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Volunteering to Take on Power: Experimental Evidence from Matrilineal and Patriarchal Societies in India

Debosree Banerjee, Marcela Ibanez, Gerhard Riener and Meike Wollni*

November 2015

Abstract

Gender equity in the creation and enforcement of social norms is important not only as a normative principle but it can also support long term economic growth. Yet in most societies, coercive power is in the hands of men. We investigate whether this form of segregation is due to gender differences in the willingness to volunteer for take on positions of power. In order to study whether potential differences are innate or driven by social factors, we implement a public goods game with endogenous third-party punishment in matrilineal and patriarchal societies in India. Our findings indicate that segregation in coercive roles is due to conformity with pre-assigned gender roles in both cultures. We find that women in the matrilineal society are more willing to assume the role of norm enforcer than men while the opposite is true in the patriarchal society. Moreover, we find that changes in the institutional environment that are associated with a decrease in the exposure and retaliation against the norm enforcer, result in increased participation of the segregated gender. Our results suggest that the organizational environment can be adjusted to increase the representation of women in positions of power, and that it is critical to take the cultural context into account.

Keywords: Gender; Norm enforcement; Segregation; Third party punisher, Public goods game.

JEL Code: C90, C92, C93, C92, D03, D70, D81, J16

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1 Introduction

The success of a society crucially depends on the enforcement of norms that restrain opportunistic behavior (Ostrom, 1990; Fehr and Gachter, 2002; Fehr and Fischbacher, 2004). Societies who manage to self-organize and develop mechanisms to enforce norms can escape the tragedy of commons and improve cooperation (for recent evidence see Kosfeld and Rustagi, 2015). Although there exists ample evidence around the world that individuals are willing to enforce norms even at substantial personal costs (Henrich et al., 2006), the power to create and enforce norms in most societies lies in the hands of men.

The inter-parliamentarian union shows that in 84 percent of the countries less than one third of the positions in parliament are held by women (Inter parliamentarian union, 2015). In six countries there is not a single women in office (Federated States of Micronesia, Palau, Qatar, Tonga, Vanuatu, Yemen). Gender equity is achieved in only two countries, Bolivia and Cuba while Rwanda is the only country in the world with a majority of women in parliamentary positions (64% of the positions are held by women).

Equal distribution of power between men and women in the creation and enforcement of norms can be a driving force not only for gender equality as a normative objective *per se,* as defined in the third goal of the UN Millennium Development Goals 2015, but can also constitute an increase in economic efficiency, long term economic growth as well as a better provision of public goods favored by women (Chattopadhyay and Duflo, 2004). An increase in the share of female to male managers in a country is associated with higher growth rates, while a larger ratio of female to male employers decreases the likelihood of exiting the market(Esteve-Volart, 2004; Weber and Zulehner, 2014). Participation of women in political offices is associated with increased investments in education, health services for children, public goods and with lower levels of corruption (Clots-Figueras, 2011, 2012; Avitabile et al., 2014; Frank et al., 2011; Swamy et al., 2001). Similarly, gender diversity in the judiciary system also has been shown to increase confidence in the legal system, improve decision making for deprived populations and to be vital in providing equal justice for all (Torres-Spelliscy et al., 2008; Hurwitz and Lanier, 2008). Moreover, female participation in politics can reduce gender discrimination in the long term as it favors changes in legislation that decrease discrimination against women, can foster changes in attitudes towards women in politics and can increase reported crimes against women (Powley, 2007; Beaman et al., 2009).

Explanations for the sparse representation of women as norm enforcers have been traditionally ascribed to discrimination against women (Eagly and Carli, 2007; Duflo and Topalova, 2004).

Discrimination can occur when there are social norms that give preference to men (*taste based discrimination*), when there is a lack of information about the abilities of women, which may lead to a biased assessment of their performance (*statistical discrimination*), or when selection mechanisms evolve around preexisting—mainly male—networks (*biased selection*) (Pande and Ford, 2011). However not only active discrimination, but also self-selection may explain this outcome. In this study, we depart from explanations that consider demand-side discrimination and instead investigate gender differences in the willingness to volunteer in taking on positions of power.

Two prominent competing hypotheses lie at the heart of most discussions about gender differences in behavior or individual preferences: that these differences are innate (the *nature* hypothesis) or that they are socially acquired (the *nurture* hypothesis). For instance, ample experimental evidence from developed and developing countries has shown that gender differences in traits that could be associated with the willingness to volunteer to taking on positions of power. Women are found to be less competitive (Gneezy et al., 2003; Niederle and Vesterlund, 2007; Cardenas et al., 2012; Crosetto and Filippin, 2016), less confident (Eagly and Karau, 2002; Kamas and Preston, 2012) and more risk averse than men (Eckel and Grossman, 2002; Croson and Gneezy, 2009; Crosetto and Filippin, 2016). On the other hand, empirical evidence supports the role of socialization as a factor in explaining gender differences in behavior (Gneezy et al., 2009; Gagliarducci and Paserman, 2012; Andersen et al., 2008, 2013; Booth and Nolen, 2012; Gong and Yang, 2012; Asiedu and Ibanez, 2014). Which of these two mechanisms is driving the observed gender differences has profound implications for the design of policies that promote gender equality.

To shed light on the determinants of self-selection into positions of power, we implement an artefactual field experiment. Our experimental design is based on a one shot public good game with self-selection into the role of third-party punisher. The third-party punisher is used to characterize situations in which enforcement of the social norm comes at a cost and has no direct pecuniary benefits for the third-party. Sanctions by a third-party punisher can be associated with social reciprocity or preferences to use coercive power to maintain normative standards (Fehr and Gachter, 2002; Carpenter et al., 2004).[1] We implement a public goods game and give participants the opportunity to volunteer for the role of third-party punisher.

[1]Carpenter et al. (2004) investigate participant's willingness to engage in costly punishment towards members of their group and towards members of an external group in public good games. They report a substantial degree of punishment towards external group members and a positive effect of this form of punishment on cooperation. Fehr and Fischbacher (2004) report similar results in a dictator game and a prisoner's dilemma where the third-party is external to the group and hence has no incentives to build a reputation.

Our focus of analysis lies on gender differences in the likelihood of volunteering for this role. In addition, we are interested in further disentangling the drivers of the observed gender differences. For that purpose, we consider gender differences in two traits that are likely to be associated with differential willingness to volunteer to take on power: aversion to retaliation and aversion to scrutiny.

Retaliation or counter-punishment against norm-enforcers is ubiquitous. Evidence suggests that norm enforcers are frequently victims of retaliation (see King, 1996, and citations therein).[2] The elimination of counter-punishment allows us to investigate whether aversion to retaliation is driving self-selection from power positions. In addition, the mere threat of retaliation can not only have economic costs, but also severe psychological costs. Psychological studies report that women tend to incorporate negative feedback more so than men (Roberts and Nolen-Hoeksema, 1989). Women also tend to fall into confidence traps more often (Dweck, 2000), viewing negative feedback as indicative of their overall capability rather than simply their one-time performance on a task (Mobius et al., 2011). We investigate whether environments that eliminate the possibility for counter-punishment increase the share of women willing to take on the role of third-party punisher.

Second, we introduce anonymity and thereby reduce the exposure of the third-party punisher. This allows us to test whether aversion to public roles explains gender differences in volunteering to take on the role of third-party punisher. People in public roles are likely to experience increased social scrutiny. To the extent that the social environment shapes the beliefs and values regarding the appropriate role of women and men in society (Guiso et al., 2006), reputation could play a major role in the compliance with those norms (Kandori, 1992). Therefore, trying to take on power—in a society that dictates that it is *not* appropriated for one's gender—may result in a lossing face. We thus consider whether social scrutiny impedes women more so than men to enforce social norms and study whether environments in which the public role is anonymous decrease gender gaps in the willingness to take on power positions.[3]

To investigate the drivers of gender differences and to distinguish the relevance of the nature versus nurture hypotheses in explaining gender differences in volunteering for third-party

[2]In the introduction King explicitly mentions the potential dangers jurors are facing: "[...] On top of all of this, jury service exposes jurors, their families, and their friends to exploitation by the press and to retaliatory threats and unwanted attention from defendants, victims, and sympathizers." (King, 1996, pp. 124–125)

[3]Women may in general not be willing to stand out in public even in situations that have fewer gender stereotypes associated, such as charitable giving (see Jones and Linardi, 2014).

roles, we compare two different societies in India that vary with respect to the social roles assigned to women. In the patriarchal Santal tribes women live under the economic protection of men while in matrilineal Khasi tribes women enjoy higher economic and social independence. The comparison of these two societies allows us to identify the impact of inherently different social norms on a subject's intrinsic motivation to volunteer for power positions that allow punishing others. If nature affects gender differences in aversion to retaliation and aversion to assume public roles, we would expect women to be less willing to take on positions of power irrespective of their society. On the other hand, if societal differences and the associated gender roles affect gender differences in feedback aversion and aversion to public roles, we would expect that in the society where women are more empowered the gender gap to be smaller and a larger proportion of women to be willing to assume the role of the third-party punisher.

Our experimental results support the nurture hypothesis. In matrilineal societies, men are less willing to take on the role of norm enforcer than women, while in patriarchal societies we find the opposite. Gender differences in the willingness to assume the role that gives power seem to be determined to a large extent by conformity to social norms. When the role of norm enforcer is anonymous, and thus not exposed to social scrutiny, gender differences in the willingness to take on the role of norm enforcer disappear. We also find evidence that aversion to retaliation acts as a driving mechanism of gender differences in segregation in positions of power. These results suggest that it is possible to modify the organizational environment to promote gender balance.

Extensive experimental evidence shows that individuals are willing to incur personal cost to enforce norms (Ostrom, 1990; Fehr and Gachter, 2002; Carpenter et al., 2004) and to punish those who try to break them (Nikiforakis, 2008; Nikiforakis et al., 2012; Balafoutas et al., 2014). However, this line of research has mainly focused on the impact of third-party punishment on cooperation, allocating the role of the third-party punisher randomly. Endogenous public goods experiments mostly consider voluntary selection in the role of the first mover. For example Arbak and Villeval (2013) find that female participants are less willing to lead than males but that this difference disappears once the uncertainty about contributions from other group members is removed. Moreover, they find that personality traits such as generosity and openness are positively correlated with the willingness to lead. Preget et al. (2012) build upon this literature and find that individuals who can be classified as conditional cooperators are more likely to volunteer to lead than free-riders. They do not find significant gender differences and female and male participants are equally likely

to volunteer to lead. In the context of team games in which subjects have to take risks on behalf of others in the group, Ertac and Gurdal (2012) find that a lower fraction of female participants are willing to make risky choices for the group compared to male participants. Bruttel and Fischbacher (2013) look at leaders as innovators –taking initiative to increase the pay-off of their peers. They find that the willingness to lead is positively correlated with cognitive skills, preferences for efficiency, generosity and patience. Interestingly for the present study, they also find that males are more willing to take initiative (lead) in this setting. Kanthak and Woon (2014) explore the impact of the selection mechanisms in volunteering to act as a representative of the group (produce on behalf of others) and find that men and women are equally likely to volunteer when selection is random, but that women are less likely to volunteer when representatives are elected. They attribute this finding to the cost of campaigns and dishonest competition. Unlike these studies, we focus on a role that is associated with power –to enforce social norms– and consider self-selection as the third-party punisher in a public good game.

