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Experimental Evidence on Public Good Behaviour across Pakistan's Fractured Educational System

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This paper investigates how Pakistani higher education students from different social strata act within the context of a game that allows for cooperation and punishment. Findings reveal that both female and male madrassa students are the most generous players. Moreover, there is more gender and social consciousness in male students than female students when deciding to penalise or not. Male madrassa students penalise female students more than male higher-income students; moreover, elite male students penalise male madrassa students more heavily than fellow elite students. The latter result suggests the presence of *spite* among elite boys towards high contributors if they belong to another social class/group. This research helps us break from social stereotypes that depictlower-income madrassa students as particularly intolerant of other social groups.

JEL Classification: C71, C90, D91, Z12, Z13
Keywords: Higher Education, Madrassas, Public Goods Game, Social Stratification.

1. INTRODUCTION

Pakistani society is fractured across economic, political, and linguistic dimensions. These fractures have manifested in an unequal education system with three different streams of education: high-income (elite) private universities, middle-income public and private sector colleges/universities, and madrassas. This educational system, in turn, also reinforces these inequalities. In this paper, I investigate how the resulting distinct identity groups influence behaviour, where identity is a multi-layered concept, incorporating a social dimension (class and gender) and has ideological (religious and educational) and linguistic dimensions. The students from the three education streams are proxies for three identity groups that capture some of the schisms segmenting today's Pakistan. In this paper, I focus on how these different identity groups interact both within each group and amongst these groups. More specifically, the chapter explores how Pakistan's fractured society impacts the way in which its different identity groups choose to cooperate and punish each other.

While the existing experimental literature in the Pakistani context has used dictator games to measure trust (Delevande and Zafar, 2011), this paper uses the public goods game to measure cooperation. I also go one step further by including the option to punish in the second stage of the game, thus allowing the players to interact—an opportunity not allowed in existing experimental studies on Pakistan. I move this literature forward in the

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context of Pakistan by investigating the following questions: (1) Does cooperative behaviour differ across these different groups? (2) Does the propensity to punish vary across these groups? (3) Does the behaviour vary within identity groups, depending on the respective identity group one is interacting with. Moreover, my sample of students includes female madrassa students (a group not included in the existing studies), which allows us to understand the gender dimension better.

I find that madrassa students are more generous and cooperative than both public/private university students and high-income private university students, even if they exhibit some intolerant attitudes in the detailed questionnaire. Public/private university students seem to want to hold onto resources for themselves and are less cooperative than madrassa students. High-income students are generous and cooperative, but exhibit a different kind of selfishness; they want to be associated with such benevolence themselves to the exclusion of others.

When I look across the gender dimension, I find that female students are less likely to punish than males, suggesting that it is easier for women of different identity groups to coexist than men. In contrast, male madrassa students, exhibited more punitive behaviour towards women, while high-income male students punished females less, showing a decline in the propensity to punish females as one moves along the spectrum from madrassa students towards high-income private university students.

2. BACKGROUND

Identity formation itself is a dialectical relationship between the individual and society. To understand the group identities that have segmented Pakistani society, we need to understand its history as the seeds of stratification were present in its very genesis.

2.1. State Formation as Distinct from National Identity Formation

Pakistan, for much of its history, has been a state searching for a national identity. Post-colonial theorists argue that post-colonial states such as Pakistan, which arrived at independence without a prolonged struggle, emerged as divided states. In the words of Vali Nasr, Pakistan emerged as a weak state, with a weak notion of nationality—a state that was "literally conceived of at the moment of birth" (Nasr, 2001). Pakistan, according to Nasr, "was not forged through the crucible of the struggle for independence, but was rather handed down as a result of intricate negotiations over power between future leaders, colonial powers and various ethnic and social groups" (Nasr, 2001, pg 25). Therefore, since conception, it has been an insecure state with a weak notion of nationhood.

2.2. The Colonial Experience

The British colonial policy had discouraged national identity formation but encouraged sub-national identity consciousness through its policy of indirect rule, supporting local landed/tribal elites. Jinnah had used these very feudal power structures to garner support for Pakistan, which ensured their continuation post-independence. Pakistan also inherited an equally patriarchal bureaucratic and military elite who had until recently been in the service of the British Raj. Hence, the state did not replace the colonial state so much as it took over its operations (Alavi, 1972).[1] In using these very

[1]Hamza Alavi, aptly dubbed Pakistan a "vice-regal" state—a state that continued to be ruled by the "salariat" in power: the military, bureaucratic and landed elite that continued its pre-colonial administrative practices.

intermediaries in his struggle for the Muslim national movement, uniting them under the umbrella of Islamic universalism, Jinnah made these social structures even more firmly embedded in what emerged as the state of Pakistan.

2.3. The Continued Use of Religion

Given the role of religion in its very genesis, this state, divided along multi-lingual and multi-ethnic lines, with a weak centre with only limited ability to assert its authority, continued its tendency to appeal to religion to overcome its limitations. The authoritarian state attempted national integration through the use of religion as early as 1962.[2] But, it was in the 1970s, under Bhutto and then Zia, religion took its place in the public sphere, and the colonial state was repackaged as the Islamic Republic of Pakistan. [3]

2.4. A Linguistically Fractured Society

During the struggle for independence, besides religion, the language had also become an identity marker, with Persianised Urdu being associated with Muslim identity and Sanskritised Hindi with Hindu identity. While language has often been associated with national and regional/ethnic identity formation, in the case of the Indian Subcontinent, language also became associated with *religious* identity. Thus, it is not surprising that at the time of Pakistan's creation, Urdu acquired the status of *lingua franca*, the national language, with the view to unifying an ethnically heterogeneous multi-lingual population.[4]

However, note that while the ruling party has ostensibly supported Urdu because of its integrative value as a symbol of Pakistani national identity, as opposed to ethnic identity, in the formal official domains, it continued to support English because it is English that ensures its social distinction from the non-elite; facilitates the entry of members of its own class, including the younger generation, into elitist positions.

2.5. Gender, Islam, and Militarisation

In its early decades, despite Pakistan's oscillation between democracy and authoritarian rule, it saw the adoption of a liberal and modern agenda with regard to women. [5] However, in the late 1970s, Zia (1979-88) categorically and ideologically challenged the liberal agenda of his predecessors: Religious discourse was used to subdue the populace: especially women were a target of this strategy.[6] Post Zia, although women have regained many of their legal rights, including the passage of the "Prevention of anti-

[2]Ayub Khan declared that "it is immaterial whether you are a Bengali or a Sindhi, a Balochi or a Pathan or a Punjabi—we are all knit together by the bond of Islam."

[3]Bhutto's focus was mainly on Islamic symbolism, measures mainly designed to placate the Islamaic ulema and gain state legitimacy. But it was under Zia's martial law, that the role of religion in state affairs came into its own, and the nexus between state, religion, and the military was forged. But, the use of religion, rather than uniting a pluralistic society opened the door to new conflicting identities.

[4]However, despite the assumed integrative appeal associated with Urdu, the decision was opposed by the Bengali majority who favoured Bangla. See Murshid (1985) for a detailed account of the Bengali movement in the early 1950s which finally led to Bangla also being given the status of national language.

[5]Under the Family Law, 1961, women gained inheritance right to agricultural land, right to initiate divorce, and a system of marriage registration was introduced.

[6] Regulations were introduced, including the law of evidence, which reduced the woman to half of a man in legal forums, accompanied by a state-sponsored media campaign promoting the "four walls and the veil" ideology that emphasised women's place in the home.

Women Practices Act 2011", but *wani* and honor killings still exist, property rights are not always enforced, and issues related to women's mobility and economic empowerment, remain highly contested terrains.

2.6. Post-Independence Pakistan Remains a Segmented Society

Today's Pakistan is still segmented along provincial, linguistic, ethnic, and gender divides: with growing income inequality further reinforcing these differences. Jamal (2009), based on a multi-dimensional poverty index that includes financial and human poverty, poor housing, and inadequate access to physical infrastructure, estimated that 54 percent of Pakistanis live in a state of multiple deprivations.[7] Although since then, the incidence of poverty in Pakistan has declined (24.3 percent in 2015-16), resulting in an HDI of 0.562. However, once this index is adjusted for inequality, it falls to 0.387, a loss of 31 percent due to inequality.

2.7. Political, Social, and Economic Fractures Reflected in a Hierarchical Education System

As we retraced Pakistan's historical journey above, along political, social, and economic dimensions, it reveals how a weak center used language and religion to unite an ethnically diverse society. This journey has manifested into a polarised society, which is reflected in the form of four distinct schooling streams, separated along class lines, and representing a fractured educational culture: higher income classes attend the elite English medium schools, middle and lower middle class students attend public schools or the non-elite private schools, while the poorest of the poor end up in the madrassas. These distinct schooling streams have further manifested in an equally hierarchical college/university system, which we narrow down into "three" identity groups: Elite English-medium universities, Middle-income public, and private sector universities, and Madrassas; and it is the students at these universities that comprise our target population.

