Who Wants to be the Hired Gun? Experimental Evidence from Matrilineal and Patriarchal Societies in India*

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12th June 2019

Abstract

Societies that set norms restraining opportunistic behavior can escape the tragedy of the commons and sustain cooperation. Strikingly though, in most societies women remain under-represented in institutions that enforce social norms. For example, women represent less than 20 percent of judges in the Supreme Court and 12 percent of the police force in the United States. In developing countries, these differences are even larger. This paper investigates the supply-side factors that affect the willingness to act as a "hired gun" or the delegated party that sanctions bad behavior. We consider the origin of such differences and find that nurture as opposed to nature explains the gender gap. In the matrilineal Khasi tribes women are more willing to enforce social norms than men while the opposite is true in the patriarchal Santal Tribes in India. Our results indicate that changes in the institutional environment can promote gender equity. In particular, anonymity and reduced retaliation possibilities close the gender gap in the willingness to act as 'hired gun'.

Keywords: Gender; Norm enforcement; Segregation; third-party punisher; Public goods game.

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

1 Introduction

Societies that manage to self-organize and develop norms that restrain opportunistic behavior can escape the tragedy of the commons and sustain cooperation (Fehr and

* **Acknowledgment**: Research was funded by the German Research Foundation through the Research Training Group 1666: We would like to thank Stephan Klasen, Matin Qaim, Edward Asiedu, Juan Camilo Cardenas, Angelino Viceisza, Paul Heidhues, Hans-Theo Normann, and Hannah Schildberg-Hörisch for valuable comments and suggestions.

Gachter, 2002; Fehr and Fischbacher, 2004; Ostrom, 1990). Yet, these norms need to be enforced by agents who volunteer to sanction deviations from the social norm even at a personal cost. Delegated or appointed parties that enforce laws and social norms are pervasive in all societies. These entities, often referred to as "hired guns", have been shown to be efficient in sustaining cooperation (Andreoni and Gee, 2012; O'Gorman, Henrich, and Vugt, 2009; Zhou, Jiao, and Zhang, 2017).

In most societies the role of hired guns lies in the hands of men. Among countries within the OECD less than one fifth of judges in the Supreme Courts are women (Justice, 2016). [1] Similar gender gaps are observed within the police where female officers represent only 29 percent of the police force in the UK and 12% the US. Equal representation of men and women in the judiciary is important not only as a normative objective, but is also associated with increased efficiency.

Gender diversity has been shown to increase confidence in the legal system, improve decision-making for deprived populations, increase reporting of crimes against women, favor equal justice for all, and foster changes in attitudes toward women in politics (Beaman et al., 2009; Hurwitz and Lanier, 2008; Judge et al., 2002; Powley, 2007; Torres-Spelliscy, Chase, and Greenman, 2008).

The objective of this paper is to shed light on the potential causes of the low representation of women as a delegated norm enforcers. In the analysis we depart from traditional explanations that consider demand-side discrimination (Duflo and Topalova, 2004; Eagly and Carli, 2007) and exclusion from networks (Pande and Ford, 2011). Instead, we investigate supply-side factors that affect the willingness to act as a hired gun.

We investigate four questions. Are there gender differences in the willingness to act as a hired gun and what is the origin of such differences? Is it possible to design institutional environments that foster equal gender representation? Do pro-female policy interventions such as affirmative action foster female representation? Does the promotion of gender parity come at an efficiency cost?

Our analysis is based on an experiment that closely reproduces the main factors affecting the decision to act as a norm enforcer. We use a modified one-shot public goods game with endogenous third-party punishment and counter-punishment (Balafoutas, Grechenig, and Nikiforakis, 2014). Participants can privately volunteer to take the public role of third-party punisher. [2] Among willing candidates one is randomly selected as a third-party punisher. Our analysis focuses on gender differences in the willingness to act as a norm enforcer.

1. In OECD countries women hold on average 45.9 percent of presidencies in courts of lower courts, 28 percent in courts of appeal, and only 18.6 percent in high courts. In Latin America, 29.6 percent of the judges in the highest court are women while in countries like India this figure is only 9 percent (CEPAL, 2017; Ghosh et al., 2018).

2. We use third-party punisher and hired-gun interchangeably.

The setup of our experiment characterizes the informal enforcement of social norms of cooperation. The delegated party is free to decide how to sanction and there are no minimum contribution levels. Furthermore, consistent with the prevalence of retaliation against norm-enforcers (see King, 1996, and citations therein), [3] the baseline condition allows contributors to decide whether to incur a cost when retaliating against the third-party.

We implemented an artefactual field experiment in two societies in India that differ with respect to the role of women in society. Among the patriarchal Santal tribes women live under the economic protection of men, and gender discrimination against women is common. In contrast, among matrilineal Khasi tribes women enjoy higher economic and social independence. [4] This variation in the social status of women, across otherwise very similar societies, allows us to investigate the effect of nature and nurture on the willingness to act as a hired gun. If gender differences are mainly driven by innate differences in preferences (e.g., risk and competition aversion), we would expect women to be universally less willing to take on positions of power, irrespective of the society.

On the other hand, the social environment can shape the norms and values regarding the appropriate roles of men and women in society (Eagly and Karau, 2002; Guiso, Sapienza, and Zingales, 2006). If a society considers men or women to posses a higher legitimacy as a delegated norm enforcer (for a direct modeling approach see Akerlof and Kranton, 2005), trying to take a role that it is *not* appropriate for one's gender decreases the legitimacy of the norm enforcer and leads to more retaliation. As individuals anticipate this, the gender with lower legitimacy will be less willing to act as a delegated norm enforcer. [5]

We hypothesize that despite the existence of discriminatory social norms, institutional environments can adapt to promote gender parity in representation as hired guns. We investigate the impact of three institutional environments. The first institutional environment replicates environments in which juries are protected or are immune to retaliation from any given individual (e.g., better norm enforcement). We expect that eliminating the possibility for counter-punishment would result in more participants volunteering compared with the control group. Yet, we expect that

3. 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) This is not only a phenomenon of countries with long-standing civil conflict and weak, but also countries with a long-standing jurisdictional tradition are facing threats of judges. (Fortune, 2017)

4. The terms *patriarchal* means that the power and inheritance structures lie in the hands of men while *matrilineal* means that the economic inheritance structure goes via the maternal line. The Khasi are not matriarchal in a strict sense as the symbolic power still lies in the hands of men but the factual economic power does lie with women.

5. Legitimacy of enforcement is considered as important for not taking the law into one's own hands. "A Leviathan can civilize a society only when the citizens feel that its laws, *law enforcement*, and other social arrangements are legitimate, so that they don't fall back on their worst impulses as soon as Leviathan's back is turned." (Pinker, 2011, p. 79)

the increase would be larger for participants with lower legitimacy (who expected more social sanctions from deviating from the social norm) than participants with higher legitimacy.

The second institutional environment is similar to that of innominate (anonymous) juries, which are established in cases where the criminal could interfere with the judicial process by intimidating or harassing jurors. We expect that the anonymity of the hired gun by reducing possibilities to discriminate, will increase volunteering among the gender with lower legitimacy. Finally, the third institutional environment focuses on affirmative action policies in which women receive preferential treatment in the selection process (Ibanez and Riener, 2018).

Affirmative action makes salient the legitimacy of women to act as norm enforcers. This can help to decrease any perceived retaliation and foster women to volunteer as norm enforcers.

The results of the study reveal that there are marked gender differences in the willingness to act as a norm enforcer and that these differences are driven by nurture rather than nature. In the matrilineal society, women are more likely to volunteer as norm enforcers than men while the opposite is true in the patriarchal society. This finding has high external validity and we see similar gaps in the actual representation of women in the judiciary. In the state of Meghalaya, 74 percent of judges are female compared with only 29 percent in West Bengal (Ghosh et al., 2018).

Our findings indicate that it is possible to design institutional environments to foster gender parity. We find that protection of the hired guns (e.g., through better norm enforcement) and innominate juries can help to foster equal gender representation. Affirmative action policies can also help to promote women, but the relevance of this policy depends on the social context.

We find that the promotion of gender parity does not come at an efficiency cost when the actual identity of the norm enforcer is anonymous. Yet, this is a question that deserves further research as our design focuses on an environment in which participants do not know the gender of the norm enforcer.

The closest study to ours is Balafoutas and Nikiforakis (2012) who study the willingness to use sanctions to enforce commonly accepted social norms of courtesy in a field experiment in Greece. They find that overall very few people are willing to punish norm violators (11.7 percent) and that women are even less willing to do so. Using a similar setup, Artavia-Mora, Bedi, and Rieger (2017) show that men are more willing to engage in indirect punishment (withholding help) while women engage in more direct punishment (verbal sanctions) in the Netherlands. [6] The crucial difference of our design is that subjects decide in a cold state, whether they want to be in a position to potentially punish norm violators—which is a related,

6. Balafoutas, Nikiforakis, and Rockenbach (2014) consider the role of direct (sanctions) and indirect punishment (withholding help) using field experiments in Greece and Germany.

but distinct question. Furthermore, we explicitly vary the availability of a direct counter-punishment strategy.

On another dimension of legitimacy—caste—the study by Hoff, Kshetramade, and Fehr (2011) shows how the social status of the punisher affects altruistic punishment of norm violations. They find that individuals from lower castes are less willing to enforce norms of cooperation. In our study, we focus on the selection in positions of hired guns and consider whether there are differences in the enforcement of the norms among those who are willing to act as a hired gun. Our paper contributes to the research exploring how upbringing in matrilineal and patriarchal societies affects gender differences in individual and social preferences (Andersen, Bulte, et al., 2008; Andersen, Ertac, et al., 2013; Asiedu and Ibanez, 2014; Banerjee, 2014; Gneezy, Leonard, and List, 2009; Gong and Yang, 2012; Lowes, 2017a,b; Pondorfer et al., 2014).

Other papers have analyzed the career paths of women in the legal profession finding that they are more likely than men to exit from private practice (F. M. Kay, Alarie, and Adjei, 2016; Sterling and Reichman, 2016). We complement this research considering which environments can decrease gender segregation. Previously, lab experiments have shown that counter-punishment crowds out punishment and reduces cooperation (Denant-Boemont, Masclet, and Noussair, 2007; Nikiforakis, 2008). We complement this research by analyzing how counter-punishment affects the willingness to act as a norm enforcer.

The previous literature explored gender differences in the willingness to lead—captured as the willingness to take on the role of first mover in a public goods game (Arbak and Villeval, 2013; Preget, Nguyen-Van, and Willinger, 2012; Rivas and Sutter, 2011), take risk on behalf of others (Ertac and Gurdal, 2012), and behave like innovators by taking the initiative to increase their peers' pay-offs (Kanthak and Woon, 2014), decide on promotion of employees (Chakraborty, Serra, et al., 2018), give recommendations (Erkal, Gangadharan, and Xiao, 2018), and represent others (Born, Ranehill, and Sandberg, 2018). The main conclusions that those studies draw is that segregation is largely related to uncertainty aversion, aversion to competition, and generosity. Unlike these studies, we focus on delegated punishment. In our experiment we explore the role of social context and compliance with social norms, and explore how institutional environments can be adapted to foster gender equity.

