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# Partnership Formation: The Role of Social Status

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We experimentally test for the effect of *social status* on the likelihood of partnership formation. We consider a two-player game where the opportunity to perform a *hidden action* by one player may render partnership formation difficult. In this context, we study how the assignment of partners' status to the top, middle, or bottom position of a preexisting status hierarchy affects collaboration. We find that partnership formation is remarkably sensitive to the partners' status affiliations. Collaboration is easiest when both partners share the same social status, and the probability of partnership formation decreases significantly as the status gap between the partners increases, entailing massive inefficiency.

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## 1. Introduction

Most economic undertakings involve forming a successful partnership. Partnership formation lies at the heart of contract theory, which analyzes how partnerships are formed, what types of contracts foster partnerships, and what economic ramifications ensue. A potential threat to profitable partnership formation is economic opportunism that pervades social life. A leading example of such opportunism in contract theory is environments with *hidden action*. The source of the hidden action is an asymmetry of information among partners that results because future actions of some partners cannot be observed and hence contracted upon.[1] If people are exclusively self-interested, hidden action may induce partners to engage in behavior that undermines trust and dampens partnership formations and efficiency.

Orthodox economic theory tackles the hidden action problem by its absolute reliance on the standard assumption that people care only about their own material wealth.[2] However, just as economic opportunism pervades social life, nonpecuniary elements of social life, such as *social status* considerations, may also intrinsically constrain or entitle individuals to carry out economically opportunistic actions when a profitable partnership is imminent. Expressed differently, most collaborations require some form of contracting, and it is rarely the case that all dimensions of a contract can be thoroughly specified and enforced. Social status is one such dimension that defines every economic man; nevertheless, it typically lies outside the purview of economic contracts. Uncritical exclusion of social status from an analysis of the hidden action problem may omit much of what is required to understand the problem and may lead to technically deficient examination of it. This study analyzes experimentally the impact of *social status differential* between partners on the likelihood of partnership formation in a simple one-shot contract game that embodies hidden action. By analyzing the role of social status within the analysis of the hidden action problem, we aim to understand the enormity of the problem in a more socially descriptive environment.[3]

[1] See Hart and Holmström (1987) for a survey, and Bolton and Dewatripont (2005), Macho-Stadler and Pérez-Castrillo (1997), and Salanié (1997) for books. See Akerlof (1970) for his classic "lemons" paper.

[2] Organizations in the real world adopt traditional management strategies such as financial contracting, monitoring, and performance evaluation schemes to elicit desired performance from workers in environments with hidden action (see Prendergast 1999 for a survey). Standard contract theory searches for incentive-compatible mechanisms to resolve the hidden action problem. Since the classic works of Vickrey (1961) and Mirrlees (1971), research on mechanism design has also explored ways to minimize or eliminate the hidden action problem. The real-world applications include public and regulatory economics (Laffont and Tirole 1993), labor economics (Lazear 1997, Weiss 1991), financial economics (Freixas and Rochet 1997), and management (Milgrom and Roberts 1992).

[3] Contract theorists often deal with the hidden action problem in a principal–agent setting by designing contracts that link wages to the principal's return. If players are selfish, the principal would

Our intention is to uncover "hidden" costs and benefits of status in situations with hidden action; these costs and benefits are hidden in the sense that they will escape our attention if our logic is based on the assumption that preferences are selfish.

How may contract theorists react to our attempt to integrate status of individuals into contract situations? Contract theorists such as Casadesus-Masanell (2004), MacLeod (2003), and Rob and Zemsky (2002) have expressed the view that contract theory could be made more descriptive by including some form of behavioral components into the analysis. Because economists have long acknowledged social status to be an essential part of economic decision making (Duesenberry 1949, Veblen 1926, Smith 1759), the argument should readily bring status into the focus of contract theorists' attention. Real-world observations also suggest that a sizeable number of contracts with hidden action occurs between individuals with different status characteristics.[4] Therefore, it is natural to control the status of parties facing a hidden action problem; derive their incentivized decisions in a controlled setting; and estimate the magnitude of efficiency gain, if any, relative to the standard prediction of zero efficiency.

Our experiment utilizes a one-shot two-player (a principal and an agent) contract game, which is characterized by hidden action. In the game, the principal decides whether or not to offer a contract. If the contract is offered, the agent decides whether or not to perform a hidden action that maximizes her payoff but reduces that of the principal. This own-payoff maximizing action by the agent gives rise to the hidden action problem. The backward-induction solution for this game with standard selfish and risk-neutral preferences is that the principal will realize that a selfish agent will choose the opportunistic action. As a result, the principal will not offer the contract at the outset. Therefore, no partnership would form, and the economically most inefficient outcome will ensue. Both in our game and the experiment, the agent's hidden action remains *unobservable* to the principal ex post, making it a more likely choice.

We define a person's status as a position in a well-agreed social hierarchy within which that person is ranked. We utilize a preexisting exogenous status hierarchy, namely, the Indian caste system. The Hindu caste system is a set of discrete communities (Brahmin, Kshatriya, Vaishya, and Sudra) that are ranked in the above social order on the basis of their caste status (Gupta 2000). In addition to these four groups, there are the Scheduled Tribes (or the Adivasis), who remain outside the caste hierarchy, and their social status is at par with or even lower than that of the Sudra group (Xaxa 2001). These groups have emerged from the ancient *varna* system, according to which society was divided into initially four, later five, hereditary, endogamous, and mutually exclusive groups. An individual's *last name* reveals his or her caste or tribe identity and hence social status.

Two features of the Indian caste system are key to identifying the effect of status differentials on partnership formation. The caste-status hierarchy in the state of Jharkhand, from where we recruit our subjects, has existed for centuries, as is the case in other parts of India (Prakash 2001, Gupta 2000). There have been stark social and economic inequalities across the caste groups. The higher castes enjoyed basic rights and independence, while the lower castes and the Scheduled Tribes were barred from selling their labor and goods in markets, were prohibited from attending schools and places of worship, and were constantly stigmatized through the practice of Untouchability (Shah et al. 2006). The lower castes and the Scheduled Tribes were often forced to provide free labor to higher castes (Bayley 1999). Individual mobility across groups is basically impossible in a male's lifetime, which rules out selection bias and enables us to exclusively identify the impact of status differential. In other words, heritability of caste status and immutability of caste rankings constitute the *first feature* of the caste system that is key to our identification strategy.

Despite the enormous difference in social status among the five groups, today there is substantial individual variation in wealth, consumption, and education among these groups. There are not only many poor low-caste and Scheduled Tribes people, but also many wealthy low-caste and the Scheduled Tribes people, especially in urban Jharkhand from where we draw the subjects. A substantial number of low-caste and Scheduled Tribes people have managed to acquire more wealth than high-caste people because of various government policies adopted in the state. By exploiting that there are several well-off low-caste and Scheduled Tribes individuals and after controlling for the individual differences in wealth, income, and education conditions across individuals from different groups, we can rule out that differences in the

choose wage contracts so that agents nonopportunistically participate in the contract. We do not follow this approach in this study. Instead, we fix a given contract form and investigate the severity of the problem caused by hidden action in the first place.

[4] Hidden action plays a central role in agrarian settings of many low-income countries where a large number of agricultural relationships exist between "high-status" landlords and "low-status" tenants. A classic example is the agrarian system in India where caste hierarchy provides an exogenous scale of social status, and many low-caste individuals are employed as daily workers by high-caste landowners. There is a voluminous literature on India's agricultural contracts and the associated hidden action problem. References include Ghatak and Pandey (2000), Foster and Rosenzweig (1994), Eswaran and Kotwal (1985), and Stiglitz (1974), among others.

experimental data across treatments are caused by those individual differences. In other words, a tight control over overlapping wealth and educational distributions is the *second feature* that is key to identifying the status differential effect.

To induce zero, moderate, and extreme status differences between the two players (the principal and the agent) in our contract game, we recruited subjects from the following three status groups: Brahmin, Vaishya, and Scheduled Tribes. Before an anonymous pair of subjects played the game, we *subtly* revealed coplayers' last names (same or different) via the instructions and recorded their choice.

A priori, it is difficult to predict how the assignment of contracting players to extreme or moderate status gap in a status hierarchy could affect the chance of a gainful partnership formation. One possibility is that intense conflict and hostility among groups could exacerbate the hidden action problem and produce complete breakdown of partnership, implying a prohibitively high cost of cooperation with an individual from a different status group.[5] We call this the "strong status conflict hypothesis."[6] A direct implication of the above hypothesis is that when players belong to the same status group, the chance of a successful partnership is higher than when players belong to two different status groups, due to higher levels of trust and cooperation among in-group members. We call this the "status alignment hypothesis."[7] A weaker alternative of the strong status conflict hypothesis is that as the status differential between the players diminishes the chance of forming a profitable partnership could increase. We call this the "weak status conflict hypothesis."[8] Our experiment permits a clean test of these three hypotheses as well as the standard prediction of no partnership formation in all treatments.

## 2. Literature on Status and Economic Behavior

Economists have long recognized status as a part of cultural traditions that may inhibit or enhance economic exchange by affecting trust, trustworthiness, and cooperation (Duesenberry 1949, Veblen 1926, Smith 1759, and their successors).[9] Becker's (1971) analysis of taste for discrimination starts out with an assumption that people care about the characteristics of those with whom they interact. In his study,

[5] Even in contemporary rural India, events like the following are still reported: "When a Dalit . . . refused to sell *bidis* (hand-rolled cigarettes) on credit to the nephew of an upper-caste village chief, the upper-caste family retaliated by forcibly piercing his nostril, drawing a string through his nose, parading him around the village, and tying him to a cattle post" (Center for Human Rights and Global Justice and Human Rights Watch 2007, p. 60). Anderson (2011, p. 240) notes, "The main cause of poorer low-caste outcomes in high-caste dominated villages appears to be a pervasive breakdown in the functioning of private groundwater markets. These markets are ubiquitous and highly important in arid areas, but the empirical results suggest that upper-caste water sellers are unable to easily trade with lower-caste water buyers. As a result, in villages where the dominant caste, who own the majority of the private groundwater extraction mechanisms, is an upper caste, there appears to be a severe inefficiency in the distribution of groundwater. The implications of this trade breakdown in a poverty stricken part of India are dramatic." Our strong status conflict hypothesis is entrenched in such inimical relationships between higher- and lower-status groups in modern India.