3. OUR THREE IDENTITY "GROUPS"

To reflect the main lines of fractionalisation in Pakistan, in the experiments, we use samples of students from Private high-income Universities, Public/Private sector Universities, and Madrassas. We focus on students of 18 years and above. This is a narrow cross-section of a largely uneducated population.

Higher-income private universities in Pakistan may be compared to American Liberal Arts colleges: The curriculum is more varied, with secular programmes featuring more prominently and more likely to touch upon social and value-based concepts in a comparative fashion. The two other distinguishing characteristics are being co-educational and using English as the language of instruction rather than Urdu. Furthermore, these universities encourage independent thinking and questioning while being more open to ideas from different cultures and parts of the world. While religion

[7] At the regional level Punjab (the most populace province) dominates economically, a direct consequence of its agricultural productivity and large share of remittances from the Middle East. However, despite these advantages, according to Jamal's multidimensional index 52 percent of the Punjab population is classified poor. In comparison, 74 percent of Baloch population is classified as poor, leading to increasing resentment among the Balochis against the Punjabi dominated centre.

may be taught at these schools, it is considered in a more expansive fashion with greater room for interpretation and a greater willingness to adapt it to modern society.

Madrassas are available to the broader Pakistani population at zero monetary cost, the curriculum is narrow and pre-defined; they teach a dated curriculum with a focus on reading and memorising the Quran and other Islamic teachings in the early years, and move on to the *Dars-e-Nizami* in later years (Rahman, 2008). This curriculum draws on texts dating back to the 14th century.[8] The majority of Madrassas do not impart any secular or vocational training. Students typically come from modest origins, have limited exposure to Western ideas in school, study in Urdu, and base their studies on religious texts. As instruction is in Urdu and focused solely on religion, the ability to incorporate ideas from other sources and ideologies is limited therefore offering a limited perspective on the religion in an out-dated manner. Moreover, these campuses are strictly segregated by gender.

Public sector universities and middle-income private universities lie in the middle of this spectrum. In terms of cost, they are not as expensive as the higher-income private universities but are not free. The curriculum is more secular than madrassas and contains more practical/vocational/technical type training. Although the medium of instruction at these universities is officially English, but teachers may use Urdu during class to explain concepts. Some of the universities in this group are segregated, while some are mixed. Given this background, there is some exposure to different perspectives and debates, but with a more pragmatic curriculum, the opportunity to consider social and value-based concepts does not feature as strongly at these universities as they do at private higher-income universities. Furthermore, the students' focus at these universities is upward mobility and economic improvement rather than more philosophical or ideological thinking that would feature more strongly at high-income universities.

School Type	Private Higher Income	Public / Private Middle Income	Madrassas
Identity Characteristics			
Class	Higher income	Middle/low-income	Low income
Curriculum	Liberal Arts	Technical	Religious
Language	English	English	Urdu
Gender Segregation	Mixed	Mixed	Segregated

These three types of universities are good proxies for our three identity groups: They not only reflect three different income classes, but are also shaped by the existing fractionalisation in today's Pakistan, along the lines of language, religion, and gender, manifesting itself in a stratified education system, and this educational system, in turn, further reinforces these fractures, making it that much more challenging to create a stronger and more unified national identity despite the potentially unifying factor of religion that cuts across the three identity groups. This is due to the fact that, while there is one religion that cuts across the three identity groups, the religion means something different to each class (see discussion under descriptive statistics).

[8]The *Dars-e-Nizami* is taught for eight years following the completion of elementary school and covers religious sciences (e.g. jurisprudence, the Quran and its commentaries) and rational sciences such as Arabic grammar and literature, logic, and rhetoric (Rahman, 2008).

4. LIMITATIONS

The groups we consider are endogenous because families and individuals self-select into schools, with higher-income families choosing elite English medium schools and colleges for their children. While the humblest and poorest end up in madrassas, with public sector universities lying in the middle of this spectrum catering to low and middle-income families. We use demographic and other background information as controls in our estimation methodology to overcome possible self-selection bias. For the penalty data, however, we can arrange our data as a panel and use individual fixed effects, which helps us control for omitted variable bias.

5. LITERATURE ON GROUP IDENTITY

Since Akerlof and Kranton's seminal work on identity and its introduction in economic analysis, empirical work investigating the impact of group membership has taken the following two approaches: the first approach focuses on exogenously induced group membership, while the second approach focuses on pre-existing group membership, such as membership to different ethnic or religious communities, or economic or social class. It is the latter approach that we will be employed in this paper.

In Henrich, et al. (2005), the authors conducted ultimatum, public good, and dictator games with subjects from fifteen hunter-gatherer, nomadic herding, and other small-scale societies. They observed that local, group-level effects explain variation in behaviour better than individual-level within-group differences and report that the selfishness axiom was violated in some way in every society they studied, across all three experimental games mentioned above. Further, the experiments led the authors to conclude that societies with higher degrees of market integration and higher payoffs to cooperation in the production of their livelihood demonstrated a greater level of cooperation in the games.[9] Ostrom, et al. (1990) studied the public goods game in the developing country context and introduced the opportunity to punish free-riders by paying a fee. Individuals bore the fee, but the benefits in the form of higher contribution would go to the group as a whole. Thus, the Nash equilibrium was no punishment, but the experiment's outcome showed that there were significant levels of punishment. I focus on generosity versus selfishness and then, in the second stage, on the propensity to punish. While it focuses on Pakistani society, the study is closer in experimental design to Gachter and Herrmann (2010). To examine the impact of identity on cooperation, Gachter and Herrmann (2010) conducted public goods experiments with and without punishment using young and old participants from urban and rural Russia. They concluded that rural residents and mature participants were more generous and cooperative than urban residents and young people. The authors also observed substantial punishment of free riders and people who contributed the same or more than the punishing subject. This specific finding in Gachter and Hermann (2010) that subjects in all four groups

[9]Note that the rationale for payoffs to cooperation as an explanatory variable is that it is perceived that those societies that earn their livelihood through cooperative endeavours (e.g. whale hunting) they are more likely to cooperate in games. The rationale for market integration is that the more frequently people experience market transactions; the more they are likely to experience abstract sharing principles concerning behaviour towards strangers.

considered[rural/urban/old/young]chose to punish people who contributed more than them is similar to the higher income university males in our sample who display similar antisocial punishment of high contributors.

If we move to the context of Pakistan, Delavande and Zafar (2011), measuring trust, found that madrassa students are more trusting than higher-income students, which is in line with our finding that madrassa students are more generous than their public/private school counterparts. Still, one must note that Delavande and Zafar (2011) limited their survey to four universities in Pakistan, while the survey in this paper was far more extensive.

In contrast, Rahman (2005) conducted a qualitative survey of students from the same leading Pakistani schools as in this paper (Urdu-medium schools, elite English-medium schools, and madrassas) and questioned them about their views regarding the "Other", whether it might be religious minorities, India, or gender. Madrassa students were the most intolerant in their responses, while the private elite English medium students were more tolerant of religious minorities and advocated equal rights for women. The responses by Urdu medium students fall between these two extremes: these students were less tolerant of minorities but believed in equal rights for women.

My paper overlaps with some of the themes covered by these papers and shares some of the findings, but it goes beyond these papers by using mixed methods to understand this complex phenomenon: Firstly, taking the work of Delavande and Zafar (2011) forward, the present study focuses on the public goods game, which will allow an analysis of the level of generosity in the three identity groups. Adding a punishment element to the public goods game allows us to observe if students from different universities are more inclined to punish (even at a cost to themselves), and also to investigate if punishment varies based on the identity of the individual one is interacting with. This is important because, without the work that was conducted, it was assumed that madrassa students would be more likely to punish (due to the intolerant views expressed in Rahman 2005), but actually we found elite university males willing to punish as well. Moreover, our identity groups, comprise both males and females, and allow us to confirm if gender plays a role in either the generosity or selfishness displayed or in the capacity to punish.

6. THEORETICAL FRAMEWORK

We borrow and adapt the theoretical model presented in Delevande and Zafar (2011). This model adopts Akerlof and Kranton's utility function, which incorporates identity, but they also consider the multi-dimensional nature of identity by separately considering social identity, s, and gender, g.

We similarly consider a player with social identity, s, and gender, g. The player's, utility, $U_{s,g}$ (.) is assumed to be a function of her own payoff, and also her partner's payoff, where the partner's characteristics are (s',g'). For simplicity, utility is assumed to be linear in both the subject's payoff and her partner's payoff, which, in turn, is a function $\beta_{s,g;s',g'}$ (.). This function, $\beta_{s,g;s',g'}$ (.), depends on the characteristics of both players and captures how much a player with characteristics (s,g) values the payoff of her partner with characteristics (s',g').

