

Discrimination, Social Identity, and Durable Inequalities

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What are the mechanisms by which societal discrimination affects individual achievement, and why do the effects of past discrimination endure once legal barriers are removed? We report the findings of two experiments in village India that suggest that the mechanisms of discrimination operate, in part, within the individuals who are members of the groups who have been discriminated against. We demonstrate that publicly revealing an individual's membership in such a group alters his behavior in ways that make the effects of past discrimination persist over time.

A growing literature in social psychology on *stereotype threat* finds that stereotyped-based expectations affect individual performance in the domain of the stereotype.¹ A study by Jeff Stone et al. (1999) is illustrative. When college students were asked to perform a task described as diagnostic of "natural athletic ability," blacks—stereotyped as better athletes, but worse students than whites—performed better than whites. When the *same* test was presented as diagnostic of "sports intelligence," the performance of blacks declined, that of whites improved, and the racial gap was reversed. Evidence suggests that a mediating factor in stereotype threat is a change in self confidence (Mara Cadinu et al., 2005)

In our studies, we investigated whether the

public revelation of social identity (caste) affects cognitive task performance and responses to economic opportunities by young boys in village India. Subjects were sixth and seventh graders drawn from the two ends of the caste hierarchy. We asked subjects to learn and then perform a task under incentives, and we manipulated whether their peers in the experimental session knew their caste. Caste is well-suited to this manipulation because, unlike race, gender, and ethnicity, there are no unambiguous outward markers of caste among young boys. Six subjects, generally from six different villages, participated in each experimental session. In the control condition, the subjects were anonymous within the six-person group. In the experimental conditions, the experimenter publicly revealed subjects' names and caste. In the task—solving mazes—in which performance was studied here,² the low-caste subjects in the anonymous condition did not perform significantly differently from high-caste subjects; but when caste identity was publicly revealed in a mixed caste group, a significant caste gap emerged. The caste gap was due to a 20 percent decline in the average number of mazes solved by the low caste. The study shows that publicly revealing the social identity of an individual can change his behavior even when that information is irrelevant to payoffs.

Our results are a generalization of the literature on stereotype threat. Like that literature, we find that individuals' performance is more in accordance with the stereotype of the group when group membership is made salient in some way. Unlike that literature, salience in our experiments depends on the public revelation of social identity and more importantly, we do not argue that the domain of the tasks undertaken by

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¹ A survey is in Claude M. Steele et al. (2002).

² Uri Gneezy et al. (2003) showed that mazes are an appropriate task to use to study responses to changes in incentive schemes.

our subjects is one to which a specific stereotype applies. Ninety-five percent of the low-caste subjects and 82 percent of the high-caste subjects had never seen mazes before. If the low caste is stereotyped as inferior in the domain of the task, it is not, or not only, because of a generalization from caste differences in performing other cognitive tasks. The stigma of their caste marks them as unworthy, generally. The ideology intertwined with the discriminatory regime assigns to certain social groups status and social meanings—i.e., social identities. We suggest a broad link between discrimination, social identity, and behavior that can make the effects of past discrimination persist over time for well-identified groups.

I. The Setting in Village India

Indian society is divided into groups called castes which are linked to one or more traditional occupations. The participants in our experiments were drawn from the extreme ends of the caste hierarchy in villages in north India (Uttar Pradesh): the high-caste participants from the traditional landlord, warrior, priestly, and trading castes; and the low-caste participants from a caste that was historically, but is no longer, engaged in leather tanning. Leather tanning is associated with ritual pollution and this caste was subject to the practice of untouchability.

Untouchable castes (*Dalits*) were historically denied political and civil rights and opportunities for economic mobility. In 1947, India ended de jure discrimination against *Dalits*. Discrimination remains a visible part of village India, however, and the caste hierarchy is ritualized in the way many adults interact.³

II. Two Experiments

A. Experimental Paradigm

The objective of the experiments was to determine whether revealing subjects' social iden-

tities publicly would impede the performance of low-caste subjects and their responses to economic incentives.

We brought subjects into a classroom six at a time. Three conditions provided a contrast in the salience of caste. In the control condition termed "anonymous" (A), the experimenter (always a high-caste woman from north India) did not publicly reveal any information about the participants. In the condition termed "caste revealed" (C), the experimenter at the start of the session turned to each participant and stated his name, village, father's name, paternal grandfather's name, and caste.⁴ She asked the subject to nod if the information was correct. The final condition, "caste revealed—single caste" (CS), was the same as the preceding condition except, unlike the other conditions, in which a session consisted of three low-caste and three high-caste boys, in CS a session consisted of low-caste boys only or high-caste boys only.