[6] The following account by a low-caste surgeon summarizes the sentiment behind "stigmatized ethnic identity": "I am a microsurgeon specialising in hand and spinal reconstruction, and am [a Member of Legislative Assembly] from Bihar, but I still remain very much a dalit—a dhobi, to be precise—open to routine humiliation from the upper castes." This stresses that despite significant economic progress, caste rigidities are deeply ingrained, and economic mobility has not necessarily ensured social integration (Narula 2008, p. 266).

[7] Evidence for our status alignment hypothesis can be found in psychology and economics studies. The primary view on the concept of group (or social) identity builds upon a large literature in social psychology on how the perceptions of in-group and out-group originate (Tajfel and Turner 1979, Tajfel et al. 1971). In recent economics experiments, many decisions appear to have been greatly motivated by identity considerations of coplayers (Benjamin et al. 2010, Chen and Li 2009, Tanaka and Camerer 2009, Charness et al. 2007, Bernhard et al. 2006, Goette et al. 2006, Eckel and Grossman 2005, Fershtman et al. 2005, Fershtman and Gneezy 2001). A stable finding in the experimental literature is that individuals show an *in-group bias*; that is, they take more favorable actions toward those who are from the same identity group (in-group) than those who are from a different identity group (out-group). Using naturally occurring data from Indian villages, Munshi and Rosenzweig (2009) find evidence of mutually cooperative behavior among members of a given caste group.

[8] Dugar et al. (2012) find evidence from an Indian marriage market field experiment that as the caste-status differential between males and females narrows, parties are more willing to entertain each other's marriage proposal—a potential trade. In Indian marriage markets, there exists a clear incentive (disincentive) for lower-caste (higher-caste) females to marry upper-caste (lower-caste) males so that they would gain (lose their) higher status because a husband's caste determines that of wife and children. In such a setting, the authors find that lowest-caste males receive significantly higher number of responses from highest-caste females as the advertised monthly incomes of the lowest-caste males go up in their design. More importantly, for given monthly income figures, middle-caste males receive substantially more responses than lowest-caste males do from highest-caste females. They also find that middle-caste females send a significantly higher number of responses than do the lowest-caste females to highest-caste males for every possible monthly income figures. These results broadly suggest that frequency of potential trades between different caste groups is inversely related to the status differential between the trading groups. Our weak status conflict hypothesis is based on such real-world observations.

[9] Sociologists study the way status differentials are formed and perpetuated in social interactions. They maintain that within a well-defined status hierarchy, individuals' status affects the way they interact with others. See Webster and Foschi (1988) for a survey. See also Sell et al. (2004) for an investigation of the concepts like conflict, power, and status among various groups.

discrimination against those with an undesirable feature can be reinterpreted as favoritism toward those with a desirable feature. In other words, a preference for discrimination against a group of people can be understood as a preference for association with high- or same-status people. More recently, Henrich and Gil-White (2001), Frank and Cook (1995), and Frank (1985) have demonstrated that concern for status is pervasive in practically all societies and people's relative standings in a social hierarchy greatly shape their social interactions with others. On the whole, over the last decades, abundant evidence has been strictly conforming to the premise that status concerns directly enter people's utility function and influence social interactions.[10]

Overwhelming evidence from economics experiments show that subjects care about status, whether it is natural, artificial, or even a random one created in the laboratory (Bhattacharya and Dugar 2012, 2013; Charness et al. 2014; Dugar et al. 2012; Tran and Zeckhauser 2012; Kosfeld and Neckermann 2011; Eckel et al. 2010; Kumru and Vesterlund 2010; Tsutsui and Zizzo 2010; Butler 2008; Huberman et al. 2004; Markham et al. 2002; Ball and Eckel 1996, 1998). There is trong evidence that low-status subjects exhibit deferential behavior to high-status subjects (Ball et al. 2001); compared with low-status subjects, high-status subjects show considerably greater willingness to enforce social norms and display close to normative behavior (Hoff et al. 2011, Butler 2008); low-status subjects trust less other low-status subjects in a Berg et al. (1995) type trust game (Tsutsui and Zizzo 2010); and acute conflict between various status groups can impede trade opportunities and thereby lead to massive inefficiency (Anderson 2011).

Our study differs from the above experimental studies along several important dimensions. We believe that our study is unique in its recruitment of subject pool. In most of the studies mentioned above (exceptions are Dugar et al. 2012, Anderson 2011, and Hoff et al. 2011), status is artificially induced in the lab. In contrast, we make use of a well-documented natural status hierarchy.[11] In some of the above studies, status does not have any monetary implications for subjects; instead, it only brings social recognition (Bhattacharya and Dugar 2012, 2013; Charness et al. 2014; Tran and Zeckhauser 2012; Kosfeld and Neckermann 2010). In contrast, status concerns may have considerable monetary consequences for subjects in our experiment. Finally, ours is an artifactual field experiment, whereas the rest are mostly lab experiments.

## 3. The Experiment

### 3.1. Status Groups in Jharkhand

Before we describe the treatments and hypotheses in detail, we pin down the notion of the term "status" as used in this study. By a specific caste or tribe, we mean that an individual belongs to an unambiguous endogamous social group consisting of thousands of families—such as belonging to the caste group of Brahmin or Vaishya or to a given tribal group. To attach different status affiliations to the players in the contract game, we used Brahmin, Vaishya, and the Scheduled Tribes as three status groups. The choice of the status groups for the experiment meets a vital requirement. That is, each chosen status group should be sufficiently distinct from the other groups along the status hierarchy, which will induce desirable level of status variation in the design. For this purpose we consulted the broad *Jati* classification system available for Jharkhand (Oraon 2003, Prakash 2001). Based on this system, we identified the above three status groups.

These groups can be clearly ranked in terms of their social position with the Brahmin enjoying the highest status, followed by the Vaishya and the Scheduled Tribes at the bottom of the spectrum. Since the Scheduled Tribes remain outside the caste hierarchy, it can be assumed that the status gap between the Brahmin and the Vaishya is smaller than the status gap between the Vaishya and the Scheduled Tribes. Using Oraon (2003), for each status group we identified last names that are abundantly visible within each of the three groups in Jharkhand. Although members of these status groups socially interact with each other in urban Jharkhand, they are highly conscious of their relative social standing.[12]

[10] Economists have long acknowledged that relative position in social pecking order might exert strong influence on human behavior. For early works on status, see Hirsch (1976). A few recent examples include Ellingsen and Johannesson (2007), Moldovanu et al. (2007), Piccione and Rubinstein (2004), Postlewaite (1998), Bagwell and Bernheim (1996), Congleton (1989), and Ng (1987).

[11] Using subjects from a preexisting exogenous status hierarchy has the inevitable benefit of lending external validity to experimental findings, it also has its disadvantages. For example, caste or tribe groups in India, like many real-world groups, share inimical past relationships, harbor stereotypical images of one another, and engage in complex relational dynamics in a changing world—to name a few. All of these aspects may affect our subjects' behavior in the experiment. Unfortunately, it is difficult to precisely predict the specific effects of aforementioned factors on behavior in the contract game.

[12] According to the provisional estimates of the 2011 Census of India, the population of Jharkhand is approximately 33 million, of which 28% are tribal people (defined as the Scheduled Tribes in this study), 12% are scheduled castes (mainly low-caste people defined as the Sudra in this study), and 60% are others (high-caste people defined as the Brahmin, Kshatriya, Vaishya, and other backward castes). The Indian census does not provide information on the population share of main caste groups for any of its states.

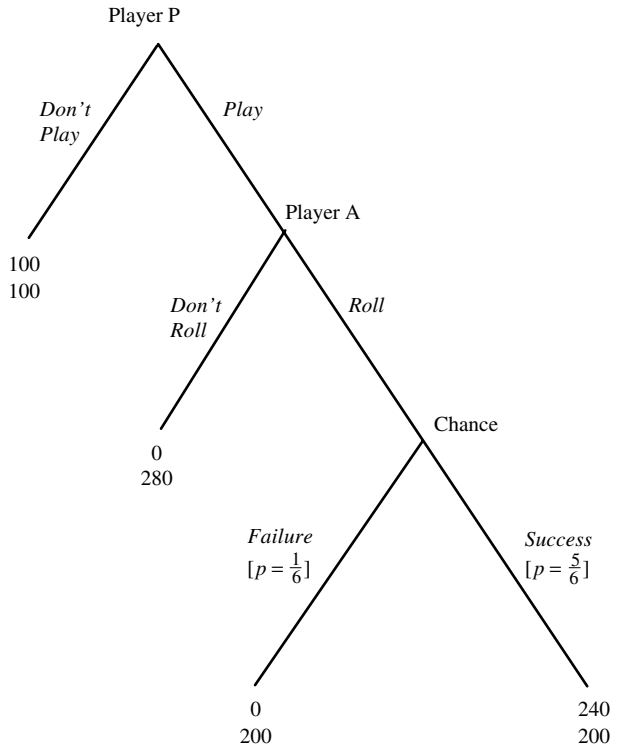
The state of Jharkhand was carved out of Bihar, another state in Eastern India, in November 2000. Bihar had an unimpressive record on the front of intercaste inequality. According to Deshpande (2001), Bihar was at the higher end of the spectrum in terms of economic deprivation of Scheduled Tribes as well as in intercaste economic disparity (Scheduled Tribes versus "others"). Thus, the high intercaste economic inequality documented for Bihar, which Jharkhand inherited during its formation, is an important indicator of the prevalence of strong intercaste inequality in Jharkhand.

