PERSISTENT EFFECTS OF DISCRIMINATION AND THE ROLE OF SOCIAL IDENTITY

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The persistence of group inequality after opportunities across groups have been equalized is evidence commonly used to suggest inherent natural differences among gender/racial/ethnic groups. We conducted an experiment that demonstrates the power of social identities that are a legacy of discrimination to make the effects of discrimination persistent by shaping individuals' response to opportunity. In village India, 168 low-caste and 168 high-caste boys solved mazes under piece rate incentives. In mixed-caste groups, the high caste solved only 7 percent more mazes than the low caste among subjects whose caste was not publicly revealed, but 38 percent more mazes than the low caste among subjects whose caste was publicly revealed. The significant caste gap that emerged when caste was publicly revealed reflected a 20 percent decline in the number of mazes that low-caste subjects solved.

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The question whether discrimination has persistent effects even after it is abolished is controversial. This question is divisive in many nations because it bears on the individual's responsibility to take advantage of new opportunities when discrimination is dismantled, and on what steps society should take to overcome a history of discrimination. Most economic accounts to explain the persistence of racial, ethnic, or gender inequality put the structure of opportunities at the center of the explanation. For example, outcomes and behaviors at one point in time influence future distributions of outcomes and behaviors through parental education (Neal 2005), the neighborhoods that emerge and in which individuals grow up (*e.g*., Benabou 1993, Durlauf 1996, and Hoff and Sen 2005), and the peers and social networks to which individuals have access (*e.g* Austen-Smith and Fryer 2005). In this paper, we experimentally investigate an additional explanation of the persistence of group inequality: A history of discrimination shapes social identities. When individuals are put in a context in which their social identity as a member of a discriminated against group is salient and common knowledge, that identity shapes their response to opportunities.

Intertwined with regimes of discrimination are ideologies that represent the discriminated against group as inherently inferior.[1] Gunnar Myrdal (1944) captured that idea when he wrote of the United States post-Civil War, "After slavery, there was caste." A well-established cognitive bias—an excessive tendency to explain the outcomes of others by underlying dispositions rather than external circumstances—makes people

susceptible to such ideologies.[2] The consensus among historians is that in colonies where indigenous people were maintained in subordinate conditions, assignments of caste-like status to certain social groups were "cultural technologies of rule" (Dirks, 2001, p. 9; see also Ranger 1983, Lorcin 1995, and Benton 2002). The historians, along with Myrdal (1944), emphasize that *social and legal hierarchies are constructed together and support each other.* Since the assignment to certain groups of hierarchized social identities may remain influential long after the discriminatory regime ends, the assignment might itself be a channel that contributes to the persistence of group inequality. Interesting experimental evidence that the assignment of hierarchized social identities can lead to behaviors that make the hierarchy self-confirming is in Ball *et al.* (2001). They find that an overtly arbitrary classification of individuals into groups and hierarchizing of those groups led subjects in an experimental market game to behave in ways that resulted in the higher status group consistently capturing a greater share of the surplus, earning significantly more than their lower status counterparts.

Here we experimentally investigated the hypothesis that the public revelation of individuals' membership in either a traditionally discriminated against group, or an elite group, leads individuals to perform and to respond to opportunity differently depending on their caste. Our subjects were 168 low-caste and 168 high-caste 6th and 7th grade boys in village North India in 2003 and 2005. The subjects were from the extremes of the caste hierarchy: the high castes were the traditional landowner and priestly classes, and the low caste was a group subject to the traditional practice of untouchability (and today subject to government preferences).

To test whether the public revelation of caste differentially impeded the performance of the low caste, we used a real task—mazes. Earlier research had validated

the use of mazes to investigate responses to incentives in the context of a study of gender inequality (Gneezy, Niederle, and Rustichini, 2002). Our data consistently and robustly show that the public revelation of caste membership impedes the performance of the low-caste subjects.

Our study is a generalization of the work in social psychology on stereotype susceptibility. Many experiments have found that if a sociocultural group's ability is negatively or positively stereotyped in some domain, then making salient either that domain or that group alters performance in the direction of the stereotype (*e.g* Aronson and Steele, 1995; Ambady, Pittinsky and Shih, 1999; Stone et al. 1999, Ambady et al. 2001). A mediating factor in stereotype threat is a change in self-confidence (Cadinu et al. 2005). Our experiment generalizes that literature in two respects. First, our focus is on the effect of publicly revealing membership in a discriminated against group. Unlike race or gender, caste in the case of young village boys has no unambiguous physical or social markers.[3] It was thus easy in our experiment to manipulate whether caste was public information among strangers and to pinpoint the effect of this manipulation.[4]

Second, stereotype susceptibility as the term has come to be used in social psychology is about *domain-specific* stereotypes. Indeed, experiments have found that merely manipulating the description of a given task—describing it as diagnostic of intellectual ability or merely a tool for studying problem solving, or describing the task as a test of natural athletic ability or a test of the ability to think strategically—shifted performance in the direction of the group stereotype in that specific domain (Aronson and Steele, 1995; Stone et al. 1999). In contrast, here we are concerned with a class of stereotypes that might be called *invented stereotypes*—stereotypes that are not generalizations from perceived differences between social groups, but are conventions

3

that emerge as byproducts of a regime that holds some groups to be socially, morally, or biologically inferior. Caste is "a marker of difference…[that] harbor[s] the ideologies of pollution and exclusion" (Dirks, p.130); similarly, ideology in the pre-bellum U.S. South held Negroes to be "biologically inferior" (Myrdal, 1944). In our experiment we asked subjects to perform an unfamiliar task[5] that we described as a game of puzzles. It is thus unlikely that subjects had a preconceived stereotype about their ability to perform this task. By paying subjects for solving mazes, we believe that the task entered the broad domain of tasks in which learning and performing well are remunerative. It is from that broad domain that discriminated against racial/caste/gender/ethnic groups were generally excluded—an exclusion that came to be justified by the belief that the discriminated against group was inferior and unworthy.