The paper proceeds with a conceptual framework in section 2 that explains how gender and social upbringing affects selection as hired gun and that outlines the main hypothesis of the study. Section 3 presents the local context where we implemented the study. Section 4 provides details on the experimental design and main hypotheses. Section 5 presents the results before turning to the concluding remarks in the last section.

2 Conceptual Framework

To explain the decision to act as a hired gun, we consider a stylized environment in which a player can take one of two roles: contributor (c) or hired gun (h). There are N contributors and one hired gun that form a group. The contributors face a social dilemma modeled as a linear public good game. Each contributor simultaneously decides how to allocate the endowment E between a private account that gives a return of one and a public account that gives a return of $\beta \leq 1$. Let c_i be the investment of contributor i in the public account. The hired gun does not form part of the public good contribution group and receives a fix remuneration w. Her/his role is to observe individual contributions and to decide whether to sanction contributors, sending p_i punishment points. Sanctions are assumed to be costly for both, the hired gun and the contributors. Replicating the fact that hired guns often confront retaliation, we consider that contributors decide whether to counter-punish the hired gun by sending costly counter-punishment points, q_i.

The income for contributors is given by:

$$\pi_i^c = E - c_i + \beta \sum_{i=1}^{N} c_i - p_{ij} - q_i \tag{1}$$

While the income for the hired guns is:

$$\pi_j^h = w_j - \sum_i \left(p_{ij} - q_i\right) \tag{2}$$

Before the interaction, participants decide on their preferred role, comparing the expected utilities EV of both roles. Players prefer to act as hired guns as long as:

$$EV_h \geq EV_c$$

If individuals are income maximizers, the backward induction solution to the game implies that there is no counter-punishment ($q_i = 0 \ \forall i$), no punishment ($p_i = 0 \ \forall i$), and contributions to the public good are zero ($c_i = 0 \ \forall i$). Individuals hence will hence opt for the position of the hired gun as long as $w \geq E$. Increases in w, will increase the willingness to act as a hired gun for all participants.

Ample empirical evidence shows that individuals contribute to the public good, sanction anti-social behavior, and engage in acts of revenge or retaliation (Balafoutas, Grechenig, and Nikiforakis, 2014; Denant-Boemont, Masclet, and Noussair, 2007; Fehr and Fischbacher, 2004; Hugh-Jones and Leroch, 2017; Zelmer, 2003). This suggests that individuals have other-regarding preferences and derive a moral cost from behaving against what they consider to be the social norm. One expla-

nation to that behavior is that individuals follow norms of reciprocity and behave kindly (unkindly) toward those who have been kind (unkind). Individuals, for instance, behave as conditional cooperators and contribute more than they expect others to contribute (Fischbacher, Gachter, and Fehr, 2001; Keser and Van Winden, 2000). People keep norms of indirect reciprocation and sanction the unkind actions of others (Ule et al., 2009). To account for those regularities in behavior, we assume a simple additively separable utility function of contributors that is given by:

$$V_i^c = \pi_i^c - m_i(\bar{c} - c_i)^{1/2} - f_i(\alpha_i(\bar{c} - c_i)^{1/2} p_{ij} - q_i)^{1/2} \tag{3}$$

The second term on the right-hand side of Equation 3 represents the utility of acting according to moral standards. Consistent with a preference to act as conditional cooperators, we assume that the moral cost increases as individuals with the distance to the socially accepted behavior— $\bar{c}$. The parameter $0 \leq m_i \leq 1$ represents the weight that individuals attributes to the moral act with $m_i = 0$ ($m_i = 1$) indicating low (high) moral cost.

The third term represents the disutility that individuals derive from perceived unfair punishment. We assume that this cost increases at a decreasing rate with the distance between punishment received and counter-punishment sent. We assume that individuals differ with respect to the weight that they give fairness, $0 \leq f_i \leq 1$, and the disutility that they experience from the sanction, $0 \leq \alpha_i \leq 1$. As individuals consider that the punisher to be more legitimate, they experience less disutility from the sanction.

The utility of the hired gun is assumed to be given by:

$$V_j^h = \pi_j^h - \sum_i^N b_j\big((\bar{c} - c_i)^{1/2} - p_{ij}\big)^{1/2} \tag{4}$$

The second term on the right-hand side of Equation 4 represents the loss in utility that the hired gun experiences when contributors violate the norm of reciprocity by contributing an amount that is different from the social norm of giving $\bar{c}$. This norm is considered to be common knowledge for the contributors and the hired gun. Hired guns reciprocate norm violation by sanctioning norm violators using costly punishment p_{ij}. The parameter $0 \leq b_i \leq 1$ represents the weight that individuals give to norm violations, with $b_i = 0$ for selfish norm enforcers and $b_i = 1$ for norm enforcers with high concern for fairness.

The backward induction solution for this modified game implies that q_i increases in the value of fairness concerns f_i, illegitimacy of the hired gun α_i and the sanctions received p_{ij}. Sanctions, p_{ij} are increasing in the size of norm violation $(\bar{c} - c_i)$ and

concerns about fairness from the third-party punisher b_i. Contributions c_i increase in the standard of the social norm of cooperation— $\bar{c}$. This leads to our first proposition:

Proposition 1. *Participants of the gender that has lower social legitimacy as norm enforcers will be less likely to volunteer to act as a hired gun.*

We consider the legitimacy of the norm enforcer to be a social construct (Alesina, Giuliano, and Nunn, 2013; Hoff and Stiglitz, 2016). Societies might have specific norms assigning women and men particular roles. Societies that assign the roles of norm enforcer to men (women) consider the opposite sex as having lower legitimacy as a norm enforcer. [7] Multiple articles show that female lawyers are evaluated as being less competent than male counterparts, they often face a negative work environment and are often excluded from challenging files (F. Kay and Gorman, 2008). [8] Women (men) who anticipate gender stereotypes to be at place expect to face more counter-punishment and are hence deterred to volunteer.

This framework helps to explain why individuals (men and women) who are otherwise identical in terms of understanding the norms of cooperation— $\bar{c}$— and preferences to enforce social norms— b_i, differ in the willingness to act as norm enforcers. Environments with gender roles that put women(men) outside positions of delegated norm enforcers, might even lead to the internalization of the norm, so that individuals derive a psychological cost of knowing that they are acting against what is considered to be their adequate gender role.

The empirical evidence supports the view that female economic empowerment is associated with changes in gender stereotypes and increase bargaining power of women (Ashraf, Karlan, and Yin, 2010; Diebolt and Perrin, 2013). In these societies there is less discrimination against women. This leads to our second proposition:

Proposition 2. *In matrilineal societies the gender gap in the willingness to act as a norm enforcer is smaller than in patriarchal societies.*

Decreasing possibilities of counter-punishment increases the expected earnings of the hired gun and fosters individuals to volunteer as hired guns. This effect might be larger for individuals who expected higher costs of retaliation. Individuals who are more risk-averse, who expect that contributors perceive them as less legitimate, and who assign higher psychological costs of retaliation will react more to the elimination of counter-punishment.

Proposition 3. *Removing the possibility of counter-punishment increases the willingness to act as a hired gun. This effect is larger for the gender with lower legitimacy.*

7. O'Brien, 2016 shows that women must demonstrate more expertise than men to be considered credible.

8. A survey carried among female lawyers in India revealed that 34 percent of them were subject to discriminatory behavior at the workplace.

Discrimination based on the gender of the hired gun is another driver of gender gaps in the willingness to volunteer as hired gun. As women (men) have lower legitimacy as norm enforcers, the contributors will counter-punish them more. Decreasing the possibilities of discrimination, by making the role anonymous as is the case of in-nominate juries, is expected to decrease the cost of acting as hired gun for the gender with lower legitimacy and foster them to act as hired guns.

Proposition 4. *Anonymity of the role of hired gun increases the willingness to act as hired gun by the gender with lower legitimacy but not for the other gender.*

From a policy perspective it is important to understand how to encourage women to take positions that have traditionally been ascribed to men. Affirmative action is used in many countries as a way to promote gender equity and foster female participation in politics. Therefore, a relevant policy question is whether it helps to promote gender equity in the willingness to enforce social norms. Based on previous research that has provided evidence of women being more likely to opt-out of competition (Croson and Gneezy, 2009; Gneezy, Leonard, and List, 2009) and of preferential treatment increasing participation in labor markets (see Balafoutas and Sutter, 2012; Ibanez and Riener, 2018; Niederle, Segal, and Vesterlund, 2013), we derive our last proposition:

Proposition 5. *A larger proportion of women are willing to take on the role of the third-party punisher when affirmative action policies are in place.*

3 Societal background

Members of two distinct local tribes participated in the experiment: the Santal tribe in West Bengal and the Khasi tribe in Meghalaya. We selected 21 villages for the experimental sessions. The main economic activity for these two tribal groups is agriculture and about 60 percent of the participants in the study report working on a farm, depending mainly on the cultivation of rice, maize, and potatoes.

Despite similar economic conditions, there are marked differences in the economic 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) whereas the tribal rules of the Santal are patriarchal.

One of the most important difference between the societies are land property rights. With the Khasi, men are not allowed to inherit real property, and they work on the land that belongs to the women. Women are also the chief agents of socialization (Page Jr, 1996). With the Santal, women usually do not hold land and in the rare cases when they do the land goes to the brothers' marriage. Women work the on land of men, but do not have the right to decide on the income earned (Carrin-Bouez and

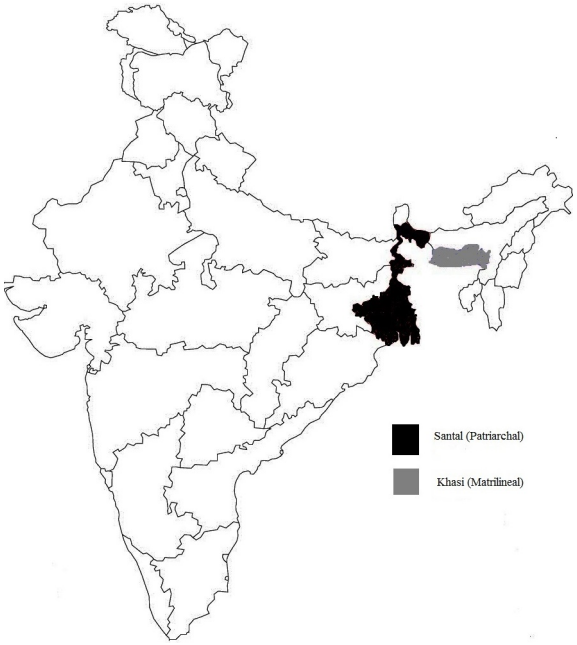

Figure 1. Location of research area

Notes: Source: The blueprint for this map was taken from Rai published under the Creative Commons License and modified by the authors. 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.