The closest paper to ours is Balafoutas and Nikiforakis (2012)who, in the context of a field experiment in Greece, find that men are more willing to use sanctions to enforce commonly accepted social norms of courtesy. We contribute to this research by investigating the mechanisms that lead to self-segregation. First, we consider whether nature or nurture drive these differences. Second, we consider the effect of gender differences in aversion to retaliation and aversion to occupy public roles as potential mechanisms. Finally, we consider the effectiveness of affirmative action policies for promoting gender equity focusing on the selection effects of this policy.

We also contribute to the research focusing on gender differences in social and individual preferences (Niederle and Vesterlund, 2007; Gneezy et al., 2003; Eckel and Grossman, 2002; Kray et al., 2001; Barber and Odean, 2001; Eagly and Karau, 2002) by adding an important aspect of social preferences, namely the willingness to take on power positions to act as a norm enforcer and its interaction with socialization. Knowledge of the roles that nature and nurture play in decision making processes is of high political relevance as it gives an indication of whether policies actually promote welfare by encouraging decisions that are in line with individual preferences. In several aspects, gender differences can be explained by nurture rather than nature. Furthermore, we add to the studies that compare the development of individual and social preferences in matrilineal and patriarchal societies (Gneezy et al., 2009; Andersen et al., 2013, 2008; Gong and Yang, 2012; Asiedu and Ibanez, 2014; Banerjee, 2014; Pondorfer et al., 2014).

The paper proceeds with presenting the local background. Section 3 gives details of the experimental design and main hypothesis. Section 4 presents the results before turning to the concluding remarks in the last Section.

2 Societal Background

Members of two distinct local tribes participated in the experiment: the Santal tribe in West Bengal and the Khasi tribe in Meghalaya. The map in Figure 1 shows our research area. We selected 21 villages for the experimental sessions.[4]

The main economic activity for these two tribal groups is agriculture. About 60 percent of the participants in the study report working on a farm. The main crops are rice, maize and potatoes. In the matrilineal area, 30 percent of the participants in the study reported to be working outside of a farm as self-employed traders or in paid employments.

Despite similar economic conditions, there are marked differences in the empowerment of women in these two societies. The tribal rules of the Khasi are considered to be matrilineal (Leonetti et al., 2004; Van Ham, 2000). Khasi families are always organized around the female members and a child always takes the mother's last name. Customary law dictates that the youngest daughter inherits property, giving women higher economic status in the society. Sons can inherit land only if there are no female family members among the extended family (i.e. aunts, female cousin) or if the mother determines otherwise in her lifetime. Men can acquire property and determine its distribution among their heirs (Das and Bezbaruah, 2011). The youngest daughter is the custodian of the land, but economic decisions on use, exploitation and sales are made by brothers and uncles. All members of the family who cannot earn enough for themselves have the right to be fed by the yields of the common property. Sisters also have the right to occupy a portion of the family land. Khasi women have the right to choose their partner, are allowed to cohabit and do not require male permission for marriage. The institution of dowry does not exist and it is common practice that the man who marries the youngest daughter moves to his wife's house after marriage. However, older daughters, who do not inherit property, establish independent homes and depend economically on their husbands (Lalkima et al., 2009). The preference for sons is absent in this society, as it is the youngest daughter who looks after the parents in their old age (Bloch and Rao, 2002;

[4]The blueprint for this map was taken from Rai published under the Creative Commons License and modified by the authors.

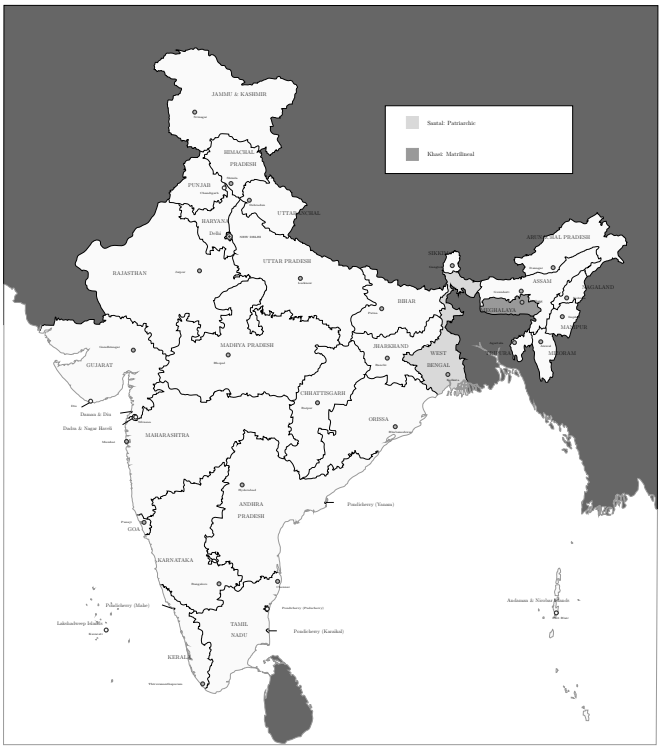
Anderson, 2003; Narzary and Sharma, 2013). Incidences of domestic violence against women are rare and gender gaps in access to health, education and nutrition are lower than in other regions of the country (see also Mitra, 2008; Andersen et al., 2008, 2013 and Gneezy et al., 2009). For the Khasi, farming is the major economic activity and both men and women work in agricultural activities. In addition to farming, women can undertake all other economic activities and are often involved in trading with men from other societies.

The Santal are the largest tribal group of eastern India and are distributed over the states of Bihar, Orissa, and Tripura as well as in West Bengal, where our study was conducted. The Santal society is patriarchal giving women few decision rights and awarding them a lower status than men (Das, 2015). Santal customary law does not guarantee women inheritance rights for their parental property. They do however, have contingent rights to an inheritance depending upon the circumstances. For instance, a common practice is to endow a married woman with some land in her natal village as a means of providing financial support in case of unsuccessful marriage. In addition, according to the Santal Pargana Tenancy Act (SPTA), 1949, in the absence of appropriate male heirs, the daughter inherits her father's land (Rao, 2005). Caring for parents in their old age is the responsibility of sons, not of daughters. Once married, daughters are expected to spend their life under the supervision of their husbands or other elder men in the husband's family. A post-experimental survey in our study revealed that female mobility even within the community is restricted, and to visit parents, relatives or friends, women are always required to have the permission from an adult male in the family. The distribution of family resources among male and female members is unequal and even though women contribute significant amounts of labor to family farms, the income earned remains mostly under the control of men. In our sample, all households reported tbeing lead by a male in West Bengal, compared with only 63 percent in Meghalaya. The Santal social norms are not an exception to the Hindu norms of favoring sons over daughters (see e.g. Clark, 2000) and a preference for sons is prominent.[5]

Despite the clear societal differences in female empowerment, between both societies, political power is a male dominated sphere. In both societies there is a relatively low share of women in political office. However, there are marked differences in customary laws regarding female participation in politics across societies. In the Khasi tribes, it is custumary that political deliberation, planning, administration and political decision making belong to the male domain. Before 1935 women did not have the right to take part in political meetings,

[5]This societal differences are reflected in the ratio of females to males. Whereas in West Bengal this ratio is 0.92 in Meghalaya is 0.95. The national average is 0.93.

Figure 1: Location of research area



Note: This map shows the location of the states in India, where the study was conducted. The matrilineal Khasi are located in the state of Meghalaya, the patriarchal Santal in the state of West Bengal, both states are in the north-east of the Indian subcontinent.

vote in elections or enter as candidates. Despite recent legislation changes introduced by the India state until now women do not take the position of village head (Kumar Utpal and Bhola Nath, 2007; Lalkima et al., 2009). Our survey indicates that the village head was male in all nine Khasi communities included in the study. In the Santal tribes, despite patriarchal norms that favor boys over girls, women have been allowed more freedom to take political office. For example, three seats are traditionally reserved for women in the tribal self-governance institutions. Yet, these positions are assigned to the wives of the three main village heads, implying that political representation is limited to elite groups. Wives and daughters of tribal self-governance bodies can under certain circumstances inherit the political post, however normally do this only for limited period of time before new male representatives are elected. We find that the village head was female in six of twelve Santal communities included in the study.

3 Experimental Design and Procedures

To understand the drivers of female self-segregation from positions of power, we use an economic experiment. Our experimental design is based on a public good game with third-party punishment and counter punishment. We form groups by randomly and anonymously matching four participants. A group consists of three contributors and one third-party punisher or norm enforcer. The third-party punisher is endogenously determined and participants can decide whether they volunteer to take on the role of the third-party. In the control treatment, contributors can counter-punish the third- party. As is explained in more detail below, the third-party punisher observes the contributions made by each group members and decides whether to send sanctioning points. We compare the proportion of male and female candidates that are willing to assume the third-party punisher role (role of norm enforcer) under different treatments as explained in more detail below. In this section we describe the public good game with third-party punishment in more detail, present the treatments and explain the implementation procedures. Experimental instructions and protocols can be found in the Appendix B.

3.1 Public Good Game with Endogenously Selected Third-Party Punishment

Each contributor, i, receives an initial endowment of 30 rupees (Rs., equivalent to half of a typical daily salary or 0.70 US$ in 2012). A contributor decides how to allocate her endowment between a private account and a group account—let the contribution to the group account be denoted by c_i. The marginal per capita return for investing in the group good is $\beta = 2/3$, while the marginal per capita return from the individual account is set to one.

The third-party punisher does not contribute to the group account and does not receive any payments that are dependent on the group's contributions. Instead, she receives an initial endowment of $w = Rs.50$.[6] The task of the third-party punisher is to observe the individual contributions of her group to the group account and to decide whether to punish contributors. Each punishment point assigned to contributor i—denoted byP_{Li}—costs one Rupee for the third-party punisher and decreases i's payments by three Rupees. The third-party punisher can assign punishment points from 0 to 5 to each contributor.

[6]We use the female pronoun although this role could be assumed either by male of female participants.

After receiving feedback on the contributions made by other group members and on the punishment decisions of the third-party punisher —in the baseline treatment—contributors have the possibility to counter punish their respective third-party punisher. Counter punishment is costly for both the contributor and the third-party. Each counter punishment point, denoted Q_{iL}, costs one Rupee for the contributor and decreases the income of the third-party punisher by two Rupees.