### 3.2. The Contract Game and the Selfishness Hypothesis

This subsection considers the contract game (Figure 1) that we study, which is based on Charness and Dufwenberg (2006). In this two-player game, player P (principal) chooses between an outside option (by choosing *Don't Play*) and playing with player A (agent) (by choosing *Play*). If P chooses *Don't Play*, the game ends and both players receive a payoff of 100. If, instead, P chooses *Play*, then A chooses between *Roll* and *Don't Roll*. If A chooses *Don't Roll* (which is the hidden action for A), then the game ends; P receives 0 and A receives 280. If A chooses *Roll* instead, then she receives 200 and P receives either 0 or 240, with probabilities $\frac{1}{6}$ or $\frac{5}{6}$, respectively. So to maximize her payoff, A would choose *Don't Roll*, which gives P a lower payoff. Having anticipated this, P would choose *Don't Play* at the outset to maximize her payoff. The backward-induction solution to this game is thus the inefficient strategy profile (*Don't Play*, *Don't Roll*), leading to a complete breakdown of partnership. Throughout the study, *by partnership formation we mean the efficient strategy profile of* (*Play, Roll*).

Notice that when player choices are private, upon choosing *Play* and receiving a zero payoff, P does not realize whether it is due to A's choice of *Don't Roll* or the chance move with probability $\frac{1}{6}$.[13] The unobservability of A's actual choice by P may play an important role. Under selfish preferences, we would not expect unobservability to produce any effect on player choices. However, with nonselfish preferences, the unobservability can make both trusting and trustworthiness less likely. For example, whether or not A's choice can be observed by P may matter to the players' motivation provided they are not selfish.[14] Perhaps A would feel worse choosing *Don't Roll* if he knew that P would know.

**Figure 1** **The Contract Game**




We considered treatments that differ according to the assignment of the two player roles either to the same status group or two different status groups. We denote the three different status groups Brahmin, Vaishya, and Scheduled Tribes by H, M, and L, respectively. Given the two player roles, we implemented nine treatments, denoted as HP-HA, HP-MA, HP-LA, MP-HA, MP-MA, MP-LA, LP-HA, LP-MA, and LP-LA. The first two letters in each treatment

[13] To fit this game in a principal–agent situation, we think of players P and A in the roles of a principal and an agent, respectively, who are considering partnership formation. If the contract is not offered (*Don't Play*), then both of them receive an outside-option payoff. On the other hand, when the contract is offered (*Play*), then the contract specifies a "wage" that the principal pays the agent, and a (costly) "effort" that the agent should exert. The agent chooses between exerting high effort *(Roll*) and low effort (*Don't Roll*). If the agent chooses low effort, then the project does not generate any revenue for the principal. If the agent chooses high effort, then the project stochastically generates revenue for the principal—either a poor or a good outcome represented by "failure" and "success" of the chance move in Figure 1. When effort and wage are contractible, the strategy profile (*Play*, *Roll*) is a Nash bargaining solution (see footnote 5 in Charness and Dufwenberg 2006). In the absence of contractible effort, however, the agent optimally exerts low effort. In anticipation, the principal opts out of the deal and no partnership is formed. This corresponds to the inefficient solution (*Don't Play*, *Don't Roll*).

[14] The results in Charness and Dufwenberg (2006) indicate that nonstandard preferences may play a crucial role in the contract game. The players were not completely selfish in Charness and Dufwenberg (2006). *Don't Roll* maximizes A's payoff and in the presence of unobservability, A can choose *Don't Roll* without P knowing of her choice. On the other hand, given A's anticipated behavior, P would be better off choosing *Don't Play*. In their experiment, however, P chose *Don't Play* only 44% of the time and A chose *Don't Roll* only 56% of the time. Nonstandard preferences of the players can rationalize these choices.

name indicate the caste status—H, M, or L—of the player in the role of P; the last two letters indicate the caste status of the player in the role of A. Thus, we varied the status difference between the two players in all possible ways. If we had not included more than two groups, we would confound the effect of the caste divide among players with the in-group favoritism effect as evident in Tajfel and Turner (1986).

For each of the above treatments, we subtly revealed each player's social status, via showing a player's last name to the coplayer in the instructions. The procedure is described in detail in §3.4. We also created a baseline treatment, P-A, in which two randomly drawn players interacted with each other without knowing each other's last name.[15]

Hypothesis 1. *Based on the standard assumption that players have selfish preferences, the frequency of* (*Play*, *Roll*) *is expected to be zero in the P-A treatment. Furthermore, if players do not care about co-player's status and have selfish preferences, the frequency of* (*Play*, *Roll*) *is expected to be zero in other nine treatments. We call this the "selfishness hypothesis."*

### 3.3. Social Status, Social Preferences, and the Behavioral Hypotheses

To examine the effect of status in our game, we consider the two-person version of the group-dependent social preference model developed by Chen and Chen (2011). According to this model, a player's utility function is a weighted average of her own and her coplayer's monetary payoffs. Let $\pi_P$ and $\pi_A$ be the monetary payoffs of P and A, respectively. Let $\alpha$ be the weight that a player places on her coplayer's payoff. Then A's utility function can be written as $u_A(x_A, x_P) = (1-\alpha_A)\pi_A + \alpha_A\pi_P$, where $x_A$ and $x_P$ are A's and P's action choice, respectively. Similarly, P's utility function can be written as $u_P(x_P, x_A) = (1-\alpha_P)\pi_P + \alpha_P\pi_A$.

A utility maximizing player A would decide to *Roll* if (1) $\geq$ (2), where

$$u_A(Roll, Play) = (1-\alpha_A)200 + \alpha_A(\tfrac{1}{6}\cdot 0 + \tfrac{5}{6}\cdot 240), \quad (1)$$

$$u_A(Don't\ Roll, Play) = (1-\alpha_A)\cdot 280 + \alpha_A\cdot 0. \quad (2)$$

Equivalently, A would choose *Roll* if $\alpha_A \geq \frac{2}{7}$. (3)

Based on the payoffs of the contract game, if A chooses *Roll*, it is incentive compatible for P to choose *Play* since $u_P(Play, Roll) \geq u_P(Don't\ Play, Roll)$. Thus, (*Play*, *Roll*) can be sustained as a Nash equilibrium if $\alpha_A \geq \frac{2}{7}$. Note that condition (3) ensures successful partnership formation. Next we show how different specifications of $\alpha_A$ and $\alpha_P$ generate behavioral hypotheses driven by status preferences.

To incorporate players' status concerns in the above model, let us assume that the utility of an individual $i$ in the player role A is given by $u_{Ai}(x_A, x_P) = (1-\alpha^g_{Aij})\pi_A + \alpha^g_{Aij}\pi_P$, where $i = 1(\cdot)\ N$, $N$ is the total number of players in the role of A in the player population; $j \in \{H, M, L\}$ denotes the status affiliation of individual $i$; and $g \in \{I, D, U\}$ is an indicator variable denoting whether the P's and A's status affiliations are known to each other as identical ($I$), different ($D$), or status affiliations are unknown ($U$) to each other. Similarly, for each individual $i$ in the player role P, there exists an utility function of the form $u_{Pi}(x_P, x_A) = (1-\alpha^g_{Pij})\pi_P + \alpha^g_{Pij}\pi_A$, where $i = 1(\cdot)N$. Based on this framework, we can construct our subsequent hypotheses.

Our second hypothesis is formed in accordance with the most fundamental result in the social identity theory (Tajfel et al. 1971), that group membership creates in-group enhancement in ways that favor the in-group at the expense of the out-group. Specifically, throughout this subsection, we assume $\alpha^I_{Aij} > \alpha^D_{Aij}\ \forall i$ and $\alpha^I_{Pij} > \alpha^D_{Pij}\ \forall i$ which implies that each player places a higher weight on coplayer's payoff whenever the coplayer belongs to the player's own status group versus when the coplayer belongs to a different status group. We assume that the above in-group bias is common knowledge.

In view of (3), $\alpha^I_{Aij} > \alpha^D_{Aij}$ can arise in three mutually exclusive ways in the population of A players, each of which generates a specific behavioral type of $i$ in the player role A:

$$\alpha^I_{Aij} > \alpha^D_{Aij} \geq \tfrac{2}{7}, \quad (4)$$

$$\alpha^I_{Aij} \geq \tfrac{2}{7} > \alpha^D_{Aij}, \quad (5)$$

$$\tfrac{2}{7} > \alpha^I_{Aij} > \alpha^D_{Aij}. \quad (6)$$

Let $N_1$, $N_2$, and $N_3$ be the number of individuals who belong to (4), (5), and (6), respectively, such

[15] Let us call the above nine treatments "augmented treatments." We also created nine corresponding baseline treatments. The *only* difference between an augmented treatment and its baseline counterpart is that in the former we revealed the last names of the two subjects via instructions while in the latter we did not do so. By comparing the data from an augmented treatment and its baseline counterpart, we are able to identify any behavioral difference due to the full disclosure of status affiliations of the two subjects. We also created a treatment denoted by P-A in which we did not recruit subjects according to their caste affiliations and did not disclose subjects' last names to each other. After collecting the data from these 10 (9 baselines plus P-A) treatments and performing statistical testing, we found no statistical difference in behavior between the play data from the P-A treatment and the play data from any of the nine baseline treatments. This means that we can compare the data from an augmented treatment with the data from the P-A treatment and will still be able to identify any behavioral difference due to the full disclosure of status affiliations of the two subjects. Hence, we decided to report the data from the P-A treatment only and not include the data from the other nine baseline treatments. This was done to not overburden the reader with too much irrelevant information.

that $N_1 + N_2 + N_3 = N$. The distribution of the three behavioral types in player population A is common knowledge. However, an individual $A$'s value of $\alpha$ is unknown to player P. In this framework, it is straightforward to show that as long as $N_2 > 0$, the expected frequency of *Roll* is higher when $g = I((N_1 + N_2)/N)$ than when $g = D(N_1/N)$. Given the expected frequencies of *Roll*, it can be shown that when $\alpha^D_{Pij} < \frac{5}{7}$, the frequency of *Play* is expected to be higher when $g = I$ than when $g = D$.[16] As a result the frequency of (*Play*, *Roll*) is expected to be higher when $g = I$ than when $g = D$. This leads to our second hypothesis.