This setup suggests the presence of other-regarding preferences, which, in turn, could be motivated by altruism, inequality aversion, or spite (we are agnostic about these underlying motivations and $-1 \leq \beta \leq 1$).

We assume utility to be separable in both the subject's payoff and the partner's payoff, where a, is own payoff, and b, is the partner's payoff. The utility function is then:

$$U_{s,g}(a,b) = a + \beta_{s,g;s',g'}(b)$$

Adapting this framework to our one-shot public goods game with punishment: We only play the one-shot public goods game in the first stage, while the second stage incorporates punishment.

Stage 1: The player's expected utility is given by:

$$Max_{\Pi} = E_{s,g;s',g'}\lfloor \pi_i^1 + \pi_i^2 \rfloor$$

where $E_{s,g;s',g'}$ is the player i's expectation of the payoff which depends on her own characteristics and those of her partner's.

And the payoff π_i^1 is:

$$\pi_i^1 = y - (g_i) + m \sum_{j=1}^{n} g_j$$

here,

y = initial endowment, Rs 100.
g_i = investment in public good, $0 \leq g_i \leq y$
g_j = other group members contribution to the public good, where $i \neq j$.
n=4; m = marginal per capita return from contribution to the public good.

This is followed by the second stage when players have the option to punish, and the utility function maximised now is:

Stage 2: The following function is maximised:

$$Max_{\Pi} = \pi_i^2 + \beta_{s,g;s',g'}\pi_j^2$$

where the payoff is:

$$\pi_i^2 = y - \sum_{j \neq i} P_j^i - a \sum_{j \neq i} c(P_i^j)$$

where,

y = again equals endowment.
P_j^i = amount subject *i* is punished by partner *j*.
P_i^j = amount partner *j* is punished by subject *i*.
$c(P_i^j)$ = cost to subject *i* of punishing subject *j*.

7. EXPERIMENTAL DESIGN

Participants played a standard double-blind public goods game (with punishment) within a one-shot environment: in repeated games, subjects may use sanctions to influence the behaviour of others in future rounds and not solely to sanction them for their behaviour in the current round. This one-shot environment allows us to investigate

to what extent subjects are willing to sanction others (at a personal cost) when they cannot expect to receive any benefit in the form of increased cooperation in future rounds.[10]This structure allows the study to focus on the innate propensity to cooperate or punish.

We realised that the best way for students of different identity groups to interact was to let the students play the game in their own university environment and use the cell phone to update the forms after the first stage of the experiment was complete. While the students filled out the questionnaire, the forms for the second stage (the sanctioning phase) of the public goods game were updated with each partner's contribution in the first stage.[11] There were 904 subjects, 488 madrassa students (200 female students, 288 male students), 344 middle-income universities (176 public university students, 168 private middle-income), and 72 elite private students.[12] Each experimental session lasted around 2 hours; 29 experiments were conducted in Islamabad and Lahore, from March to May 2013 and then September to December 2013.

7.1. The Experimental Setting

The instructions informed the subjects that they would be interacting with three other students and that the composition of their group would remain the same for the entire session. Complete anonymity was assured however, each player was informed of the respective gender and the type of university their group members belong to.[13]

In the first stage, each subject received an endowment of Rs 100 to be divided between two investment opportunities, labeled 'individual account' and 'group account', respectively. The individual account earned no reward to the subject investing in it, while each Rupee invested in the group account was matched by a Rupee as reward, and the total 'group account' contribution was divided equally among the four members of the group, regardless of who invested it. Thus, the Nash equilibrium is for each participant to invest his or her entire endowment in the individual account.

In the second stage, the subjects were informed of the other participants' contributions to the public account. The instructions for the second stage not only informed the students of the investment decisions of the other participants as well as to which identity group they belonged but also provided the subjects the opportunity to punish their respective participants if they were not satisfied with their contribution. The subjects were provided a further Rs. 100 for the second round. They could punish their respective group members by decreasing their earnings from the first round, but the

[10]Fehr and Gächter (2001) deal with this problem indirectly by examining a "stranger" treatment in which subjects are randomly regrouped after each round of the experiment. But, even in that case, a subject that has observed the sanctioning behaviour of others may be influenced in future rounds even if he or she will not encounter the same group members again.

[11] We faced technological problems with respect to access to the internet. We had initially planned to communicate via Skype to update forms for the second stage, however, due to weak, or absent, internet signals, in most low-income and middle-income universities, we had to update forms on the cell phone. This procedure was tedious, but within a few pre-testing rounds, the routine had become efficient, and the forms were ready much before the students completed the survey questionnaire. Each experimental session lasted around 2 hours.

[12]Note that we have relatively fewer private elite students; because of the security situation in the country we were not able to go back to the elite university for follow up experiments.

[13] Instructions and the accompanying questionnaire are available from the author upon respect.

punishment was at a cost to themselves; for instance, if a subject decreased a group member's earnings by Rs. 10, his/her own endowment was reduced by Rs. 6.[14]

Note that in the first stage, i.e. standard public goods game, complete free riding is a dominant strategy. In the second stage, punishing is costly for the punisher, and therefore, purely selfish subjects will always free ride and never punish in a one-shot context. In sharp contrast to this prediction, empirical research has found vastly different contributions and sanctioning behaviour, respectively: e.g., Gächter and Herrmann (2010). Subjects tend to punish despite the cost, and not only do subjects punish low contributors but as Gächter and Herrmann (2010) found earlier, even high contributors are punished if they are perceived as not adhering to the social norm.

7.2. Results: Descriptive Statistics

Table 1 provides statistics on economic, religious, and social factors that shape the members of the identity groups. For the purpose of descriptive statistics, the middle-income university students are disaggregated to highlight some nuanced differences. See Annexure I for additional descriptive results in Tables A1-A4.

Table 1

Summary Characteristics

	Madrassas		Public Sector Universities		Private Middle Income Universities		Private Elite Universities	
	Male	Female	Male	Female	Male	Female	Male	Female
Number of Observations	288	200	116	60	115	53	50	22
Number of Siblings (average)	7.1	6.3	5.5	4.5	4.1	4.9	3.3	3.3
% Parents own:								
Home	90.9	75.4	90.4	86.7	90.4	96.1	96.0	90.5
TV	21.0	37.7	82.5	91.7	88.3	94.1	98.0	100
Cell Phone	83.7	92.5	86.1	93.3	84.0	94.1	98.0	100
Motorbike	48.3	62.3	63.5	53.3	67.9	66.7	36.6	33.3
Car	9.7	10.6	43.5	56.7	51,0	52.9	89.8	85.7
Computer	27.4	28.1	73.0	84.5	73.2	92.2	98.0	95.5
Internet Access	8.4	9.6	56.1	78.0	67.6	84.3	98.0	95.5
Religiosity (1<Rel.<10)	8.4	7.7	5.6	5.9	5.9	6.1	5.4	5.9
No. of times pray daily (out of 5)	4.9	4.9	2.7	3.4	2.8	3.9	2.9	2.6

(i) *Exposure to Media Influenced by the Medium of Instruction*

In terms of exposure to media and education, madrassa students focus almost exclusively on Urdu newspapers. Thus, their exposure to different perspectives on religion, gender, and tolerance is very Pakistan-centric and, therefore, more limited than the other identity groups. Middle-income students are exposed to both Urdu media and read English media expanding the sources from which they draw opinions. The elite, in contrast, mostly focus on English print and electronic media shaping their views on religion, gender, and tolerance.

[14]Each student received Rs. 200 on average for the experiment. Rescaling this amount using per capita GNI numbers at PPP, this corresponds to around USD 40. Therefore, the stakes involved in the experiments were considerable. This is particularly true for the low-income students in our sample, who predominantly belong to Madrassas and who are found to exhibit the strongest cooperative behaviour. Therefore, our results cannot be attributed to the stakes being low.

(ii) ***Income Inequality***

This language divide is closely linked to the income divide: almost 83 percent of madrassa students belong to the Rs 10,000 – Rs 30,000 per month income bracket, while 53 percent of elite students come from households with income exceeding Rs 100,000/month. The middle-income students, as expected, lie in the middle of this spectrum, with private middle-income students belonging to relatively higher-income households than their public sector counterparts (see Table A3). We control for household income by using low, middle, and high household income dummies. We realise that this is household income as reported by the students and therefore is only an estimate.

(iii) ***The Political Divide***

Finally, with respect to the political divide, over 97 percent of madrassa students feel that they are first a Muslim and then Pakistani. In comparison, 62 to 65 percent of the elite think that they are first Muslim and then Pakistani (see Table A4, Annex I). Moreover, with respect to giving equal rights to minorities, we find madrassa students are much more conservative than their middle-income and elite counterparts: within the madrassa students, females are more intolerant than male students. Thus, our survey results tend to support the findings of Rahman (2005) confirming intolerance, and we extend the results to female madrassa students. Finally, with respect to giving equal rights to men and women, while we find support for equality among the elite, only 46 percent male madrassa students and 60 percent female madrassa students support equality among the two sexes (see Table A5). It is interesting that female madrassa students themselves attach less value to their rights, demonstrating evidence for Sen's work on perceptions, or in this case, self-perception (Sen, 1990).