The payoff functions for the contributors in the baseline treatment, π_i, is given by

$$\pi_i(c_i, \beta, Q_{it}, P_{Li}) = 30 - c_i + \beta \sum_{j \in I} c_j - 3P_{Li} - Q_{iL}, \tag{1}$$

and for the third-party punisher, v_L, is given by:

$$v_L(w, Q_{it}, P_{Li}) = w - \sum_{i=1}^{3} (P_{Li} + 2Q_{iL}). \tag{2}$$

After participants are informed about the conditions in which the public good game will be implemented, they are asked to decide on their preferred role. To avoid evoking stereotypical thinking, the roles were presented as *Role A* for contributors and *Role B* for the third-party punisher. We deliberately avoided the framing of the third-party position as "Leader", "Punisher", "Norm enforcer" or similar labels, to avoid preconceptions on the roles of men and women outside those manipulated in the experiment. If more than one person wants to take this role, a random mechanism determines who will be assigned. This mechanism intents to minimize potential confounding effects from aversion to competition, self confidence and risk aversion, which may otherwise also drive the self-selection process.

Prediction with opportunistic self-interested subjects

For a one shot game, as the one we implemented, one can find the Nash equilibrium via backward induction. Assuming opportunistic self-interested payoff maximizing behavior, under $0 < \beta < 1 < 3\beta$, the dominant strategy for risk neutral subjects is to choose zero counter-punishment points Q_i and give a zero contribution level c_i. The expected payoff for the contributor is 30 —compared with an expected payoff of applying for the third-party

punisher role of w>30. Hence the dominant strategy is to apply for the third-party punisher position. The third-party punisher maximizes income by assigning zero punishment points P_{Li}.

Opportunistic, risk neutral and self-interested subjects would volunteer to take the role of third-party punisher and would not punish.

As explained in greater more detail below, the experimental treatments aim to capture how the risk of counter-punishment and expected probability of counter-punishment affect the likelihood to volunteer for taking on the role of third-party-punisher.

3.2 Procedures

The experiment was conducted between September 2012 and January 2013 in three districts of Meghalaya (Ribhoi, East Khasi Hills and Jaintia Hills) and one district of West Bengal (Purulia). The research design was identical in the two states. In total ,224 subjects in Meghalaya and 336 subjects in West Bengal participated in the experiment. We conducted 36 sessions in 15 matrilineal villages in Meghalaya and 21 session in six patriarchal villages in West Bengal. Each session was conducted with 12 to 16 participants.

The experiment consisted of nine stages as illustrated in Table 1. In the first stage, after receiving explanations of the procedures, participants could decide on their preferred role. In the second stage all participants made their contribution decision before knowing which role they will assume. Then, participants stated their expectation on the average contribution made by of the others in the group. This procedure allows us to control for —in an incentivized way— the inclination of the third-party punisher for contributing and the subjective expected monetary value of being a group member.

In the fourth stage, the roles of the third-party punisher and the contributors were assigned. When more than one group member was willing to take on the role of the third-party punisher, one participant was selected randomly among the volunteers. Similarly, when no one wanted to assume the role of the third-party punisher, one subject was randomly selected among all the group members. In the Control treatment participants selected as the third-party were required to stand up and greet other participants. Hence contributors could see the faces of all participants who were selected to be the third-party punishers. In each session we had more than one group per session, therefore contributors could not infer for sure which of the third-party punisher were responsible for observing decisions and deciding on

sanctioning points for their group. Similarly, third-party punishers did not know the identity of the contributors in their group. We decided not to reveal the identities in order to avoid potential confounds and post-experimental effects.

In the fifth stage, participants received feedback on the contributions made by group members.In the sixth stage, the third-party punisher decided on the allocation of punishment points. At the same time, contributors stated their expectations regarding punishment points. In the seventh stage, participants received feedback on punishment points. In the next stage (stage 8) contributors could retaliate against the third-party punisher by allocating counter-punishment points. Also at this stage, the expected counter-punishment was elicited from the third-party punisher. In the last stage participants received information on the points earned in the game.

The experiment was played over two rounds with rematching. The second round replicated the first round except that the participants were asked to state the willingness to take on the role of third-party punisher under four different levels of payment (w = 30,50, 70 and 90). It was common knowledge that the rounds proceeded in a *perfect stranger* design. At the end of a session, one of the two periods was randomly selected for payment. If the second round was selected, a payment level for the third-party punisher was randomly selected. At the end of each session, participants received information on the points earned in the game and were paid out in private. In this paper we focus on the analysis of the first round of the experiment while a complementary paper focuses on the impact of incentives on volunteering behavior.

Table 1: Schedule of the Experiment

	All subjects	
Stage 1	Role choice	
Stage 2	Contribution decision	
Stage 3	Elicit average expected contribution	
Stage 4	Third-party punisher assignment	
	more than one candidate: random device selects one from the volunteers	
	no candidate: random device selects one from all subjects in the group	
	third-party punisher	**Contributors**
Stage 5	Feedback on group member's contributions	
Stage 6	Assign punishment points	Elicit expected punishment
Stage 7	Feedback on punishment	
Stage 8	[Expected counter punishment]	[Counter punishment points]
Stage 9	Feedback on outcome of the game	

Note: This table represents the schedule of the experiment. Instructions were read out loud and the main points were summarized on flip-charts. Expectations from group member's contributions and own contribution were elicited from all subjects in order to control for the relative monetary attractiveness of either option. In Stage 7, the counter punishment points were only given in treatments with counter-punishment.

3.3 Treatments and Hypothesis

The baseline (*Control* treatment), as described in the previous subsection, is designed to reflect an environment in which punishers emerge endogenously. Candidates selected to assume the role of third-party punisher do so publicly by announcing who is selected to take this role. The third-party could punish contributors of their group and group members could counter-punish the respective norm enforcer of their group. Across both societies power to create and enforce norms is concentrated in the hands of men, hence we expect that female participants will be less willing than male participants to take on the role of third-party punisher. Moreover, we expect that societal differences in female empowerment, captured by the position that women occupy in matrilineal and patriarchal societies, will be reflected in the participant's willingness to take on the role of norm enforcer. Our hypothesis is that Khasi women, who have higher economic independence, will be more willing to volunteer than the relatively more deprived Santal women. We expect that gender differences in volunteering will be smaller in the matrilineal than in the patriarchal society, but that they will not be completely eliminated. This leads to our first hypothesis:

Proposition 1. *In the baseline, the fraction of female participants willing to assume the role*

of the third-party punisher is smaller than the fraction of men. The proportion of women willing to enforce social norms is expected to be lower in the patriarchal Santal than in the matrilineal Khasi region.

To explore the drivers of gender differences we use a between subject design with three treatments. In addition, we conducted the experiment in patriarchal and matrilineal tribes in North Eastern India to explore how norms regarding the role of men and women in society shape gender differences in behavior. Table 2 summarizes the experimental design.

Table 2: Treatments

	Giving Punishment (120)	*Giving & Receiving Punishment (296)*	*Affirmative Action* (144)
Patriarchal (336)	NoCP_P (80) -	Control_P (96) Anonymous_P (80)	AA_P (80) -
Matrilineal (224)	NoCP_M (40) -	Control_M (60) Anonymous_M (60)	AA_M (64) -

We refer to the first treatment as *No Counter-Punishment (NoCP)*. This treatment evaluates whether the fear of counter-punishment or aversion to retaliation deters women from taking on the role of the third-party. This treatment is identical to the *Control* treatment, except that contributors do *not* have the possibility to counter-punish the third-party punisher. As the expected cost of taking the role of third-party decreases, once that counter-punishment is eliminated, we expect that a larger fraction of participants will be willing to assume the role of the third-party in the *NoCP* treatment compared to the *Control* treatment. If gender differences in aversion to counter-punishment or risk aversion are driving the self-selection out of the role of third-party punisher, we expect this treatment will reduce the gender gap in the willingness to take on the role of the third-party compared to the *Control* treatment. This leads to the following hypothesis:

Proposition 2. *Fear of counter-punishment deters women more than men from takin on the role of the third-party. Consequently, the proportion of women who volunteer to take on the role of the third-party punisher is larger under the NoCP treatment than under the baseline. The* NoCP *treatment is expected to decrease the gender gap in the role of the third-party punisher.*

If gender differences in the willingness to take on the role of third-party punisher are due to cultural factors, we expect that women in the patriarchal Santal society will be more averse to feedback than women in the matrilineal Khasi society. Hence our third hypothesis is:

Proposition 3. *The* NoCP *treatment induces a larger effect in the proportion of women who volunteer to take on the role of third-party punisher in the Santal than in the Khasi society compared with the Control treatment.*

We will refer to the second treatment as *Anonymous (Anonymous).* In this treatment the identity of the third-party is not revealed to the other participants of the session. Hence participants who are assigned the role of the third-party punisher do not stand up and greet other participants in the fourth stage of the experiment. So only the third parties know their role, however they have no opportunity to reveal this information to the contributors during the experiment. As participants are simultaneously and privately filling out different decision forms, they cannot infer the identity of the third-party punisher. All other procedures are identical to the *Control treatment.* If self-selection out of the third-party punisher role is due to gender differences in aversion to scrutiny, or if women expect that they will be more likely to be targeted as objects of counter-punishment for revealing the intention to break with the social norms, we expect that this treatment will decrease gender gaps in the fraction of participants who volunteer to assume the role in the *Anonymous* treatment compared to the *Control treatment.* However, anonymity could also decrease the fraction of volunteers who take on this role to comply with socially assigned roles. Hence, men who are reluctant third-party punishers could be less willing to volunteer than in the *Control* treatment.

Proposition 4. *Aversion to scrutiny deters women from volunteering to take on the role that gives power to enforce social norm. Anonymity of the role would increase the proportion of women than volunteer to assume the role of third-party punisher, but potentially decreases the fraction of men who volunteer to take on the roles.*

Considering that culture determines social roles, we expect that women in the Santal society will be more averse to scrutiny than women in the Khasi society. Hence, the anonymity treatment is expected to encourage women to take on the role of the third-party more in the Santal region than in the Khasi region.

Proposition 5. *Anonymity has a larger effect on female take-up in the patriarchal than in the matrilineal society.*

One policy that is commonly used to foster female participation is affirmative action (Cohen and Sterba, 2003; Fullinwider, 2011). Within the experiment we implemented an *Affirmative Action* (AA) treatment to explore the effect of affirmative action policies that give preferential treatment to women. In this treatment, female subjects expressing their willingness to take the role of the third-party in stage two of the experiment were given preference over male subjects when the third-party role was assigned in stage five. Therefore, potential female applicants faced lower levels of competition against male applicants for the role of third-party punisher. When more than one woman was willing to take the third-party punisher role, the role was assigned randomly among willing female candidates. Everything else remained the same as in the *Control treatment*. Based on previous research that has provided evidence of women being more likely to opt-out of competition (Croson and Gneezy, 2009; Gneezy et al., 2009) and that preferential treatment increases participation (see Niederle et al., 2013; Balafoutas and Sutter, 2012; Ibanez et al., 2015, for recent experimental evidence on the effect of affirmative action on female participation), we derive our last hypothesis:

Proposition 6. *A larger fraction of women are willing to take on the role of the third-party in the* AA *compared to the* Control *treatment.*

3.4 Socioeconomic drivers

In addition to recording the responses to the exogenous variation of the treatments, we collected additional information from the participants to control for potential confounding factors in the analysis and to disentangle various potential motivations underlying individual decisions. In particular, we asked participants about their expectations regarding other group members' behavior in the experiment, elicited subjective risk attitudes and used a post-experimental questionnaire to gather data on sthe ocio-demographic characteristics of the participants.