Hypothesis 2. *The frequency of* (*Play*, *Roll*) *is expected to be higher in the treatments where the status affiliations of P and A are identical than in the treatments where the status affiliations of P and A are different. We call this the "status alignment hypothesis."*

Now we further classify $N$ individuals in the player role A based on their affiliation to a specific status group as $N^H$, $N^M$, and $N^L$. Agents within a status group $j$ can be further subclassified into $N^j_1$, $N^j_2$, and $N^j_3$ behavioral types satisfying (4), (5), and (6), respectively, such that $N^j_1 + N^j_2 + N^j_3 = N^j$, where $j \in \{H, M, L\}$. If we impose the restriction $(N^H_1 + N^H_2)/N^H = (N^M_1 + N^M_2)/N^M = (N^L_1 + N^L_2)/N^L$, then the frequency of *Roll* would be identical for $j = H, M$, and $L$ when $g = I$. This generates our next hypothesis.

Hypothesis 2A. *The frequency of Roll is expected to be identical in the treatments where the status affiliations of P and A are the same. We call this the "identical status alignment hypothesis."*

Alternatively, if we impose the restriction $(N^H_1 + N^H_2)/N^H > (N^M_1 + N^M_2)/N^M > (N^L_1 + N^L_2)/N^L$, then the frequency of *Roll* would decline as we move down the status hierarchy when $g = I$.

The above inequality captures the intuition that higher-status groups are expected to exhibit greater in-group favoritism. This presumed behavior could be linked to a result in the literature, which suggests that higher-status subjects demonstrate greater willingness to exhibit normative behavior (Hoff et al. 2011, Butler 2008, Bernhard et al. 2006, Fehr and Fischbacher 2004), otherwise known as *noblesse oblige* (Homans 1950). In our contract game, if "norm violation" is defined as the agent violating the implicit contractual agreement by choosing *Don't Roll* and thereby hurting the exchange partner, then according to the above intuition we can expect higher-status agents to exhibit higher regards for norm compliance. This paves the way for our next hypothesis.

Hypothesis 2B. *Among the treatments where the status affiliations of P and A are identical, the frequency of Roll is expected to increase as the position of the status group moves upward along the status hierarchy. We call this the "high status–high standards hypothesis."*

Now, we shift our focus to $g = D$. First, we assume that $\alpha^D_{Aij} < \frac{2}{7}$. In other words, individuals in the player role A exclusively belong to (5) and (6). This assumption is equivalent to the restriction that $N_1 = 0$ or $N_2 + N_3 = N$. Furthermore, we assume that it is common knowledge that whenever P and A are from different status groups, the weight A places on P's payoff is strictly lower than $\frac{2}{7}$. As a result, every individual in the role of A will choose *Don't Roll* and consequently every individual in the role of P will choose *Don't Play*. These imply that the frequency of (*Play*, *Roll*) is expected to be zero when $g = D$. This generates our next hypothesis.

Hypothesis 3A. *The frequency of* (*Play*, *Roll*) *is expected to be zero in the treatments where the status affiliations of P and A are different. We call this the "strong status conflict hypothesis."*

Let us now focus on an alternative specification of $\alpha^D_{Aij}$. Let $s$ be an ordinal variable that captures the ranking of the three status groups in the hierarchy. Specifically, $s$ implies that $H \succ M \succ L$. Let us define $\alpha^D_{Aij} = 1/|s_P - s_A|$, where $s_A$ and $s_P$, respectively, denote the status affiliations of A and P. Similarly, $\alpha^D_{Pij} = 1/|s_P - s_A|$. These specifications imply that as the status difference between P and A increases, a player puts progressively lower weight on her coplayer's payoff. Expressed differently, the above specifications capture the intuition that an individual from a given status group derives higher utility as the status difference with the coplayer decreases. Furthermore, the increase in utility is symmetric in both directions with respect to an individual's position in the status hierarchy. We assume that the above preferences are common knowledge.

In our context, $|s_P - s_A|$ can have three possible configurations: $|H - M|$, $|H - L|$, and $|L - M|$. These "perceived" status gaps have the following ordering: $|H - M| < |M - L| < |H - L|$.[17] Based on this ranking scheme, we obtain $\alpha^D_{Aij}|_{|H-M|} > \alpha^D_{Aij}|_{|M-L|} > \alpha^D_{Aij}|_{|H-L|}$. Similarly, $\alpha^D_{Pij}|_{|H-M|} > \alpha^D_{Pij}|_{|M-L|} > \alpha^D_{Pij}|_{|H-L|}$.

In view of (3), $\alpha^D_{Aij}|_{|H-M|} > \alpha^D_{Aij}|_{|M-L|} > \alpha^D_{Aij}|_{|H-L|}$ can arise in four mutually exclusive ways, each of which generates a specific behavioral type of $i$ in the player role A:

$$\tfrac{2}{7} > \alpha^D_{Aij}|_{|H-M|} > \alpha^D_{Aij}|_{|M-L|} > \alpha^D_{Aij}|_{|H-L|}, \qquad (7)$$

[16] $u_P(Play)|_{g=I} > u_P(Play)|_{g=D} \Rightarrow 200(N_1 + N_2)/N + 280\alpha^I_{Pij}N_3/N > 200N_1/N + 280\alpha^D_{Pij}(N_2 + N_3)/N$, which is satisfied for $\alpha^D_{Pij} < \frac{5}{7}$.

[17] The above ranking of the status gaps is based on the assumptions $|H - M| < |H - L|$, $|M - L| < |H - L|$, and $|H - M| < |M - L|$.

$$\alpha^D_{Aij}|_{|H-M|} > \alpha^D_{Aij}|_{|M-L|} > \alpha^D_{Aij}|_{|H-L|} \geq \tfrac{2}{7}, \quad (8)$$

$$\alpha^D_{Aij}|_{|H-M|} \geq \tfrac{2}{7} > \alpha^D_{Aij}|_{|M-L|} > \alpha^D_{Aij}|_{|H-L|}, \quad (9)$$

$$\alpha^D_{Aij}|_{|H-M|} > \alpha^D_{Aij}|_{|M-L|} \geq \tfrac{2}{7} > \alpha^D_{Aij}|_{|H-L|}. \quad (10)$$

Let $M_1$, $M_2$, $M_3$, and $M_4$ be the number of individuals who belong to (7), (8), (9), and (10), respectively, such that $M_1 + M_2 + M_3 + M_4 = N$. The above distribution of the behavioral types in player population A is common knowledge.

Against this backdrop, it is straightforward to show that the frequency of *Roll* is expected to increase with a decrease in the status gap as long as $M_3$, $M_4 > 0$.[18] Given the expected frequencies of *Roll*, it can be shown that when $\alpha^D_{Pij}|_{|H-L|} < \frac{5}{7}$ and $\alpha^D_{Pij}|_{|M-L|} < \frac{5}{7}$, the frequency of *Play* is expected to increase with a decrease in the status gap.[19] As a result, the frequency of (*Play*, *Roll*) is expected to increase with a decrease in the status gap. This leads to our next hypothesis.

Hypothesis 3B. *The frequency of* (*Play*, *Roll*) *is expected to decline as the status difference between P and A increases. We call this the "weak status conflict hypothesis."*[20]

Next, we construct a hypothesis regarding the P-A treatment in which players' status affiliations are unknown to each other. Let us define $\alpha^U_{Aij} = p\alpha^I_{Aij} + (1-p)\alpha^D_{Aij}$ and $\alpha^U_{Pij} = p\alpha^I_{Pij} + (1-p)\alpha^D_{Pij}$, where $p$ denotes the probability that P and A are from the same status group. The unknown status affiliation of the players dictates that $0 < p < 1$. Hence, $\alpha^I_{Aij} > \alpha^U_{Aij} > \alpha^D_{Aij}$ and $\alpha^I_{Pij} > \alpha^U_{Pij} > \alpha^D_{Pij}$.

In view of (3), $\alpha^I_{Aij} > \alpha^U_{Aij} > \alpha^D_{Aij}$ can arise in four mutually exclusive ways, each of which generates a specific behavioral type of $i$ in the player role A:

$$\alpha^I_{Aij} > \alpha^U_{Aij} > \alpha^D_{Aij} \geq \tfrac{2}{7}, \quad (11)$$

$$\alpha^I_{Aij} > \alpha^U_{Aij} \geq \tfrac{2}{7} > \alpha^D_{Aij}, \quad (12)$$

$$\alpha^I_{Aij} \geq \tfrac{2}{7} > \alpha^U_{Aij} > \alpha^D_{Aij}, \quad (13)$$

$$\tfrac{2}{7} > \alpha^I_{Aij} > \alpha^U_{Aij} > \alpha^D_{Aij}. \quad (14)$$

Let $R_1$, $R_2$, $R_3$, and $R_4$ be the number of individuals who belong to (11), (12), (13), and (14), respectively, such that $R_1 + R_2 + R_3 + R_4 = N$. The distribution of the behavioral types in player population A is common knowledge.

In this framework, if $R_2, R_3 > 0$, then it is straightforward to show that the frequency of *Roll* is expected to be higher when $g = I$ than when $g = U$ and the frequency of *Roll* is expected to be higher when $g = U$ than when $g = D$.[21] Given the expected frequencies of *Roll*, it can be shown that when $\alpha^D_{Pij}, \alpha^U_{Pij} < \frac{5}{7}$ the frequency of *Play* is expected to be higher when $g = I$ than when $g = U$ and the frequency of *Play* is expected to be higher when $g = U$ than when $g = D$.[22] As a result, the frequency of (*Play, Roll*) is expected to be higher when $g = I$ than when $g = U$ and the frequency of (*Play, Roll*) is expected to be higher when $g = U$ than when $g = D$. This leads to our last hypothesis.