7.3. Results: Disaggregating the Data

With respect to the first stage of the public goods game, Figure 1 presents the kernel density functions for the contribution of the three groups. The initial look at the data suggests madrassa students contribute more to the public good as compared to middle-income students, who contribute the least. Higher-income private university students also contribute substantively to the public good, but their contribution remains less than the madrassa students. Figure 2 goes on to present the kernel density functions for penalty behaviour. We mainly see low penalty behaviour, with higher-income male students punishing the most.

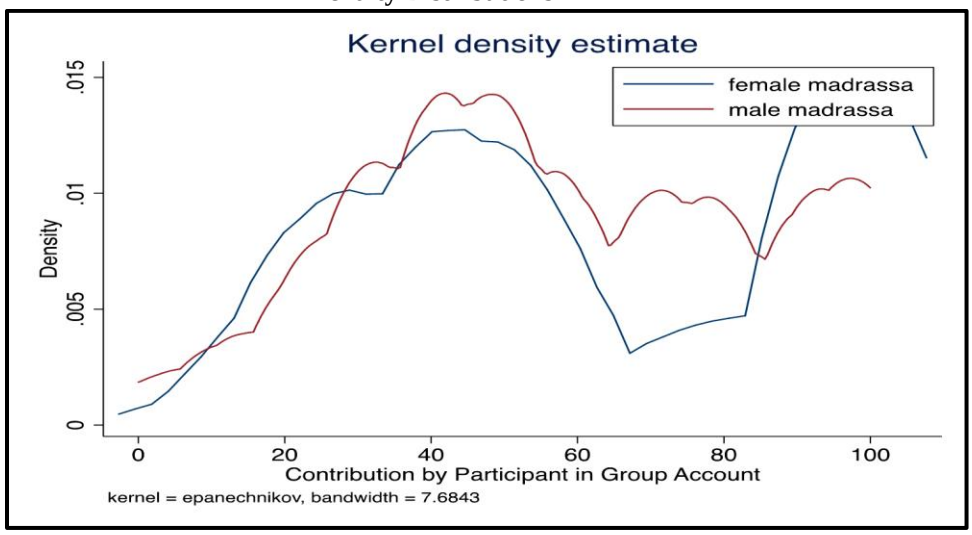
Note the two peaks in the madrassa kernel density functions (Figure 1), suggesting that madrassas as a group are not homogenous, and, therefore, we hypothesise that it is important to distinguish between progressive, well-equipped madrassas, which follow both the public-school curriculum and their own religious teachings, and more old-fashioned, cash-strapped, smaller madrassas which, in turn, are more ideological and conservative in their approach.

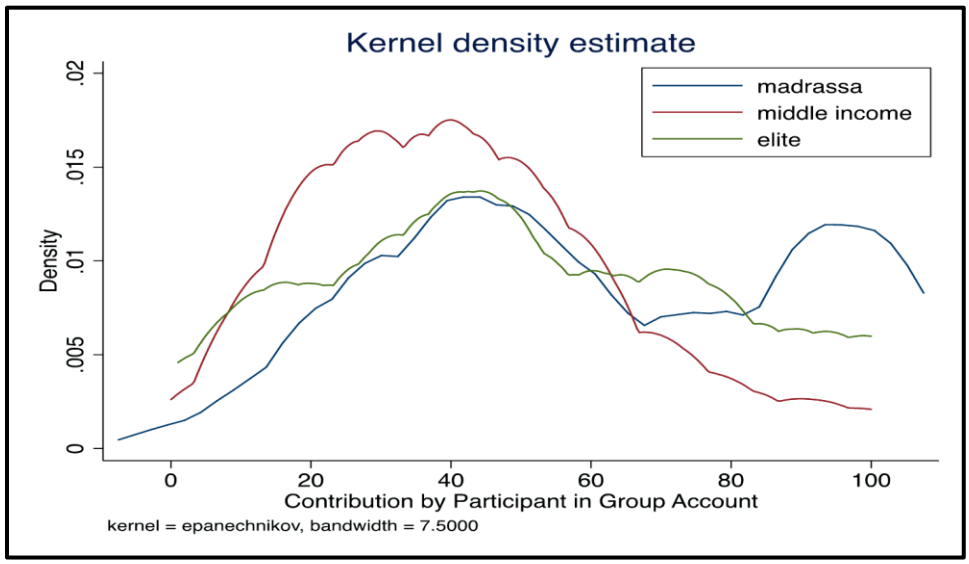
We find that the more progressive larger, better-equipped madrassas, with the dual curriculum (madrassas like IUI for boys and JUBB for girls; see Annexure 2 for a glossary of abbreviations), are less generous than their less progressive, more congested counterparts (like JMU, JUSI, and JRSL for boys, and ABB for girls), in fact, they

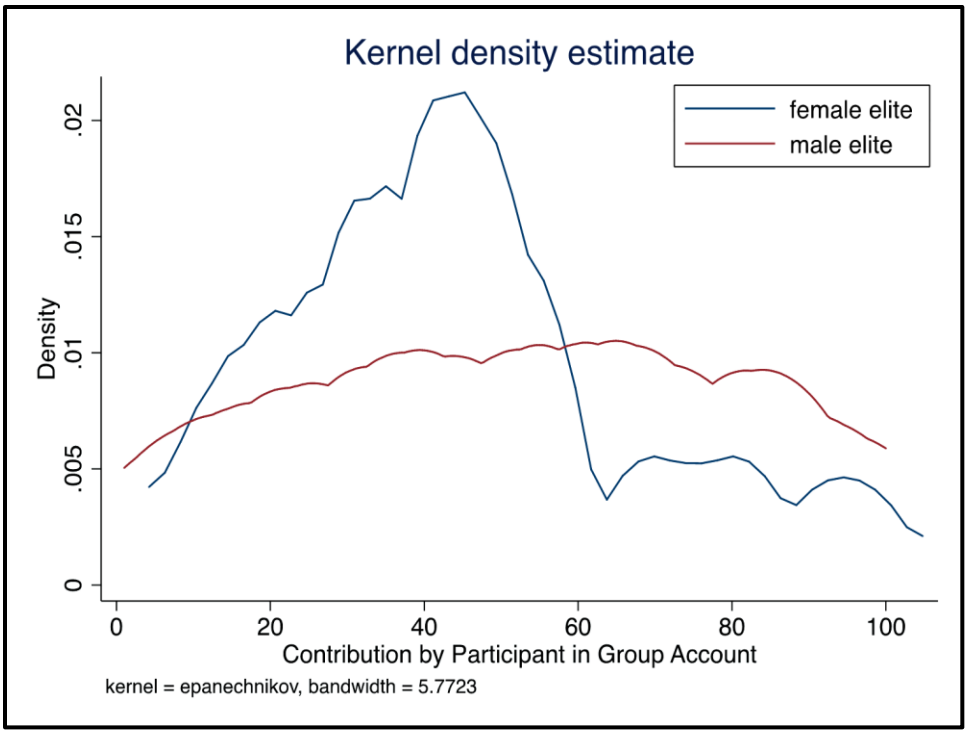
behave more like their private/public university counterparts. On average, students from middle-income madrassas, middle-income public-private universities, and elite university, are less generous than their lower-income madrassa counterparts. That is why we divide the madrassa identity group further into low-income madrassa and middle-income madrassas for analysis purposes.

With respect to penalty behaviour, our respective kernel density functions are right-skewed, reflecting the not too aggressive punishing behaviour in this sample. But, we still find distinct behavioural variations, based on gender and class. Overall, madrassa students punish the least, and elite boys punish the most.