Expected payoff from the public goods game

One valid concern is that participants self-select out of norm enforcement roles based on their subjective expectations regarding the income they will earn in the public good game. If these expectations vary systematically between men and women, they may confound our results. We therefore control for subjective income expectations by including a variable on the expected payoff from the public good game. Expected payoff is estimated according to

the following formula: $\mathbb{E}(\pi_i) = 30 - c_i + (\beta \times (c_i + 3 \times \mathbb{E}(c_j))$. Where c_i and $\mathbb{E}(c_j)$ are the contribution level and the expected average contribution of other group members. We compare this measure with the endowment offered to the third-party ($w = 50$). This measure allows us to control for monetary motives for not volunteering for the third-party punisher position on top of other motivations.

Risk taking: for one self and on behalf of others

After the main experiment, we conducted an additional experiment to elicit subjective risk attitudes when making decisions for oneself and for others. We used a standard Holt and Laury lottery list choice task with monetary incentives to obtain a measure of risk aversion. In case of inconsistencies, we used the first switching point to determine the measure of risk aversion. Holt and Laury has been applied in a large variety of contexts—including in developing countries—making it possible to compare different studies. The comparison of gender differences in risk aversion across genders and societies is presented in a separate paper (Banerjee, 2014).

Post-experimental questionnaire and payments

After the experiments, we administered a questionnaire eliciting information on covariates that have been documented to be connected with taking on the role of norm enforcer. These include the age, marital status and education level of the participant as well as membership and functions in real groups (such as self-help groups, savings clubs, etc.).

Age, is an important factor as older subjects may feel more obliged to take on the role of third-party punisher in societies where the seniority principle plays an important role. In many societies, including Asia, the elderly are often regarded as natural authorities and hence enjoy great respect (Van der Geest, 1997; Sung, 2001; Löckenhoff et al., 2007).

Membership in *real groups* such as self-help groups, savings clubs etc. can indicate cooperative behavior and hence might also be able to explain variation in volunteering to take on the third-party punisher position within the experiment (for an example of real group leader punishment behavior see Kosfeld and Rustagi, 2015). Furthermore, education can play an important role in the willingness to enforce norms.

4 Results

The presentation of the data from the experiment and the survey is divided into three parts. In subsection 4.1 we describe the socio-demographic characteristics of our sample by society. Subsection 4.2 presents average statistics of non parametric tests on gender differences in self-selection across treatments and societies. Then we provide a multivariate regression analysis, controlling for socio-demographic characteristics and behavior in the public good game. In the last part we analyze the effect of the proposed institutions on contribution levels, punishment and counter-punishment behavior in the public good game.

4.1 Socio-demographic characteristics

The average age of participants is 33 years. The education levels are relatively low among the sample of participants. About 17 percent of the participants are illiterate and 46 percent have at the most a primary education. When we compare the socio-demographic characteristics of male and female candidates, we find that women have significantly lower education levels than their male counterparts in both societies, yet the gender gap is lower in Khasi society compared with the Santal society. In the Santal society, 74 percent of female participants are illiterate compared with 43 percent of male participants, while in the Khasi society, 20 percent of female participants are illiterate compared with 9.4 percent of men. Female participants in the study are comparable in terms of age across societies, however, male participants from the Khasi community are significantly younger than the Santal participants. We also find a significant difference in terms of main occupation with Khasi participants being more likely to have an employment out-side the farm than Santal participants. Female participants in the Khasi are also less likely to be housewives than in the Santal society.

Most of the participants are married, though in the matrilineal society there is a larger proportion of male and female participants who declare to being single. A significant proportion of subjects participate in communal organizations in both societies (about 85 percent in the Santal society and 62 percent in the Khasi society). Females in the Khasi society are more likely to participate in female groups, religious groups and labor unions than those in the Santal who mainly belong to self-help groups. Consistent with the fact that women tend to be excluded from power positions, we find that a larger fraction of male than female take on leadership roles in the Khasi societies. In the Santal society power is more equally distributed across gender (as a result of the high participation of women in self-help groups).

Indicators of female empowerment, suggest that our sample of participants are representative of the social groups. Compared with the Santal society, in the Khasi society it is less likely that women cover their face, that they pay a dowry, that there are cases of sexual harassment against women, that preference is given to boys over girls in education and that men and women eat separately. Women in the Khasi society are also more likely to hold an individual bank account in their name, watch TV, listen to radio and read news than Santal women. Despite this relatively degree of female empowerment, women in the Khasi society are also more likely to be excluded from the decision making process in the family. Decisions regarding investments, children and expenditures are more likely to be taken by men alone in the Khasi society. In contrast, those decisions are mostly shared among men and women in the Santal society.

As discussed in Banerjee (2014) women are significantly more risk averse than men in the patriarchal Santal region, while there are no significant differences between male and female participants in the matrilineal Khasi region .[7]

4.2 Self selection into the role of third-party

The descriptive statistics on the proportion of male and female participants who applied for the role of the third-party punisher by treatment and society are presented in Table 3. Our first goal is to establish whether there is a significant difference in the gender gap of volunteering for taking on power in the *Control treatment.*

We consider the patriarchal society first and observe that in the control treatment a significantly larger proportion of men than women are willing to take on the role of the third-party (42.5 percent vs. 23.2 percent, p-value=0.03). These observed gender differences are in line with the general finding that in most societies women are underrepresented in positions that enforce the social norms. If we now consider applications for the third-party punishment in the matrilineal society, we find that the picture is reversed. Here, women are significantly more likely than men to apply for the third-party role (53.1 percent of female participants vs. 25.0 percent of male participants, p-value=0.03). We find only partial support for proposition:1. Gender differences seem to be shaped by the social environment more than by innate gender trait differences. Women are more likely than men to volunteer for the position of power in the Khasi region, while the proportion of men that are willing to take on the role of

[7]This is interesting in the light of previous discussions on this elicitation method by Crosetto and Filippin (2016).

the third-party is lower than the proportion of women in the Santal region. We summarize these findings in our first result:

Result 1. *In the baseline treatment, men are more likely to volunteer for the role of third-party punisher than women in the patriarchal society, while women are more likely to do so than men in the matrilineal society. The proportion of women who take on the role of a norm enforcer is larger in the matrilineal than in the patriarchal society.*

This result indicates that self-segregation in the positions of power are not innate but shaped by society. In societies where women enjoy higher economic power there is also a lower gender gap in volunteering. In the *No Counter-Punishment* (NoCP) treatment we remove the possibility for contributors to counter-punish the third-party. We find that once we rule out counter-punishment in the *NoCP* treatment, gender differences in the willingness to take on the role of the third-party disappear in both societies. Compared to the *Control treatment*, women in the patriarchal society and men in the matrilineal society are more likely to apply for the third-party punisher role. In particular, this result is statistically significant for Khasi men, where the proportion of male subjects volunteering for the third-party pinisher role increases from 25% in the base line to 60% in the GP treatment. Contrary to Proposition 2, these results suggest that there are no innate trait differences in aversion to retaliation by women compared with men. Removing counter punishment can increase or decrease the likelihood that female participants take the role of norm enforcer depending on the social context. This could also be associated with expected differences in counter-punishment between genders once that the role of third-party is public, future research could consider whether this is the case. Our results provide supportive evidence for Proposition 3 and the effect of *NoCP* on women is larger in the Santal than in the Khasi society.

Result 2. *As opportunities to counter-punish are eliminated, gender gaps in the willingness volunteer to take on power positions to enforce norms close in both societies. The effect of this organizational set-up on men and women depends on the social context.*

Turning to the *Anonymous* (*Anon*ymous) treatment we further test the hypothesis that self-selection into the third-party role is driven by aversion to scrutiny. We find that once the identity of the third-party is kept secret under the *Anonymous* condition, the gender gap in the willingness to volunteer for the role of third-party closes in both societies. Furthermore, comparing the proportion of men and women applying for the third-party punishment role between the *Anonymous* and the *Control* treatments, we find that under anonymity Santal

men and Khasi women tend to volunteer less (significant in the case of Khasi women, -23.9, p-value=0.04) and Santal women and Khasi men tend to volunteer more (significant in the case of Santal women, +21.2, p-value=0.03).

The disappearance of gender differences once the third-party punisher roles are not publicly observed but taken in private further suggests that segregation is shaped by the prevailing social norms of the society, rather than by gender-specific innate preferences. These findings partially support Proposition 4—only in the patriarchal society—and fully support Proposition 5 in a somewhat extreme fashion and establish our second result:

Result 3. *In the* Anonymous *treatment, Santal women are more likely to take on the third-party role than in the* Control treatment*, while Khasi women are less likely to do so. This leads to a reduction of the gender gap in* both *societies. No significant effect is observed on men in these societies.*

Affirmative action is used in many countries as a way to promote gender equity and foster female participation in politics. We find that the *AA treatment* is associated with an 18.5 percentage points increase in female participation in the Santal society and a drop in male participation by 17.5 percentage points (p-value=0.09). In the Khasi society, this picture is reversed for women: Women are 25.9 percentage points less likely to participate than in the control treatment (p-value=0.03), while there is hardly any difference for men. These observations provide support for Proposition 6 only in the patriarchal society. Moreover, it points to the dangers of using a female friendly policy indiscriminately without considering the local context.