Hypothesis 4. *The frequency of* (*Play*, *Roll*) *is expected to be higher when both players know that they are from the same status group than when players' status affiliations are unknown to each other, and the frequency of* (*Play*, *Roll*) *is expected to be higher when players' status affiliations are unknown to each other than when both players know that they are from two different status groups. We call this the "anonymity hypothesis."*

### 3.4. Experimental Procedure

We recruited subjects from the three status groups for the nine treatments where status information was revealed to the subjects: (HP-HA), (HP-MA), (HP-LA), (MP-HA), (MP-MA), (MP-LA), (LP-HA), (LP-MA), and (LP-LA). We also recruited subjects without any regard for their caste affiliations for the (P-A) treatment where status information was not revealed to the subjects. The experiment took place in 2012. We used telephone directories to recruit subjects. A telephone directory lists the landline subscribers sorted by last names for a city. We recruited several research assistants to go through the telephone directories to locate individuals with the last names, which we provided to them for the three status groups. The research assistants were naive to our hypotheses. The assistants called individuals and asked them whether they were willing to participate in an economics

[18] The expected frequencies of *Roll* are $(M_2 + M_3 + M_4)/N$, $(M_2 + M_4)/N$, and $M_2/N$ for $|H-M|$, $|M-L|$, and $|H-L|$, respectively.

[19] $u_P(Play)|_{|H-M|} > u_P(Play)|_{|H-L|} \Rightarrow 200(M_2 + M_3 + M_4) + 280M_1\alpha^D_{Pij}|_{|H-M|} > 200M_2 + 280(M_1 + M_3 + M_4)\alpha^D_{Pij}|_{|H-L|}$, which is satisfied for $\alpha^D_{Pij}|_{|H-L|} < \frac{5}{7}$. $u_P(Play)|_{|H-M|} > u_P(Play)|_{|M-L|} \Rightarrow 200(M_2 + M_3 + M_4) + 280M_1\alpha^D_{Pij}|_{|H-M|} > 200(M_2 + M_4) + 280(M_1 + M_3)\alpha^D_{Pij}|_{|M-L|}$, which is satisfied for $\alpha^D_{Pij}|_{|M-L|} < \frac{5}{7}$. $u_P(Play)|_{|M-L|} > u_P(Play)|_{|H-L|} \Rightarrow 200(M_2 + M_4) + 280(M_1 + M_3)\alpha^D_{Pij}|_{|M-L|} > 200M_2 + 280(M_1 + M_3 + M_4)\alpha^D_{Pij}|_{|H-L|}$, which is satisfied for $\alpha^D_{Pij}|_{|H-L|} < \frac{5}{7}$.

[20] More specifically, the frequency of (*Play*, *Roll*) is expected to follow $(HP-MA) > (HP-LA)$, $(MP-HA) > (LP-HA)$; $(LP-MA) > (LP-HA)$, $(MP-LA) > (HP-LA)$; and $(MP-HA) > (MP-LA)$, $(HP-MA) > (LP-MA)$.

[21] Under this specification, when $g = I$, $U$, and $D$, the expected frequencies of *Roll* are $(R_1 + R_2 + R_3)/N$, $(R_1 + R_2)/N$, and $R_1/N$, respectively.

[22] $u_P(Play)\,|_{g=I} > u_P(Play)|_{g=U} \Rightarrow 200(R_1 + R_2 + R_3) + 280R_4\alpha^I_{Pij} > 200(R_1 + R_2) + 280(R_3 + R_4)\alpha^U_{Pij}$, which is satisfied for $\alpha^U_{Pij} < \frac{5}{7}$. $u_P(Play)|_{g=U} > u_P(Play)|_{g=D} \Rightarrow 200(R_1 + R_2) + 280(R_3 + R_4)\alpha^U_{Pij} > 200R_1 + 280(R_2 + R_3 + R_4)\alpha^D_{Pij}$, which is satisfied for $\alpha^D_{Pij} < \frac{5}{7}$.

research study conducted by a university. The potential subjects were told that we were recruiting individuals via telephone calls only.[23] The potential subjects were never given any information about the purpose of experiment. They were told that they would have to make decisions after reading written instructions, which would be available in English as well as in the official local language, Hindi. The experiment would not take more than an hour, and in exchange of their time they would be receiving some monetary compensation, the amount of which was not disclosed. Since we drew our subjects by using a wealth threshold (owning a landline) that excludes 98% of the population, that is, by choosing the wealthiest of three caste groups, one may conjecture that these individuals may not identify very strongly with their respective status groups. Despite this, if we find any significant evidence in favor of status driven behavior, it would provide stronger support to our hypotheses.

After a subject's consent to participate, we visited the subject's house on a date and a time chosen by the subject. During the recruitment over the phone, we assigned each subject a randomly drawn identification number. The subjects came from various locales of each city. Since we did not disclose our next visit to another house to a subject, any concern for altruism- or reciprocity-based preferences affecting decisions can be easily ruled out.

We randomly assigned one of the two player roles to each identification number from a given status group such that half of the subjects from a given status group were designated the role of P and half the role of A. Further they were randomly assigned to one of the treatments such that each treatment had 40 independent pairs of subjects. No subject participated in more than one treatment. The parameter values of the contract game, as shown in Figure 1, represented the amounts of Indian Rupees (Rs.), which determined actual subject payments in our experiment.

After we arrived at a subject's house, we invited the subject inside a car and handed him the experimental instructions. The instructions avoided value-laden words, such as *Play*, *Don't Play*, *Roll*, and *Don't Roll*. Instead we used neutral terms. To ensure that a subject understood the instructions, the rules of the game were explained to him by the experimenter. In particular, after explaining the game and the choices, all subjects faced a basic test of comprehension. The test involved a short questionnaire that asked subjects to identify their own payoff and the coplayer's payoff for the four possible outcomes in the game. All the subjects passed the test. Subjects in the role of player A made their choice without knowing the matched P's actual choice. Thus, in eliciting A's decision, we used the strategy method (in which A makes a conditional decision for each possible information set) rather than the direct response method (in which A learns the action choice of the earlier player and then chooses a response). We thus obtained an observation for every A.[24] Each subject made the decision in private in the car, while the experimenter waited outside. After a subject made the decision, the experimenter reentered the car. If a subject in the player role A chose the option corresponding to *Roll* in our game, we rolled a six-sided die to determine the final outcome.[25] A successful project occurred if the die came up 2, 3, 4, 5, or 6.

After a session was over with a subject, we informed the subject that on a given date we would revisit the subject's house to pay. To earn subjects' credibility about this aspect of the experiment, we showed each subject a letter from one of the author's institution (typed and printed in the institution's letterhead) about the goal of the experiment and a statement that the experiment does *not* involve any deception. We also provided each subject with our mobile phone number to earn subject's confidence. After we collected all the decision sheets, we matched the subjects using their identification numbers and paid them.

During the implementation of this experiment, three concerns drew our attention. First, subjects should never be able to learn the real identity of the coplayer. Second, because caste relationships are a politically sensitive issue, they should not be salient during the experiment. To address these concerns, as

[23] Since all of our subjects own a landline connection, this income/wealth threshold necessitated by our design raises a selection issue. Specifically, one may claim that such a threshold may make low-caste subjects less representative of their caste group since the threshold is expected to have more bite for this group. At the same time, as per the 2011 Census of India, only 2% of the state population in Jharkhand owns a landline telephone (Biswas 2012). Given that statistic, it is fair to claim that our threshold makes subjects from all three castes less representative of their caste group.

[24] The *strategy method* (Selten 1967) has been used extensively in experimental economics literature, especially in those games that have very few decision nodes. See Brandts and Charness (2011) for a survey on strategy versus direct-response method. They find no case in which a treatment effect obtained with the strategy method was not also present with the direct response method.

[25] Each subject in the player role A knew in advance that the experimenter would come to know of his or her choice and then roll a die, if *Roll* was chosen. The most common concern of such a design choice is that the anticipated face-to-face contact may affect the player's decision. Although the concern is valid, we adopted this design feature from Charness and Dufwenberg (2006), who followed the strategy method and rolled a die after each A player made his or her decision. Furthermore, our data on *Roll* (discussed in the next section) clearly alleviates the common concern that A's choices were influenced by the experimenter's knowledge about his or her decision.

already mentioned above, we recruited subjects for each role (P and A) from different locales of different cities by calling their numbers from phone directories and randomly matching them. We carefully thought about how to communicate the caste information to the subjects. The natural choice was to use last names since last names convey a person's specific caste and this is common knowledge in India. The use of last names was thus an unobtrusive way of indicating status. We still checked explicitly in a preexperiment that individuals were generally willing to reveal their last names to our assistants and also verified the ability of individuals to recognize caste membership from last names. In order to accurately convey the caste or tribe status of the subjects, we used only the last names in the form of Mr. X, where X is the last name of an individual. Based on our pretest of the recognizability of names, we found that all subjects recognized last names from the specific caste or tribe used in the experiment.

The experimental instructions conveyed to a subject the information about the coplayer in the following way. For example, in the case of player P, it stated, "You are playing the game with person A. You are person P"; "[Mr. X], who is from one of the cities in Jharkhand, is person A." The advantage of using only last names is that we can convey information about caste or tribe but still maintain effective anonymity among the players, since thousands of people with the same last name live in urban Jharkhand. The experimenter emphasized that no player would ever know the specific location of the coplayer with whom he was matched belonged. We never used the words "caste" or "tribe" in our interactions with the subjects before or during the session.