Fig. 2.1 and 2.2. Kernel Density Functions for Contribution and Penalty Distributions






Kernel density estimate
female elite
male elite
Density
0
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.01
.015
.02
0
20
40
60
80
100
Contribution by Participant in Group Account
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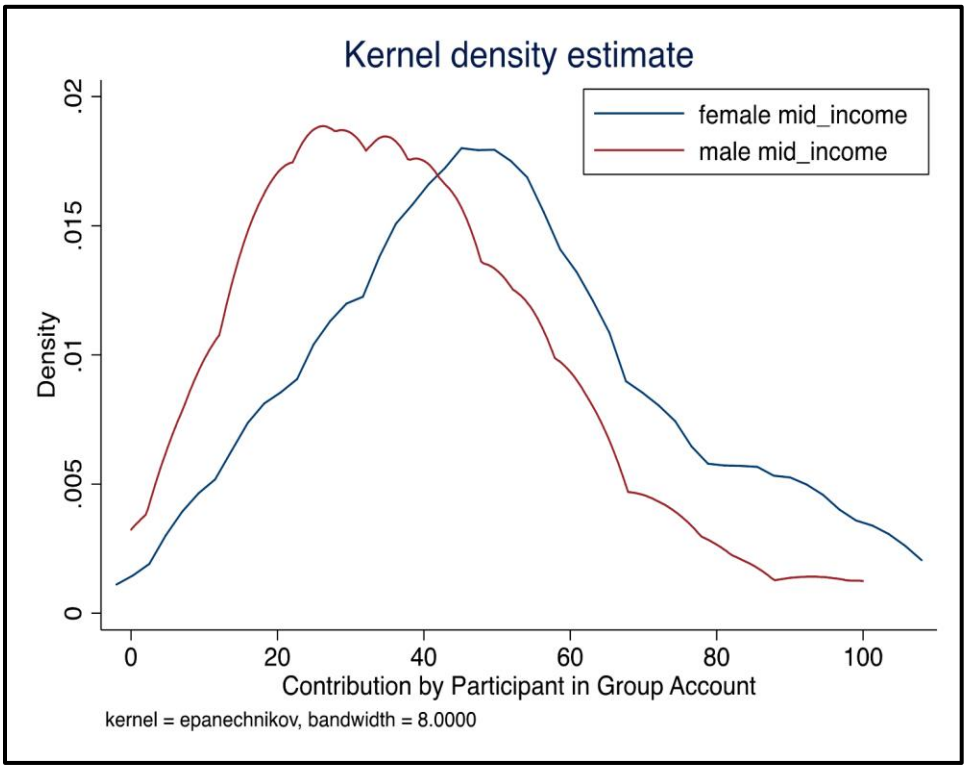
Kernel density estimate
female mid_income
male mid_income
Density
0
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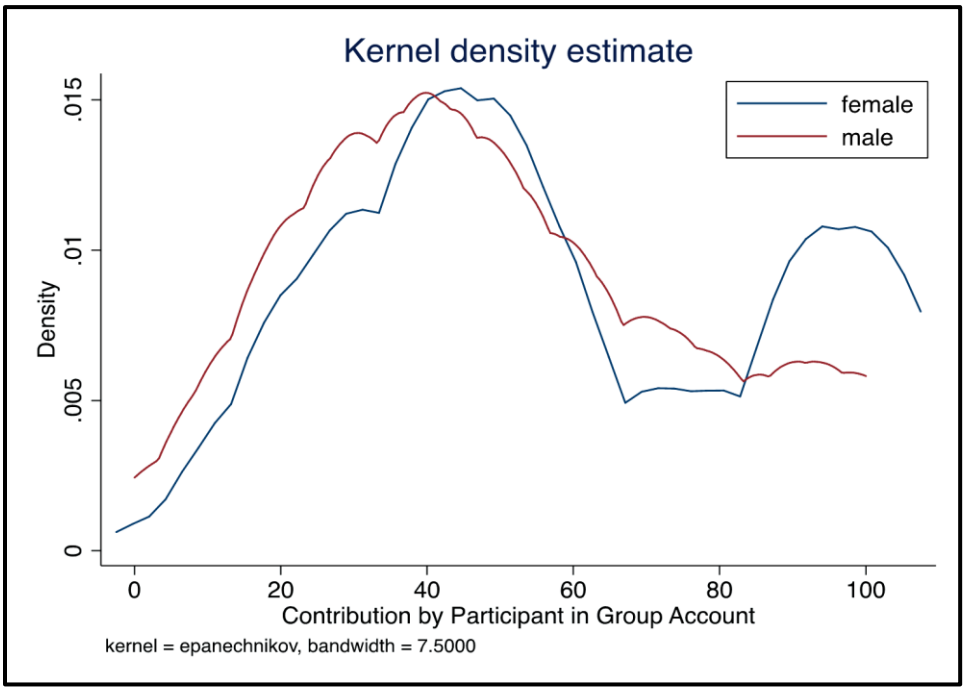
.01
.015
.02
0
20
40
60
80
100
Contribution by Participant in Group Account
kernel = epanechnikov, bandwidth = 8.0000