Beierle, 1998). There is therefore a marked gender difference in the responsibility of conservation and the accumulation of inheritable capital for the clan.

Khasi families are 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 (G. Das and Bezbaruah, 2011). While economic decisions on the use, exploitation, and sales of land are made by male members in the family, the youngest daughter is the custodian of the land. All female 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, 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 (Anderson, 2003; Bloch and V. Rao, 2002; 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 (Andersen, Bulte, et al., 2008; Andersen, Ertac, et al., 2013; Gneezy, Leonard, and List, 2009; Mitra, 2008, see also).

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. The Santal society is patriarchal, giving women fewer decision rights and awarding them a lower status than men (N. J. 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 an 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 (N. Rao, 2005). 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.

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 area revealed that female mobility even within the community is restricted, and to visit parents, relatives or friends, women are always required to have permission from an adult male in the family. In our sample, all households reported being 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; Roy, 2015) and a preference for sons is prominent. [9]

4 Experimental design and procedures

To understand the drivers for the low representation of women as a hired gun or delegated norm enforcer, we apply the framework of a public goods game with an endogenously third-party punisher and counter-punishment. We are first and foremost interested in the decision to become a third-party punisher. In the following, we describe the experimental design in more detail, present the treatments and explain the implementation procedures. Experimental instructions and protocols can be found in Appendix B.

4.1 Experimental design

We form groups by randomly and anonymously matching four participants. A group consists of three contributors and one third-party punisher or norm enforcer. Each contributor, i, receives an initial endowment of $E = 30$ Rupees (henceforth Rs) [10] and decides how to allocate her endowment between a private account and a group account. 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. [11] This scenario reflects a social dilemma in which socially is better if all contributors invest in the public good but privately is better to invest in the private account.

The third-party punisher does not contribute to the group account and does not receive any payments that are dependent on the group's contribution decisions. Instead, the delegate punisher receives an initial endowment of $E = 50$ Rs. [12] and confronts the task to observe the individual contributions to the group account and to decide whether to punish contributors. Each punishment point assigned to contributor i—denoted by p_{ij}—costs one Rs. for the third-party punisher and decreases i's payments by three Rs. The third-party punisher can assign zero to five punish-

9. These societal differences are reflected in the ratio of females to males: whereas in West Bengal this ratio is 0.92, in Meghalaya it is 0.95 and the national Indian average is 0.93.

10. This is equivalent to half of a typical daily salary or 0.70 US$ in 2012

11. Similar sizes of β have frequently be used in public good games (i.e. Goeree, Holt, and Laury, 2002; Isaac and Walker, 1988).

12. The size of the endowment was chosen to be close to the full contribution payoff of the public good game, in further treatments we varied this payoff (see below)

ment points to each contributor. We allow the posibility that third-party punisher allocate points freely so they can also decide to engage in anti-social punishment sanctioning high contributors (Herrmann, Thoni, and Gachter, 2008).

After receiving feedback on the contributions made by other group members and on the punishment decisions of the delegated punisher in the *Control* 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_i, costs one Rs. for the contributor and decreases the income of the third-party punisher by three Rs for ease of explanation we kept the punishment effectiveness symmetric. We modify this game to allow participants the possibility to volunteer to take the role of hired gun, as explained below.

4.2 Stages

The experiment consists of four stages as illustrated in Table 1. In the first stage, after receiving explanations of the procedures, all participants decided 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, to avoid preconceptions on the roles of men and women other than those manipulated in the experiment. If more than one person wanted to take the role of third-party punisher, a random mechanism was used to assign the role. If no person wanted to take the position, the random mechanism chose one of all the subjects at random. [13] We did not introduce a voting procedure, as we wanted to isolate the effect of potential discrimination on the side of the voters.

In the second stage all participants made their contribution decision before knowing which role they would assume. They also stated their expectation on the average contribution of the other group members. This information allowed us to control—in an incentivized way—for the inclination of the third-party punisher to contribute and the subjective expected monetary value of being a group member.

In the *Control* treatment participants selected as the third-party punishers were required to stand up and greet the other participants. Hence, contributors could see the faces of all participants who were selected to be the third-party punishers, mimicking the public role that norm enforcers play in real life. In each session we had more than one group per session, so contributors could not infer with certainty which of the third-party punishers was responsible for observing decisions and deciding on the sanctioning points for their group. Similarly, third-party punishers did

13. A similar mechanism has been suggested by Goodall and Osterloh, 2015 in a recent working paper to promote female leaders.

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 third stage, participants received feedback on the contributions made by each group member and stated their expectations regarding punishment points. Simultaneously, the third-party punisher decided on the allocation of punishment points. In the fourth stage, contributors received feedback on punishment points and in the Control treatment contributors decided whether they wanted to retaliate against the third-party punisher by allocating costly counter-punishment points. While contributors made their decisions, third-party punishers were asked about expected counter-punishment using the strategy method.

Table 1. Schedule of one round

	All subjects	
Stage 1	Role choice	
Stage 2	Contribution decision and Expected contribution	
	Third-party punisher	**Contributors**
Stage 3	Assign punishment points	Expected punishment
Stage 4	Expected counter-punishment	counter-punishment points

Notes: This table represents the schedule of the experiment. Instructions were read out aloud and the main points were summarized on flip-charts. Expectations of group member's contributions and own contribution were elicited from all participants in order to control for the relative monetary attractiveness of either option. In Stage 3, the counter-punishment points were only elicited in treatments with counter-punishment.

The experiment was played over two rounds with group re-matching. The second round replicated the first round except that the participants were asked to state their willingness to take on the role of third-party punisher under four different remuneration levels ($w = 30$, 50, 70 and 90 Rs.). To ensure common knowledge we publicly announced that the rounds proceeded in a *perfect stranger* design. All decisions were made anonymously and the seating arrangement of participants prevented them from communicating and observing the forms of other participants. At the end of a session, one of the two rounds was randomly selected for payment. If the second round was selected, a remuneration level for the third-party punisher was randomly selected and applied to all participants in the session. At the end of each session, participants received information on the points earned in the game and were paid out in private.

4.3 Treatments

To explore how social norms regarding gender roles shape gender differences in behavior, we conducted the experiment in patriarchal and matrilineal tribes in North-

eastern India. In addition, we employed three treatments in a between-subjects design to further investigate the potential drivers of gender differences. Table 2 summarizes the experimental design.

Table 2. Treatments

	Control	*Reduced punishment*	*Affirmative Action*
Patriarchal (336)	Control (96)	NoCP (80) Anonymous (80)	AA (80)
Matrilineal (224)	Control (60)	NoCP_M (40) Anonymous (60)	AA (64)

Notes: This table presents the treatments. *NoCP* stands for "no counter-punishment." *AA* represents the affirmative action treatment. Under the treatments Control, NoCP, and AA the role of third-party punisher is public. In the Anonymous treatment, participants do not get to see who is assigned the third-party position, neither do they get to see all those who volunteer. The number of observations for each treatment are in parentheses.

Control treatment. The *Control* treatment, as described in the previous subsection, is designed to reflect an environment in which punishers emerge endogenously *without* introducing a demand side that could allow for discrimination in the selection process (see also the ideas in Goodall and Osterloh, 2015). The treatment mimics common environments encountered by candidates for a norm enforcer position: It is public and allows for counter-punishment.

Reduced Punishment Treatments.

No Counter-Punishment. This treatment is identical to the *Control* treatment, except that contributors do not have the possibility to counter-punish the third-party punisher. We expect that a larger fraction of participants will be willing to assume the third-party role in this treatment compared to the Control as the expected earnings are higher.

Participants who were less legitimate and expected higher counter-punishment would be increasing the participation proportionally more. For example, if women are considered to be less legitimate norm enforcers, then they should be reacting more to this treatment than males.

Anonymous. In this treatment the identity of the third-party is not revealed to the other participants of the session. All other procedures are similar as the Control treatment. Hence, participants who are assigned the role of the third-party punisher do not stand up and greet other participants. As participants are simultaneously and privately filling out different decision forms, they cannot infer the gender of the potential third-party punisher and cannot retaliate against those who deviate from the social norm. This treatment is expected to increase the willingness to take the role of third-party among those who fear being discriminated and counter-punished. If participants with lower legitimacy to act as norm enforcers (e.g women) were

expected to receive counter-punish for deviating from the socially assigned role, they would be more willing to take the role under this treatment. This treatment should have no effect on participating with high legitimacy to act as norm enforcers.

Affirmative Action. In this treatment, female participants expressing their willingness to take the role of the third-party in stage one of the experiment were given preference over male participants when the third-party role was assigned. 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*. We expect that a larger fraction of women will be willing to take the role of third-party punisher.

4.4 Socioeconomic determinants

We collected additional information from the participants to control in a regression framework for potential confounding factors and to disentangle various potential motivations underlying individual decisions.

One concern is that participants might self-select out of norm enforcement roles based on their subjective expectations regarding the income they will earn in the public goods game. If expectations vary systematically between men and women this will constitute a potential confound. We therefore control for subjective income expectations by including a variable on the expected payoff—calculated from incentivized beliefs—of the public goods game. Expected payoff is calculated as follows:

$$\mathbb{E}(\pi_i) \;=\; 30 - c_i + (\beta \times (c_i + 3 \times \mathbb{E}(c_j))$$

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 self-selecting out of the third-party punisher position.

After the main experiment we elicited subjective risk attitudes on the *individual level* and risk attitudes when deciding on *behalf of the group*, using a standard Holt and Laury experimental design. The task was incentivized through monetary payments. To determine the measure of risk aversion we used the first switching point. [14]

14. A more detailed comparison of gender differences in risk aversion across societies is presented in a separate paper (Banerjee, 2014).

At the end of the experiment, we administered a post-experimental questionnaire eliciting information on the socioeconomic characteristics of the participants that may be related to their willingness to take on the role of norm enforcer. These included the age, marital status, employment, and education level of the participant.

5 Results

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 or 16 participants.

The presentation of the experimental and survey results is divided into three parts. In Subsection 5.1, we describe the sociodemographic characteristics of our sample by society. Subsection 5.2 presents results of non-parametric tests on gender differences in self-selection across treatments and societies. In addition, we present results from a multivariate regression analysis, controlling for sociodemographic characteristics and behavior in the public goods game. In the last subsection, we analyze the effect of the treatments on contribution levels, punishment and counter-punishment behavior in the public goods game.