Result 4. *In the* AA *treatment, Santal women are more likely to take on the third-party punisher role, while Khasi women are deterred to do so. Santal men are also less likely to volunteer for this role.*

Regression analysis

In the previous section we found large gender differences in the willingness to take on the position of norm enforcer in the *Control treatment*. An important question is whether these differences are robust to the introduction of other controls that may also affect the willingness to volunteer for the role of the third-party. Previous studies have provided evidence on significant correlations between individual characteristics other than gender and the willingness

Table 3: Proportion of subjects willing to take on the third-party role by society and gender

	Patriarchal (Santal)				*Matrilineal (Khasi)*				*Society Differences*	
	Male	*Female*	*Diff.*		*Male*	*Female*	*Diff.*		*Male*	*Female*
Control	*42.5*	*23.2*	*19.3*	*(0.03)*	*25.0*	*53.1*	*-28.1*	*(0.03)*	*-17.5 (0.14)*	*29.9 (<0.01)*
No counter-punishment (NoCP)	*41.7*	*36.4*	*5.3*	*(0.63)*	*60.0*	*36.7*	*23.3*	*(0.20)*	*18.3 (0.31)*	*0.3 (0.98)*
Anonymous (Anonymous)	*38.6*	*44.4*	*-5.8*	*(0.60)*	*47.4*	*29.3*	*18.1*	*(0.17)*	*8.7 (0.52)*	*-15.2 (0.17)*
Affirmative Action (AA)	*25.0*	*41.7*	*-16.7*	*(0.11)*	*19.4*	*27.3*	*-7.9*	*(0.54)*	*-5.6 (0.57)*	*-14.4 (0.21)*
Difference: Control vs. ...										
– NoCP	*-0.8 (0.94)*	*13.1 (0.15)*			*35.0 (0.05)*	*-16.5 (0.20)*				
– Anonymous	*-3.9 (0.72)*	*21.2 (0.03)*			*22.4 (0.12)*	*-23.9 (0.04)*				
– AA	*-17.5 (0.09)*	*18.5 (0.06)*			*-5.6 (0.60)*	*-25.9 (0.03)*				

Note: This table reports the choice for leadership by treatment, gender and society. The differences were evaluated using Wilcoxon rank-sum tests, p-values are reported in parenthesis.

to take on power positions (Eagly and Karau, 2002; Chan and Drasgow, 2001). We therefore integrate socioeconomic controls in a regression framework to obtain a more detailed understanding of our results. We estimate the following linear probability model with interactions between the treatments and a dummy for female participants.[8]

$$\begin{aligned} L = \beta_0 + \beta_1 female + \beta_2 NoCP + \beta_3 Anon + \beta_4 AA \\ + \beta_5 NoCP \times female + \beta_6 Anon \times female + \beta_7 AA \times female + \mathbf{\Gamma X} + \epsilon \end{aligned} \tag{3}$$

β_1, $\beta_1+\beta_5$, $\beta_1+\beta_6$, and $\beta_1+\beta_7$ measure the gender gap in willingness to assume the role of the third-party in the treatments *Control*, *NoCP*, Anon*ymous*, and AA *treatments* respectively. $\mathbf{X}$ is a vector of socio-economic characteristics that are likely to affect self-selection into positions of power or that were found not to be balanced across treatments.

In order to improve the readability of the results we will present the estimated coefficients for Equation 3 in different tables. Table 4 presents the coefficients on treatment and gender effects while Table 5 presents the coefficients on the control variables.

Determinants of gender segregation in positions of power Table 4 presents the estimated coefficients of treatment variables interacted with gender. Columns one to five present the results for the patriarchal society and columns six to ten present the results for the matrilineal society. The first column replicates the descriptive statistics and does not include additional controls. Column two adds **controls** on the following characteristics of the participants: age, education, marital status, membership and leadership in community organizations. Column three adds controls for the contribution to the public good, the expected payoff in the public goods game and level of risk aversion when taking decisions for oneself and for the group. Columns four and five presents the results when Equation 3 is estimated separately for men and women and when all controls are added. A similar strategy is used for models in columns 6 to 10 in the matrilineal society.

[8]To account for the inherent heteroskedastcity of the errors in a linear probability model we useEicker-Huber-White standard errors clustered at the session level. As linear probability models could predict probabilities smaller than zero or larger than one we also ran robustness checks using non-linear logit and probit specifications. As we do not find differences either in marginal effects (evaluated at the means) nor in significance we report the results of the linear probability model that can readily be read as changes in percentage points.

The results presented in Table 4 mostly corroborate our previous findings. In the patriarchal society, women are between 20 and 30 percentage points less likely to volunteer for the third-party punisher role than men. While the *Anonymous* and *NoCP* treatments do not have a significant effect on male willingness to volunteer as the third-party punisher, they manage to close the gender gap by increasing the share of women volunteering. Overall, the *Anonymous* and *AA* treatments have the largest positive impact increasing the proportion of women who volunteer in 26 and 40 percentage points, respectively. The AA treatment has a negative effect on male participants deterring them from volunteering, though this effect is not robust in the specifications that control for socioeconomic characteristics of the participants.

In the matrilineal society, we observe roughly the opposite: Men are between 51.1 and 77.5 percentage points less likely to take on the role of the third-party in the *Control* treatment than women. The *NoCP* and *Anonymous* treatments increase participation among men to 40 and 46 percentage points respectively. Contrary to Proposition 2 and 4, we find that these treatments discourage women in the matrilineal society to assume the role of norm enforcer. This result indicates that women are willing to take on the role not due to intrinsic motivations, but due to conformity with the social norm. Both *NoCP* and *Anonymity* treatments result in a closure of the gender gap in volunteering. Comparing the effect of the *Anonymity* treatment in the matrilineal and patriarchal societies, we find that in the patriarchal society the *Anonymity* treatment has a larger effect on encouraging women than in the matrilineal society, thereby confirming Proposition 5.

It is also interesting to take a closer look at the effect of the *AA* treatment. There is a large difference in the reaction of women by society. In the matrilineal society, women react negatively to affirmative action. This is a strong indication that women would lose their (self-)image as "token" females as has been described in Heilman et al. (1992), Unzueta et al. (2010) and Bracha et al. (2013). Therefore, our Proposition 6 holds only for the patriarchal society.

Socioeconomic characteristics and volunteering Who volunteers to take on the role of norm enforcer? Table 5 presents the estimated coefficients for the control variables of individual characteristics included in Equation 3. Columns one and two refer to the patriarchal society and present the results for separate estimation models of male and female participants once we include controls on socioeconomic characteristics, cooperativeness and risk preferences. Columns three and four present the results for the matrilineal society separated by gender.

Table 4: Linear probability model: Willingness to volunteer separated by society

	Patriarchal					Matrilineal				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Constant	0.425***	0.619***	0.735***	0.737**	0.785**	0.250***	0.511*	0.775**	1.152**	0.961**
	(0.0791)	(0.207)	(0.274)	(0.287)	(0.299)	(0.0833)	(0.269)	(0.309)	(0.386)	(0.424)
Female	-0.193**	-0.288***	-0.301***			0.281**	0.326**	0.355**		
	(0.0976)	(0.107)	(0.114)			(0.123)	(0.153)	(0.161)		
Treatment										
– NoCP	-0.00833	0.0149	0.00493	0.0537	0.168**	0.350*	0.375*	0.403*	0.394	-0.318*
	(0.115)	(0.117)	(0.117)	(0.157)	(0.0781)	(0.178)	(0.201)	(0.213)	(0.293)	(0.164)
– Anonymous	-0.0386	0.0288	0.0187	0.0141	0.276***	0.224	0.353**	0.460***	0.491**	-0.0713
	(0.109)	(0.115)	(0.116)	(0.0939)	(0.0586)	(0.143)	(0.161)	(0.171)	(0.202)	(0.137)
– AA	-0.175*	-0.102	-0.106	-0.0688	0.295***	-0.0565	-0.0348	0.0120	0.0551	-0.307
	(0.103)	(0.105)	(0.111)	(0.143)	(0.0992)	(0.110)	(0.124)	(0.133)	(0.223)	(0.183)
Treatment × female										
– NoCP × Female	0.140	0.178	0.182			-0.515**	-0.592**	-0.636**		
	(0.148)	(0.148)	(0.150)			(0.219)	(0.249)	(0.260)		
– Anonymous × Female	0.251*	0.253	0.264*			-0.462**	-0.479**	-0.508**		
	(0.149)	(0.155)	(0.159)			(0.184)	(0.209)	(0.229)		
– AA × Female	0.360**	0.339**	0.413**			-0.202	-0.266	-0.277		
	(0.144)	(0.143)	(0.167)			(0.163)	(0.194)	(0.204)		
Age	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Education	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Marital status	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Community organization	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Risk taking	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Contribution PG	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Exp. Payoff PG	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Gender gap in treatment ...										
– Base	-0.193***	-0.288***	-0.301***			0.281***	0.326***	0.355***		
	(0.098)	(0.107)	(0.114)			(0.123)	(0.153)	(0.161)		
– NoCP	-0.053	-0.111	-0.119			-0.233	-0.267	-0.281		
	(0.111)	(0.118)	(0.119)			(0.181)	(0.195)	(0.200)		
– Anon	0.058	-0.036	-0.037			-0.181	-0.153	-0.152		
	(0.112)	(0.125)	(0.126)			(0.137)	(0.144)	(0.170)		
– AA	0.167	0.051	0.112			0.079	0.060	0.078		
	(0.106)	(0.116)	(0.131)			(0.107)	(0.123)	(0.130)		
R squared	0.028	0.117	0.128	0.146	0.209	0.066	0.162	0.226	0.441	0.266
Observations	336	336	320	159	161	224	204	182	74	108

Note: This table reports the results of a linear probability model using Eicker-Huber-White standard errors clustered by session to account for heteroskedasticity (reported in parenthesis). The indicators show which control variables were included in each model. Discrepancies in the number of observations is due to missing answers in the questionnaire and non-participation in the risk experiments. The second part of the table reports the gender gap β_1, $\beta_1+\beta_5$, $\beta_1+\beta_6$, and $\beta_1+\beta_7$ form equation 3. Significance for the point estimates according to t-tests are reported at the following levels *** p<0.01, ** p<0.05, * p<0.1

Consistent with our expectations that more educated subjects (especially women) tend to show a higher volunteering rate we find a positive relationship between the degree of education and volunteering to take on power in the matrilineal society. This supports findings from previous literature (see for example Duflo, 2011) which generally show a positive relationship between education and the status of women. In the patriarchal society, the effect of education is non-linear and women with primary education are less willing to volunteer than illiterate women, while women with secondary education are more likely to do so (though this effect is no significant due to small number of observations). Although we have some variation in education levels in our sample, all subjects have a very low degree of education in general.

We do not find differences between married and single subjects in the volunteer rate. We also do not find a strong correlation between volunteering and age. If at all, it is negative for men in the patriarchal society and the effect is not very strong (one year older leads to a drop of 0.7 percentage points of the likelihood to volunteer for men). In the matrilineal society, we do not find a systematic and significant pattern and the coefficients are even smaller.

Participation in community organizations does not affect volunteering in the patriarchal society, while being a leader in a community organization has a significant positive effect for men and a negative effect for women in the matrilineal society. However, this is based on only four observations of women who reported being leaders in a community group.

Do subjects who are willing to contribute more to the public good also take up the position of an enforcer after controlling for the expected net payoff of the public good? Interestingly, we do not find a systematic relationship between contributions to the public good and willingness to volunteer for the enforcer position. The only significant effect is for males in the patriarchal society where the effect is slightly negative. This result contrasts with the findings of previous studies who find that willingness to lead is positively correlated with generosity (Arbak and Villeval, 2013; Bruttel and Fischbacher, 2013). As anticipated, expected payoff has a negative effect on the willingness to volunteer. This result suggests that intrinsic motivation is an important factor fostering volunteering.