We thus investigated a broader effect than has been the focus of the social psychology literature on stereotype susceptibility, namely, the effect on the response to opportunity of the public assignment to individuals of social identities hierarchized by a discriminatory regime. Our work relates to the research program of economists and anthropologists that examines how social and economic structure shapes norms (Henrich et al., 2004, Bernhard, Fehr,and Fischbacher 2006). Because our subjects were a representative sample of 11-12 year-old boys in the survey area of rural North India, we can draw inferences from our sample to that population.[6]

1. A design to study the effects of social identity on economic behavior

We brought participants into a classroom in a junior high school six at a time, and asked them to solve mazes in two 15-minute rounds. The experimenter—always a high-caste woman—told them that they would "take part in two games [of solving puzzles]." At the beginning of an experimental session, the experimenter gave participants the show-up

payment of 10 rupees (a significant amount compared to the 6 rupee unskilled adult hourly wage) to drive home the fact that money was involved in this activity. In illustrating how to solve a maze on a wall poster, she described the task this way:

> In this puzzle there is one child. The child has to go to the ball. The solution is a path that takes the child to the ball. The black lines are walls. The child cannot cross a wall. So the path that you draw cannot cross a line. If it crosses a line, then it will be considered incorrect. You can erase or cross out mistakes. And you can also draw a path back if you meet a dead-end.

She explained that for each maze they solved, participants would receive an additional one rupee (=12 U.S. cents in Purchasing Power Parity terms). They would receive the earnings in an envelope. Before each round, she checked to make sure that each child understood the incentive scheme. She gave participants a new packet of 15 mazes in each round. Since she gave no feedback between rounds, the only reason to expect a difference in performance across rounds is that by Round 2, subjects had gained experience in solving mazes.

We wanted to investigate whether publicly revealing an individual's membership in a discriminated against social group would change his behavior even though the information was irrelevant to pecuniary payoffs. As a benchmark measure of performance, we used a condition, termed "anonymous" (A), in which the experimenter did not publicly reveal information about the participants. In order to test whether the public revelation of caste affects performance, the second condition, termed "caste revealed" (C), had the experimenter at the start of the session turn to each participant and state the participant's name, village, father's name, paternal grandfather's name, and caste. The names that the experimenter used were those that subjects had privately given to our staff. For the low caste, these names were always first names, which did not indicate caste.

5

We conducted conditions A and C with groups of three low-caste and three high-caste boys. We also ran a final condition, "caste revealed—single caste" (CS), which was the same as condition C except that in each session, the six participants were drawn only from the low-caste or only from the high-caste group.

Across all conditions, the extent of information that subjects revealed privately to the experimenters was the same. Before a subject boarded a car to reach the experiment site, he was asked in private his name and caste and his father's and grandfather's name. On arriving at the experiment site, we again asked every subject privately his name and caste. The focus of the experiment was thus on the additional effect on an individual's behavior of publicly revealing his caste to his peers in an experimental session.

Six teams recruited subjects each day from six different schools and/or villages. To form an experimental session, we normally drew one child from each of the six teams.

2. Subjects

We chose as subjects 6th and 7th grade boys for three reasons. First, we did not want to confound the effect of caste with the effect of familiarity with a classroom setting in which an instructor gave directions to the subjects. Among adults in rural North India, there are large caste differences in the proportion with positive schooling. For example, we learned from the post-play questionnaire that 31 percent of our low-caste subjects had fathers with zero schooling, compared to only 8 percent of the fathers of our high-caste subjects (Supplementary Material, Table S1). In contrast, there is no caste gap in schooling among very young people. In our household survey of one village near the site of the experiment, 95 percent of 11-12 year old children of the lowest caste (Chamar) were in school and the local teachers told us that children were automatically promoted to the next grade level each year. In contrast, older enrolled students would not have been

representative of their age group since school enrollment at higher ages drops off steeply, and more so for low castes than for high castes. The fraction of all rural children attending high school in Uttar Pradesh according to the National Sample Survey in 1995-96 was only 59 percent.

We used only male subjects for a practical reason. It would have been difficult to obtain permission to take girls from their villages to the experiment site, but the design of the experiment required that subjects in a 6-person session be drawn from six different locations so that in general they would be strangers to each other (see Supplementary Material).

3. Results

156 subjects participated in condition A, 120 in C, and 60 in SC. Each subject participated in only one condition. Among participants in the anonymous condition, the high-caste subjects solved 7 percent more mazes than the low caste over the two rounds, and the caste difference was insignificant in both rounds (Table 1 and Figure 1). Among participants in condition C, the high-caste subjects solved 38 percent more mazes than the low caste. The caste gap was significant in both rounds: the *p*-value of the two-sided Mann-Whitney *U*-test was .04 and .006 in Rounds 1 and 2, respectively.