5.1 Sociodemographic characteristics

Table 3 summarizes the sociodemographic characteristics of participants and presents the orthogonality test by treatment. The average age of participants is 34 years old. In the patriarchal society 90 percent of the participants reported living in a household with a male household head, compared with only 85 percent in matrilineal societies. Education levels are generally low: about 17 percent are illiterate, 46 percent have primary education or less. Women have significantly lower education levels than men in both societies, yet the gender gap is smaller in the Khasi society than in the Santal society. We also find significant differences between the two societies with regard to the main occupation of females: Khasi women in particular are less likely to be housewives than Santal women.

Indicators of female empowerment support the claim that the role and status of women varies between the two societies. Compared to the Santal society, in the Khasi society it is less likely that women cover their face, that a dowry is paid, 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

Table 3. Orthogonality Table

	(1) Male: Base	(2) Male: Red.	(3) Male: AA	(4) Female: Base	(5) Female: Red.	(6) Female: AA	(7) p-value from joint orthogonality test of treatment arms	(8) N from orthogonality test
Age	32.108	33.716	33.320	36.025	33.927	34.623	0.513	550
Household head male	0.908	0.927	0.840	0.840	0.801	0.855	0.080	550
Children under 5 years	1.063	1.084	0.947	0.951	1.213	1.014	0.781	545
Watches television	2.705	2.941	3.020	2.850	2.925	3.046	0.555	471
Listens to radio	2.864	3.071	3.000	3.038	3.163	3.231	0.589	471
Reads newspaper	3.000	3.141	2.840	2.888	3.170	3.138	0.299	471
If having individual bank account	1.600	1.639	1.419	1.667	1.627	1.478	0.006	547
Education level	2.250	2.128	2.200	1.841	1.391	1.667	0.000	597
– Certainty equiv. (indiv.)	50.369	46.029	44.386	40.081	29.532	42.672	0.001	560

Notes: This table reports summary statistics for socio-economic variables by treatment and the number of observations for each variable. For subsequent regression analysis, we impute the missing values.

Khasi society are also more likely than Santal women to hold an individual bank account in their name, watch TV, listen to the radio and read the newspaper. Finally, 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

5.2 Self selection into the role of third-party

The proportion of male and female participants applying for the role of the third-party punisher in the *Control* treatment is not significantly different between male and female participants in the experiment. We find that 35.3 percent of male participants and 34.1 percent of female participants apply for the role of third-party punisher. The p-values from Fisher's exact test indicate that there are no significant differences in the distribution of participants applying (p-value: 0.50). [15]

A more interesting picture emerges when we split the sample by society as depicted in Figure 2. In the *Control* treatment (Panel A) we observe in the patriarchal society that a significantly larger proportion of men than women are willing to take on the role of the third-party punisher (42.5 percent vs. 23.2 percent, p-value: 0.04). These observed gender differences are in line with the general finding that in most societies women are underrepresented in positions that allow for enforcing norms. When we look at the results in the matrilineal society, we find that the picture is reversed. 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). This indicates that there are marked differences across societies in terms of gender roles. This suggests that women in the matrilineal society have more legitimacy as norm enforcers than men, while the reverse is true in the patriarchal society, supporting Proposition 1.

15. Throughout this subsection we report Fisher's exact test.

Following this observation, we classified subjects according to their respective gender in low and high legitimacy subjects. Males in patriarchal societies and females in matrilineal societies are classified as high legitimacy and females in the patriarchal society and males in the matrilineal society are classified as low legitimacy. When pooling over society, we find that while only 23.81 percent of the participants with low legitimacy volunteer to take on the third-party role, 47.22 percent of the participants with high legitimacy do so. This difference is statistically significant (p-value: 0.003).

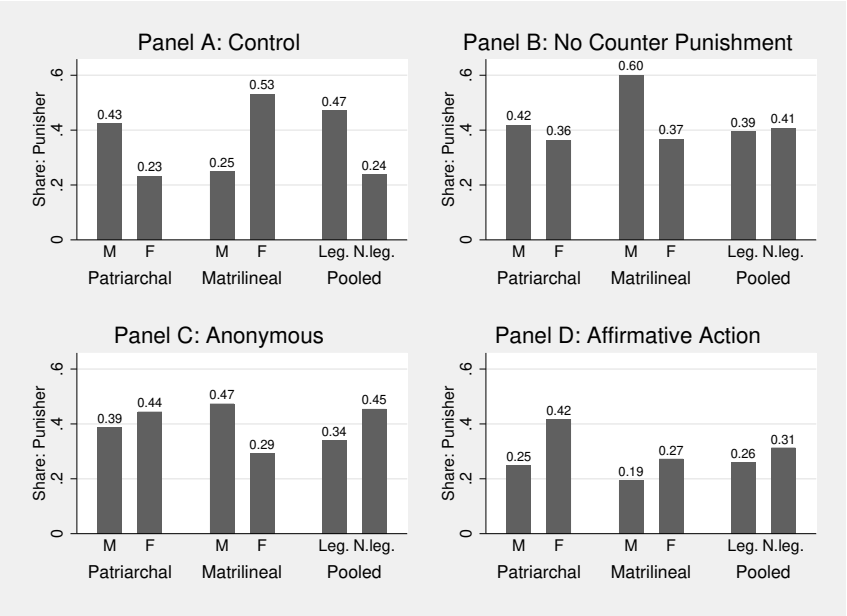

Figure 2. Share of volunteers for third-party

No counter-punishment. Panel B presents the results for participants in the treatment where there are no counter-punishment possibilities. We see that gender differences in the willingness to take on the role of the third-party punisher disappear under this treatment. The fraction of participants who apply for the third-party role is similar between low legitimacy and high legitimacy groups (40.7 percent and 39.4 percent, respectively; p-value: 0.51). While there are no statistically significant differences in the fraction of high legitimacy participants who volunteer as a third-party in the control and NoCP treatment (p-value: 0.225), the fraction of low legitimacy participants is significantly higher (p-value: 0.028). This finding partly supports Proposition 3 as we expected a larger increase for low legitimacy participants.

When comparing the effect by society, we find that in both patriarchal and matrilineal societies the gender gap in the willingness to act as a norm enforcer disappears.

In men in the matrilineal society this result is statistically significant. The proportion of male participants volunteering for the third-party punisher role increases from 25 percent in the *Control* treatment to 60 percent in the NoCP treatment (p-value: 0.055). For female participants in the patriarchal Santal tribes the increase thought large in magnitude, from 23.1 percent in the *Control* treatment to 36.4 percent in the NoCP treatment, is not significantly different from zero (p-value: 0.112). The policy has no negative effects on participants who have high legitimacy in either of the two societies. Supporting the idea that it helps to close the gender gaps by promoting those with low legitimacy.

Anonymous. Panel C shows the results for the *Anonymous* condition. We find that the gender gap in the willingness to volunteer for the role of third-party is reduced in both societies. The fraction of participants volunteering is not significantly different between participants with low and high legitimacy (45.5 and 34.1 percent, respectively; p-value: 0.12). Under anonymity, the Santal women volunteer more under this treatment compared with the Control treatment (p-value: 0.007). The effect has the same direction for Khasi men, though it is not significant (p-value: 0.102). The high legitimacy participants volunteer significantly less under the anonymity treatment (34.1 percent) compared with the control (40.7 percent) (p-value: 0.066). This result is driven by a significant decrease in the fraction of Khasi women volunteering (p-value: 0.04). No significant difference is found on the fraction of male participants volunteering (p-value: 0.445).

One possible interpretation of this effect is that the observed segregation from the position of punisher is shaped by the prevailing social norms of the society. The results suggest that those who are willing to take the role of third-party punisher in the Control treatment, do so to comply with societal expectations. Therefore, they derive utility from being recognized as complying with their socially accepted role. Once the third-party punisher roles are not publicly observed but taken in private, as is the case in the anonymous treatment, the socially assigned roles have less influence on the volunteering behavior in the experiment. As a result, gender differences in volunteering for the norm enforcer position vanish in both societies.

An alternative explanation is that individuals assign value to the position of norm enforcer due to the reputation that it entails. Once this value is taken away, individuals motivated by being recognized as having a higher status are less willing to volunteer. Other possible explanation of this effect is that women might choose not to apply as they might perceive a reduction in their self-image when they are assigned a privilege that is not justified by the gender representation in their society (Bracha, Cohen, and Conell-Price, 2013; Heilman, Block, and Lucas, 1992; Unzueta, Gutierrez, and Ghavami, 2010). The differences across societies could be due to difference in the need of recognition (Jones and Linardi, 2014) and value of control (Bartling, Fehr, and Herz, 2014). This mechanism needs to be further explored.

Affirmative Action. Panel D finally shows that the *AA treatment* closes the gap in volunteering between men and women (p-value: 0.299). Yet, it does not achieve this result by fostering women as intended. While in the patriarchal society the fraction of women volunteering as third-party increase in 18.46 percentage points (p-value: 0.051), in the Khasi society, women are 25.9 percentage points less likely to participate than in the Control treatment (p-value: 0.03). This suggests that in the matrilineal society, the affirmative action policy crowds out women's prevalent understanding of being entitled to the norm enforcer position. Furthermore, the results suggest that affirmative action can generate adverse effects on the group of male applicants. In the Santal society we find a significant drop in male participation by 17.5 percentage points (p-value: 0.09). No such effect is found for men in the matrilineal society. These results thus caution against using affirmative action policies indiscriminately without considering the local context.

Across societies, we find that Khasi women are significantly more likely to volunteer for the punisher position than Santal women (p-value: 0.005), while there is no significant difference between men across the two societies (p-value: 0.109). In an environment in which women have higher economic empowerment, they are more willing to take the role of third-party punisher. This result therefore does not provide full support for Proposition 2. Gender gaps in the willingness to act as norm enforcer are similar across matrilineal and patriarchal societies. Yet, the gender gap is reversed in the matrilineal society. We conclude that gender differences are shaped by the social environment.

5.3 Regression analysis: Take-up of third-party punisher position

In the previous section, we found significant gender differences in the willingness to take on the punisher position in the *Control treatment*. To test robustness and account for some imbalances, we integrate socioeconomic controls—age, education, caste—as well as the experimental measures of risk aversion and contribution to the public good and the expected payoff from the public good—in a regression framework. We estimate the following linear probability model with interactions between the treatments and a dummy for female participants. [16]

We provide specifications that differ in the level of aggregation of the treatments. To obtain the most powerful test of our main hypothesis we pool the data across societies and the treatments that reduce punishment possibilities—*NoCP* and *Anon*

16. To account for the inherent heteroskedasticity of the errors in a linear probability model we use Eicker-Huber-White standard errors clustered on the village level for the pooled results. As linear probability models could predict probabilities smaller than zero or larger than one we also ran robustness checks using non-linear logit specifications. As we do not find differences either in marginal effects (evaluated at the means) nor in significance we report the results of a linear probability model where the coefficients can readily be interpreted as changes in percentage points.