Table 5: Willingness to volunteer: Social characteristics

	Patriarchal		Matrilineal	
	(1) Male	(2) Female	(3) Male	(4) Female
Age	-0.00775**	-0.000284	0.0145	-0.000180
	(0.00344)	(0.00400)	(0.0101)	(0.00565)
Education				
– Less than primary	-0.220	-0.0647	0.0582	0.267
	(0.202)	(0.103)	(0.300)	(0.186)
– Primary	-0.121	-0.358***	0.529*	0.0823
	(0.112)	(0.123)	(0.265)	(0.145)
– More than primary	-0.103	0.0135	0.473	0.235
	(0.0889)	(0.0886)	(0.293)	(0.157)
Marital status				
Married	-0.00160	-0.0939	0.0955	-0.102
	(0.146)	(0.178)	(0.137)	(0.0711)
Community organization				
– Participate	0.107	-0.0249	-0.213	0.0172
	(0.112)	(0.227)	(0.174)	(0.0886)
– Leader	0.138	-0.0335	0.278*	-0.354***
	(0.180)	(0.105)	(0.149)	(0.0939)
PG experiment				
– Contribution	0.00442	0.00481	-0.0111*	-0.00201
	(0.00584)	(0.00557)	(0.00539)	(0.00916)
– Expected payoff	-0.00756*	-0.000595	-0.00958**	-0.00637
	(0.00387)	(0.00486)	(0.00406)	(0.00488)
Risk experiment				
– Certainty equiv. (indiv.)	0.000342	-0.000377	-0.00107	0.00393***
	(0.00120)	(0.000655)	(0.00186)	(0.00111)
– Certainty equiv. (group)	0.000438	-0.0000268	-0.00224	-0.00299*
	(0.00145)	(0.000747)	(0.00193)	(0.00164)
Observations	159	161	74	109

Note: This table reports the results for social characteristics of the models presented in Table 4. To account for heteroskedasticity, standard errors (in parenthesis) are clustered by session using the Eicker-Huber-White estimator. Significance for the point estimates according to t-tests are reported at the following levels *** p<0.01, ** p<0.05, * p<0.1

Furthermore, individual risk aversion may lead subjects to volunteer more as they receive a fixed payoff, while in the public good game their payoff depends on the risky contributions of others. However, we find only weak evidence on this relation. Less risk averse women are more willing to volunteer in the matrilineal society.

4.3 Contribution, punishment and counter-punishment

While the three institutional set-ups we analyzed (Anonymity, No Counter-Punishment and Affirmative Action) result in a decrease in gender gaps in volunteering to act as third-party punisher, could they be associated with efficiency losses? Do participants reduce contribution levels once they expect a larger fraction of female or male third-party punishers? Are there gender differences in punishment behavior that result in lower efficiency of the third-party punishers?

In this sub-section we turn to the question, at what cost (or benefit) does the introduction of gender equity come in terms of contribution to the public good and enforcement of social norms. First we present the result on contributions and then consider the effects on punishment and cooperation. To estimate the effect of treatments on cooperation and punishment, we estimate the following model:

$$Y = \beta_0 + \beta_1 NoCP + \beta_2 Anonymous + \beta_3 AA + \mathbf{\Gamma X} + \epsilon \tag{4}$$

where Y refers to the outcome variable (contribution, punishment or counter-punishment), NoCP, Anonymous and AA refer to the treatments and X consider the socioeconomic characteristics of the participants.

Contributions

We are interested in the causal effects of the institution on contribution levels. As contributions were elicited before the third-party was chosen; we capture the pure effects of the institution and not the effect of the gender of the third-party punisher. Table 6 presents the results of Equation 4 by the patriarchal and matrilineal societies. The first and fourth columns present the results when only treatment variables are included. Columns two and five present the results when we control for the gender of the decision maker. Finally, Columns three and six present the results when applying a larger set of controls including age, education, marital status, participation and leadership in community organizations and expected contributions mady by other group members.

Average contributions in the patriarchal society in the baseline treatment is 13.75 (p-value$<$0.01) while in the matrilineal society it is 15.19 (p-value$<$0.01), which is 46 and 50 percent of the endowment, respectively. This is similar to contributions by non-student populations in other

societies (see for example Cardenas and Carpenter, 2008). As in Balafoutas et al. (2014) we observe that the generous behavior is not reduced by the possibility of counter-punishment to the (potentially) punished group member. In the patriarchal society we observe that contribution levels are not higher in the *NoCP, Anonymous* and AA treatments than in the Control treatment once that the additional controls are included. Similarly, in the matrilineal society we observe neither significant gender nor treatment effects on the level of contributions of these treatments. This finding suggests that the positive effect of gender equity does not come at the expense of lower cooperation. Yet, these results deserve further analysis. For example, Asiedu and Ibanez (2014) find that in patriarchal societies in Ghana contribution levels are lower when the third-party punisher is female compared to when the punisher is male.

In both societies, we find a strong correlation between expected contribution made by the others and own contribution (0.2148 for the patriarchal and 0.145 for the matrilineal society). Yet the effect is only significant for the patriarchal society (p-values$<$0.01). This provides further evidence on the existence of a conditional cooperation norm (see Keser and Van Winden, 2000; Fischbacher et al., 2001).[9] Education has a positive and significant effect on contribution levels. We cannot reject the null hypothesis that women contribute as much to the public good as men in the patriarchal society over all treatments. This result is in line with the findings by Greig and Bohnet, 2009.

[9] Although, a potential false consensus effect, the false belief that others are like you, forbids us causally interpret this correlation as causal. Its size, however, is in the range of other studies.

Table 6: Ordinary least squares estimation: Contribution to public good on treatments

	Patriarchal			Matrilineal		
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment						
– NoCP	5.000*	3.806	-2.410	-4.271	-4.745	-4.628
	(2.673)	(3.092)	(3.918)	(3.168)	(4.474)	(4.569)
– Anonymous	6.875***	6.110**	-0.636	2.313	3.288	1.728
	(2.269)	(2.612)	(3.159)	(2.517)	(3.520)	(3.757)
– AA	6.875***	7.024***	-1.939	1.625	1.247	0.429
	(1.918)	(2.282)	(3.517)	(2.512)	(3.786)	(3.770)
Treatment × *female*						
– NoCP × Female		1.592	0.403		0.570	-1.689
		(2.513)	(2.496)		(3.785)	(3.661)
– Anonymous × Female		1.308	1.321		-1.570	-3.267
		(2.389)	(2.426)		(2.976)	(3.299)
– AA × Female		-2.348	-2.582		0.434	-1.515
		(2.630)	(2.962)		(3.853)	(3.813)
Female		-0.875	1.286		-0.850	2.280
		(1.507)	(1.845)		(2.154)	(2.285)
Age			0.0249			0.00773
			(0.0448)			(0.0562)
Education						
– Less than primary			1.956			1.227
			(1.748)			(2.541)
– Primary			3.760**			3.638
			(1.431)			(2.366)
– More than primary			4.999***			4.598***
			(1.328)			(1.630)
Community organization						
– Participate			0.253			-0.0779
			(1.366)			(1.264)
– Leader			-0.252			-0.115
			(1.102)			(3.196)
Expected contribution			0.219***			0.128
			(0.0700)			(0.102)
Married			0.424			-0.300
			(1.385)			(1.434)
Constant	13.75***	14.41***	13.37***	15.19***	15.82***	12.92
	(1.213)	(1.726)	(4.510)	(2.196)	(3.078)	(8.277)
Session	Yes	Yes	Yes	Yes	Yes	Yes
Observations	336	336	336	224	224	204

Note: This table reports the results of a ordinary least squares specification on contribution decisions by all group members, including third-party punishers. Standard errors are clustered at the group level. Significance for the point estimates according to t-tests are reported at the following levels *** p<0.01, ** p<0.05, * p<0.1.

Punishment and counter-punishment What is the effect of the different institutions on punishment and counter-punishment? We consider that while punishment can be used to discipline free-riders, it could also be used in an anti-social manner to sanction high contributors (Herrmann et al., 2008). Therefore, as in Fehr and Gachter (2002), we look at the effects of the treatments on pro-social and anti-social punishment separately. Pro-social punishment refers to punishment decisions when the contributor made a contribution below the contribution made by the punisher while anti-social punishment refers punishment decisions when the contributors made contributions above the contribution made by the punisher. Table 7 presents the results of the estimated parameters from Equation 4 when punishment, measured as the number of punishment points sent, is used as a dependent variable. Models 1 to 4 present the results for pro-social punishment for each society, while Models 5 to 8 present the results for anti-social punishment.

We find that in the patriarchal society female punishers send less punishment points to discipline free-riders and send more punishment points to sanction high contributors than male punishers in the *Control* treatment. No such gender difference is found in the matrilineal society. The treatments tend to increase pro-social punishment by male third-party punishers but the effect is only significant in the anonymous treatment in the matrilineal society. This could be associated with a lower post-experimental cost of enforcing the norms. The treatments also tend to increase the amount of punishment by female third parties, closing initial gender gaps in punishment behavior. The only significant effect is in the Affirmative Action treatment in the patriarchal society.

We find that the treatments reduce anti-social punishment. In the patriarchal society male third-party punishers send less anti-social punishment points in the NoCP treatment compared with the *Control* treatment and female third-parties punish less in the AA treatment compared to the control.

As controls we add the contribution level of the punished individual, the contribution level of the third-party punisher (before knowing which role they would take) and the interaction of these two variables. As expected we find that the number of punishment points tend to decreases as contribution levels are higher, though this effect is not significant. In the matrilineal society, higher contributing punishers are less likely to punish in the *Control* treatment. These results suggest that the treatments also have and equalizing effect on the use of sanctions by male and female participants.