The significant caste gap that emerged in condition C was due to a 20 percent decline in the average performance of the low-caste participants in condition C compared to those in condition A. The A-C contrast did not reach significance in Round 1 ($p = .14$) but did in Round 2 ($p = .05$). The higher performance of the high-caste participants in condition C compared to those in condition A was insignificant in both rounds ($p > 0.80$).

Table 1. **Average number of mazes solved in two 15-minute rounds**

Condition	Round 1			Round 2		
	Low caste		High caste	Low caste		High caste
Anonymous (A)	**3.08**	*(0.24)*	**3.36**	**5.53**	*(0.45)*	**5.86**
	(0.14)		*(0.83)*	*(0.05)*		*(0.85)*
Caste revealed (C)	**2.62**	*(0.04)*	**3.43**	**4.28**	*(0.006)*	**6.12**
	(0.70)		*(0.73)*	*(0.92)*		*(0.02)*
Caste revealed-single caste (CS)	**2.80**	*(0.42)*	**3.20**	**4.20**	*(0.78)*	**4.33**

Note. Italicized numbers between columns of caste scores report the *p*-value of the 2-sided Mann-Whitney *U*-test of the hypothesis that the low- and high-caste scores are draws from the same distribution. Italicized numbers between rows of caste scores report the *p*-value of the 2-sided Mann-Whitney *U*-test of the hypothesis that treatment effects (A-C and C-CS, respectively) are insignificant within a given caste group.

Figure 1. **Average number of mazes solved**
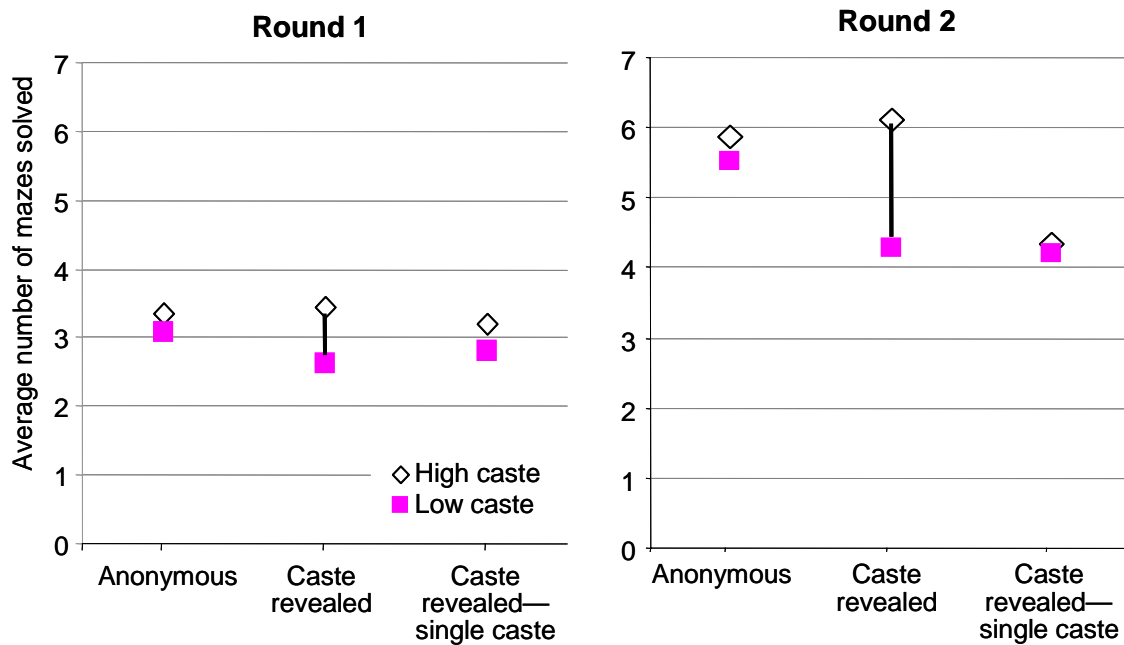
It is possible that in condition C, the low-caste subjects felt intimidated by the high-caste subjects. In order to attribute the emergence of a caste gap in condition C to the effect of the public revelation of caste *per se*, we had to investigate whether there is an effect of the public revelation of caste in a single-caste setting. We therefore considered a third condition. Condition C was converted to CS by constituting experimental sessions of only low-caste or only high-caste boys. There was no significant difference in the distribution of scores of the low-caste participants in conditions C and CS ($p \geq .70$ in both rounds). Thus, we conclude that the public revelation of caste caused the decline in the performance of the low caste in condition C.

An irony uncovered in the C-CS contrast is that segregation lowered the performance of the high caste. The effect was not significant in Round 1 ($p = .73$) but was highly significant in Round 2 ($p = .02$).[7] If the stereotype activated in conditions C and CS was that high-caste individuals were better than the low caste at cognitive tasks, then the earlier, social psychology literature that showed positive shifts in performance associated with the activation of a positive stereotype (Stone et al, 1999, and Shih, Pittinsky, and Ambady, 1999) would predict for the high caste a positive A-C treatment effect, and either no effect or a positive C-CS treatment effect. This is not what we found.

