Attitude towards caste-based reservation and study group formation: Evidence from a business school in India[1]

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Abstract

We investigate if social-desirability concerns cause measurement errors in anonymous surveys studying caste issues. Our study focuses on caste considerations in endogenous study-group formation by students of an Indian business school. Study groups can affect grades, which can affect salaries. We find that more than 40 percent respondents believe that reservation is not justified and that reserved-caste category students have inferior academic ability. Analogous to Coffman et al. (2017), comparing anonymous survey responses with and without a 'veil', we find that the self-report of the tendency to exclude reserved-caste category students from one's study group increases from 5 percent (without the veil) to 21 percent (with a veil), and the tendency to exclude an inferior-academic-ability student increases from 21 percent (without the veil) to 63 percent (with the veil). These findings raise fundamental questions of measuring and analysing attitudes related to caste-related issues using anonymous surveys.

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1. Introduction

Caste based reservation for admission into higher educational institutes is a sensitive topic in India (Ghosh 2006, Ilaiah 2006). Notably, admission into such institutes doesn't guarantee homogeneous post-admission experience across castes (Kumar 2016, Vijay and Nair 2021). In this paper, within the context of caste and endogenous study-group formation in an Indian business school, we investigate the broader question of robustness of the traditional strictly anonymous survey method in eliciting true responses regarding sensitive caste-related questions. In particular, even with strict anonymity, surveys regarding sensitive caste-related issues can be inaccurate due to responses being affected by social desirability bias (SDB henceforth; see Edwards (1953) and Krumpal (2013) for discussions on SDB). For example, Coffman et al. (2017) show that size of LGBT population and the magnitude of antigay sentiment is underestimated by the anonymous survey method. In this paper we attempt to investigate the existence of a similar measurement bias, and to measure this bias, in an important novel area: caste and endogenous study-group formation in the second year of the MBA (Masters in Business Administration) program in an Indian business school.

This enquiry into caste and study-group formation is important because marks accruing to group projects contribute significantly towards the overall GPA. In a typical course the share of overall marks decided by group grades ranges anywhere from between 20% - 50%. GPAs in turn are a significant determinant of one's future earnings. Using placement data on the 2006 class of MBA graduates from IIM Ahmedabad (a top business school in India), Chakravarty and Somanathan (2008) find that graduates belonging to Scheduled Castes (SC) or Scheduled Tribes (ST) get significantly lower wages (up to 35 per cent lower) than those in the general category. This difference disappears once their lower GPAs are taken into account, suggesting that the large wage difference is due to the lower academic performance of SC/ST category students. Furthermore, studies have shown that students at higher educational institutes can easily infer the reservation category of their peers based on indicators like admission test scores[3], last name, and educational background (Rao 2013, Sharma and Subramanyam 2020, and Vijay and Nair 2021).

We follow the methodology of Coffman et al. (2017) to investigate and measure the social desirability bias in anonymous survey responses related to caste and study-group formation. This method uses the item count technique (Miller (1984)). To simplify, the method is to compare the survey responses from a control group where the survey questions are asked under strict anonymity with survey responses from a treatment group where questions are asked also asked under strict anonymity but with also a 'veil'.

Specifically, the control group is asked N questions, each with a yes/no answer, in a block, followed by a sensitive yes/no question of our interest. E.g., a sensitive question we asked was: "In the 2nd year are/were you willing to include a reserved-caste category student in your study group?". The control-group respondent only reports the total number of yeses for the N block questions, and the individual yes/no answer to the sensitive question. The treatment-group respondent is only asked the number of yeses for N+1 questions, where the N questions are exactly those asked to the control-group respondent, and the $(N+1)^{th}$ question is the same sensitive question as the control, except in the treatment, the sensitive question is also a part of

[3] Students who are admitted under the reservation policy have lower admission test scores score than general category students.

the block, and it is not asked separately, as in the control. Note that the treatment provides a 'veil' to each respondent since the respondent knows that she never revealed her individual answer to the sensitive question; she only stated the total number of yeses, from which it is impossible to infer to which questions she said yes (unless she answers 0 or 5).

This design yields two measures of the proportion of the sample saying yes to the sensitive question. Direct measure: the proportion in the control who say yes to the sensitive question, (when it is asked separately from the block of N questions). Veiled measure: the average number of yeses out of N+1 in the veiled treatment minus the average number of yeses out of N block questions in the control. The veiled measure assumes that, since participants are randomized across the treatment and control, the number of yeses will be the same for the N common questions across the control and treatment. Thus, an increase in the average yeses out of N+1 questions relative to N questions, must be the proportion of the treatment saying yes to the $(N+1)^{th}$ question of our interest.