—and we will refer to this pooled treatment as *Reduced* and then interact it with the participants' level of legitimacy resulting in the following model:

$$L = \beta_0 + \beta_1 Low + \beta_2 Reduced + \beta_3 Low \times Reduced + \Gamma \mathbf{X} + \delta Society + \epsilon \tag{5}$$

Low is a dummy variable that indicates low legitimacy and takes a value equal to one for females in the patriarchal society and males in matrilineal society, our indicator for low legitimacy. $Reduced$ is a dummy that takes a value equal to one for treatments *NoCP* and *Anonymous*. $\mathbf{X}$ is the vector of socioeconomic characteristics and experimental measures.

The estimation results are presented in Table 4. We present the results pooling the two societies and for each society separately. The regression results support most of the non-parametric tests from the descriptive analysis. The results largely support the hypothesis that participants with low legitimacy segregate out of taking the role of third-party punisher. In the Control treatment in the pooled specification, participants with low legitimacy are 23 percentage points less likely to volunteer as third-party punisher than participants with high legitimacy. Comparing by society, we observe that this holds for the patriarchal society but is not statistically significant for the matrilineal society once additional controls are added. This finding indicates that in this second society, the differences are likely to be explained by differences in the socioeconomic characteristics of male and female participants.

The coefficient on reduced punishment is not significantly different from zero, indicating that the treatment has no effect on participants with high legitimacy once controls are included. However, the interaction term is significant and positive in the pooled specification so that *Reduced punishment* treatments foster participants with low legitimacy to volunteer as third-party punisher. By society, we see that the larger effect is found in the matrilineal society while in the patriarchal society the coefficients are positive but not significant.

The covariates are not correlated with the choice of being the third-party punisher except for the expected payoff of the public good game, already indicating that financial incentives play a role in the choice of becoming a hired gun, an observation we will examine later in more detail.

Result 1. *In the* Control *treatment, men are more likely to take the role of third-party punisher than women in the patriarchal society, while women are more likely to do so in the matrilineal society.*

Table 4. Linear probability model: Willingness to take up third-party position pooled effects

	Pooled		Patriarchal		Matrilineal	
	(1)	(2)	(3)	(4)	(5)	(6)
Low legitimacy	-0.232**	-0.263***	-0.193**	-0.234**	-0.281**	-0.229
	(0.0922)	(0.0852)	(0.0972)	(0.118)	(0.122)	(0.146)
Reduced punish	-0.108	-0.0816	-0.0250	0.0209	-0.207*	-0.141
	(0.0902)	(0.0894)	(0.0962)	(0.100)	(0.106)	(0.137)
Reduced punish × Low legitimacy	0.303**	0.354***	0.193	0.181	0.475***	0.449**
	(0.114)	(0.117)	(0.125)	(0.136)	(0.164)	(0.197)
Matrilineal	0.0195	0.0798				
	(0.0723)	(0.0754)				
Constant	0.464***	0.558***	0.425***	0.654***	0.531***	0.508**
	(0.0784)	(0.158)	(0.0788)	(0.196)	(0.0893)	(0.253)
Occupation	No	Yes	No	Yes	No	Yes
Education	No	Yes	No	Yes	No	Yes
Caste	No	Yes	No	Yes	No	Yes
Age	No	Yes	No	Yes	No	Yes
Pub.good contr.	No	Yes	No	Yes	No	Yes
Pub.good pay	No	Yes	No	Yes	No	Yes
Risk av.	No	Yes	No	Yes	No	Yes
Obs.	416	406	256	256	160	150

Notes: 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) for the pooled columns and standard Eicker-Huber-White standard errors for the regressions by society due to the lower number of clusters. The indicators show which control variables were included in each model. Discrepancies in the number of observations are due to missing and non-imputed answers in the questionnaire and non-participation in the risk experiments. Significance for the point estimates according to t-tests are reported at the following levels *** p<0.01, ** p<0.05, * p<0.1

Result 2. *As opportunities to counter-punish are reduced, gender gaps in the willingness to take the role of third-party punisher are reduced. This effect is mainly driven by an increase in the volunteering of the gender with lower legitimacy.*

We now disaggregate the treatment effects by *Anonymous* and add the *affirmative action* treatments. We run the following model:

$$L = \beta_0 + \beta_1 Low + \beta_2 NoCP + \beta_3 Anonymous + \beta_4 AA + \Gamma \mathbf{X} + \delta Society + \epsilon \tag{6}$$

where *NoCP*, *Anonymous* and *AA* are dummy variables indicating the respective treatments. The estimated coefficients are presented in Table 5. We present the results pooling by both societies and also separately by patriarchal and matrilineal.

The results support the previous findings. Controlling for socioeconomic characteristics, we find that in both societies participants with low legitimacy are less willing to volunteer to take the role of third-party. The treatments *NoCP* and *Anonymous* have no effect on participants with high legitimacy. Yet, these treatments help to promote participants with low legitimacy. The *Anonymous* treatment has a larger

and significant effect not only in the aggregate but also within each society. The *NoCP* treatment is significant only in the matrilineal society.

Result 3. *Both* reduced punishment *treatments*—NoCP *and* Anonymous—*close the gender gap in volunteering.*

The affirmative action treatment has a negative effect on participants with high legitimacy. Hence, in the matrilineal society, this treatment hurts the group it intended to favor. As intended, the affirmative action treatment increases the fraction of female volunteers in the patriarchal society. Yet it also discourages male participants. We conclude:

Result 4. *The* AA *treatment, close the gender gap by promoting women in the patriarchal society but it discourages women in the matrilineal society.*

The results therefore only provide support for Proposition 5 in the patriarchal society.

Second stage: Effect of changes in remuneration. To test the effect of wage on the willingness to act as a third-party, we extend the analysis to include the second stage of the experiment where subjects choose to become a third-party punisher under different remuneration levels. We estimate a random effects model combining stages 1 and 2 of the experimental data. The results are presented in Table 6, graphs can be found in Appendix D.

The estimation results are consistent with the findings of the first round and allow us insights on the effect of financial incentives. The treatments with reduced punishment, *NoCP* and *Anyomous*, increase the proportion of participants with low legitimacy who volunteer to take the role of third-party. This is mainly driven by patriarchal society where these two treatments increase participation by 13 to 28 percentage points. In the matrilineal society, the anonymous treatment has a negative effect on the proportion of women who volunteer to take the role of third-party.

A higher wage has a positive effect on the volunteering decision. The effect is larger for participants with low legitimacy. Interestingly, in the matrilineal society changes in wage have no significant effect on the volunteering decision either for males or females. We summarize this in the following result.

Result 5. *Monetary incentives have a larger effect on increasing the volunteering rates among low rather than high legitimacy participants and thus narrows the gender gap.*

6 Contributions and punishment

The three institutional treatments analyzed—*Anonymity*, *NoCP*, and *affirmative action*—decrease the gender gap in volunteering to act as a third-party punisher,

Table 5. Linear probability model: Willingness to take up punisher position by treatments

	Pooled		Patriarchal		Matrilineal	
	(1)	(2)	(3)	(4)	(5)	(6)
Low legitimacy	-0.235**	-0.265***	-0.193**	-0.233**	-0.281**	-0.252*
	(0.0914)	(0.0842)	(0.0976)	(0.114)	(0.123)	(0.140)
Treatment						
– NoCP	-0.0782	-0.0691	-0.00833	-0.00594	-0.165	-0.110
	(0.103)	(0.105)	(0.115)	(0.118)	(0.127)	(0.153)
– Anonymous	-0.131	-0.0838	-0.0386	0.0422	-0.239**	-0.173
	(0.109)	(0.107)	(0.109)	(0.115)	(0.115)	(0.136)
– AA	-0.213**	-0.178*	-0.175*	-0.146	-0.259**	-0.199
	(0.104)	(0.104)	(0.103)	(0.107)	(0.120)	(0.137)
Treatment × low legitimacy						
– NoCP × Low legitimacy	0.246	0.307*	0.140	0.187	0.515**	0.453*
	(0.151)	(0.153)	(0.148)	(0.156)	(0.219)	(0.253)
– Anonymous × Low legitimacy	0.347***	0.387***	0.251*	0.267*	0.462**	0.449**
	(0.119)	(0.119)	(0.149)	(0.157)	(0.184)	(0.200)
– AA × Low legitimacy	0.290**	0.316**	0.360**	0.397***	0.202	0.175
	(0.142)	(0.140)	(0.144)	(0.152)	(0.163)	(0.179)
Matrilineal	-0.0122	0.0454				
	(0.0575)	(0.0619)				
Constant	0.478***	0.549***	0.425***	0.584***	0.531***	0.421*
	(0.0783)	(0.132)	(0.0791)	(0.179)	(0.0898)	(0.232)
Occupation	No	Yes	No	Yes	No	Yes
Education	No	Yes	No	Yes	No	Yes
Caste	No	Yes	No	Yes	No	Yes
Age	No	Yes	No	Yes	No	Yes
Pub.good contr.	No	Yes	No	Yes	No	Yes
Pub.good pay	No	Yes	No	Yes	No	Yes
Risk av.	No	Yes	No	Yes	No	Yes
Obs.	560	549	336	336	224	213

Notes: 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) for the Pooled columns and standard Eicker-Huber-White standard errors for the regressions by society due to the lower number of clusters. The results are robust when wild-bootstrapping the standard errors, clusterd at the session level. The indicators show which control variables were included in each model. Discrepancies in the number of observations are due to missing and non-imputed answers in the questionnaire and non-participation in the risk experiments. Significance for the point estimates according to t-tests are reported at the following levels *** p<0.01, ** p<0.05, * p<0.1

Table 6. Random effects model for Stage 2: Willingness to take up punisher position by society

	Pooled		Patriarchal		Matrilineal	
	(1) Leg.	(2) Not. leg.	(3) Male	(4) Female	(5) Male	(6) Female
Treatment						
– NoCP	-0.0630	0.154***	0.0305	0.135*	0.233	-0.120
	(0.0613)	(0.0584)	(0.0720)	(0.0703)	(0.145)	(0.100)
– Anonymous	-0.184***	0.236***	-0.101	0.238***	0.254***	-0.229***
	(0.0556)	(0.0529)	(0.0735)	(0.0649)	(0.0903)	(0.0834)
– AA	-0.272***	0.0704	-0.244***	0.167**	-0.0383	-0.264***
	(0.0563)	(0.0556)	(0.0741)	(0.0738)	(0.0823)	(0.0899)
Wage						
– Wage=30	0.0241	0.0506	0.0793	0.0465	0.0588	-0.0472
	(0.0341)	(0.0377)	(0.0479)	(0.0485)	(0.0601)	(0.0479)
– Wage=50	0.0619	0.237	0.140	0.297	0.118	-0.0394
	(0.0348)	(0.0409)	(0.0502)	(0.0533)	(0.0603)	(0.0459)
– Wage=70	0.117	0.284	0.220	0.320	0.212	-0.0157
	(0.0363)	(0.0389)	(0.0503)	(0.0498)	(0.0619)	(0.0507)
– Wage=90	0.132***	0.227***	0.193***	0.282***	0.118	0.0551
	(0.0374)	(0.0394)	(0.0527)	(0.0507)	(0.0603)	(0.0524)
Constant	0.454***	0.113*	0.514***	0.145	0.112	0.522***
	(0.0756)	(0.0663)	(0.104)	(0.106)	(0.155)	(0.107)
Age	Yes	Yes	Yes	Yes	Yes	Yes
Risk	Yes	Yes	Yes	Yes	Yes	Yes
Pub.good: Contr.	Yes	Yes	Yes	Yes	Yes	Yes
Pub.good: Exp payoff	Yes	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1454	1284	819	859	425	635

Notes: This table reports the results of a random effects linear probability model using Eicker-Huber-White standard errors to account for heteroskedasticity (reported in parenthesis). Discrepancies in the number of observations are due to missing answers in the questionnaire and non-participation in the risk experiments. Significance for the point estimates according to t-tests are reported at the following levels *** p<0.01, ** p<0.05, * p<0.1

but are they associated with a loss in efficiency? To analyze this question, we estimated the effect of the treatments on contributions and punishment, based on model 5 where the dependent variables are contribution, punishment and counter-punishment, respectively.