Kernel density estimate
female
male
Density
0
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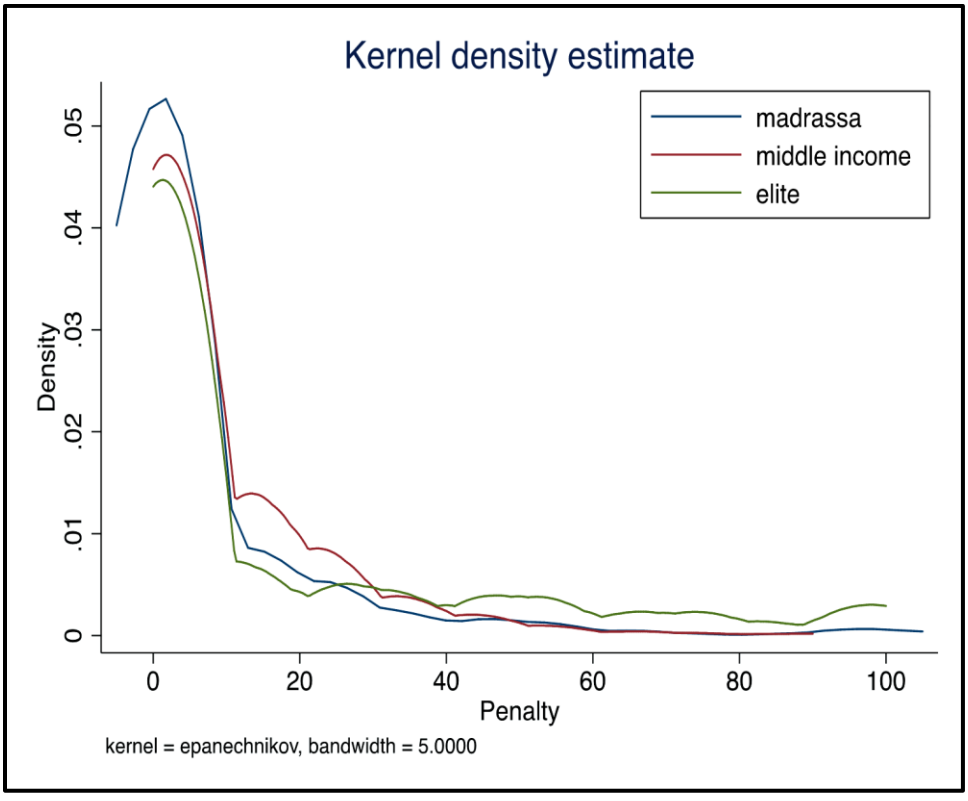
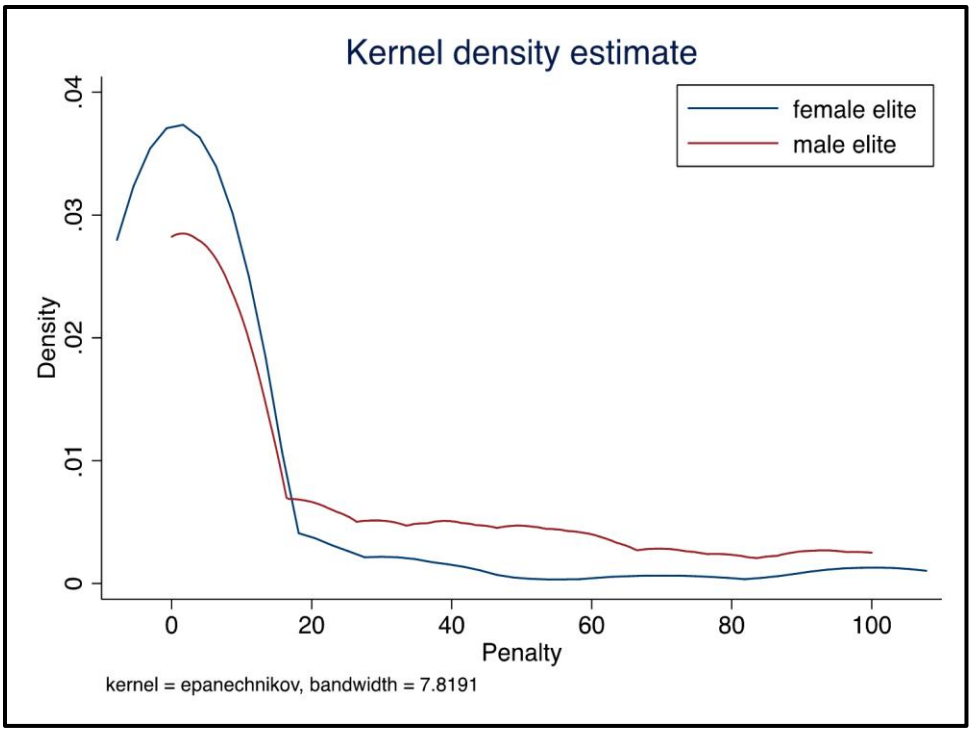
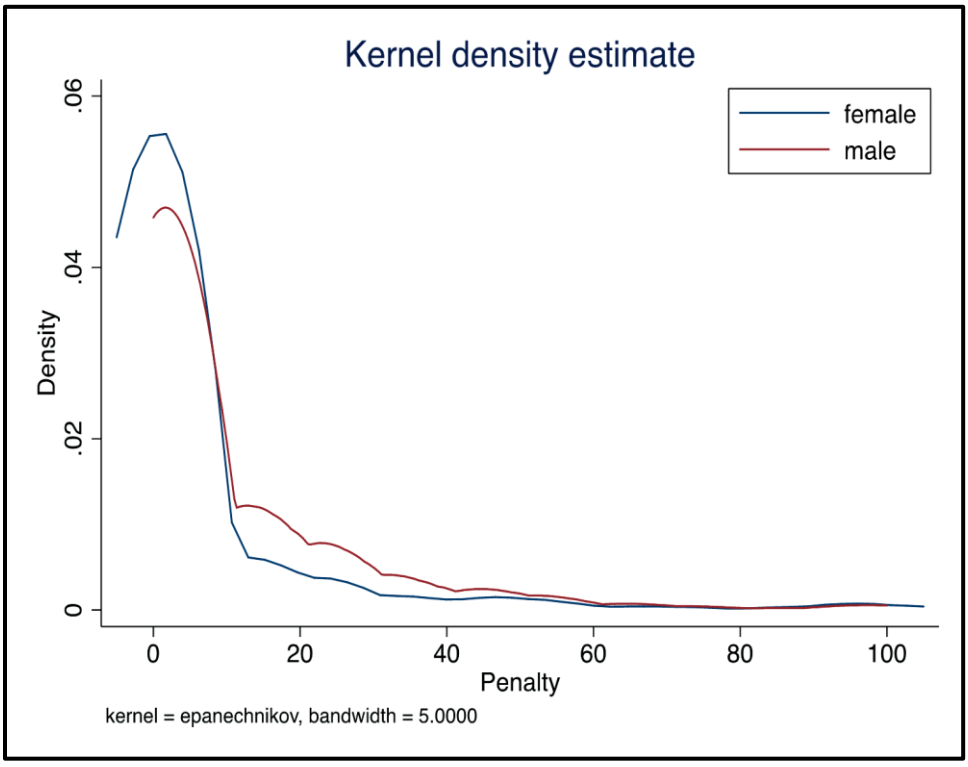
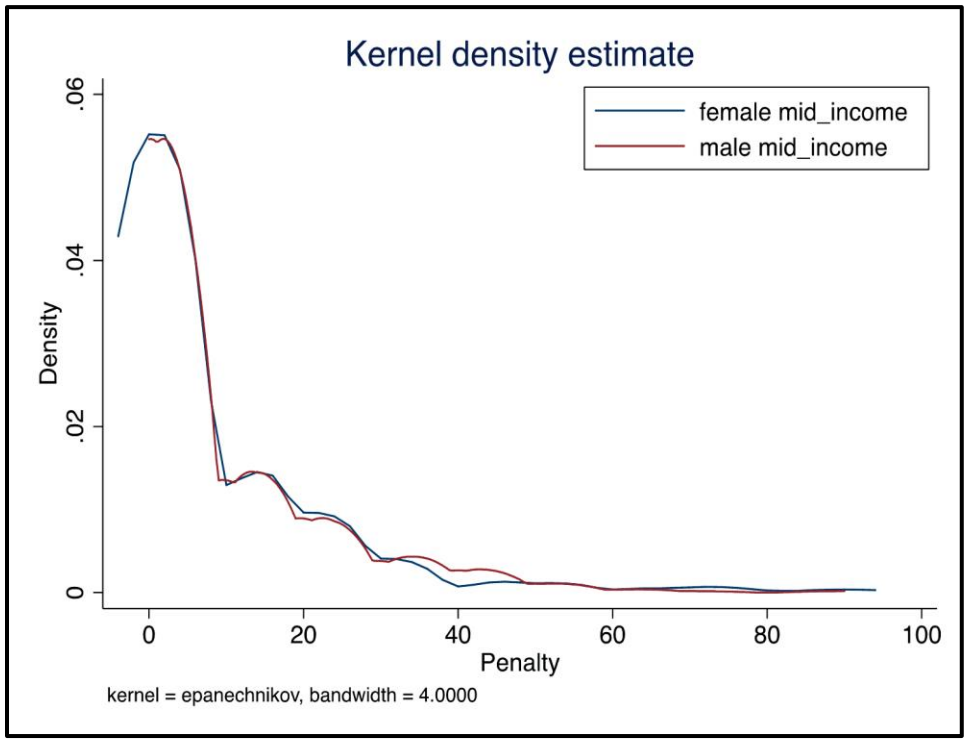
.01
.015
0
20
40
60
80
100
Contribution by Participant in Group Account
kernel = epanechnikov, bandwidth = 7.5000


Kernel density estimate
madrassa
middle income
elite
Density
0
.01
.02
.03
.04
.05
0
20
40
60
80
100
Penalty
kernel = epanechnikov, bandwidth = 5.0000


Kernel density estimate
female elite
male elite
Density
0
.01
.02
.03
.04
0
20
40
60
80
100
Penalty
kernel = epanechnikov, bandwidth = 7.8191


Kernel density estimate
female
male
Density
0
.02
.04
.06
0
20
40
60
80
100
Penalty
kernel = epanechnikov, bandwidth = 5.0000


Kernel density estimate
female mid_income
male mid_income
Density
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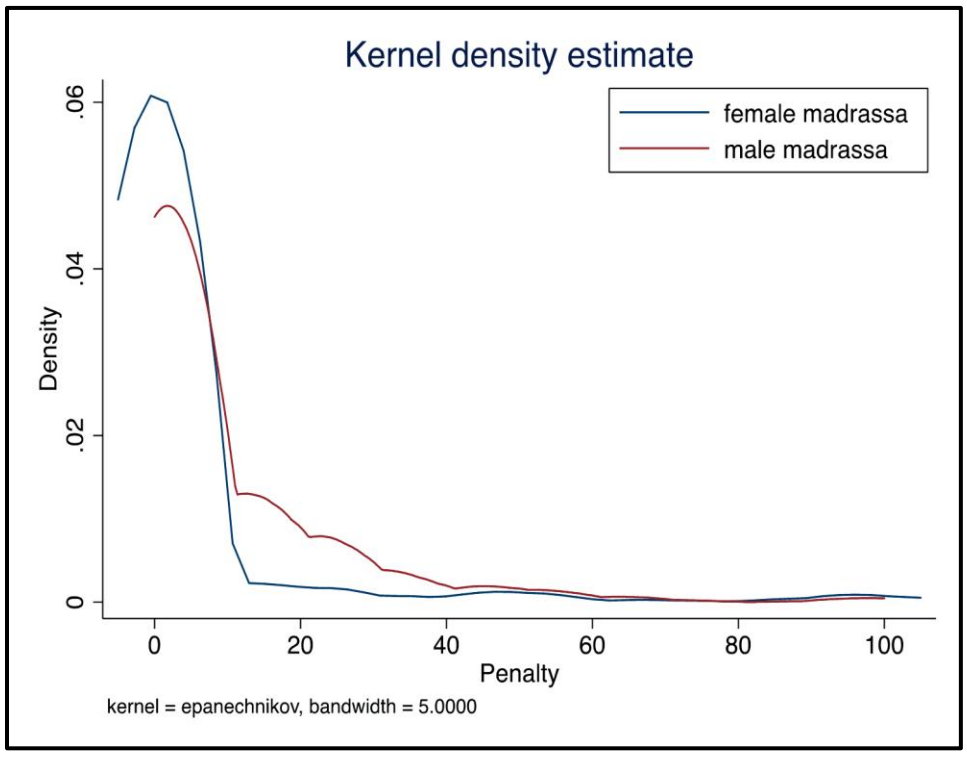
.04
.06
0
20
40
60
80
100
Penalty
kernel = epanechnikov, bandwidth = 4.0000


Kernel density estimate
female madrassa
male madrassa
Density
0
.02
.04
.06
0
20
40
60
80
100
Penalty
kernel = epanechnikov, bandwidth = 5.0000

8. METHODOLOGY

With respect to contribution behaviour, a Tobit model is used to investigate the individual characteristics associated with contribution to the public good. Since our data is censored, the tobit model is an inherently better model to use than Ordinary Least Square. We run separate models for male and female students. The chow test confirms that the two distributions are structurally distinct, hence the separate models.