Note that the veiled treatment provides no inference for a particular individual's answer to the sensitive question; the veiled measure only yields an inference for the number of yeses to the sensitive question at the sample level. Thus, if there is a significant difference in the direct measure and the veiled measure, then it provides evidence that the direct measure, even with strict anonymity, is affected by social desirability bias, which is less of a concern in the veiled measure.

Consider the 'include reserved-caste category student' question (for short) mentioned above. When the question is asked separately from the block of 4 questions (N = 4 in this paper) in the control, about 95 percent of participants said yes (5 percent said no); this is the direct measure. To calculate the veiled measure, note that the number-of-yeses out of the block of 5 questions (including the sensitive question) in the veiled treatment was about 2.99 and the number-of-yeses out of the four-question block in the control was about 2.12, which yields a difference of about 0.87. Thus the veiled measure yields the inference that 87 percent of participants answered yes to the sensitive question, and 13 percent said no, which is the sensitive answer for this question. Comparing the two measures yields that the sensitive answer to this question is underreported by 7 percentage points in the strictly anonymous control survey (the anonymity was clearly communicated to the respondents), without the veil.

Investigating the statistical channel for discrimination, we find that more than 40 percent of respondents believe that reserved-caste category students have inferior academic ability; we find no social desirability bias in the responses to this question. But in the follow up question to investigate statistical discrimination, we find significant social desirability bias. In the direct measure, 21 percent of students report they are/were unwilling to include an inferior academic ability student in their study group. However, under the veiled method, we find that 63 percent of students are/were unwilling to include an academically inferior student in their study group. This identifies an underreporting of 42 percentage points, or 200 percent of the baseline.

Thus, we find that surveys that are strictly anonymous may not suffice to elicit true responses regarding the existence or true magnitude of an important form of discrimination, here the inclusion of reserved-caste category students in study groups. Furthermore, the channel through which this discrimination may also be underreported, here this channel is the tendency to exclude academically-inferior students from study groups.

As such, our findings raise fundamental questions of accurately measuring caste-related attitudes and their underlying mechanisms using anonymous surveys. There are several studies that rely on traditional strictly anonymous survey methods to measure caste attitudes and their effects (Lokniti (2017), Coffey et al. (2018), Pandey and Pandey (2018), Deshpande (2019), and Pew Research Centre (2021)). Our findings suggest that the robustness of such studies to social desirability bias is an open question. Indeed, given that we have found measurement issues in direct anonymous responses, we cannot contribute to the question of whether the discrimination we observed is taste based or statistical.

Bertrand and Duflo (2017) and Lane (2016) provide two reviews of the different literatures on discrimination. Our findings suggest a great challenge in directly measuring beliefs and attitudes on caste-related issues, even though beliefs can be important determinants of discriminatory behavior and self-stereotyping (Bohren, Imas and Rosenberg (2017), Bordalo et al., (2019) and Coffman et al. (2021)). Therefore, studies that identify discrimination in behavior seem a more promising direction for identifying and analyzing caste-based discrimination. E.g., Banerjee et al. (2009) and Siddique (2011) study the response to sending fictitious resumes to potential employers, and find significant differences in call-back rates between upper and lower castes applicants.

Our work is related to the literature studying peer effects (see Sacerdote 2014 for a review). Sacerdote (2001), Zimmerman (2003), Stinebrickner and Stinebrickner (2006), and Carrell et al. (2009) find that peers characteristics are important determinants of a student's academic outcomes. Studies that investigate peer effects at graduate business schools in India have yielded similar results (Sen et al. 2012 and Jain and Kapoor 2015). Administratively assigned connections like roommates and study group affect the level of social interaction and friendship between any two students (Jain and Langer (2019)). However, unlike in the current paper, these papers have not explored how endogenous peer groups are formed, and how that relates to caste. On that front, Marmaros and Sacerdote (2006) and Carrell et al. (2013) have found that race and geographic proximity, and academic ability can drive endogenous sorting into groups. We also find that caste and academic ability are drivers of endogenous sorting, but more importantly we find that students underreport the degree to which caste and academic ability drive endogenous sorting.