Contributions. Table 7 presents the results on contribution levels for the patriarchal and matrilineal society, respectively. The models presented in columns (1) and (4) include only treatment variables on the right-hand side of Equation 5. In columns (2) and (5) we additionally control for the gender of the participants. Finally, columns three and six present the results when applying a larger set of controls. In the *Control* treatment, the average contributions constitute 42 and 25 percent of the endowment in the patriarchal and matrilineal society, respectively. This is similar to contributions in public good games by non-student populations in other societies (see for example: J. C. Cardenas and Carpenter, 2008). We observe that the treatment *NoCP* has a positive effect on contributions in the patrilineal society. This result is contrary to the findings by (Balafoutas, Grechenig, and Nikiforakis, 2014) who found that cooperation levels were similar between treatments with and without counter-punishment. The significant effect we find in our sample could indicate that sanctions had a disciplining effect on contributions. All other treatments do not have a significant effect on contribution levels.

In both societies, we find a positive correlation between the expected contribution levels of the others and own contribution level (0.237 in the patriarchal and 0.139 in the matrilineal society). Yet, the effect is only significant in the patriarchal society (p-values: 0.001) providing supportive evidence for the existence of a conditional cooperation norm (see Fischbacher, Gachter, and Fehr, 2001; Keser and Van Winden, 2000). [17] Finally, there is no significant difference in contribution levels between men and women, which is in line with the findings by Greig and Bohnet (2009).

17. Although, a potential false consensus effect—the false belief that others are like you—forbids interpreting this correlation as causal. Its size, however, is in the range of other studies.

Table 7. Ordinary least squares estimation: Contribution to public good

Panel A: Contributions	Pooled		Patriarchal		Matrilineal	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment						
– NoCP	1.871	1.057	3.181**	1.807	-1.158	-0.564
	(1.338)	(1.427)	(1.570)	(1.583)	(1.702)	(1.937)
– Anonymous	0.980	0.413	2.419	1.130	-0.667	-0.800
	(1.230)	(1.294)	(1.466)	(1.510)	(1.717)	(2.070)
– AA	-0.853	-1.298	-1.331	-1.985	0.101	-0.456
	(1.054)	(1.132)	(1.340)	(1.380)	(1.603)	(1.644)
Female		-0.455		0.969		-0.220
		(0.770)		(1.168)		(1.346)
Expected contribution (Stage 1)		0.230***		0.345***		0.114
		(0.0517)		(0.0647)		(0.0878)
Constant	17.01***	13.55***	18.03***	12.46***	15.38***	15.43***
	(0.782)	(2.230)	(1.016)	(2.746)	(1.114)	(3.712)
Observations	560	550	336	336	224	214
Panel B: Punishment						
Treatment						
– Anonymous	0.0830	0.0512	0.292	0.228	-0.200	-0.141
	(0.308)	(0.345)	(0.392)	(0.378)	(0.496)	(0.532)
– NoCP	0.236	0.207	-0.0250	0.0840	0.767	0.657
	(0.323)	(0.340)	(0.412)	(0.423)	(0.479)	(0.542)
– AA	-0.0203	-0.221	0.108	-0.256	-0.188	-0.289
	(0.252)	(0.291)	(0.316)	(0.363)	(0.413)	(0.429)
– Contribution (centerd)		-0.0814***		-0.112***		-0.0344**
		(0.0108)		(0.0128)		(0.0167)
Matrilineal	-0.00528	-0.299				
	(0.208)	(0.252)				
Constant	1.643***	2.064***	1.625***	2.033***	1.667***	1.398*
	(0.226)	(0.511)	(0.269)	(0.494)	(0.351)	(0.780)
Observations	420	411	252	252	168	159
Panel C: Counter punishment						
Treatment						
– Anonymous	0.496**	0.323	0.333	0.0390	0.733*	0.699*
	(0.230)	(0.249)	(0.283)	(0.348)	(0.389)	(0.353)
– NoCP						
– AA	0.825***	0.697***	0.733**	0.564	0.968***	0.744**
	(0.225)	(0.256)	(0.295)	(0.355)	(0.350)	(0.364)
– Contribution (centered)		0.0161		0.0154		0.0184
		(0.0118)		(0.0161)		(0.0206)
Punishment decision of leader (centered)		0.214***		0.219***		0.167
		(0.0621)		(0.0793)		(0.105)
Matrilineal	0.134	0.368				
	(0.186)	(0.282)				
Constant	1.504***	1.796**	1.583***	2.497**	1.511***	1.451**
	(0.190)	(0.697)	(0.225)	(1.038)	(0.279)	(0.653)
Observations	330	321	192	192	138	129
Age	No	Yes	No	Yes	No	Yes
Occupation	No	Yes	No	Yes	No	Yes
Education	No	Yes	No	Yes	No	Yes
Risk taking	No	Yes	No	Yes	No	Yes

Notes: This table reports the results of an 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? Table 8 shows the effect of the treatments on punishment and counter-punishment decisions of the third-party and

group members respectively. The results in Panel A indicate that punishment is not different among treatment groups and the control. This results holds for pool societies and for each individual society. We find that punishment is negatively correlated with contributions.

Panel B presents the results for counter-punishment. The results indicate that in the AA treatment there is more counter-punishment. This results holds for the pool sample and for each society separately. In addition, we find that in the matrilineal society there is more counter-punishment in the *Anonymity* treatment. We also find that counter-punishment is positively associated with being punished. As counter-punishment in our case is only destructive and has no disciplining component, it can be considered an emotional reaction to being punished, implying that participants retaliate against the third-party punishers (Nikiforakis, 2008). This finding suggests that in some contexts gender parity could be associated with some efficiency cost. [18]

7 Conclusion

In most societies in the world women are under-represented in positions where they can enforce social norms. However, so far there is little evidence on whether this is driven by self-selection resulting from a lower willingness of women to act as delegated norm enforcers. 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 shaped by gender-specific norms of the society. The distinction on whether inherent preferences (nature) or social context (nurture) is causing the under-representation of women in enforcement positions is crucial in designing policies that could foster gender parity.

Our findings reveal marked gender differences in volunteering to act as delegated norm enforcer. Interestingly, the direction of the gap is reversed in the two societies. In the patriarchal society women lag significantly behind men in terms of volunteering as norm enforcers, whereas in the matrilineal society we find the opposite. This suggests that innate preference differences alone do not explain segregation as suggested by Flory, Leibbrandt, and List (2014), but that social context is the main driver. This finding confirms the importance of upbringing on shaping individual and social preferences (Andersen, Bulte, et al., 2008; Andersen, Ertac, et al., 2013; Asiedu and Ibanez, 2014; Booth and Nolen, 2012; J.-C. Cardenas et al., 2012; Croson and Gneezy, 2009; Gong and Yang, 2012).

18. As previously discussed, though, in our setup participant cannot identify the gender of the third-party punisher and hence, we cannot be sure if counter-punishment is directed to the participants with lower legitimacy as proposed in the conceptual framework.

Table 8. Ordinary least squares estimation: Punishment and counter-punishment

Panel A: Punishment	Pooled		Patriarchal		Matrilineal	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment						
– Anonymous	0.0830	0.0512	0.292	0.228	-0.200	-0.141
	(0.308)	(0.345)	(0.392)	(0.378)	(0.496)	(0.532)
– NoCP	0.236	0.207	-0.0250	0.0840	0.767	0.657
	(0.323)	(0.340)	(0.412)	(0.423)	(0.479)	(0.542)
– AA	-0.0203	-0.221	0.108	-0.256	-0.188	-0.289
	(0.252)	(0.291)	(0.316)	(0.363)	(0.413)	(0.429)
– Contribution (centerd)		-0.0814***		-0.112***		-0.0344**
		(0.0108)		(0.0128)		(0.0167)
Matrilineal	-0.00528	-0.299				
	(0.208)	(0.252)				
– Khastriya		-1.312		0.250		-2.813***
		(1.308)		(0.439)		(0.755)
– Vaishya		-0.781		-1.167*		0.116
		(0.485)		(0.613)		(0.767)
– Sudra/SC/ST		-0.164		-0.679		-0.335
		(0.427)		(0.492)		(0.666)
– Garo general		-0.975				-1.226
		(0.689)				(0.985)
– Khasi sudra		-0.748				-0.529
		(0.669)				(0.777)
– Khasi general		-0.408		-0.805		
		(0.575)		(0.621)		
Constant	1.643***	2.064***	1.625***	2.033***	1.667***	1.398*
	(0.226)	(0.511)	(0.269)	(0.494)	(0.351)	(0.780)
Age	No	Yes	No	Yes	No	Yes
Occupation	No	Yes	No	Yes	No	Yes
Education	No	Yes	No	Yes	No	Yes
Risk taking	No	Yes	No	Yes	No	Yes
Observations	420	411	252	252	168	159

Panel B: Counter punishment	Pooled		Patriarchal		Matrilineal	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment						
– Anonymous	0.496**	0.323	0.333	0.0390	0.733*	0.699*
	(0.230)	(0.249)	(0.283)	(0.348)	(0.389)	(0.353)
– NoCP						
– AA	0.825***	0.697***	0.733**	0.564	0.968***	0.744**
	(0.225)	(0.256)	(0.295)	(0.355)	(0.350)	(0.364)
– Contribution (centerd)		0.0161		0.0154		0.0184
		(0.0118)		(0.0161)		(0.0206)
Punishment decision of leader (centered)		0.214***		0.219***		0.167
		(0.0621)		(0.0793)		(0.105)
Matrilineal	0.134	0.368				
	(0.186)	(0.282)				
– Khastriya		2.568***		2.051**		
		(0.686)		(1.007)		
– Vaishya		-0.902				-0.361
		(0.792)				(0.790)
– Sudra/SC/ST		-0.444		-1.033		0.101
		(0.601)		(0.930)		(0.603)
– Garo general		0.466				0.565
		(1.515)				(1.620)
– Khasi sudra		-1.596*				-1.106
		(0.887)				(0.744)
– Khasi general		-0.568		-1.300		
		(0.677)		(0.993)		
Constant	1.504***	1.796**	1.583***	2.497**	1.511***	1.451**
	(0.190)	(0.697)	(0.225)	(1.038)	(0.279)	(0.653)
Age	No	Yes	No	Yes	No	Yes
Occupation	No	Yes	No	Yes	No	Yes
Education	No	Yes	No	Yes	No	Yes
Risk taking	No	Yes	No	Yes	No	Yes
Observations	330	321	192	192	138	129

Notes: This table reports the results of an ordinary least squares model on punishment and counter-punishment decisions of third-party punishers and the group members, respectively. 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.