The structural equation for the Tobit model is:

$$y_i^* = X_i\beta + \varepsilon_i$$

where yi*, contribution to the public good, is a latent dependent variable, observed for values greater than zero and censored otherwise, such that:

$$y_i = y_i^* \text{ if } y_i^* > 0$$

$$y_i = 0 \text{ if } y_i^* \leq 0.$$

Xi is our vector of explanatory variables where $\varepsilon i \sim N(0,\sigma 2)$

The first model examines the relationship between contribution to the group account (our dependent variable as defined above) and respective institutes students belong to. Our respective regression models control for income, parents' education, medium of instruction at school, and ideological variables such as number of times the respondent prays in a day and how the respondent ranks himself in terms of religiosity on a scale of 1 to 10.

With respect to penalty behaviour, we reorganise the data as a panel to capture the second stage of the experiment: We employ the fixed effects technique and observe how the same individual member's penalising behaviour changes based on her respective group member's contribution, gender, and educational institution. The data is organised such that:

(i) there are 3 observations per individual. Each of the three observations relates to one's partners (group members).
(ii) one's characteristics are repeated through these 3 observations except for 2 variables: one's penalty (it is partner-specific), and one's partners' contribution.

We have a balanced panel, with k regressors, such that: (X1it , X2it,…… Xkit, Yit) where

i = 1,...,n (no. of individuals)
t = 1,...,T (for the 3 group observations per individual)
T = no. of members in the group = 3 ; total no. of observations = 3 x n

With the panel, we can control for factors that vary for the individual but do not vary within the group, and therefore, can control for the individual type or other unobserved individual characteristics.

Table 2 represents both the variation within the group and between groups, where each group comprises 3 members, and there are 904 groups. We note that there is variation within the group with respect to both penalty behaviour (std. is 10.47) and contribution made by each respective group member (std. is 20.95).

Table 2

Summary Statistics for our Panel Data

Variable		Mean	Std. Dev.	Min	Max	Observations
Penalty	Overall	7.51	16.26	0	100	N = 2712
	Between		12.44	0	100	n = 904
	Within		10.47	–59.15	74.18	T = 3
Own Contribution to the Group	Overall	53.22	27.81	0	100	N = 2712
	Between		27.82	0	100	n = 904
	Within		0	53.22	53.22	T = 3
Contribution of Each Respective	Overall	53.21	27.81	0	100	N = 2712
Group Member	Between		18.30	11.67	100	n = 904
	Within		20.95	–12.79	111.54	T = 3

To reiterate, the fixed effects technique allows us to investigate how the same individual member's penalising behaviour changes based on who the respective individual is interacting with: her respective group member's contribution, gender, and educational institution (see Table 4).

9. EMPIRICAL FINDINGS

9.1. Cooperative Behaviour

Table 3 reports the results from the basic Tobit models used to investigate the determinants of contribution to the public good for boys and girls, respectively. As mentioned above, madrassas are differentiated into low and middle-income madrassas, and the two other broad categories of educational institutes considered were: elite and middle-income colleges/universities. The middle-income colleges are the omitted category. The main findings are summarised below:

1. ***Among our main identity groups, low-income madrassa boys and girls contribute significantly more to the group account than their middle-income public and private university counterparts.***

Looking at Table 3, we observe that the predicted contribution by madrassa boys is Rs. 20.2 higher than their middle-income counterparts, while for girls, it is Rs 32.1 higher than middle-income students. In contrast, middle-income madrassa boys contribute only Rs 7 more than middle-income private/public university students, while middle-income madrassa girls do not contribute significantly more than their middle-income university counterparts, holding all else constant.

2. ***Elite university boys also contribute significantly more than their middle-income counterparts.***

Elite university boys contribute, on average, Rs 10 more than their middle-income counterparts to the public good, holding all else constant. Thus, although elite male students contribute generously to the public good, in absolute terms, their contribution is less than the contribution by madrassa students.

Table 3

Estimating the Determinants of Contribution to the Public Good for Boys and Girls

	Tobit (1) Boys	Tobit (2) Girls
Low Income Madrassa	23.16***	39.56***
	(0.000)	*(0.000)*
Middle Income Madrassa	7.37***	0.53
	(0.004)	*(0.859)*
Elite	10.40***	– 7.83**
	(0.000)	*(0.032)*
Mother's Education	0.62	– 0.76
	(0.259)	*(0.287)*
Father's Education	1.00	– 0.10
	(0.124)	*(0.871)*
No. of Daily Prayers	1.32	–1.28
	(0.006)	*(0.105)*
Religousity	0.16	– 0.79**
	(0.429)	*(0.013)*
Low Middle Income	– 1.63	–6.18***
	(0.338)	*(0.002)*
Middle Income	0.49	– 10.70***
	(0.844)	*(0.000)*
High Income	–1.13	– 7.10**
	(0.684)	*(0.036)*
Medium of Instruction at School	5.05***	9.15*
	(0.002)	*(0.000)*
_cons	28.64***	59.72***
	(0.000)	*(0.000)*
N	569	335
_se	24.70	24.16

p-values in parentheses: = "* p<0.1, ** p<0.05, *** p<0.01."

9.2. Penalty Behaviour

As the second stage of the public goods experiment allows direct response to the respective group members' behaviour in the first stage, it allows us to not only look at how ones' own identity affects behaviour, but also how penalty behaviour may change based on the identity of the respective individual one is interacting with. We again run separate male and female models, and the data is sliced across educational institutions, which form our core social identity groups; that is, we run four separate models for boys: low and middle-income madrassa boys, middle-income public/private university boys, and elite boys, and four separate models for girls: low and middle-income madrassa girls, middle-income university girls, and elite girls (see Table 4).

Table 4

Gender and Institution Disaggregated Fixed Effects with Continuous Penalty Variable (robust std errors)

	MALE			
	Low-income Madrassa **Penalty**	Middle-income Madrassa **Penalty**	Middle-income University **Penalty**	Elite University **Penalty**
Group Member's Contribution to the Public Good	–0.004	–0.188***	–0.08	–0.1
	(0.886)	*0.000*	*(0.160)*	*(0.490)*
Madrassa	–4.625*	0.958	1.52	17.05
	(0.054)	*(0.646)*	*(0.400)*	*(0.130)*
Female	3.570*	1.902	–0.21	–16.99**
	(0.093)	*(0.509)*	*(0.880)*	*(0.050)*
constant	10.88***	15.45***	10.90***	28.19***
	0.000	*0.000*	*0.000*	*(0.001)*
N	696	168	693	150
No. of Groups	232	56	231	50
Obs. per Group	3	3	3	3
R-squared				
Within	0.03	0.21	0.02	0.02
Between	0.01	0.01	0.01	0.01
Overall	0.01	0.07	0.02	0.02
Rho	0.54	0.66	0.34	0.42
	FEMALE			
Group Member's Contribution to the Public Good	–0.065**	0.045	–0.213***	–0.09
	(0.047)	*(0.109)*	*0.000*	*(0.380)*
Madrassa	–12.254**	0.383	3.49	–4.49
	(0.041)	*(0.557)*	*(0.200)*	*(0.360)*
Female	2.362	–0.142	3.13	–1.55
	(0.587)	*(0.916)*	*(0.200)*	*(0.500)*
Constant	17.693***	–0.143	16.19***	13.86***
	0.000	*(0.931)*	*0.000*	*(0.010)*
N	234	366	339	66
No. of Groups	78	122	113	22
Obs. per Group	3	3	3	3
R-squared				
Within	0.118	0.0235	0.16	0.04
Between	0.0056	0.0035	0.01	0.01
Overall	0.0413	0.0131	0.07	0.02
Rho	0.546	0.404	0.42	0.53

Standardised beta coefficients; p-values in parentheses * p<0.1, ** p<0.05, *** p<0.0.

3. *Both low-income male and female madrassa groups penalise their fellow madrassa students less.*

The first column represents the penalty behaviour of male (upper panel, Table 5) and female (lower panel) low-income madrassa students. Remember, in this panel, all individual characteristics of the subject are repeated throughout the group and therefore drop out of the fixed-effect model: only how much the individual penalises his/her group members varies across the observations, and the partner's characteristics vary by (i) the partner's contribution to the public good, (ii) the institute the group member belongs to, and (iii) the gender of the partner.

Low-income male madrassa students penalise fellow madrassa students Rs 4.65 less than non-madrassa students, holding all else constant. While female madrassa students penalise fellow madrassa students Rs 12.25 less than non-madrassa students, holding all else constant.

4. ***Male Madrassa students play more punitively with respect to women, while elite male students punish women less.***

With respect to the penalising behaviour of male students, madrassa boys penalise female students by Rs 3.57 more than male students, holding all else constant. In contrast, elite male students penalise female students Rs 16.99 less than male students, holding all else constant.

5. ***Elite students penalise high contributors (i.e., madrassa students) more***

Elite male students may be beneficent, but they penalise madrassa students Rs 17.05 more than fellow elite or middle-income students, holding all else constant.[15] With respect to this behaviour, exit interviews reveal resentment to the high levels of the contribution made by the madrassa students.