Finally, we controlled for individual differences in wealth and education. In modern urban Jharkhand we may have not only poor low-caste or tribe subjects but also poor high-caste subjects. Likewise, we may also have rich low-caste or tribe subjects. We controlled for these individual differences in two ways. First, by recruiting subjects who have a landline telephone, we ensured that our subject pool's income is at least as large as is required to afford a landline connection. Second, in postplay interviews, we also collected information on land ownership; house ownership; education; whether the household owns a car, motorcycle, television; etc., which are all known to be important predictors of household wealth. Our analyses of the collected data, discussed in the next section, reveal that wealth and consumption levels do not vary greatly across the three status groups in our sample, and therefore our results are robust to individual income and wealth variations.[26]

[26] Even though we were successful in recruiting subjects who are similar along income and wealth dimensions, it is impossible to completely shut off the effects of *perceived* wealth and income effects on individual player behavior. Since each player in our experiment is conveyed information about his or her coplayer's caste membership, a player's beliefs about a representative or stereotypical member of the coplayer's caste group can still affect that player's decision. This is especially true given that Charness and Dufwenberg (2006), from which we borrow the contract game, found that behavior is sensitive to players' first- or second-order beliefs about the coplayer.

**Table 1** **Data on *Play*, *Roll*, and (*Play*, *Roll*) in All Treatments**

| Treatment | Frequency of *Play* | Frequency of *Roll* | Frequency of (*Play*, *Roll*) |
|---|---|---|---|
| HP-HA | 28 | 25 | 21 |
| HP-MA | 19 | 15 | 11 |
| HP-LA | 8 | 5 | 2 |
| MP-HA | 16 | 13 | 10 |
| MP-MA | 27 | 23 | 20 |
| MP-LA | 12 | 7 | 4 |
| LP-HA | 8 | 4 | 1 |
| LP-MA | 10 | 8 | 3 |
| LP-LA | 31 | 29 | 25 |
| P-A | 10 | 8 | 2 |

*Note.* Total number of observations for each treatment is 40.

## 4. Results

### 4.1. Main Findings

Table 1 records the frequencies of *Play*, *Roll*, and (*Play*, *Roll*) for each of the 10 treatments. Table 2 presents the $t$-test results where each test examines if the proportion of *Play*, *Roll*, and (*Play*, *Roll*) in each treatment is significantly higher than zero. Tables 3–5 present the one-sided $z$-test results, respectively, for differences in the observed proportions of (*Play*, *Roll*), *Play*, and *Roll* between any two treatments. For each cell in Tables 3–5, the null hypothesis is that the proportion of X in the corresponding column treatment is equal to the proportion of X in the corresponding row treatment, where X can be (*Play*, *Roll*), *Play*, or *Roll*, as the case may be. The alternative hypothesis is that one proportion is higher than the other.

In the (P-A) treatment without any status concerns, 10 of 40 (25%) players in the role of P chose *Play* and 8 of 40 (20%) players in the role of A chose *Roll*; (*Play*, *Roll*) occurred only 5% of the time (2 of 40 pairs). Statistical test reveals that the proportion of (*Play*, *Roll*) in the (P-A) treatment is *not* significantly different from zero (see Table 2). Therefore, (P-A) treatment data supports the selfishness hypothesis (Hypothesis 1). Without any status information, players failed to overcome the hidden action problem, as a result little partnership was formed and massive inefficiency ensued. Table 2 further reveals that in the presence of status information, seven out of nine treatments reject the selfishness hypothesis; the two exceptions, (HP-LA) and (LP-HA), are the treatments that represent the extreme status difference in our design.

**Table 2 Test for Difference from Zero by Treatment**

| Treatment | *Play* | *Roll* | (*Play, Roll*) |
|---|---|---|---|
| HP-HA | 9.539*** | 8.062*** | 6.566*** |
| HP-MA | 5.940*** | 4.837*** | 3.846*** |
| HP-LA | 3.123*** | 2.360** | 1.433 |
| MP-HA | 5.099*** | 4.333*** | 3.606*** |
| MP-MA | 9.000*** | 7.263*** | 6.245*** |
| MP-LA | 4.088*** | 2.876*** | 2.082** |
| LP-HA | 3.123*** | 2.082** | 1.000 |
| LP-MA | 3.606*** | 3.122*** | 1.778** |
| LP-LA | 11.590*** | 10.139*** | 8.062*** |
| P-A | 3.606*** | 3.123*** | 1.433 |

*Notes.* $H_0$: $p = 0$; $H_A$: $p > 0$. The $t$-statistics are reported. The number of observations for each treatment is 40.

**$p < 0.05$; ***$p < 0.01$ (one-tailed test).

The next step of our analysis focuses on the status alignment hypothesis (Hypothesis 2). According to this hypothesis, we would expect (*Play*, *Roll*) to occur with higher frequency when the status affiliations of P and A are identical than when the status affiliations of P and A are different. We find that

(*Play*, *Roll*) occurred 53% of the time (21 of 40 pairs) in (HP-HA), 50% of the time (20 of 40 pairs) in (MP-MA), and 63% of the time (25 of 40 pairs) in (LP-LA). These frequencies are significantly higher than the frequencies corresponding to the treatments where the players' status differed (see Table 3). This result is in clear agreement with the status alignment hypothesis. It means that the partners from the same status group are better able to enforce contracts afflicted with hidden action, which advantages them with respect to trading opportunities. This also constitutes the first piece of evidence that players cared about the status of the coplayer.

Table 5 reveals that the frequencies of *Roll* are statistically identical across (HP-HA), (MP-MA), and (LP-LA). In other words, there is no evidence that agents from the higher-status groups are more likely to choose *Roll* than are agents from the lower-status groups. The above two statements thus confirm the identical status alignment hypothesis (Hypothesis 2A) and thereby negate the high status–high standards hypothesis (Hypothesis 2B).

Next we test the strong status conflict hypothesis (Hypothesis 3A). According to this hypothesis, we would expect zero partnership formation whenever member of a given status group played, in either role,

**Table 3 Test for Differences in the (*Play, Roll*) Data Across the Treatments**

| | HP-HA | HP-MA | HP-LA | MP-HA | MP-MA | MP-LA | LP-HA | LP-MA | LP-LA | P-A |
|---|---|---|---|---|---|---|---|---|---|---|
| HP-HA | — | | | | | | | | | |
| HP-MA | 2.282** | — | | | | | | | | |
| HP-LA | 4.694*** | 2.728*** | — | | | | | | | |
| MP-HA | 2.524*** | 0.254 | −2.505*** | — | | | | | | |
| MP-MA | 0.224 | −2.065** | −4.507*** | −2.309** | — | | | | | |
| MP-LA | 4.101*** | 2.005** | −0.849 | 1.766** | 3.904*** | — | | | | |
| LP-HA | 5.008*** | 3.131*** | 0.589 | 2.922*** | 4.828*** | 1.386 | — | | | |
| LP-MA | 4.392*** | 2.354*** | −0.462 | 2.122** | 4.199*** | 0.396 | −1.026 | — | | |
| LP-LA | −0.905 | −3.146*** | −5.438*** | −3.381*** | −1.127 | −4.884*** | −5.729*** | −5.157*** | — | |
| P-A | 4.694*** | 2.728*** | 0.000 | 2.505*** | 4.507*** | 0.849 | −0.589 | 0.462 | −5.438*** | — |

*Notes.* $H_0$: $p_{\text{column-treatment}} - p_{\text{row-treatment}} = 0$. The $z$-statistics for testing difference in proportions are reported. The number of observations for each treatment is 40.

**$p < 0.05$; ***$p < 0.01$ (one-tailed test).

**Table 4 Test for Differences in the *Play* Data Across the Treatments**

| | HP-HA | HP-MA | HP-LA | MP-HA | MP-MA | MP-LA | LP-HA | LP-MA | LP-LA | P-A |
|---|---|---|---|---|---|---|---|---|---|---|
| HP-HA | — | | | | | | | | | |
| HP-MA | 2.044** | — | | | | | | | | |
| HP-LA | 4.494*** | 2.601*** | — | | | | | | | |
| MP-HA | 2.697*** | 0.676 | −1.952** | — | | | | | | |
| MP-MA | 0.241 | −1.809** | −4.282*** | −2.467*** | — | | | | | |
| MP-LA | 3.578*** | 1.606 | −1.033 | 0.938 | 3.355*** | — | | | | |
| LP-HA | 4.495*** | 2.601*** | 0.000 | 1.952** | 4.282*** | 1.033 | — | | | |
| LP-MA | 4.030*** | 2.093** | −0.536 | 1.432 | 3.812*** | 0.501 | −0.536 | — | | |
| LP-LA | −0.762 | −2.771*** | −5.145*** | −3.407*** | −1.002 | −4.261*** | −5.145*** | −4.697*** | — | |
| P-A | 4.030*** | 2.093** | −0.536 | 1.432 | 3.812*** | 0.501 | −0.536 | 0.000 | 4.697*** | — |

*Notes.* $H_0$: $p_{\text{column-treatment}} - p_{\text{row-treatment}} = 0$. The $z$-statistics for testing difference in proportions are reported. The number of observations for each treatment is 40.

**$p < 0.05$; ***$p < 0.01$ (one-tailed test)

**Table 5 Test for Differences in the *Roll* Data Across the Treatments**

| | HP-HA | HP-MA | HP-LA | MP-HA | MP-MA | MP-LA | LP-HA | LP-MA | LP-LA | P-A |
|---|---|---|---|---|---|---|---|---|---|---|
| HP-HA | — | | | | | | | | | |
| HP-MA | 2.236** | — | | | | | | | | |
| HP-LA | 4.619*** | 2.582*** | — | | | | | | | |
| MP-HA | 2.687*** | 0.469 | −2.142** | — | | | | | | |
| MP-MA | 0.456 | −1.791** | −4.219*** | −2.247** | — | | | | | |
| MP-LA | 4.108*** | 2.003** | −0.626 | 1.549 | 3.695*** | — | | | | |
| LP-HA | 4.884*** | 2.890*** | 0.354 | 2.459*** | 4.492*** | 0.974 | — | | | |
| LP-MA | 3.861*** | 1.729** | −0.909 | 1.271 | 3.442*** | −0.286 | −1.252 | — | | |
| LP-LA | −0.955 | −3.146*** | −5.428*** | −3.582*** | −1.406 | −4.944*** | −5.678*** | −4.709*** | — | |
| P-A | 3.861*** | 1.729** | −0.909 | 1.271 | 3.442*** | −0.286 | −1.252 | 0.000 | 4.709*** | — |

*Notes.* $H_0$: $p_{\text{column-treatment}} - p_{\text{row-treatment}} = 0$. The $z$-statistics for testing difference in proportions are reported. The number of observations for each treatment is 40.