The central meaning of caste bears on social status, ritual purity or pollution, and social inclusion or exclusion (see Supplementary Material). One possible explanation of our results for the high caste is that publicly revealing that a person was high caste in a context where high castes were segregated from all others induced an expectational state of entitlement—that rewards would be based on status rather than effort—which would rationally reduce effort. It is likely that the very low probability ($=0.18^6$) that the segregation in the CS treatment was accidental—the result of a random draw from all 6th

and 7th graders in this area, of whom 18 percent were high caste—would lead participants in condition CS to believe that the segregation was intentional. Segregation of high castes from others is an obvious mark of civic privileges. In contrast, in the mixed caste setting of condition C, we conjecture that a high-caste person would wish to distinguish himself from the low-caste participants by excelling. Empirical evidence consistent with such an effect is that increases in schooling by low-caste individuals in India have caused significant increases in schooling by other castes (Kochar, 2004).

Finally, we show in a more disaggregated way the ability of publicly revealing caste to differentiate low- from high-caste subjects. Figure 2 reports, by condition, the proportion of low-caste subjects among all subjects whose Round 2 score ranked them at or above a given decile. For example, if the top 10 percent of subjects were to be selected based on performance in condition A, this would result in a low-caste proportion of 58 percent, *i.e.,* the low caste was slightly overrepresented among the best performers in that condition. The comparable percentage in condition C was 17 percent, revealing that in that social context, the low caste was underrepresented at the top decile. If there were no caste differences in performance, all graphs would be at the 50 percent line. The graph for condition C is below the 50 percent line until the endpoint. The graphs for conditions A and CS are very close to the 50 percent line. The caste gap that emerged in condition C closed in condition CS because the C-CS contrast for the low caste was slight ($p = .92$) whereas for the high caste it was associated with a large performance decline ($p = .02$).

Figure 2. Cumulative proportion of low caste in each decile in Round 2 scores
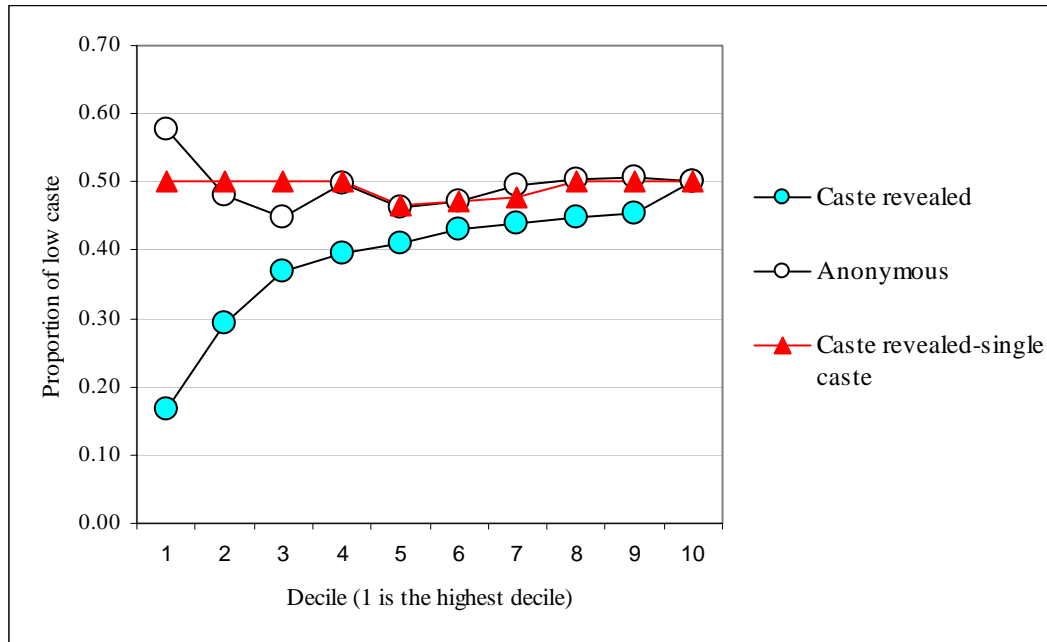
Note. There is, in general, more than one participant whose performance ranks him at the border between two deciles. In that case, we calculated the proportion of the low caste among participants whose performance was exactly the decile performance, and allocated low castes in this same proportion to both sides of the boundary.

4. Is caste just socioeconomic status?

The low- and high-caste subjects differed on average in the education of their parents and in other family characteristics (Table S1 of Supplementary Material). The experimental finding of caste differences in performance in condition C could be a "poor versus rich" effect, rather than a caste effect, if reminding children of their poor families discouraged them. To control for family characteristics, we ran OLS regressions of pooled scores using controls for parents' education and occupation. We also controlled for whether a child had seen mazes before.

Our results on the caste gap are robust to these controls (Table 2). The caste gap is insignificant in condition A ($p = .31$) and highly significant in condition C ($p = .01$).

The estimated A-C treatment effect for the low caste did not reach significance at the 10 percent level in the pooled results ($p = .16$). For the high caste, the A-C contrast was highly insignificant ($p = .75$).

For a nonrandom subset of 87 subjects, we obtained data on parents' land ownership by visiting households and checking with the land records office. For this subsample, the estimated effect of low caste, using controls including land, was to boost performance by 2.0 mazes in condition A, and to make no significant difference in condition C (Table S2 of Supplementary Material). Thus, controlling for land and other family variables, in this subsample of subjects, the low caste significantly outperformed the high caste in condition A ($p=.08$); whereas in condition C, the caste gap vanished. Like the raw caste scores, and like the scores estimated with controls excluding land, this result supports the key hypothesis that the effect of a membership in a low caste was to impede performance in the condition where caste identity was made public, relative to that in the benchmark case in which participants were anonymous to one another.

