This table also reports four pairwise tests between having a match with LU Male
versus LU Female, and between having a match with IU Male versus IU Female:
(1) T-test for equality of the means (reported on the mean),
(2) Wilcoxon rank-sum 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 don't send (reported on the % don't send).
P-values for these tests not reported, but their significance is denoted by asterisks in
columns for female matches.
For all tests,* p<0.10, ** p<0.05, *** p<0.01.

Table 6: How do Expectations Compare with Actual Choices of Trustees?

Institution:	Total	Matched with						
		LU		IU		Madrassa	LU + IU	
		Male	Fem	Male	Fem	Male	Male	Fem
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(9)
LU Male								
Prop. expect >300	0.722	0.712	0.766	0.745	0.759	0.634	0.728	0.762
Prop. match sent >300	0.715	0.62	0.775***	0.584	0.719	0.814	0.607	0.742
actual v. expected[a]	1.000	.0901	.9006	.0108	.5508	.0001	.1291	.4920
Prop. accurate expec.	0.365	0.275	0.517***	0.241	0.487***+++	0.304	0.259	0.502
Prop. under-estimated	0.413	0.288	0.448***	0.255	0.424***+++	0.627	0.272	0.436
N	758	153	145	141	158	161	294	303
IU Male								
Prop. expect >300	0.694	0.640	0.667	0.756	0.701	0.705	0.697	0.684
Prop. match sent >300	0.748	0.745	0.737	0.756	0.722	0.758	0.749	0.730
actual v. expected[a]	0.715	.0923	0.3748	1	0.7906	0.3406	0.6074	0.2679
Prop. accurate expec.	0.372	0.303	0.368	0.442	0.276**+++	0.463	0.371	0.247
Prop. under-estimated	0.500	0.640	0.552	0.512	0.299***+++	0.495	0.577	0.316
N	444	89	87	86	87	95	175	174
Madrassa Male								
Prop. expect >300	0.799	0.750	0.839***+++	0.783	0.856**+	0.796	0.765	0.845***+++
Prop. match sent >300	0.738	0.708	0.577	0.779	0.712	0.757	0.734	0.674
actual v. expected[a]	0.127	0.3551	0.0012	0.9403	0.0152	0.2124	0.3682	0.0002
Prop. accurate expec.	0.366	0.127	.488***+++	0.455	.197***+++	0.461	0.452	0.181
Prop. under-estimated	0.313	0.237	0.323***+++	0.394	.136***+++	0.376	0.378	0.146
N	1145	236	217	198	132	362	434	349

[a] p-value of t-test for the equality of proportion of proportion that expect more than 300 and the proportion of match group that actually send back more than 300.

In addition, this table also reports two pairwise tests between having a match with LU Male versus LU Female, and between having a match with IU Male versus IU Female (p-values for the tests not shown, but significance is denoted on the columns for female matches):

(1) Wilcoxon rank-sum tests for equality of proportions. significant at [+] p<0.10, [++] p<0.05, [+++]p<0.01, and

(2) T-tests for equality of proportions. significant at * p<0.10, ** p<0.05, ***p<0.01.