2. Experimental Design

The survey was designed to elicit responses to five sensitive questions (reported in Table 2) using two methods: (a) anonymous survey (control group) and (b) anonymous survey combined with a veil (veiled treatment group). We closely follow the methodology of Coffman et al. (2017). Approximately half the participants in our main sample of 226 participants were randomly allocated to the control group, and the other half to the veiled-treatment group. The study was conducted offline. The survey forms were distributed to the students at their respective dormitories, who then deposited their anonymous response sheets in a common deposit box. The responses collected from the participants were completely anonymous in both treatments. No identifying information was collected and this was clearly communicated to the participants through the consent form at the start of the survey.

Consider one of the sensitive questions we asked: "In the 2nd year are/were you willing to include a reserved-caste category student in your study group?" The methodology for the control and the veiled treatment for this question is shown in Table 1.

In the control, each participant was asked a block of 4 yes/no questions, where each question is different from the sensitive questions of our interest, and she was requested to only report the total number of questions in this block to which her answer is yes: 0, 1, 2, 3, or 4. In particular, she was not asked her yes/no answer, individually, to any of the 4 questions in the block. Next, she was separately asked her yes/no answer to the sensitive question. Thus, each participant in the control was asked the sensitive question "directly" but under anonymity.

In the veiled treatment, each participant was asked her/his score out of 5 on a block of five yes/no questions, four of which are exactly the same unrelated questions as asked to the control group participant in their block of 4 questions. The additional question in the block of five questions asked to the veiled-treatment participant is the sensitive question of our interest. Note that in the veiled treatment, unlike in the control, the participant doesn't report her yes/no answer to the sensitive question; instead, each participant only reports her score out of 5 on the block of five yes/no questions, and the sensitive question of our interest is included within this block. Thus, in the veiled treatment, the participant knows she has not provided her answer to the sensitive question (unless she reports 0 or 5).

This design yields two measures of the proportion of participants who say yes to the sensitive question. Measure A: the *direct-report* measure from the control—the proportion of participants in the control group who say yes to the sensitive question. Measure B: the *veiled-report* measure, which is an inferred measure obtained by comparing the control and the veiled treatment—the mean score of yeses out of five (for the block of 5 yes/no questions) in the veiled treatment minus the mean score of yeses out of four (for the block of 4 yes/no questions that are common across the control and treatment). The key assumption in the veiled measure B is that since the participants are randomized across the two groups, the mean score out of the 4 common questions in the respective blocks should be the same across the two groups, and therefore any difference in mean score (out of 4 vs out of 5) across the two groups is the proportion of participants in the veiled treatment who are saying yes to the additional question, which is the sensitive question of our interest.

Following Coffman et al. (2017), we argue that the veiled measure B yields the proportion of participants answering yes to the sensitive question with their social desirability concerns (if any) reduced relative to the anonymous but direct measure A. So, comparing measure B with measure A yields the effect of reducing social-desirability concerns, and the degree of underreporting of the sensitive answer in measure A due to the presence of social-desirability concerns, even in anonymous surveys.

For example, consider the sensitive question shown in Table 1: the 'include reserved-caste category student' question (for short). When the question is asked separately from the block of 4 questions in the control, about 97 percent of participants in the control said yes (3 percent said no); this is the direct measure A. To calculate measure B, note that the number-of-yeses out of the block of 5 questions (including the sensitive question) in the veiled treatment was about 2.98 and the number-of-yeses out of the four-question block in the control (all four questions identical to the unrelated questions in the veiled treatment) was about 2.13, which yields a difference of about 0.86. Thus the veiled measure B yields the inference that 86 percent of participants answered yes to the sensitive question (14 percent said no). For this question, "no" is the sensitive answer. Comparing the two measures yields that the sensitive answer to

this question is underreported by 11 percentage points in the anonymous setting, without the veil.

There are five sensitive questions for which we elicit both measures, veiled and direct. These questions are reported in Table 2. In the control, each participant answered a five-part survey form. Each part contained a different block of 4 unrelated questions followed by a particular sensitive question, exactly as described for the 'include reserved-caste category student' question above. Following the five parts, there was a short demographic survey with questions on age, gender, reservation category, hometown area (rural/urban), program year (first/second), and religion. Note that none of these could help the experimenter identify the participant. In the veiled treatment, there were again five parts, where each part contained a block of 5 yes/no questions that had the four questions exactly the same as the corresponding part in the control, and the fifth question in each block was that block's sensitive question being asked with a veil.