The estimated model for counter-punishment is reported in Table 8. Not surprisingly, we find that counter-punishment is positively related with being punished or that participants retali-

Table 7: Ordinary least squares estimation: Punishment

	Pro-social				Anti-social			
	(1) Patriarchal	(2) Matrilineal	(3) Patriarchal	(4) Matrilineal	(5) Patriarchal	(6) Matrilineal	(7) Patriarchal	(8) Matrilineal
Treatment								
– NoCP	1.279	0.195	0.267	2.336	-1.482*	-0.601	1.373	3.706*
	(1.098)	(0.711)	(2.054)	(1.160)	(0.690)	(0.964)	(1.022)	(1.550)
– Anonymous	2.134	3.948***	1.802	5.051***	1.300	1.847	1.196	2.909*
	(1.355)	(0.695)	(2.731)	(0.616)	(1.186)	(0.953)	(0.955)	(1.308)
– AA	1.684	0.899	0.810	1.330	0.482	1.022	-0.433	2.254
	(1.343)	(1.017)	(2.201)	(1.353)	(0.628)	(0.935)	(1.424)	(1.760)
Female enforcer	-2.448***	-0.593	-2.508*	1.672	1.281*	1.327*	0.463	1.190
	(0.587)	(0.829)	(1.243)	(0.905)	(0.522)	(0.528)	(0.700)	(1.063)
– NoCP × Female enforcer	1.791	0.489	1.444	-2.826	-0.156	-0.0998	-1.449	-1.928
	(1.062)	(1.271)	(1.565)	(1.632)	(0.686)	(0.714)	(0.807)	(1.151)
– Anonymous × Female enforcer	1.830	0.427	1.464	-1.465	-1.293	-1.100	-0.140	-0.770
	(1.037)	(0.960)	(2.021)	(1.082)	(0.779)	(0.719)	(0.820)	(1.219)
– AA × Female enforcer	3.696***	1.488	3.695*		-2.162**	-1.817*	-0.616	-1.771
	(0.750)	(0.832)	(1.762)		(0.717)	(0.730)	(1.057)	(1.581)
Contribution								
Contribution to PG	-0.155	-0.269	-0.170	-0.201	-0.0349	-0.0198	0.0413	0.0493
	(0.201)	(0.134)	(0.222)	(0.145)	(0.0357)	(0.0377)	(0.0374)	(0.0453)
Contribution of enforcer	-0.0109	-0.0985*	-0.0169	-0.109	0.117	0.126	0.0723	0.0766
	(0.0694)	(0.0444)	(0.0886)	(0.0624)	(0.0647)	(0.0663)	(0.0750)	(0.110)
Contribution to PG × Contribution of enforcer	0.00140	0.0111*	0.00245	0.0115	-0.00456	-0.00469	-0.00517	-0.00568
	(0.00666)	(0.00547)	(0.00749)	(0.00575)	(0.00236)	(0.00245)	(0.00397)	(0.00525)
Constant	2.719	2.210	1.462	1.990*	1.874*	0.642	1.488	-2.023
	(2.249)	(1.100)	(2.418)	(0.910)	(0.833)	(1.202)	(1.216)	(2.852)
Married	No	No	Yes	Yes	No	Yes	No	Yes
Age	No	No	Yes	Yes	No	Yes	No	Yes
Education	No	No	Yes	Yes	No	Yes	No	Yes
Community organization	No	No	Yes	Yes	No	Yes	No	Yes
Session	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	78	71	78	66	174	174	97	86

Note: This table reports the results of an ordinary least squares model on punishment decisions of third-party punishers, conditioning on the contribution decisions made by group members. The model on Pro-social punishment considers observations for which the contribution made by the third-party (before knowing which role they would take) is larger than the contribution made by the contributor. Anti-social punishment refers to observations in which the contribution made by the third-party is equal or less than the contribution made by a group member. Standard errors are clustered at the group level. Significance for the point estimates are reported at the following levels *** p<0.01, ** p<0.05, * p<0.1.

ate against the third-party punishers. In the patriarchal society women counter-punish more severely than men, whereas in the matrilineal society we find no significant differences in the *Control* treatment. In patriarchal societies, counter-punishment increases among the male contributors in the *Anonymity* and *AA* treatment treatment, whereas it tends to decrease for female contributors (only significant for *Anonymity*). Interestingly, the *AA* treatment increases counter-punishment especially by males in both societies. In the matrilineal societies, the only significant treatment effect is for AA treatment were male contributors are more likely to counter punish than in the control treatment.

Our analysis indicates that institutional designs which promote gender equity, are not systematically associated with efficiency effects in two out of the three dimensions that we have analyzed: contributions and punishment. Yet, we find increased counter-punishment by male participants on those institutions. This suggests that changes in the institutional environment alone would not help to discriminatory gender norms. Further research should consider whether these effects are temporal or disappear over time.

5 Conclusion

In most societies in the world women are under-represented in positions that give them power to create and enforce norms. However, so far there is little evidence on whether this is driven by self-selection resulting from a lower willingness of women to take on positions of power. We investigate whether gender differences in the willingness to volunteer for the third-party role are an inherent trait of women or whether they are due to a gender-specific upbringing shaped by the norms of society. The distinction on whether nature or nurture is causing the gender gap is crucial in designing policies that could foster women to volunteer in take on roles of norm enforcers.

Our findings reveal marked gender difference in volunteering to take on power and the direction of the gap is reversed over the societies. In the patriarchal society women lag significantly behind men in terms of volunteering for positions of power, whereas in the matrilineal society we find the opposite. This suggests that innate differences alone do not explain segregation as suggested by Flory et al. (2014), but that up-bringing is the main driver. This finding confirm the importance of up-bringing on shaping individual and social preferences (Andersen et al., 2008; Gneezy et al., 2009; Cardenas et al., 2012; Booth and Nolen, 2012; Gong and Yang, 2012; Andersen et al., 2013; Asiedu and Ibanez, 2014).

Contrary to what was expected, we do not find systematic gender differences in terms of aversion to retaliation and aversion to scrutiny. Removing counter-punishment and making

Table 8: Ordinary least squares estimation: Counter punishment

	Patriarchal		Matrilineal	
	(1)	(2)	(3)	(4)
Punishment decision of leader	0.174**	0.170**	0.0790	0.0336
	(0.0696)	(0.0813)	(0.103)	(0.129)
Contribution	0.0219	0.0125	0.0143	0.0102
	(0.0154)	(0.0175)	(0.0203)	(0.0217)
Treatment				
– Anonymous	1.356**	2.172***	2.012*	1.778
	(0.577)	(0.780)	(1.014)	(1.222)
– AA	1.440**	2.189**	0.996	0.470
	(0.648)	(0.940)	(0.808)	(0.808)
Female	0.369	0.556	-0.285	-0.413
	(0.400)	(0.416)	(0.547)	(0.513)
– Anonymous × Female	-0.303	-0.111	0.418	0.381
	(0.578)	(0.599)	(0.798)	(1.070)
– AA × Female	-0.251	-0.144	-0.152	0.214
	(0.635)	(0.665)	(0.835)	(0.982)
Constant	-0.228	-1.038	0.717	0.669
	(0.519)	(1.296)	(0.800)	(1.099)
Married	No	Yes	No	Yes
Age	No	Yes	No	Yes
Education	No	Yes	No	Yes
Community organization	No	Yes	No	Yes
Cast	No	Yes	No	Yes
Session	Yes	Yes	Yes	Yes
Observations	192	192	138	122

Note: This table reports the effects of the treatments and the punishing behavior of the third-party on counter-punishment reactions of the group members. Naturally, the treatment *NoCP* is excluded from this analysis. The standard errors are clustered at the contribution group level in order to correct for effects due to the punisher. Significance for the point estimates according to t-tests are reported at the following levels *** p<0.01, ** p<0.05, * p<0.1.

the role of the third-party punisher anonymous resulted in an increase in willingness to take on the role by the "under represented" gender in each society. Santal women and Khasi men were more likely to volunteer under those institutional environments compared with the control treatment. This result persisted even when we controlled for individual risk preferences, supporting the role of nurture and not nature on segregation from power positions.

Interestingly, we find that the promotion of gender equity by changes in the institutional environment are not systematically associated with efficiency losses. Compared with the control treatment, cooperation does not change and gender differences in punishment behavior tend to decrease in the treatments. However, we find that more counter-punishment is used by male participants in institutions that promote gender balance.

The policy implications of these findings are straight forward: it is possible to adjust the institutional environment to promote gender equity. Institutional environments that protect norm enforcers can promote gender equity. One way in which norm enforcers can be protected is by making the role of norm enforcer anonymous. For example, in the US it has not been uncommon to have anonymous juries. Defenders of this measure argue that anonymity prevent the juries from being bribed or intimated (King, 1996; Ritter, 2014). However, critics contend that under anonymity juries could hide information that is important in assesing their impartiality. Since they are not held accountable, they could take the task less seriously . Besides, it has been argued that the anonymity condition might bias juries against defendants when they are perceived to be dangerous (Keleher, 2009). Colombia implemented a system of "faceless justice" in the early 1990's in response to death threats made against judges. Under this system, there were no public trials, only the prosecutor would know the identity of the judges, who could decide whether to remain anonymous. Identity of the witness was also protected. This system however was affected by corruption and was slowly dismantled in 2000 and replaced by a new system that provides physical protection police and army to the judges (Nagle, 2000). Another mechanisms by which norm enforcers can be protected is by through physical protection by by the police and army.

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A Descriptive statistics

Panel A: Comparison of means						
	Patriarchal: $\Delta Female$			Matrilineal: $\Delta Female$		
	Obs.	Male	Δ (se)	Obs.	Male	Δ (se)
Age	336	34.83	-1.33	214	34.42	6.98***
			(1.28)			(1.69)
Risk experiment						
Risk taking(Individual)	320	38.06	-14.92***	203	31.97	-2.49
			(4.44)			(5.52)
Risk taking(Group)	320	36.37	-11.18**	203	32.25	-4.66
			(4.49)			(5.63)
Panel B: Comparison of distribution						
Education level	Male	Female	Total	Male	Female	Total
– Illiterate	20.73	48.84	35.12	9.09	19.12	15.18
– Less than primary	4.27	8.72	6.55	9.09	11.03	10.27
– Primary	18.90	16.86	17.86	21.59	13.24	16.52
– More than primary	56.10	25.58	40.48	60.23	56.62	58.04
Chi^2	40.94			6.11		
p-value	0.00			0.11		
Obs.	336			224		
Married	Male	Female	Total	Male	Female	Total
Other	80.49	95.93	88.39	59.09	76.47	69.64
Married	19.51	4.07	11.61	40.91	23.53	30.36
Chi^2	19.51			7.63		
p-value	0.00			0.01		
Obs.	336			224		
Primary investmen decision	Male	Female	Total	Male	Female	Total
Adult male	39.26	35.09	37.13	74.12	66.67	69.63
Adult female	6.75	12.28	9.58	15.29	20.16	18.22
Adult male & female	53.99	52.63	53.29	10.59	13.18	12.15
Chi^2	3.09			1.36		
p-value	0.21			0.51		
Obs.	334			214		
Expensive goods decision	Male	Female	Total	Male	Female	Total
– Adult male	30.67	22.81	26.65	67.86	58.91	62.44
– Adult female	5.52	8.19	6.89	17.86	17.83	17.84
– Adult male & female	63.80	69.01	66.47	14.29	23.26	19.72
Chi^2	3.14			2.73		
p-value	0.21			0.26		
Obs.	334			213		
Decision expenditure on children	Male	Female	Total	Male	Female	Total
– Adult male	34.76	11.70	22.99	71.76	56.69	62.74
– Adult female	3.66	23.98	14.03	15.29	22.83	19.81