Whereas the extent of *publicly* revealed information varied across conditions, the extent of information *privately* revealed to the experimenters did not. A staff person privately asked every subject (when he boarded the car that brought him from his village) his name, caste, and the names of his father and paternal grandfather. Another staff person verified the subject's name and caste when the subject arrived at the experiment site.

B. Experiment 1: Solving Mazes

In our first experiment (Hoff and Pandey, 2005b), 156 subjects participated under condition A, 120 under C, and 60 under CS. A subject participated in only one condition. We asked subjects to solve a packet of 15 mazes in each of two 15-minute rounds. The incentive was one rupee per maze, a significant amount compared to the unskilled adult hourly wage of six rupees. Our dependent variable was the number of mazes solved.

Over the two rounds, the high-caste participants solved 7 percent more mazes than the low-caste participants in the anonymous condition, whereas the high-caste participants solved

³ In our household survey near the site of the experiment, 56 percent of *Dalit* men reported that they sit on the ground or remain standing when visiting a high-caste household. Likewise, 58 percent of high-caste men said that when a *Dalit* visits their houses, he sits on the ground or remains standing.

⁴ We used the names that the children had privately told staff, which for the low-caste subjects never included last names—generally a marker of caste.

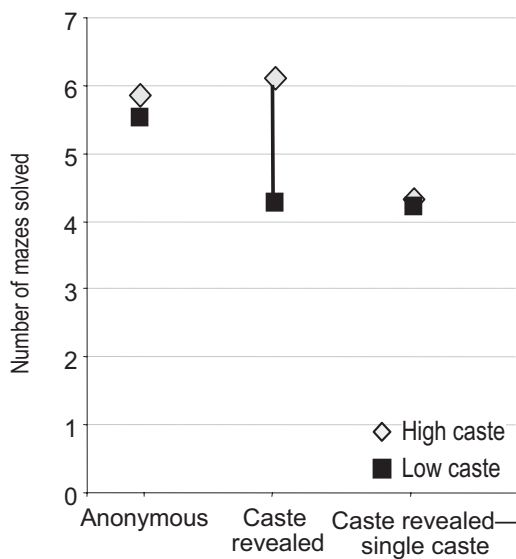


FIGURE 1. AVERAGE NUMBER OF MAZES SOLVED, ROUND 2

34 percent more mazes than the low-caste participants in condition C. To save space, Figure 1 shows the results only for Round 2. The caste differences in performance in both rounds were not significant in the anonymous condition. (The p -value of the Mann-Whitney two-sided U -test—hereafter MW—was 0.24 in Round 1 and 0.45 in Round 2.) In contrast, in condition C, there was a significant caste difference in both rounds (MW test: $p = 0.04$ in Round 1 and $p = 0.006$ in Round 2). The low-caste participants in condition C solved 20 percent fewer mazes than the low-caste participants in condition A, and the decline was significant in Round 2 (MW: $p = 0.14$ in Round 1 and $p = 0.05$ in Round 2); whereas there were no significant A-C treatment effects for the high caste (MW: $p > 0.80$ in both rounds).

The experimental finding of caste differences in performance in the C condition could be “poor versus rich” effect (in which reminding children of their poor families discourages them), rather than a pure caste effect. We find, however, that our results are robust when we control for the children’s class—parents’ education, occupation, and land.

The experimental finding that publicly revealing caste caused a significant decrease in the performance of low-caste subjects, compared with that in the anonymous condition,

could possibly reflect intimidation of the low-caste subjects by the high-caste subjects, rather than an effect of social identity per se. To check this, we ran condition CS. Condition C was converted to condition CS by constituting experimental groups of low-caste boys only or high-caste boys only. As shown in Figure 1, there was no significant difference between the performance of the low-caste participants in conditions C and CS (MW: $p \geq 0.70$ in both rounds). This supports the conclusion that it is social identity that drives the caste gap in condition C.

An irony uncovered in this condition is that segregation lowers high-caste performance. The high-caste participants in conditions CS solved 21 percent fewer mazes than those in condition C; the treatment effect was significant in Round 2 (MW: $p = 0.73$ in Round 1 and $p = 0.02$ in Round 2). One conjectural explanation is that high-caste segregation in condition CS changed the extent to which subjects anticipated being rewarded because of their social status rather than their effort, while the presence of the low-caste subjects in condition C led high-caste subjects to try to excel in order to distinguish themselves from their low-caste peers.⁵

Figure 2 shows the number of mazes solved on the x -axes. The y -axes represent the proportion of low-caste and high-caste participants in Round 2 of condition A (the top graph) and condition C (the bottom graph), who solved that many mazes. The modal number of mazes solved by low-caste participants in condition A, Round 2, was seven, whereas it was zero for low-caste participants in condition C. Participants who solved zero mazes did not turn in blank packets; every participant attempted numerous mazes. The proportion of individuals who solved zero mazes in *both* rounds (call it the “drop-out rate”) is the proportion who did not learn how to solve a maze over the 10-minute explanation by the experimenter, the 5-minute practice period, and the 30-minute test period. Among the 78 low-caste participants in

⁵ Anjini Kochar (2004, p. 16) finds evidence that an increase in schooling by low-caste children increases investment in schooling by other castes. For other experimental evidence that the treatment effect of segregation lowers high-caste performance, see Hoff and Pandey (2004, pp. 24–25).