5. Conclusions

Our study is part of recent attempts to investigate why individuals from historically disadvantaged groups remain disadvantaged even when the provision of equal opportunities across social groups becomes a priority. Our study focuses on one possible mechanism: the role of social identities created under a discriminatory regime. Our experimental design generates two contrasts within which that role can be examined. The evidence suggests that caste identity is not graven on the individual's character so that he retains an impression of it regardless of the social context, for low- and high-caste performance did not differ significantly when caste was not publicly revealed. Our data consistently and robustly show that the revelation of caste membership before the eyes of

the subject's peers impedes the performance of the low-caste subjects. Whereas the persistence of group inequality after the end of discrimination is evidence commonly used to suggest inherent natural differences among people by race, gender, or ethnicity, this experiment pinpoints an effect that social identity can have in making the effects of discrimination persistent between well-identified groups.

The experimental condition in which caste was salient and common knowledge, rather than the benchmark treatment in which individuals' social identity was unknown to their peers, is the condition in which most individuals in most historically or currently discriminated against groups find themselves: Ethnic/gender/race identity is usually easy to observe; and in rural North India, where caste is not so easy to observe, villagers, including children, commonly refer to a village person of a given caste by his caste name. Our findings provide one explanation of the persistence of inequalities across social groups, and they also suggest how corrosive the effects of social identities created by a discriminatory regime can be. In the experiment, activating caste identities debilitated the low caste and, in segregated social settings, hurt even the performance of the high-caste subjects. To the extent that our findings can be generalized to economic performance in village India, they suggest that the aggregate effect on the society of expectations associated with caste can be viewed as unambiguously negative.

We see the main value of the experiment as suggesting a more general dynamic underlying the persistence of group inequality than has been generally recognized. 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, group outcomes will differ because individuals will

13

respond to opportunities differently depending on their group membership. The differences in behavior are not a consequence of a "culture of poverty" of the disadvantaged social group, but a legacy of the historical processes that divided human beings into categories and imputed to those categories social meanings. Individuals have thoughts that they import into the experiment when their caste is publicly revealed, and not otherwise. The current findings provide striking evidence of the impact of those thoughts on performance and the response to economic opportunity.

Table 2. Regression analysis of pooled scores for conditions A and C

Dependent variable is:	*Pooled Round 1 and Round 2 scores*
High caste (H)[1]	0.47
	(0.31)
Round 2 dummy	2.45*
	(0.00)
Caste revealed (C)[2]	-0.68
	(0.16)
High caste * Caste revealed (H*C)	0.82
	(0.22)
*Sum of coefficients on H and H*C[3]*	1.29*
	(0.01)
*Sum of coefficients on C and H*C[4]*	0.14
	(0.75)
Mother's education	
Positive but < 6 years	0.29
	(0.52)
At least primary	0.30
	(0.53)
Father's education	
Positive but < 6 years	-0.50
	(0.34)
At least primary	-1.17†
	(0.02)
Mother is employed outside home	0.21
	(0.76)
Father does wage labor	0.60
	(0.20)
Participant was exposed to mazes before	0.92‡
	(0.08)
Constant	3.05*
	(0.00)
Number of observations	474
R^2	0.21

[1]Estimated caste gap in condition A
[2]Estimated A-C treatment effect for the low caste
[3]Estimated caste gap in condition C
[4]Estimated A-C treatment effect for the high caste

Note: Robust *p*-values in parentheses, and standard errors clustered around each subject.

*Significant at 1-percent level. †Significant at 5-percent level. ‡Significant at 10-percent level.

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ENDNOTES

[1]Studies of the construction of social identities in discriminatory regimes—first, the elaboration of categories and second, the ranking of those categories of individuals with respect to inherent moral and social qualities—include Myrdal (1944), Lorcin (1995), Dirks (2001) and Benton (2002). The subordinate group, lacking equal access to education and law, cannot easily defend itself against a racial ideology. In emphasizing the role of social identities in the persistence of group inequality, we follow Loury (2002, see esp. pp. 20, 58), but the mechanisms he analyzes are different from the one we study here.

[2] Lerner (1982) and Nisbett and Ross (1991). An example of this cognitive bias is unwittingly provided by the anthropologist Deliege (1999, p. 73), who reports that many members of low castes recognize the injustice of discrimination against their own caste, but do not recognize its injustice against other low castes.

[3] One indication of the absence of physical markers of caste is that low-caste groups seek a constitutional amendment that would abolish Hindu surnames, which are markers of caste (*The Telegraph,* October 15, 2005, "Slash Surname to Kill Caste"). Thanks to Pranab Bardhan for this reference.

[4] Earlier experimental work activated social identity privately; *e.g.,* adult subjects indicated their racial identity on their test form; child subjects colored a picture illustrating their gender or ethnic identity (Aronson and Steele, 1995; Ambady et al., 2001). In our experiment, every subject responded to questions about his caste and background asked in

private by the experimenters (see Section 1). Earlier research (Aronson and Steele, 1995; Ambady, Pittinsky and Shih, 1999; Ambady et al., 2001) suggests that these questions would be enough to engage stereotype threat. It was the publicness of caste identity that we varied across treatments.

[5]In post-play interviews, 97 percent of the low-caste subjects and 89 percent of the high-caste subjects reported that they had not seen mazes before.

[6] We have not investigated whether our results carry over to adults. We are aware of only one test of this kind of question. The psychologists Ambady *et al*. (2001) find that the effect on young children of priming gender or Chinese identity is generally similar to the effect on university students as established in Shih, Pittinsky, and Ambady (1999).