As expected, we find that removing counter-punishment and making the role of the third-party punisher anonymous results in an increase in the willingness to take on the role by the gender with *lower legitimacy* in each society. Santal women and Khasi men are more likely to volunteer under those institutional environments compared to the *Control* treatment. This result persists even when we control for individual risk preferences, supporting the role of social context rather than inherent preferences on segregation.

Gender differences in the willingness to assume the role of third-party punisher seem to be determined to a large extent by conformity to social norms. When the role of norm enforcer is observable, individuals behave according to the social expectations of their gender. Therefore, in patriarchal societies men volunteer to enforce norms, while the opposite is observed in matrilineal societies. Yet when the social norm is not enforceable, as reflected in the anonymity treatment, the individuals do not confront the social scrutiny that would sanction deviation from expected gender roles.

In this paper, we investigate how different institutional environments promote or hinder gender parity in the willingness to enforce social norms. A related question that we do not analyze here refers to the motivations that participants have to volunteer as hired guns. Future work should explicitly investigate how volunteers differ from non-volunteers in terms of preferences for power, spiteful behavior, and willingness to avenge punishment among others.

An important question is whether the promotion of gender equity by changes in institutional environments is associated with efficiency losses. We find that that is not the case. Promotion of gender equity by changes in the institutional environment are not systematically associated with changes in contributions, punishment or counter-punishment. Yet this is context dependent. The results suggest that male and female third-party enforcers behave similarly. This result is in contrast to Asiedu and Ibanez (2014) and Gangadharan et al. (2016) who find that men contribute significantly less to the public good when women, rather than men, are the group's third-party punisher or first movers. In our experiment the exact identity of the third-party is not known to participants (they can only infer it in the treatments where the candidates had to announce themselves publicly) which might explain the difference.

The policy implications of these findings are straightforward: it is possible to design institutional environment that promotes gender equity. Our results suggest that institutional environments protecting norm enforcers can promote gender equity. One way in which norm enforcers can be protected is by making the role of norm enforcer anonymous. Alternatively, norm enforcers can be protected from physical aggression by the police and army. Our results indicate that affirmative action is effective in promoting female norm enforcers in patriarchal society. Yet it discourages

women in matrilineal societies. This emphasizes the importance of taking the local context into account when designing and implementing pro-female policies.

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A Political Representation in the Two Societies

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 customary that political deliberation, planning, administration and political decision-making belong to the male domain. Prior to 1935 women did not have the right to take part in political meetings, vote in elections or enter as candidates. Despite recent legislation changes introduced by the Indian state even now women do not take the position of village head (Kumar Utpal and Bhola Nath, 2007; Lalkima, 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. The wives and daughters of tribal self-governance bodies can under certain circumstances inherit the political post, however, they normally do this only for a limited period before new male representatives are elected. We find that the village head was female in six of 12 Santal communities included in the study.

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 had been 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 X Rs. 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 X 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 will receive **20 tokens that we will call an "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 will 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. The participant in this role will receive 30 tokens. The task for participants in role B is to observe the decisions of the participants in role A. After having observed the other members' contributions you have the option to assign points to other members. The participant in role B is free to decide how many points she (he) wants to assign to each participant. However, in total she cannot assign more than his income allows. Assigning a point costs one token to the participant in role B (this cost will be subtracted from the period payoff) and decreases the income for the participant who receives the point in three tokens (also to be subtracted from her period payoff). At the end of the period, the participants in role A and B will know their total earnings for the period.

$TREATMENT$: $Giving\&receivingfeedback$

After the participant in role B has decided how many points she (he) wants to send, the 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 the A participants and reduces participant B's win by 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 TREATMENT 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 volunteer we will 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 to 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 to role A.

(Distribute Contribution Sheet)

Your decisions 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 will contribute on average to the group account. If your guess is correct you will receive three additional tokens.

(Distribute the expectation sheet)

The paper that you are receiving explains whether you have been selected in role A or B. This paper also contains information on the contributions from the three participants in role A. If you are a participant in role B you have to decide how many points you want to send to participants in role A. Sending one point costs you 1 token and decreases the tokens of the participant receiving the point by three tokens. In total, you cannot send more than 30 tokens. For participants in role A, the task is to guess how many points participants in role B will send. If you guess correctly, you will receive three additional tokens.

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 those 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 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.

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 three additional 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 participants in role B. The last column estimates your payment.

(Distribute Summary Sheet 2)

Second Round

Now, we would like to repeat the game. However, the conditions of the game will change slightly. So please listen carefully.

First we will form new groups with four participants each. Similar to before, within each group three participants will play role A and one participant will play role B.

Participants in role A will do exactly the same as in the previous round. Participants in role A will receive 20 tokens as an "endowment" and 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. For each token you put into your private account you will earn exactly one token. Each token that you put in the group account gives a payment to you and to other persons in the group. Everybody receives the same income from the group account, independent of the amount invested. Similarly, you will also earn an income from the tokens that the other group members put into the group account.

After making the contribution, participants in role B will observe how much other group members contributed and will have to decide whether she (he) wants to send points to participants in role A. Sending one point costs one token to participant in role B and decreases income from the participant who receives it by three tokens.

[TREATMENT RECEIVING FEED BACK] After participant in role B decides how many points he want 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.

[TREATMENT **Self Selected A**]: Please indicate whether you would like to take role A or B under the three following alternative scenarios. If there is more than one person interested in playing role B, one will 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 under the following alternative scenarios. 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.

In the first scenario, participants in role B receive 40 tokens.
In the second scenario, participants in role B receive 30 tokens.
In the third scenario, participants in role B receive 20 tokens.

All other procedures are the same as in the previous round. Once that we collect information on the prefer role, we will randomly select one of the scenarios and implement it for payment. In this case we will repeat the procedures we used in the previous round.

Please indicate your preferred role for the three scenarios.
(Distribute Scenarios Sheet)

Now we will select which of the scenarios would be implemented
(Select Scenario)

Continue with

IMPLEMENTATION

This part of the game consists of four rounds.

We will explain these rounds one by one.

In each of the rounds your decision sheet looks like this paper. There are 10 different options and

For each these options you have to choose between drawing of a ball from a bag a safe amount. Let me first explain what does drawing of a ball mean and what a sure amount is.

What is drawing of a ball

This bag, which we call bag A, contains 20 balls- 10 red and 10 white. We will ask you to draw a ball from the bag without looking at it and before the draw you must guess the color of the ball. If you guess correctly, you will receive 50 Rs. In the case of an incorrect guess there will be no payment.

What a sure amount is

In the game we will ask you to decide whether you want gamble on the color of a ball or you would rather prefer to take a sure amount. If instead of betting on the color of the ball you choose the safe amount you will receive the sure amount for sure.

Decision sheet

In your decision sheet there are 10 different options and for each of these options you must state your preference between the sure amount and drawing of a ball. For example in option 1 you can either choose to take a sure amount of Rs. 5 or to draw a ball from the bag and choose its color. Similarly, for the last option you can either take the sure amount of Rs 50 or choose to draw a ball from the bag. You must state your preference for 10 times. Only one of the options will be chosen randomly to make your payment.

In the second round of the game you will carry out the same task but you will make the decision for your group. Again, you have to choose between a safe amount and drawing of a ball 10 times, but this time for your group. Your decision will determine how much your group members will earn. After you make your choices and then play the game we will select one member from each group and then one of his choices randomly for payment. If the sure amount is preferred over betting on the color of a ball everyone in the group will receive the safe amount. If betting on the color of a ball is selected in the case of a correct guess everyone in the group will receive 50 Rs., otherwise your payment will be zero.

If you have questions raise your hand our enumerator will assist you privately.

We will now distribute the decision sheet. Please do not start and wait for our instruction. You may start now, after 5 minutes we will collect you sheets.

Now we will start the third round

Consider this bag which we call bag B. In bag B there is a mix of 20 white and red balls, however, you will not know how many red and how many white balls are there in the bag. Only information you have is that there are 20 balls. We again ask you to make your choice between a sure amount and drawing of a ball 10 times as you did in the first round. For payment, we will select one option randomly.

Please wait for our instructions before starting. If you have questions, raise your hand our enumerator will assist you privately. You may start now and after five minutes we will collect your sheets.

Now again you make the same decision but for the group. The payment mechanism is same as in the second round.

Thank you for participating in the game.

(Distribute exit questionnaires)

C Socioeconomic Drivers of Selection in the Role of Punisher

Who volunteers to take on the role of norm enforcer? Table 9 presents the estimated coefficients for the control variables of individual characteristics included in Equation 6. Column (1) present the results for the societies when pooled, column (2) for the patriarchal, and (3) for the matrilineal society.

We find that the expected payoff from the public good game is negatively correlated with volunteering, suggesting that material interests are a driving force.

In many societies, including Asia, the elderly are often regarded as natural authorities and hence enjoy great respect (Lockenhoff, De Fruyt, and Terracciano, 2007; Sung, 2001; Van der Geez, 1997). In these societies where the seniority principle plays an important role, older subjects may feel more obliged to take on the role of third-party punisher. Our results however do not support this hypothesis. We do not find either strong or significant correlations between volunteering and age.

We also do not find a systematic relationship between contributions to the public good and willingness to volunteer for the enforcer position. The only significant (negative) correlation is for males in the patriarchal society. This contrasts with the findings of previous studies that report that willingness to lead is positively correlated with generosity (Arbak and Villeval, 2013; Bruttel and Fischbacher, 2013). As anticipated, the expected payoff from participating in the public good game is negatively correlated with the willingness to volunteer, indicating that subjects react to the opportunity costs.