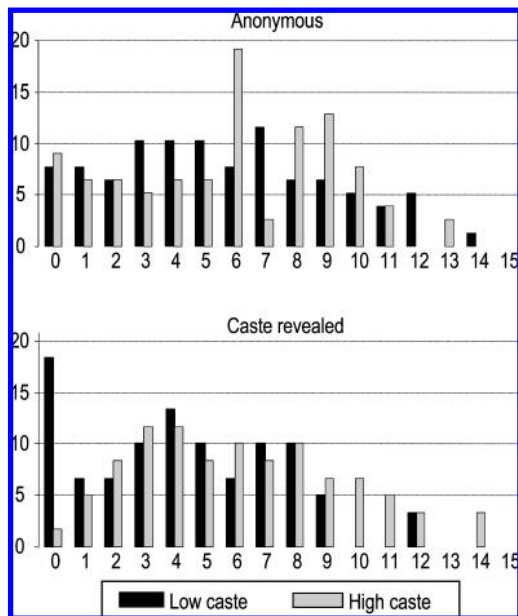


FIGURE 2. NUMBER OF MAZES SOLVED IN THE ANONYMOUS AND THE CASTE REVEALED CONDITIONS, ROUND 2

the anonymous conditions, the drop-out rate was 2.5 percent. Among the 60 low-caste participants in condition C, the drop-out rate was 15 percent. Among the high-caste participants, the drop-out rate was 9 percent and 2 percent in conditions A and C, respectively.

In summary, although the low caste perform as well as the high caste when caste identity is not publicly revealed to their peers in the classroom, publicly revealing caste identity is consistently and robustly associated with a decline in low-caste performance.

C. Experiment 2: Betting on One's Own Success

The purpose of our second experiment (Hoff and Pandey, 2005a) was to assess the effect of publicly revealing caste on individuals' willingness to bet on their own success. We manipulated the scope of judgment in evaluating and rewarding success. When subjects were asked to accept or reject a gamble in which there was *no* scope for judgment by an experimenter, making caste salient did *not* produce a caste gap. Instead, it was in the case where there was scope for judgment by others that making caste

salient created a caste gap in the proportion of subjects who rejected the gamble.

In this experiment, we showed subjects how to solve a 14-inch square wooden puzzle that we had constructed along the lines of the game Rush Hour Traffic Jam. After practicing one puzzle for eight minutes, a subject chose, in private, to accept or reject a gamble that he could solve a similar puzzle within five minutes. The success payoff was 20 rupees (equal to 2.5 hours' wages for unskilled adult labor), and the failure payoff was one rupee. If he rejected the gamble, he received the safe payoff of 10 rupees.

We manipulated the scope for discretion in awarding the success payoff in the following way. In one gamble, the link between performance and reward was mechanical; by solving the puzzle, a player freed his car from the board and physically extracted his prize money from the underside of the car. This money was visible through the dashboard.

In a second gamble, the link between performance and reward was not mechanical. The prize money was not in the player's car. Moreover, in this condition there was no frame on the game board to keep vehicles within the road grid. We told subjects that another person would give them the puzzle, watch them play, and award them the success payoff only if they did not let any vehicle move off the board. Removing the frame and visible reward changed the gamble in two ways. It made success more difficult because a player could inadvertently push a vehicle off the board as he tried to solve the puzzle, and it created scope for discretion in awarding payoffs.

A total of 360 subjects participated in this experiment: 30 low-caste and 30 high-caste subjects in each treatment (2 gambles \times 3 conditions). We predicted that the interaction with an evaluator would discourage low-caste participants more than high-caste participants when the participants' caste was publicly revealed. We conjectured that in that context, each individual would be more likely to fall into his caste role because he would expect others to treat him according to his caste role. The results bore out our prediction, but only in the A-CS contrast.