[7] The decline in high-caste performance associated with segregation is consistent with results of another experiment in the same area of rural North India, in which we focused on performance under tournament incentives. In the initial round of play in that experiment, we used exactly the same experimental conditions (piece rate incentive and conditions A, C, and CS) as those used here. See Hoff and Pandey (2004), Tables A-3, A-4(C).

SUPPLEMENTARY MATERIAL   (TO BE POSTED ONLINE)

K. Hoff and P. Pandey, "Persistent Effects of Discrimination and the Role of Social Identity"

A. The caste system

The Indian term for caste, *jati—*which also means "species" in the zoological sense—specifies a group of people having a specific social rank, claiming a common origin, and linked to one or more traditional occupations. The caste system is made up of four distinct social classes (*varnas*) arranged in hierarchical order: Brahmins (priests), Thakurs or Kshatriyas (rulers and warriors), Vaishyas (traders), and Shudras (servile laborers).[1] A fifth group, the Untouchables, were in the classical Hindu social order too lowly to be counted within the class system. This group, which is found throughout India, was traditionally relegated to occupations associated with "organic waste, filth, ritual pollution, death, evil spirits, or various menial tasks"(Deliege, 1995, p. 25). In the Brahminical deontology of the caste system, the oppression of the Untouchables was justified

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[1] The earliest expressions of caste are found in India's ancient religious scriptures known as the Vedas, which are thought to have been compiled in the period 1500-1000 BC. The first Veda contains a hymn about the first man created, Purusa, who is sacrificed in order to give rise to the four *varnas* (castes): "The *Brahmin* was his mouth, his two arms were made the ruler [*Kshatriya or Thakur*, king and warrior], his two thighs the *Vaishya*, from his feet the *Shudra* [servant class] was born." Under British colonialism, caste became a single system subsuming the entire population; see Dirks (2001).

because castes were ranked by "spiritual merit accumulated in past existences" (Galanter, 1984, p. 11). There are hundreds of *jatis* or endogamous groups in each linguistic area of India, which can be characterized as belonging to one of these five groups (also referred to in English by the word "caste").

Up through the period of British colonialism, the caste system denied Untouchables the right to own land; to use temples, courts, high-caste wells, and most schools; to work in any but menial occupations; and to live anywhere except on the outskirts of a village. Available evidence suggests a remarkable continuity of these disabilities over millennia. A Brahmin text dated to the 3rd century AD, the *Manu Smriti*, states: "dwellings of the Untouchables shall be outside the village; and dogs and donkeys should be their wealth."[2]

With independence, India adopted a constitution in 1950 that abolished the caste system and established reservations in government and universities for the so-called Scheduled Castes— castes characterized by "extreme social, education and economic backwardness arising out of the traditional practice of untouchability"(Department of Social Justice and Empowerment, Government of India). However, the social and economic hierarchy of the caste system and discrimination against low-caste individuals remain a visible part of the society, especially in rural India, and even in the most egalitarian state of India (Kerala) (Deshpande, 2002). In rural North India, the setting of our study, it is common to find the Untouchable castes living in a separate quarter on the outskirts of the village. In a household survey near the site of our experiment, 56 percent of Scheduled Caste men report that they sit on the ground or remain standing when visiting a high-caste household. Likewise, 58 percent of high-caste men say that

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[2] Ch. X, verse 5. Translations in *The Laws of Manu* (Penguin Books, New Delhi, 1991) and Ambedkar, B. R. 1946. *Who Were the Shudras? How They Came to Be the Fourth Varna in the Indo-Aryan Society,* (Thacker and Company, Bombay, India, 1946). Many later reports confirm the persistence of untouchability over the centuries.

when a Scheduled Caste person visits their houses, he sits on the ground or remains standing (Hoff, Pandey, and Das Gupta, 2005).

B. Methods

Caste names

Scheduled Caste is the official and perhaps neutral term for the castes traditionally considered untouchable. More socially and politically accepted terms are *dalit* and *harijan*, which were first used in the middle of the 20th century. In our experiment, we revealed caste identity by using the traditional name for each caste (*jati*). For the low-caste subjects in our experiment, the name was Chamar. This name is still in widespread use in the area where we conducted the experiment. The name Chamar is recorded in the schools' enrollment books. Villagers, including children, commonly refer to a village person by the traditional name for his caste: a Chamar caste person is referred to as a Chamar and a Thakur caste person (a high-caste person) as a Thakur. In the 1998-99 Indian National Family Health Survey, households had to self-name their caste in one of the questions. Among the low-caste households, while most respondents (including those in Uttar Pradesh) gave their actual caste name (Chamar caste households gave their *jati* as Chamar), a few used the more generic names *harijan* or Scheduled Caste (Marriott, 2003). We believe that our use of the term Chamar for children of this caste is justified because it is the commonly used term for this caste in the area.

Mazes

The mazes were level 2 mazes (enlarged to fit A-4 paper) found at

http://games.yahoo.com/games/maze.html. A maze packet contained 15 distinct mazes.

Recruitment of subjects

In villages in the Indian state of Uttar Pradesh, Hardoi District, we recruited boys from the lowest caste, Chamar, and the three highest castes: Thakur, Brahmin, and Vaishya, which respectively constituted 61, 33, and 6 percent of the high-caste subjects (for sessions of A, C, and CS taken together). Chamars are the principal caste of *dalits* (Untouchables) in the survey area. Current

censuses of India distinguish only very broad caste groups, not *jatis*. The 1971 census reports that in the state of Uttar Pradesh, Chamars numbered 10.1 million (55 percent of *dalits*), and *dalits* represented 21 percent of the population of the state.