Table 9. Willingness to volunteer: Personal characteristics

	(1) Pooled	(2) Patriarchal	(3) Matrilineal
Pub.good			
– Contribution (centerd)	0.000436	0.00406	-0.00397
	(0.00283)	(0.00361)	(0.00452)
– Expected payoff (centered)	-0.00554***	-0.00448	-0.00744**
	(0.00185)	(0.00299)	(0.00333)
Age (centered)	-0.00217	-0.00423*	0.00118
	(0.00186)	(0.00241)	(0.00305)
Occupation			
– Farm	0.0507	0.0663	0.0169
	(0.0647)	(0.109)	(0.0788)
– Household	0.126	0.0648	0.177
	(0.0929)	(0.136)	(0.163)
– Other	0.0615	-0.370***	0.0549
	(0.104)	(0.142)	(0.127)
– Khastriya	-0.190	-0.0742	-0.386*
	(0.348)	(0.437)	(0.225)
– Vaishya	-0.494***	-0.660***	-0.209
	(0.134)	(0.233)	(0.238)
– Sudra/SC/ST	-0.170	-0.228	-0.0488
	(0.132)	(0.207)	(0.205)
– Garo general	-0.369		-0.174
	(0.281)		(0.296)
– Khasi sudra	-0.266		-0.136
	(0.217)		(0.249)
– Khasi general	-0.0153	0.0411	
	(0.167)	(0.216)	
Risk aversion (centered)	0.000433	0.000439	0.000467
	(0.000456)	(0.000701)	(0.000949)
Matrilineal	0.0454		
	(0.0619)		
Constant	0.549***	0.584***	0.421*
	(0.132)	(0.179)	(0.232)
Obs.	549	336	213

Notes: This table reports the coefficents of the covariates used in Table 9. To account for heteroskedasticity, standard errors (in parenthesis) are clustered by session for the pooled regression using the Eicker-Huber-White estimator and just robust for each society. Significance for the point estimates according to t-tests are reported at the following levels *** p<0.01, ** p<0.05, * p<0.1

D Graphs of Second-Stage Decisions by Wage Level

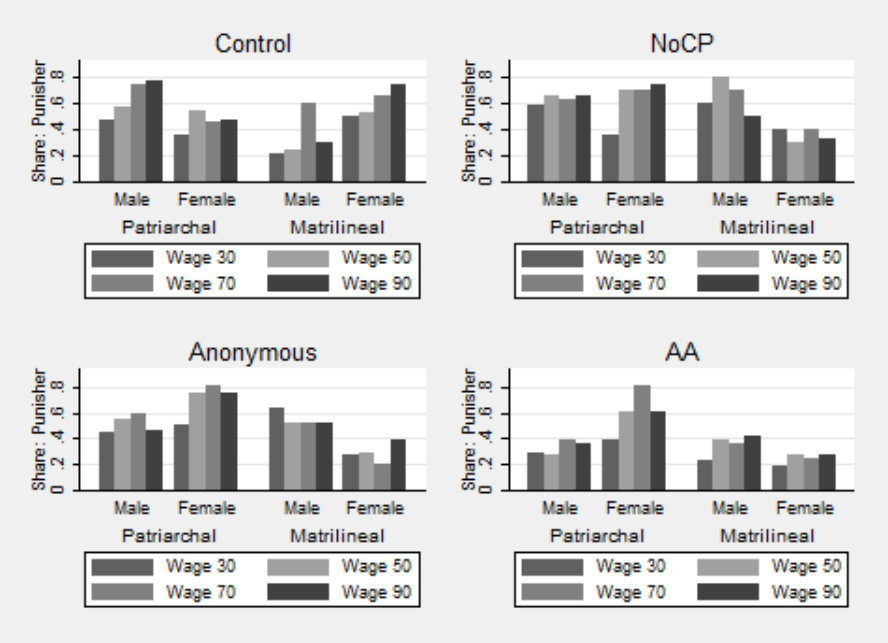

Figure 3. Share Who volunteer as third-party by wage and treatment in the Second Round

E Punishment and Counter-Punishment: Further Results

Table 10. Ordinary least squares estimation: Punishment and counter-punishment Stage 2

Panel A: Punishment	Pooled		Patriarchal		Matrilineal	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment						
– Anonymous	-0.0840	-0.0427	0.169	0.0898	-0.438	-0.334
	(0.256)	(0.275)	(0.276)	(0.314)	(0.479)	(0.477)
– NoCP	0.308	0.347	0.0528	0.0220	0.839*	0.890*
	(0.270)	(0.294)	(0.308)	(0.328)	(0.456)	(0.453)
– AA	0.688**	0.586*	0.919***	0.443	0.377	0.445
	(0.267)	(0.300)	(0.338)	(0.378)	(0.437)	(0.443)
– Contribution (centerd)						
Matrilineal	0.153	0.00706				
	(0.197)	(0.241)				
Contribution to PG in second stage (centered)		-0.0517***		-0.0938***		0.0133
		(0.0122)		(0.0133)		(0.0179)
– Khastriya		1.296		-0.499		2.926***
		(1.156)		(0.905)		(1.008)
– Vaishya		0.582				0.971
		(1.615)				(1.901)
– Sudra/SC/ST		0.163		-1.058		-0.0419
		(0.618)		(0.719)		(1.084)
– Garo general		-0.0287				0.0727
		(0.981)				(1.271)
– Khasi sudra		-0.289				-0.222
		(0.732)				(1.207)
– Khasi general		-0.304		-1.284*		
		(0.686)		(0.755)		
Constant	1.485***	1.442**	1.431***	2.049***	1.727***	1.772
	(0.201)	(0.621)	(0.229)	(0.680)	(0.346)	(1.151)
Age	No	Yes	No	Yes	No	Yes
Occupation	No	Yes	No	Yes	No	Yes
Education	No	Yes	No	Yes	No	Yes
Risk taking	No	Yes	No	Yes	No	Yes
Observations	419	412	252	252	167	160

Panel B: Counter punishment	Pooled		Patriarchal		Matrilineal	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment						
– Anonymous	-0.0181	-0.0495	0.356	0.0755	-0.568	-0.541
	(0.228)	(0.273)	(0.290)	(0.340)	(0.350)	(0.340)
– NoCP						
– AA	0.621***	0.486*	0.722**	0.458	0.438	0.553
	(0.207)	(0.259)	(0.277)	(0.327)	(0.303)	(0.388)
– Contribution (centerd)						
Punishment decision of leader (centered)						
Matrilineal	0.0811	-0.133				
	(0.181)	(0.266)				
Contribution to PG in second stage (centered)		-0.0219*		-0.0200		-0.0313*
		(0.0131)		(0.0181)		(0.0184)
Punishment decision of leader in second stage (centered)		0.0175		0.00357		-0.0268
		(0.0619)		(0.0947)		(0.0833)
– Khastriya		-0.0241		-0.0925		
		(1.827)		(1.979)		
– Vaishya		2.079**				2.439**
		(0.913)				(1.031)
– Sudra/SC/ST		0.0740		0.613		-0.989
		(0.710)		(0.965)		(0.611)
– Garo general		1.007				-0.312
		(0.946)				(0.775)
– Khasi sudra		-0.0570				-0.260
		(1.064)				(0.795)
– Khasi general		-0.300		0.133		
		(0.753)		(0.983)		
Constant	1.926***	2.007***	1.778***	1.718*	2.250***	2.015***
	(0.157)	(0.763)	(0.175)	(1.011)	(0.236)	(0.646)
Age	No	Yes	No	Yes	No	Yes
Occupation	No	Yes	No	Yes	No	Yes
Education	No	Yes	No	Yes	No	Yes
Risk taking	No	Yes	No	Yes	No	Yes
Observations	328	321	192	192	136	129

Notes: This table reports the results of an ordinary least squares model on punishment and counter-punishment decisions of third-party punishers and the group members, respectively. 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.

Table 11. Ordinary least squares estimation: Punishment and counter-punishment decisions gender interactions

	Punish:Pat		Punish:Mat		CoPunish:Pat		CoPunish:Mat	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment								
– Anonymous	0.464	0.128	-0.700	-0.213	0.751**	0.470	0.304	0.756
	(0.403)	(0.302)	(0.682)	(0.565)	(0.314)	(0.354)	(0.499)	(0.551)
– NoCP	1.049**	0.727	1.534*	2.045**				
	(0.518)	(0.457)	(0.795)	(0.878)				
– AA	0.385	0.00609	-0.186	0.00922	1.090***	0.857**	0.881*	0.854*
	(0.363)	(0.319)	(0.494)	(0.402)	(0.386)	(0.401)	(0.487)	(0.502)
– Contribution (centerd)		-0.109***		-0.0349**		0.0171		0.0186
		(0.0126)		(0.0159)		(0.0172)		(0.0209)
Punishment decision of leader (centered)						0.211***		0.166
						(0.0776)		(0.109)
Female	0.497	0.363	0.119	0.908	0.612*	0.923***	-0.377	0.0750
	(0.396)	(0.523)	(0.723)	(0.781)	(0.339)	(0.334)	(0.449)	(0.413)
– NoCP × Female	-1.916***	-1.274*	-1.044	-2.198*				
	(0.617)	(0.648)	(0.946)	(1.132)				
– Anonymous × Female	-0.148	0.265	0.619	-0.281	-0.675	-0.923**	0.701	-0.0963
	(0.654)	(0.652)	(0.919)	(0.990)	(0.432)	(0.461)	(0.680)	(0.673)
– AA × Female	-0.379	-0.588	0.00380	-0.706	-0.513	-0.615	0.164	-0.232
	(0.560)	(0.691)	(0.813)	(0.859)	(0.504)	(0.543)	(0.665)	(0.716)
Age (centered)		0.0197**		0.0133		0.0150		-0.00989
		(0.00849)		(0.0170)		(0.0105)		(0.0149)
Constant	1.308***	1.962***	1.609***	1.049	1.192***	2.243**	1.696***	1.428**
	(0.294)	(0.503)	(0.464)	(0.760)	(0.276)	(1.078)	(0.379)	(0.695)
Occupation	No	Yes	No	Yes	No	Yes	No	Yes
Risk taking	No	Yes	No	Yes	No	Yes	No	Yes
Caste	No	Yes	No	Yes	No	Yes	No	Yes
Education	No	Yes	No	Yes	No	Yes	No	Yes
Observations	252	252	168	159	192	192	138	129

Notes: This table reports the results of an ordinary least squares model on punishment and counter-punishment decisions of third-party punishers and group members interacted with gender. 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.

F Pictures

Figure 4. Explanation of Game

Notes: This picture shows the research assistant explaining the public goods game.

Figure 5. Draw of stage

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