The left panel of Figure 3 shows the proportion of subjects who refused the gamble using the game board with the frame and the visible reward. There were no significant differences in the refusal rate between castes, and making

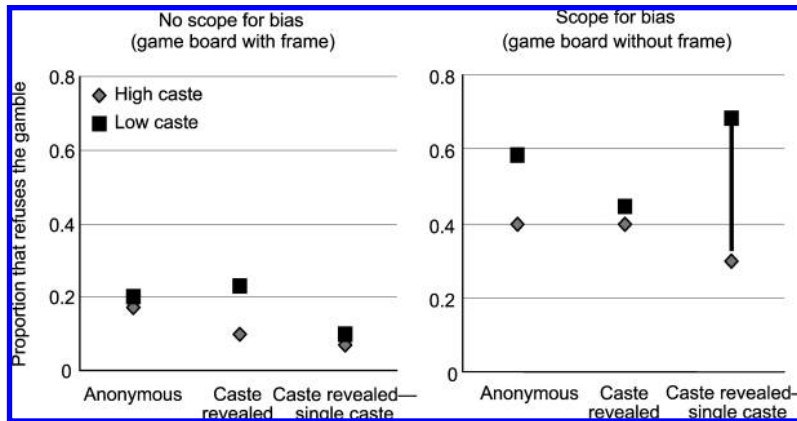


FIGURE 3. PROPORTION THAT REFUSES THE GAMBLE IN THE TRAFFIC JAM GAME

caste identity salient had no significant effects on this rate.

The right panel of Figure 3 shows that when the gamble used the game board without a frame, the proportion of both caste groups that refused the gamble was larger than in the case of the game board with its frame. There was a significant caste gap in the rejection rate *only* in the CS condition.⁶ Sixty-seven percent of low-caste participants refused the gamble compared to 30 percent of high-caste participants (z -statistic: p -value = 0.004, MW: p -value = 0.005). A conjectural explanation of the presence of this caste gap in the CS condition and the absence of a caste gap in the C condition, is that caste segregation implicitly evokes the meaning of caste, which bears on social exclusion and inclusion, which increases the salience of caste roles and/or subjects' concern that the experimenter would be prejudiced against the low caste.

Low- and high-caste children differ from each other in many ways (literacy, parents' income and education, etc.) that might affect their responses to changes in the difficulty of the game and in the scope for experimenter discretion. One way to try to disentangle the influence of these variables from the effect of social identity, per se, is to do a caste-wise test of difference in differences in the refusal rate between the two gambles across two experimental con-

ditions—A *versus* CS. For the *low* caste, the effect of making caste salient was to *raise* the difference in the refusal rate in the two gambles; but for the *high* caste, making caste salient had no effect in this difference (one-sided p -values of 0.09 and 0.50 for low and high castes, respectively). These results suggest that the differential caste behavior, and the gamble with scope for bias, under condition CS, is not driven by differences across castes in ambiguity aversion, since such differences are differences out in this test. Our results provide some evidence that the differential caste behavior is driven by social identity per se.

III. From Discrimination to Social Identity

Where do social identities come from? Having argued that publicly revealing individuals' membership in a discriminated-against group influences their behavior, we now want to emphasize, following Glenn C. Loury (2002), that discriminatory regimes not only categorize individuals and establish category-specific rules; they also invest those categories with social meaning. Discriminatory regimes create a narrative to justify the discrimination. The narrative serves to increase the probability that individuals perceive the regime as legitimate and internalize its values.⁷ In the nineteenth

⁶ This result mirrors our result in another experiment in which the task was to make a design with colored squares of paper. A subject won the gamble if his design was judged to be "beautiful" (Hoff and Pandey, 2005a).

⁷ The same applies generally to politics, as Max Weber emphasized, and to other organizations (e.g., the U.S. Army; see George A. Akerlof and Rachel E. Kranton, 2005).

century, the U.S. South created the race doctrine of biological inequality between whites and Negroes—rationalizations similar to those used to defend discrimination against the low castes. The narrative and the stigma that it creates may outlast the discriminatory regime itself, in which case the legacy of discrimination is “spoiled collective identities” (Loury, 2002, p. 59).

IV. Conclusion

A discriminatory regime affects not only the structure of opportunities open to different social groups, but also the status and social meanings assigned to those groups—their social identities. If these identities influence behavior, then even after opportunities have been equalized across groups, the discriminatory regime will have persistent effects.

The findings of our two experiments suggest that publicly revealing individuals' membership in a group that has been or is being discriminated against impedes the group's ability to respond to economic opportunities. If publicly revealing the social identity of members of this group increases their negative thoughts about themselves and their distrust, their lack of confidence affects their learning and willingness to bet on their own success, which keeps them from achieving outcomes comparable to those of high castes, which validates the discriminatory ideology and reproduces the effects of discrimination over time. Our experiments used the example of caste discrimination in rural north India, where caste is still “a marker of difference ... [that] harbor[s] the ideologies of pollution and exclusion” (Nicholas B. Dirks, 2001, p. 130). In light of the evidence of stereotype threat in social psychology, our experimental findings suggest that the impact of social identities shaped by discrimination on individuals' responses to economic opportunities may also be very general.

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