We conducted the treatments in January and March 2003 and in March 2005. In January 2003, on days that schools were open, we went to public schools near the site of the experiment and chose high- and low-caste children randomly for each day after pooling the enrollment data for all nearby public schools. On days that schools were closed, we visited homes in nearby villages each evening to ask parents' permission to pick up their children the next day to drive them to the junior high school that served as the site of the experiment. We told the parents that participants would be paid for showing up and would receive additional rewards depending on performance. We stated that our purpose was to study children in India. In only a few instances, parents refused to let their children participate, and the reason was that their neighbor was angry that we had not paid him money for driving his child to the junior high school instead of letting us transport the child.

In March 2003 and March 2005, to choose the subjects, every day our team went to six randomly selected villages within a 20 kilometer radius of the site of our experiment. From every village we drew an equal number of high- and low- caste children. During periods when school was in session, the strategy we tried to follow to recruit subjects was to ask the teacher of the village public school for the school register, which listed names of children alphabetically. We had a letter from the District Magistrate that instructed the teachers to cooperate with our team. With the teacher's help, going down the list we chose the number of high- and low-caste children needed from the village for our trials on that day. During periods when school was not in session, we visited homes each evening to ask parents' permission to pick up their children the next day.

Having conducted the treatments in January and March 2003 and March 2005, we found from post-play interviews in January 2003 that low- and high-caste subjects, respectively, knew on average 1.23 and 1.21 of the other five in the group. In March 2003 and 2005, in post-play interviews, subjects reported knowing no other individuals in the group. When we regress, within

each experimental condition, performance on caste, controlling for the number of other subjects an individual knows in his group as well as family background, we find that the results on the caste gap and treatment effects are robust (Table S3).

Experimenters

The experimenters were upper caste women from Uttar Pradesh. Our staff included men and women from Uttar Pradesh of both high and low castes. In January and March 2003, all of the experimenters except one (one of the authors) were blind to the hypothesis of the experiment. In March 2005, the procedures were conducted entirely by experimenters who were blind to the hypothesis. The graders of the mazes were blind to the castes of the subjects.

Because we conducted the treatments in three time periods, we replicated treatments across periods. In all periods we replicated condition A, and in two periods we replicated condition C. We used the Mann-Whitney U-test to compare distributions under condition A in January and March 2003 (Round 1, $p=.19$; Round 2, $p = .63$), and in January 2005 and all of 2003 (Round 1, $p=.35$; Round 2, $p=.68$); and finally to compare the distributions under condition C in January 2003 and March 2003 (Round 1, $p = .26$; Round 2, $p=.41$). Since we found no significant differences across time, we report the pooled results. Using the same method, we also found no significant experimenter bias.

C. English version of the Hindi instructions (Conditions C and CS)

The setting is a classroom with three laminated wall posters—one shows a trivially easy maze, another shows a maze of the same difficulty level used in the experiment, and the third poster is blank. Places on the floor mat are set for six children. At each place are a fruit, a clipboard with a practice maze, and a pencil.

0. *Experimenter reads out, for each child in turn, the child's name, village name, father's name, grandfather's name if available, and caste. Experimenter asks the child to nod if the information correct.*

1. You are about to participate in a game of puzzles. You will take part in two games. In both games you will have to solve puzzles. The games will take about half an hour.

2. To participate in these games every child will receive 10 rupees. *Experimenter distributes a 10-rupee note to each child.* In addition you might get more rewards in the game. This money will be given to every child in an envelope after the games are over.

3. Now I will show you how to solve a puzzle. *Experimenter illustrates each of her statements by drawing on the poster with the trivially easy maze, which she solves.* In this puzzle there is one child. The child has to go to the ball. The solution is a path that takes the child to the ball. The black lines are walls. The child cannot cross a wall. So the path that you draw cannot cross a line. If it crosses a line, then it will be considered incorrect. You can erase or cross out mistakes. There is an eraser on top of your pencil. And you can also draw a path back if you meet a dead-end. You can solve a maze forwards or backwards.

4. Now I will show you how to solve a puzzle like the one you will have to do. *Experimenter illustrates each of her statements by drawing on the poster with the Level 2 maze, which she solves.* The solution is the path that takes the child to the ball. If you draw an incorrect line, you can erase it or cross it out, and you can also draw a path back if you meet a dead-end.

5. Now I will ask you to solve a puzzle as practice. It will take you about five minutes to do this. If you don't understand something or your pencil breaks, raise your hand, and I will come to you. *Experimenter allows five minutes for the children to work on the practice maze.*

6. I am passing out a booklet of puzzles [*the booklets for Round 1*]. This booklet contains 15 pages. Every page has a puzzle on it. To solve these, you will have 15 minutes. If you are not able to do one puzzle, you can proceed to the puzzle on the next page. During the game you should not to talk to each other. If you talk to each other, then you will not get any reward in the game.