6. ***Middle-income students penalise only based on the actions of their respective members, irrespective of their group members' class and gender identity.***

For middle-income female university students, we find that their decision to penalise mostly depends on the contribution of their partner players in the first stage, and holding all else constant, middle- income female students decrease the penalty amount by Rs 0.21, for every Rupee contributed to the public good, holding all else constant. Male middle-income madrassa students decrease the penalty amount by Rs 0.19 for every Rupee contributed to the public good, holding all else constant.

Overall, however, the magnitude of penalties remains modest for all identity groups, except elite boys who tend to punish heavily the high contributors (i.e., madrassa students). Moreover, in the exit interview, most low and middle-income students respond that they do not penalise low contributors much, not because there is a cost attached to it, but because they understand other students' income constraints and respect their choice.

10. DISCUSSION

The first stage of the public goods game investigated the tendency to cooperate and how ones' own gender and social identity affect one's behaviour. Our empirical findings suggest that with respect to cooperative behaviour, low-income madrassa students are the most cooperative: within the madrassa group, girls are more cooperative than boys. This result is in line with Delavande and Zafar (2011), and we take the empirical evidence forward by confirming their findings for both male and female madrassa students (while Delavande and Zafar only surveyed male madrassas). This

[15]Note that wrt the elite male regression, the level of significance for the madrassa dummy is 13 percent. But, especially in the case of survey data, this is an important result which warrants consideration.

result also helps break negative stereotypes about madrassas and suggests the possible presence of other-regarding preferences and generosity among these religiously inclined groups, even if they exhibit intolerant attitudes in the detailed questionnaire. Middle-income university students are the least cooperative, and as we further disaggregate the data, we find relatively more progressive male and female madrassas behaving more like their middle-income counterparts, i.e. we find the cooperative behaviour demonstrated by low-income madrassas, is gradually replaced by individualistic behaviour, as we move on to middle income students.

The second stage of the experiment allowed students to directly respond to their respective group members' first move, and we could observe how penalty behaviour varied, not only based on ones' own identity, but also how behaviour is effected by the identity (both social status and gender), and the actions of the individual one is interacting with. We find that in the case of male students, there is more consciousness with regard to both social and gender identity of the respective individual one is playing with: Male madrassa students penalise female students more than male higher-income students; Moreover, elite male students penalise male madrassa students more heavily than fellow elite students. The latter result is in line with Gächter and Herrmann (2010), and suggests the presence of *spite* among the elite boys towards very high contributors if they are members of another social class/group.

Finally, going back to Akerloff and Kranton, our results confirm that madrassa students, middle-income public/private university students, and elite university students exhibit distinct behaviour in line with their group identity than according to simplistic economic reasoning, i.e. their decision to contribute to the public good, and their decision to penalise (despite a cost attached to punishing) is not driven only by economic concerns, but by feelings of cooperation (in the first stage of the experiment) and at times resentment and even *spite* when considering punishing behaviour. Penalty behaviour also varies based on the social and gender identity of the individual they are acting with. The above is especially true for both low-income male and female madrassa students and for male elite students. In contrast, middle-income students behave more in line with the standard textbook *homo economicus* motivated largely by self-interest when we focus only on the public goods game, demonstrating the least contribution to the public good. But, when considering penalty behaviour, we observe reciprocity as their behaviour varies with the actions of fellow players' first move.

11. CONCLUSION

Our broader question at the beginning of this paper was to investigate aspects of Pakistani social stratification. We chose to examine the different behaviour of students who are in distinct higher education systems. We focus on both social status and gender, and unlike previous studies which have used games, we examine both cooperation and punishment behaviour. It is not clear why madrassa students are more generous in this public goods game than others. This might be a function of religious teachings, and this hypothesis is further buttressed by the fact that male madrassa students were more willing to punish females as compared to both public/private university students and elite students. Given the brand of religion that one would expect to find in a madrassa is more fundamental, views towards females are perhaps shaped by this education. This finding is

further supported the survey work of Rahman (2005), who initially hinted at intolerant attitudes among madrassa students. Further, although elite university students, particularly males, exhibit generosity, they also act to protect their association with generosity by punishing madrassa students that acted more generously, thus demonstrating *spite*. Lastly, the individualistic behaviour of public/private university students may be explained by the fact that public/private university students view education more instrumentally. The distinct behaviour of our three groups suggests a divided society. This result advances the experimental literature on Pakistan by noting the different results that arise once participants are allowed to interact. Further research on these questions is warranted. In particular, research design which combines the introduction of games with more intensive ethnographic research could help illuminate the reasons why behaviour varies across social identity types and gender.

The base category for educational institutes is middle-income (the dummies included are for low-income and middle-income madrassas, and elite institutes).

The base category for the income variable is (less than Rs. 30,000).

English Medium of Instruction refers to the educational background in high school.

Parents' education is a continuous variable

Male and female distributions are structurally distinct (as confirmed by the Chow test); hence, separate models are run.

ANNEXURE I
DESCRIPTIVE STATISTICS

Table A1

Exposure to Media

	Madrassas		Public Sector Universities		Private Middle Income Universities		Private Elite Universities	
	Male	Female	Male	Female	Male	Female	Male	Female
% Students:								
Watch Urdu news	59.64	31.66	90.43	76.67	91.30	83.02	68.00	59.09
Read Urdu Newspaper	85.46	58.38	83.48	61.02	80.87	65.38	33.33	18.18
Watch English News	17.54	6.03	50.86	51.67	49.57	45.28	79.59	77.27
Read English Newspaper	17.44	7.65	82.76	68.33	63.48	59.62	85.71	77.27

Table A2

Income Distribution: Percentage in the Income Distribution

Monthly Total Income of Parents	Male Madrassa	Female Madrassa	Public Sector University	Private Middle Income	Private Elite
Less than 10,000	2.1	0.62	2.22	–	–
10,000-30,000	83.57	82.5	42.22	22.97	7.04
30,000-50,000	9.44	8.12	16.3	21.62	7.04
50,000-70,000	3.15	4.38	11.85	21.62	11.27
70,000-100,000	1.75	3.12	13.33	22.3	21.13
100,000 and above	–	1.25	14.07	11.49	53.52

Table A3

Tolerance

	Madrassas		Public Sector Universities		Private Middle Income Universities		Private Elite Universities	
	Male	Female	Male	Female	Male	Female	Male	Female
% feel they are First a Muslim and then Pakistani	97.52	98.49	86.96	91.67	86.96	100.00	65.31	61.90
% feel Pakistan should be a Secular State, not Islamic	1.42	1.01	19.13	26.67	16.52	3.77	70.21	71.43
% feel:								
Give Ahmedis Equal Rights	27.60	11.62	39.66	40.68	29.82	38.46	83.33	85.00
Don't Know	11.83	8.08	18.97	37.29	23.68	38.46	10.42	15.00
Give Hindus Equal Rights	37.99	14.14	76.52	70.00	63.72	78.85	93.88	100.00
Don't Know	9.32	2.02	6.09	15.00	15.04	13.46	4.08	00
Give Christians Equal Rights	42.20	23.71	78.45	71.67	71.05	86.54	93.88	100.00
Don't Know	10.28	10.31	6.90	15.00	10.53	3.85	4.08	00

Table A4

Equality for Men and Women

	Male Madrassa	Female Madrassa	Private Middle Income		Public Sector Universities		Private Elite	
			Male	Female	Male	Female	Male	Female
Give Women Equal Rights								
Yes	45.52	60.13	86.00	97.83	82.95	87.23	95.55	100
No	43.73	36.71	11.00	2.17	14.77	6.38	3.45	0
Don't Know	10.75	3.16	3.00	0	2.28	6.39	0	0

ANNEXURE II

UNIVERSITIES/MADRASSAS SAMPLED

IUI: Idara Ulum E Islami (Islamabad) Male Madrasa
RIU: Riphah International University (Rawalpindi)
JMU: Jamia Muhammadia (Islamabad) Male Madrasa
ARID: Pir Mehr Ali Shah Arid Agriculture University (Rawalpindi)
JUSI: Idara Ulum E Shariah (Islamabad) Male Madrasa
JASH: Jamia Ashrafia (Rawalpindi) Male Madrasa
JRSL: Jamia Rasheed School (Lahore) Male Madrasa
ABB: Female Madrasa (Lahore)
JMUL: Jamia Muhammadia Lahore (Lahore) Male Madrasa
PU: Punjab University (Lahore)
PCC: Punjab College Of Commerce (Lahore) Private College
JUBB: Jammia Ullumia Al-Biniyato Al-Binine (Lahore) Female Madrasa
QAU: Quaid-e-Azam University
PIDE: Pakistan Institute of Development Economics (Islamabad)
LUMS: Lahore University of Management Sciences (Lahore)

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