**$p < 0.05$; ***$p < 0.01$ (one-tailed test)

against a member of another status group. There are six treatments that are amenable to the strong status conflict hypothesis. The test results in Table 2 show that the frequency of (*Play*, *Roll*) is significantly higher than zero for (HP-MA), (MP-HA), (MP-LA), and (LP-MA). This implies that each status group did not play as per the strong status conflict hypothesis at least once. Hence the hypothesis is rejected for each status group.

Now we test the weak status conflict hypothesis (Hypothesis 3B). This hypothesis suggests that the frequency of (*Play*, *Roll*) would decrease as the status difference between the two players increases. Table 3 reveals that the frequency of (*Play*, *Roll*) obeys the following inequalities: (HP-MA) > (HP-LA) and (MP-HA) > (LP-HA). This implies that H players are significantly more likely to form partnerships with M players compared with L players, which validates the weak status conflict hypothesis for the H players. Similarly, Table 3 also shows that the frequency of (*Play*, *Roll*) obeys the following inequality: (MP-HA) > (MP-LA) and (HP-MA) > (LP-MA). Thus, the M players also validate the weak status conflict hypothesis. Recall that our weak status conflict hypothesis for M players is based on the assumption that the status gap between the H and M is smaller than the status gap between the M and L. However, from Table 3 we also find that the frequency of (*Play*, *Roll*) is not significantly different between (LP-MA) and (LP-HA) and between (MP-LA) and (HP-LA). In other words, the L players are equally unlikely to form partnerships with H players as with M players. Therefore, the behavior of L players does not confirm the weak status conflict hypothesis.[27]

[27] In §5, we argue that L players exhibit pure *nepotistic* behavior with regard to the two high-status group players, where nepotism characterizes situations in which players treat (negatively) anonymous players and members of other groups identically while treating identified members of their own group favorably.

Finally, we turn to the anonymity hypothesis (Hypothesis 4). From Table 3, we find that H players are significantly more willing to form partnerships when they know that the coplayer is from their own status group than when they do not know the coplayer's status affiliation. The above finding confirms the first part of the hypothesis, which stated that the strategy profile (*Play*, *Roll*) would occur with higher frequency when both players know that they are from the same status group than when players' status are unknown to each other. However, H players are weakly more willing to form partnerships when they know that the coplayer is from a different status group than when they do not know the coplayer's status. The latter behavior disconfirms the second part of the hypothesis, which stated that the strategy profile (*Play*, *Roll*) would occur with higher frequency when players' status are unknown to each other than when both players know that they are from two different status groups. Similar behavior is also observed for the M and L players. Therefore, the anonymity hypothesis is rejected for each of the three status groups.

### 4.2. Robustness Check

In this subsection, we ask the following: Are our findings robust to differences in wealth and income conditions across the three status groups included in the experiment? We note that although people belonging to high castes are on average wealthier, urban Jharkhand in recent times has also experienced an increase in the number of wealthy individuals from the Scheduled Tribes group. An increase in the number of well-off tribal population can be attributed to at least two factors. First, the state of Jharkhand was founded in the year 2000 primarily to promote and protect the interests of the tribal population. Formation of the state and the ensuing empowerment of the tribal population have enhanced the economic position of at least a subsection of the tribal population. Second, to advance the economic conditions of the

tribal population in the state, the government has adopted many economic measures such as introducing education and employment quotas for the tribal people. The above facts have therefore made it possible for us to recruit people from the Scheduled Tribes group whose economic status was at par with the people from the other two high-status groups.

To further control for the overlaps in wealth and income conditions across the status groups, we adopted two measures. First, for each status group we recruited individuals from households with a landline telephone connection. In a state where only 2% of the population has a landline telephone (see Biswas 2012), by recruiting individuals who own a landline telephone we ensure participation of only sufficiently wealthy individuals from each status group. During the recruitment process, we also made it common information among our subjects that we are recruiting individuals by calling people's landline telephone, thus we implicitly conveyed information about the subject pool's economic well-being. Second, for each individual subject, we collected information on wealth indicators in post-play questions, which are considered to be important predictors of per-capita consumption in Jharkhand. The data are reported in Table 6.

The collected data are divided into two sections: individual attributes and household attributes.

**Table 6 Individual and Household Characteristics of the Three Caste Groups**

| | Percentage of subjects with given attribute | | | *z*-test for difference in proportions | | |
|---|---|---|---|---|---|---|
| | H | M | L | H-M | H-L | M-L |
| Individual attributes | | | | | | |
| Has completed at least 10 years of schooling | 98 | 97 | 96 | 0.585 | 1.312 | 0.741 |
| At least some college education | 96 | 94 | 93 | 0.838 | 1.387 | 0.557 |
| Employed | 94 | 92 | 95 | 0.712 | −0.594 | −1.299 |
| Ever married | 82 | 85 | 84 | −0.862 | −0.609 | 0.253 |
| Has children | 79 | 84 | 80 | −1.292 | −0.226 | 1.066 |
| Household attributes | | | | | | |
| Has land phone | 100 | 100 | 100 | 0 | 0 | 0 |
| Has electricity | 100 | 100 | 100 | 0 | 0 | 0 |
| Has television | 100 | 100 | 100 | 0 | 0 | 0 |
| Has refrigerator | 100 | 100 | 100 | 0 | 0 | 0 |
| Has bicycle | 85 | 81 | 80 | 1.213 | 1.441 | 0.230 |
| Has scooter or motorcycle | 91 | 93 | 89 | −0.835 | 0.609 | 1.438 |
| Has car | 24 | 26 | 21 | −0.422 | 0.763 | 1.183 |
| Own house | 58 | 61 | 56 | −0.744 | 0.461 | 1.204 |
| Own land | 48 | 45 | 43 | 0.641 | 1.008 | 0.368 |

*Notes.* The *z*-statistics for testing difference in proportions are reported. The number of observations for each caste category is 240.

**Table 7 Odds Ratios from Logistic Regressions for Subjects' Decisions**

| | (1) *Play* | (2) *Roll* |
|---|---|---|
| HP-HA | 7.690*** | 7.010*** |
| | (3.968) | (3.670) |
| HP-MA | 2.893** | 2.760 |
| | (1.433) | (1.477) |
| HP-LA | 0.807 | 0.595 |
| | (0.446) | (0.372) |
| MP-HA | 2.139 | 1.986 |
| | (1.084) | (1.041) |
| MP-MA | 6.809*** | 5.390*** |
| | (3.471) | (2.792) |
| MP-LA | 1.446 | 0.957 |
| | (0.759) | (0.559) |
| LP-HA | 0.894 | 0.474 |
| | (0.496) | (0.317) |
| LP-MA | 1.177 | 0.971 |
| | (0.630) | (0.547) |
| LP-LA | 11.48*** | 11.41*** |
| | (6.199) | (6.195) |
| At least 10 years of school | 0.181 | 1.253 |
| | (0.188) | (1.219) |
| At least some college | 1.796 | 1.378 |
| | (1.298) | (1.022) |
| Employed | 0.575 | 0.903 |
| | (0.340) | (0.568) |
| Ever married | 0.677 | 0.950 |
| | (0.596) | (0.840) |
| Has children | 1.506 | 1.158 |
| | (1.197) | (0.936) |
| Has bicycle | 1.226 | 0.801 |
| | (0.381) | (0.263) |
| Has scooter or motorcycle | 1.220 | 0.874 |
| | (0.509) | (0.395) |
| Has car | 1.369 | 0.763 |
| | (0.389) | (0.237) |
| Own house | 0.570 | 1.329 |
| | (0.188) | (0.485) |
| Own land | 1.044 | 0.920 |
| | (0.341) | (0.315) |
| Experimenter ID | 1.137 | 1.271 |
| | (0.260) | (0.310) |
| Constant | 1.274 | 0.163 |
| | (1.341) | (0.174) |
| Observations | 400 | 400 |

*Notes.* Standard errors in parentheses. P-A is the baseline treatment. An odds ratio of magnitude greater than one implies higher probability for the included group relative to the base group and vice versa.

**$p < 0.05$; ***$p < 0.01$.

Whether we focus our attention on individual or household attributes, we find that the subjects from the three status groups share very similar wealth and education attributes. To further validate the conclusions drawn from Table 6, we ran logit regressions to assess the impacts of individual or household attributes of

our subjects on their decisions in the contract game.[28] The regression results, reported in Table 7, clearly depict that the individual or household attributes of our subjects did not have any significant effect on their probability of choosing *Play* or *Roll*. Therefore, we can largely rule out that the subjects' behavior in the treatments can be explained by individual differences in wealth and education attributes. Our results thus indicate that wealth and education related advancements do not necessarily overcome the caste-status barriers that are deeply entrenched in the social history of a country.

## 5. Discussion

In this section, we attempt to reconcile previous experimental findings on status and identity with our main results and thus situate central features of our data in the wider context of the literature. One important feature of our data is that each of the three status groups displayed substantial in-group favoritism, a result repeatedly documented by studies on social identity in psychology and economics (Chen and Chen 2011; Tsutsui and Zizzo 2010; Chen and Li 2009; Charness et al. 2007; Bernhard et al. 2006; Goette et al. 2006; Brown 2000; Tajfel and Turner 1979, 1986; among others).