7. In this game, you will get 1 rupee for each puzzle that you solve. So if you solve 1 puzzle, then you will get 1 rupee. If you solve 2 puzzles, then you will get 2 rupees. If you solve 3 puzzles,… *Experimenter illustrates the rules by writing the following table on the blank poster:*

1 puzzle	1 rupee
2 puzzles	2 rupees
3 puzzles	3 rupees
…	
10 puzzles	10 rupees

…

15 puzzles   15 rupees

Experimenter checks that each child understands the payment system by asking a question to each child in turn, as follows: Suppose you solve * puzzles. How many rupees will you be given? For *, the experimenter uses, in turn, 4, 7, 9, 12, 14, 5.
Each child will get his reward in an envelope at the end of the game.

8. Now we will begin the game. *After 10 minutes, Experimenter tells the children that 5 minutes of the game remain. When the timer rings, she collects the packets.*

9. We are going to play the game one more time. *Experimenter passes out the booklets for Round 2.*

10. The second game is just like the first game. I want to review the rewards again. *Experimenter repeats steps 7 and 8. For *, she uses in turn, 5, 14, 12, 9, 7, 4.*

11. We will begin the game. *After 10 minutes, Experimenter tells the children that 5 minutes of the game remain. When the timer rings, she collects the packets.*

Note. Subjects participated in a private post-play interview. They waited in the school courtyard for their turn to be interviewed, and staff supervised them. Some teachers and, in a few cases, some parents also waited there. Our assistants provided box lunches at midday. After the mazes from a session were graded, earnings were distributed in sealed envelopes to the participants.

D. Supporting tables

Table S1. Summary statistics for individual and household variables

Subject-level variables	Low-caste subjects	High-caste subjects
Proportion having mother with:		
No schooling	0.72	0.28
Less than primary (but positive) schooling	0.05	0.06
At least primary schooling	0.22	0.65
Proportion having father with:		
No schooling	0.31	0.08
Less than primary (but positive) schooling	0.10	0.05
At least primary schooling	0.58	0.86
Proportion having both mother and father with no schooling	0.29	0.06
Proportion with mother working outside of home	0.04	0.05
Proportion with father in non-wage work (including own farming)	0.77	0.88
Mean land in acres (standard deviation in parentheses)	1.07 (1.16)	2.27 (1.90)
Proportion landless (out of those subjects for whom we have land data)	5/46 = .11	1/41 = 0.02
Proportion with prior exposure to mazes	0.03	0.11

Table S2. Regression analysis of pooled results for the nonrandom subsample of subjects with land data

Dependent variable is:	Pooled scores from conditions A and C, Rounds 1 and 2	
Landholding (acres)	0.15	0.09
	(0.32)	(0.57)
High caste (H)[1]	-1.98‡	-2.01‡
	(0.09)	(0.08)
Round 2 dummy	2.04*	2.03*
	(0.00)	(0.00)
Caste revealed (C)[2]	-0.93	-0.81
	(0.29)	(0.37)
High caste * Caste revealed (H*C)	2.30†	1.94
	(0.07)	(0.13)
*Sum of coefficients on H and H*C[3]*	0.32	-0.07
	(0.58)	(0.90)
*Sum of coefficients on C and H*C[4]*	1.37	1.13
	(0.12)	(0.18)
Mother's education		
Positive but < 6 years	0.93	1.26‡
	(0.20)	(0.07)
At least primary	0.26	0.16
	(0.75)	(0.84)
Father's education		
Positive but < 6 years	0.64	0.46
	(0.39)	(0.56)
At least primary	0.34	0.05
	(0.66)	(0.94)
Mother is employed outside home		-1.13
		(0.26)
Father does wage labor		1.07
		(0.05)
Participant was exposed to mazes before		2.04†
		(0.02)
Constant	2.86*	2.17*
	(0.00)	(0.01)
Number of observations	158	152
R^2	0.21	0.27

[1]Estimated caste gap in condition A
[2]Estimated A-C treatment effect for the low caste
[3]Estimated caste gap in condition C
[4]Estimated A-C treatment effect for the high caste
 Notes: Robust *p*-values in parentheses, and standard errors clustered around each subject.
*Significant at 1-percent level. †Significant at 5-percent level.   ‡Significant at 10-percent level.

Table S3   Regression analysis of scores for 2003, with controls for number of children known in the group

Dependent variable is:	Pooled Round 1 and Round 2 scores	
	Anonymous (Condition A)	Caste revealed (Condition C)
High caste	-.20	1.08†
	(.73)	(.03)
Round dummy (1 for Round 2)	2.8*	1.81*
	(.00)	(.00)
Round dummy*High caste	-.27	.87†
	(.66)	(.05)
Mother's education		
Positive but < 6 years	.94	-.001
	(.24)	(.99)
At least primary	1.89†	-1.29‡
	(.02)	(.07)
Father's education		
Positive but < 6 years	-.45	-.38
	(.66)	(.59)
At least primary	-1.37	-.75
	(.19)	(.26)
Mother working	-1.32	-1.72
	(.26)	(.15)
Father non-wage worker	.23	.87
	(.80)	(.25)
Subject has seen mazes before	.46	1.42‡
	(.64)	(.10)
Number of children known in the group	.44†	-.16
	(.03)	(.50)
Constant	2.58*	2.76*
	(0.007)	(0.005)
Number of observations	146	216
R^2	.27	.24

Notes: Robust *p*-values in parentheses, and standard errors clustered around each subject.

Mother working is a dummy variable that takes value 1 if the mother works outside home, 0 otherwise.

Father non-wage worker is a dummy variable that takes the value 1 if the father is a non-wage worker

(including own farming), 0 if father is a pure wage laborer.

*Significant at 1-percent level. †Significant at 5-percent level. ‡Significant at 10-percent level.

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