– Adult male & female	56.10	63.74	60.00	11.76	19.69	16.51
– Other	5.49	0.58	2.99	1.18	0.79	0.94
Chi^2	51.56			5.32		
p-value	0.00			0.15		
Obs.	335			212		
Take meal together	Male	Female	Total	Male	Female	Total
– Eat together	10.37	21.05	15.82	95.29	91.47	92.99
– Women first	3.66	0.58	2.09	1.18	6.20	4.21
– Men first	27.44	19.88	23.58	0.00	0.78	0.47
– Varies/other	58.54	58.48	58.51	3.53	1.55	2.34
Chi^2	11.85			4.67		
p-value	0.01			0.20		
Obs.	335			214		
Reads newspaper	Male	Female	Total	Male	Female	Total
– Rarely	4.29	15.20	9.88	43.75	19.01	21.90
– Sometimes	31.90	11.11	21.26	18.75	17.36	17.52
– Often	12.88	3.51	8.08	12.50	28.10	26.28
– Never	50.92	70.18	60.78	25.00	35.54	34.31
Chi^2	41.19			5.73		
p-value	0.00			0.13		
Obs.	334			137		
Listens to radio	Male	Female	Total	Male	Female	Total
– Rarely	9.82	16.96	13.47	31.25	17.36	18.98
– Sometimes	28.22	9.36	18.56	12.50	14.05	13.87
– Often	11.04	2.34	6.59	12.50	24.79	23.36
– Never	50.92	71.35	61.38	43.75	43.80	43.80
Chi^2	34.43			2.38		
p-value	0.00			0.50		
Obs.	334			137		
Watches television	Male	Female	Total	Male	Female	Total
– Rarely	3.68	8.77	6.29	25.00	10.74	12.41
– Sometimes	40.49	23.98	32.04	12.50	28.10	26.28
– Often	15.34	18.71	17.07	31.25	38.02	37.23
– Never	40.49	48.54	44.61	31.25	23.14	24.09
Chi^2	12.31			4.18		
p-value	0.01			0.24		
Obs.	334			137		
Equal education	Male	Female	Total	Male	Female	Total
– Same	84.15	92.40	88.36	91.76	93.80	92.99
– Boys more	10.37	4.09	7.16	2.35	4.65	3.74
– Girls more	5.49	3.51	4.48	5.88	1.55	3.27
Chi^2	5.97			3.69		
p-value	0.05			0.16		
Obs.	335			214		

Type of group	Male	Female	Total	Male	Female	Total
– Self help group	15.65	99.40	65.37	38.00	48.57	44.17
– Men women group	19.13	0.60	8.13	20.00	22.86	21.67
– Producer group	0.87	0.00	0.35			
– Political	8.70	0.00	3.53	2.00	2.86	2.50
– Religious	10.43	0.00	4.24	12.00	11.43	11.67
– Cast	1.74	0.00	0.71	4.00	2.86	3.33
– Sports group	33.91	0.00	13.78	16.00	0.00	6.67
– Entertainment group	3.48	0.00	1.41			
– Labor union	1.74	0.00	0.71	4.00	8.57	6.67
– Other	4.35	0.00	1.77	4.00	2.86	3.33
Chi^2	211.68			13.28		
p-value	0.00			0.07		
Obs.	283			120		
Role played in group	Male	Female	Total	Male	Female	Total
– Observer	0.00	1.20	0.71	4.00	7.25	5.88
– Coordinator	13.91	5.99	9.22	6.00	4.35	5.04
– Decision maker	6.09	7.19	6.74	8.00	1.45	4.20
– Recorder	5.22	8.38	7.09	2.00	5.80	4.20
– Evaluator	2.61	0.00	1.06	8.00	1.45	4.20
– Follower	71.30	77.25	74.82	52.00	57.97	55.46
– Other	0.87	0.00	0.35	2.00	5.80	4.20
– Standard setter				2.00	1.45	1.68
– Information giver				0.00	5.80	3.36
– Procedural technician				16.00	8.70	11.76
Chi^2	13.23			13.04		
p-value	0.04			0.16		
Obs.	282			119		
Do women cover face in the village	Male	Female	Total	Male	Female	Total
– Rarely	6.10	8.82	7.49	11.76	3.88	7.01
– Sometimes	19.51	7.06	13.17	0.00	1.55	0.93
– Often	9.76	24.12	17.07	1.18	0.78	0.93
– Never	64.63	60.00	62.28	87.06	93.80	91.12
Chi^2	21.03			6.21		
p-value	0.00			0.10		
Obs.	334			214		
Existence of dowry system in the village	Male	Female	Total	Male	Female	Total
Rarely	6.10	11.11	8.66	11.76	5.43	7.94
Sometimes	6.10	5.26	5.67	7.06	3.88	5.14
Often	7.32	21.64	14.63	2.35	1.55	1.87
Never	80.49	61.99	71.04	78.82	89.15	85.05
Chi^2	18.30			4.42		
p-value	0.00			0.22		
Obs.	335			214		

B Experimental Protocol and Instructions

Notes concerning the protocol: The protocol was translated into the local language and then re-translated to English in order to ensure that the information conveyed was correctly translated into the local language.

The instructions were explained with the help of flip-charts that summarized the most important points and subjects were required to answer control questions to make sure that they understood the payment structure of the game.

Experiment

Instructions

Welcome to today's experiment on economic decision making. We will pay you Rs. X for participating in our experiment and in addition to that you can earn more money depending on your decisions and the decisions of others.

It is strictly forbidden to communicate with the other participants during the experiment. If you have any questions or concerns, please raise your hand. We will answer your questions individually. It is very important that you follow this rule. Otherwise we must exclude you from the experiment and from all payments.

Payments

All values in the experiment will be denoted in tokens. The value of each token is Rs. $.

What do you need to do during the experiment?

You are a **member of a group of four**. Groups will be assembled randomly. Three participants in the group will play Role A and one participant will play Role B.

What shall participants in Role A do?

At the beginning of the experiment you receive **20 tokens that we will call "endowment"**. Each of the three members of a group in Role A have to decide how to divide this endowment. You can put all, some or none of your tokens **into a group account**. Each token you do not deposit in the group account will automatically be transferred to your **private account**.

Your income from the private account:

For each token you put into your private account you will earn exactly one token. For example, if you have 20 tokens in your endowment and you put zero tokens into the group account (and therefore 20 tokens in the private account), then you will earn exactly 20 tokens from the private account. If instead you put 14 tokens into the group account (and therefore 6 tokens in the private account) then you receive an income of 6 tokens from the private account. *Nobody except you earns tokens from your private account.*

Your income from the group account:

Everybody receives the same income from the token amount you put into the group account, independent of the amount put into the account. You will also earn an income from the tokens that the other group members put into the group account. For each group member the income from the group account will be determined as follows:

Income from the group account = sum of all contributions to the group account x 2 / 3

For example, if the sum of all contributions to the group account is 60 tokens, you and all other group members will get an income of 60x2/3=40 tokens from the group account. If the three group members deposit a total of 12 tokens in the group account, then you and all others will receive an income of 12x2/3=8 tokens from the group account.

Your total income:

Your total income is the sum of the income from your private account and the income from the group account:

Income from your private account (= your endowment – your contribution to the group account)
+ Income from the group account (= 2/3 sum of all contributions to the group account)
Total income

What shall participants in Role B do?

One participant in the group will play role B. Participant in this role receives 30 tokens. The task for participants in role B is to observe th decisions of participants in role A. After having observed the other members' contributions you have the option to assign points to other members. Participant in role B is free to decide how many points she (he) wants to assign to each participant. However, in total he cannot assign more than his income allows. Assigning a point cost one token to participant in role B (this cost will be subtracted from the period payoff) and decreases the income for participant who receives the point in three tokens (also to be subtracted from her period payoff). At the end of the period participant in role A and B would know their total earnings for the period.

[TREATMENT: Giving & receiving feedback] After participant in role B decides how many points she (he) wants to send, participant in Role A can decide whether they want to send points to participant B. Sending one point to participant B costs 1 point to participant A and reduces points for participant B in three points. Participants are free to decide how many points they want to send to participant B.

At the end of the period participant in role A and B would know their total earnings for the period. Participants in role B would also know how many points they received from participants in role A.

Selection of Role A or B [THIS IS TREAMENT SPECIFIC]

[BASELINE 1: **Exogenous A**]: We will randomly select one participant from each group for role A.

[TREATMENT **Self Selected A**]: Please indicate whether you would like to take role A or B. If there is more than one person interested in playing role B, one would be randomly selected into this role, while the others will be assigned the role A. If no one is interested in role B we will select one participant from the group randomly.

[TREATMENT **Preferential treatment for female A**]: Please indicate whether you would like to take role A or B. If there is a female participant in the group who is willing to take up role A, she will be selected for the role. If there is more than one female candidate, who volunteers for the role, we will select one randomly. If no female candidates volunteers we select one of the willing male candidates randomly; while the others will be assigned the role A. If no one is interested in role A we will select one participant from the group randomly.

(Distribute Role Sheet)

[IMPLEMENTATION]

While it is decided who is selected in the Role B, we would like to ask all of you to decide how much you would like to contribute to the public account in case you are assigned the Role A.

(Distribute Contribution Sheet)

Your decision are being registered, soon you will receive information on the decisions of others in your group. While the information is being processed, we want to ask you how to guess how much the other three members would contribute on average to the group account. If your guess is correctly you will receive three additional tokens.

(Distribute the expectation sheet)

The paper that you are receiving explains if you have been selected in role A or B. You find this information XXXXX. This paper also contains information on the contributions from the three participants in Role A. If you are participant in Role B you have to decide how many points you want to send to participants in Role A. Sending one point cost you 1 token and decreases the tokens of the participant receiving the point in three tokens. In total you cannot send more than 30 tokens. For participants in Role A, the task is to guess how many points would participant in Role B send. If you guess correctly, you will receive 3 tokens additionally.

Points	1	2	3	4	5	6	7	8	9
Cost to A	3	6	9	12	15	18	21	24	27
Cost to B	1	2	3	4	5	6	7	8	9

(explain all the numbers and the costs)

(Distribute Feed-Back Sheet)

[TREATMENT PUBLIC] Participants in role B are now asked to raise their hands so that everyone can see who are in role B.

While your decisions are being registered, let me explain the information that you will receive next. Soon you will receive a paper like this one (show example), the paper summarizes the results of the game so far. In the XXXXX corner it explains your role in the game. In the table it explains how many points other participants contributed to the group account, and summarizes the points that participants in Role B gave. The last column estimates your payment.

[TREATMENT RECEIVING FEEDBACK] While your decisions are being registered, let me explain the information that you will receive next. Soon you will receive a paper like this one (show example), the paper summarizes the results of the game so far. In the XXXXX corner it explains your role in the game. In the table it explains how many points other participants contributed to the group account, and summarizes the points that participants in Role B gave. For participants in Role A, the task is to decide whether you want to send points to participant in Role B. Each point that you send to participant B cost you one token and decreases the income of participant B in three tokens. You can send as many points to participant B as you wish, but you should not exceed your budget. Please register your decision in the box located XXXX.

Participants in Role B have to guess how many points they will receive from participants in Role A. If you guess correctly you will receive 3 tokens.

(Distribute Summary Sheet 1)

Now all the decisions are being registered. Soon you will know your total payments. This page is similar to the one you received before. In the table it explains how many points other participants contributed to the group account. The next column summarizes the points that participants in Role B gave and the last column summarizes the points that others gave to participant in Role B. The last column estimates your payment.

(Distribute Summary Sheet 2)

C Pictures

Figure 2: Explanation of Game

Note: This picture shows the research assistant explaining the public good game.

Figure 3: Draw of stage

Note: This picture shows the public random draw of the third-party punisher.

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