An additional conjecture made by the social identity theorists (see Mullen et al. 1992 for an example) is that members from high-status groups would exhibit most in-group bias since their identity is the most positive in the hierarchy and hence it needs relatively more protection.[29] Our data is largely at variance with such an expectation. The (*Play*, *Roll*) frequencies in treatments (HP-HA), (MP-MA), and (LP-LA) are statistically indistinguishable from one other. One potential explanation could be the artificial nature of our experiment, which may have lessened high-caste subjects' heightened sense of honor and need for its protection.

One aspect of our in-group favoritism result does not mesh well with one of the findings in Tsutsui and Zizzo (2010). They found that low-status subjects trust other low-status subjects less in the trust game (à la Berg et al. 1995). A few noteworthy differences between our study and Tsutsui and Zizzo (2010) may justify different results obtained in the two studies. First, Tsutsui and Zizzo (2010) induced status in the lab and therefore their status groups are least expected to nurse any hostility toward each other, whereas in our study the three status groups have a long history of animosity toward each other (see Footnote 5). This sense of animosity may have paved the way for considerable trusting behavior toward in-group members and substantial distrusting behavior toward out-group members in our study. Second, Tsutsui and Zizzo (2010) let subjects play the same game in a repetitive environment, albeit with a random subject-matching policy. In contrast, our subjects play the contract game only once. Although repetition is a desirable design choice for certain research questions, it may also introduce unwelcome behavioral elements capable of altering actions in critical ways.

When looking at the out-group behavior, our results are largely at odds with the main conclusions of Ball et al. (2001) and Ball and Eckel (1998), who, respectively, used the double auction market exchange game and the ultimatum game and analyzed individual behavior in minimal status manipulation environments. They found that low-status subjects exhibit considerable deferential behavior toward high-status subjects. In contrast, low-status subjects in our experiment do not show any such obsequious behavior. In particular, subjects from the lowest status group do not choose either *Play* or *Roll* more often when matched with a subject from the highest status group than when matched with a subject from the second-highest status group. In fact, we observe that the frequencies of partnership formation by the lowest status group subjects with the highest and second-highest status group subjects are statistically identical. Although the above result of ours is open to several interpretive possibilities, we favor the one that argues that lowest status group subjects did not show submissive behavior because these subjects most possibly foster spiteful attitudes toward higher-status group members owing to hostile history.

On the normative side of the behavior, in the literature, high-status subjects have been found to demonstrate greater willingness to enforce social contracts and normative behavior in the third-party norm enforcement games (Fehr and Fischbacher 2004) and trust games (Hoff et al. 2011, Butler 2008, Bernhard et al. 2006). In our contract game, if "norm violation" is defined as the agent violating the implicit contractual agreement by choosing *Don't Roll* and thereby hurting the exchange partner, we do not observe such

[28] The regressions also control for the experimenters' identities. As pointed out by one referee, the identity of the experimenters may influence subjects' behavior. The two experimenters who conducted this study had the same national identity (Indian). The last names of the experimenters were never revealed to the subjects. Since one experimenter was female and the other was male, the regressions accounted for the experimenter fixed effects. The results show that experimenter's identity did not have any significant effect on subjects' *Play* or *Roll* decisions.

[29] In accordance with this postulation, there is anecdotal evidence from India that indicates that high-caste people are ferociously protective of their caste honor, which often leads to honor killing (Saharasamay 2010). Honor killings are acts of punishment, usually death, carried out mostly by upper-caste male family members against female family members, who are believed to have brought dishonor upon the family by marrying outside their family's high caste.

norm violation by lower-status agents in greater proportion when compared with that of the higher-status agents. In fact, we find that the proportions of players who chose *Roll* are statistically identical across all status groups.[30] It is difficult to say how much of this stark result is due to a combination of attitudinal issues described in the preceding paragraphs and the binary nature of the decision to violate the norm; it is, however, clear that high-status players did not come close to displaying behavior that can be regarded as high-status/high-normative standards, otherwise known as *noblesse oblige* (Homans 1950).

It is important to establish a connection between our results and the concepts: "discrimination" (discrimination against) and "nepotism" (discrimination in favor). Discrimination captures environments in which people do not like to be associated with members of the other group. In contrast, nepotism refers to situations in which people want to associate with members of their own group. Becker (1957, p. 7) argues that these concepts are empirically indistinguishable from one another and "the social and economic implications of positive prejudice or nepotism are very similar to those of negative prejudice or discrimination."[31] To empirically distinguish between discrimination and nepotism, we need to include anonymity in our discussion, just like Fershtman et al. (2005). Specifically, we can use the data from the first nine treatments in Table 1 in which the coplayer's status was fully observable and the (P-A) treatment in which the coplayer's status affiliation was fully unknown and thus distinguish between discrimination and nepotism.

We use a somewhat weaker distinction between discrimination and nepotism, based on Fershtman et al. (2005). We define discrimination as the behavior displayed when individuals treat anonymous individuals positively, as they would treat members of their own group, and treat members from another group negatively. On the other hand, nepotism characterizes situations in which players treat (negatively) anonymous players and members of other groups identically, while treating identified members of their own group favorably.[32]

[30] The $z$-test statistics for testing differences in proportions of *Roll* for the status group pairs H-M, H-L, and M-L are 0.536, 0.136, and 0.671, respectively. All of these are statistically insignificant at the 5% level of significance.

[31] As Becker (1957, p. 129) noted in the summary of his book, "[A] theory based on 'hatred' of one group is not easily distinguished empirically from one based on 'love' of the other group."

[32] Clearly, these are the two extreme cases. One can think of numerous intermediate cases. In such instances, we can determine only if the behavior is closer to nepotism or to discrimination. Although these definitions seem restrictive, they are consistent with the patterns of behavior that we studied here.

Employing the above definitions and using information from Tables 2–5, we can unequivocally conclude that members from the L status group exhibit pure nepotistic behavior with regard to the two higher-status group players because L players treated H, M, and anonymous players equivalently and favored players from their own status group. Evidence is less unambiguous for players from the M status group. Players from the M status group exhibit pure nepotistic behavior toward L players; also, they treat H players more favorably than anonymous players but less favorably than players from their own group. Thus, their behavior cannot be classified as pure discriminatory behavior either. Similarly, players from the H status group exhibit pure nepotistic behavior toward L players; they treat M players more favorably than anonymous players but less favorably than players from their own group.

Finally, our data extend partial support to the main result of Anderson (2011), who compared trading outcomes across two types of villages in a low-income region of rural India. The study exploited remarkable village-level variation in caste composition and land ownership to identify effects of village-level caste differentiation on the frequency of trades in irrigation water markets. The two villages varied markedly by the identity of their dominant caste group. Anderson (2011) found that income is substantially higher for low-caste households residing in villages dominated by a low caste. All else equal, lower-caste water buyers had agricultural yields that were 45% higher if they resided in a village where water sellers were of the same caste compared with one where they were not. Anderson argues that the above result is due to a breakdown of trade in irrigation water across caste groups. Although this result is reminiscent of in-group favoritism result in our study, there remains an important distinction between the two studies in the sense that we also observe that frequency of trade increases as the caste distance between the players decreases.

## 6. Conclusion

In this study, we have attempted to show how individuals' lifelong position at the top, middle, or bottom of a social status hierarchy—the Indian caste system—affects their willingness to form partnerships in environments with hidden action. Hidden action may create hindrance to the development of partnerships because in the absence of perfect observability one partner may perform the hidden action, which maximizes her own payoff but reduces the other partner's payoff. Anticipation of such opportunistic moves by partners may preclude formation of partnerships in the first place. Lack of trust and

trustworthiness between partners thus may cause economic contracts to fail to foster collaboration and efficiency. Against this backdrop, we examined how providing social status information regarding potential partners may affect collaboration.

The Indian caste system is an excellent setting for studying the effect of status differentials because people are born into specific castes and individual mobility across castes is basically not possible in an individual male's lifetime. Furthermore, the greater freedoms that tribal individuals have enjoyed in recent years and the greater levels of landlessness among the high castes have created a substantial overlap between higher caste and tribal groups with respect to wealth and education in urban Jharkhand, India, from where we recruit subjects. Thus, we can rule out self-selection into castes or tribes and also compare individuals who differ in social status but do not differ with respect to our measures of wealth and education. Our results thus plausibly identify the impact of status differentials on individuals' willingness to develop profitable partnerships.

If people in our experiment are exclusively self-interested, status concerns would not play any role and no partnership would form in any of our treatments. To account for the role of players' status, we have put forward three plausible hypotheses: the status alignment hypothesis, the strong status conflict hypothesis, and the weak status conflict hypothesis. In sharp contrast to the standard prediction of zero partnerships, we find that frequency of partnership formation crucially hinges on the status characteristics of potential partners. Collaborations are the easiest to develop when both the partners share identical status characteristic. Thus, a match between partners' social status acts as an effective contract enforcement device, which enhances efficiency. A corollary of the above result suggests that the problem of hidden action can be overcome even in settings where monitoring of partners' actions is not possible. On the other hand, we find that as the status gap between partners increases, the frequency of partnership formations declines. Also, when players from the highest status group interact with players from the lowest status group, partnerships almost always fail to form. Our findings are robust to individual-level wealth and education variations. To summarize, our results indicate that there are considerable hidden costs and benefits of status differentials in environments with hidden action. Hence, if we focus our attention exclusively on the self-interest motive when analyzing the performance of economic contracts, such effects will escape our attention.

Although our results demonstrate that a large status differential between contracting parties has an adverse effect on partnership formation efforts, this observation is inconsistent with the real world, where we observe that parties with different social status manage to forge successful partnerships that otherwise could have been undermined by hidden actions. These observations from the real world introduce a gulf between our findings and the real-world episodes. The missing link between the real world and our results could be the abstract and artificial environment of our experiment. Admittedly, unnatural disposition of an experiment may have accentuated the severity of the hidden action problem in our study. At the same time, it is not to deny that there are hidden costs of status differentials, but in the real world such problems may be overcome by reputation and repeated interactions between parties, which are glaringly absent in our experiment.

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