Table 1: Veiled Methodology

Control Group	Treatment Group
1.Do you feel you get as much exercise as you need?	1.Do you feel you get as much exercise as you need?
2.Do you think that air pollution in India is a pressing issue that needs to be addressed immediately?	2.Do you think that air pollution in India is a pressing issue that needs to be addressed immediately?
3.Do you think that the Indian government should completely ban cryptocurrency in India?	3.In the 2nd year are/were you willing to include a reserved-caste category student in your study group?
4.Do you get most of your news from electronic media compared to print media?	4.Do you think that the Indian government should completely ban cryptocurrency in India?
Please circle the total number of questions from the list above for which your answer is yes.	5. Do you get most of your news from electronic media compared to print media?
0 1 2 3 4 **(B)**	Please circle the total number of questions from the list above for which your answer is yes.
In the 2nd year are/were you willing to include a reserved-caste category student in your study group?	**0 1 2 3 4 5** **(A)**
Yes No **(C)**	

Additional sample and design to check for internal consistency bias

A concern we try to address by experimental design is to check if there was any internal consistency bias while answering sensitive questions 2, 3, and 4 ('reserved-caste category and inferior academic ability', 'include inferior academic-ability student', and 'include reserved-caste category student'). These three questions are closely related. That is, the answers yes-no-no would follow the typical statistical discrimination story. So, the answer to one question might affect the response to another question. To perform a robustness-check against such internal consistency bias we surveyed additional participants (over and above the main sample).

Each of these additional participants was assigned to a particular sensitive question: 2, 3, or 4. And within that question to either a robustness control or robustness veiled treatment. E.g., if

a participant was assigned to the robustness control (respectively, veiled treatment) for question 3, she would be asked only part 3 of the main-sample control (veiled treatment) survey along with demographic questions. Thus, each of these additional participants was exposed to exactly one sensitive question, either in the direct-report control or veiled treatment. For each of questions 2, 3, and 4, we had more than 30 participants each in their robustness control and robustness veiled treatment.

3. Empirical Analysis

To check whether the veiled treatment increased the proportion of participants who gave the sensitive answer to the sensitive question we specify the following regression model for each of the five sensitive questions. For sensitive question *q* whose sensitive answer is "yes" (e.g., the 'reserved-caste category and inferior academic ability' question) the dependent variable for individual *i* in the veiled-treatment is the number of yeses out of 5. For each participant in the control, the dependent variable is the sum of the following two components: (a) the number of yeses out of the 4 block questions, plus (b) 1 if the participant answers yes to the directly asked sensitive question and 0 otherwise. We also control for all observable demographic variables. Hence, for a question which has "yes" as its sensitive answer, we estimate

$$(No.\ of\ yeses\ out\ of\ five)_{qi} = Constant + \beta X_i + \mu_q Treatment\_Dummy_i + \varepsilon_i. \quad (1)$$

Table 2: Sensitive Questions

	Questions	Sensitive Answer
1.	Do you believe that caste based reservation while allocating seats at your institute is justified?	No
2.	Do you believe that within your institute, reserved caste category students have inferior academic ability relative to general category students?	Yes
3.	In the 2nd year are/were you willing to include a student of inferior academic ability than yours in your study group?	No
4.	In the 2nd year are/were you willing to include a reserved-caste category student in your study group?	No
5.	Do you believe that there is sufficient informal social interaction between general and reserved-caste category students within your institute?	No

In equation (1), $Treatment\_Dummy_i$ is an indicator variable which equals 1 if the participant is in the veiled-treatment group. μ_q is the key variable that estimates the increase in the proportion of sensitive answers in the veiled treatment relative to the control. That is, μ_q measures the under-reporting of the sensitive answer under the standard anonymous direct-report method. X_i is the set of observable demographics: age, gender, reservation category, hometown area (rural/urban), program year (first/second), and religion.

For a question q whose sensitive answer is "no" the dependent variable for individual i in the veiled-treatment group is the *number of noes* out of 5, which is 5 minus the number of yeses. For each participant in the control group the dependent variable is the sum of the following two components: (a) the number of noes out of the 4 block questions, plus (b) 1 if the participant answers no to the directly asked sensitive question and 0 otherwise. The rest of the analysis is similar. So, for a question which has "no" as its sensitive answer, we estimate

$$(No.\ of\ noes\ out\ of\ five)_{qi} = \text{Constant} + \beta X_i + \mu_q Treatment\_Dummy_i + \varepsilon_i. \qquad (2)$$

Again, μ_q estimates the increase in the proportion of sensitive answers in the veiled treatment relative to the control, or the degree of underreporting of the sensitive answer in the anonymous direct-report method.

3.1 Correlation between direct responses and observable demographics

For the questions where we find the direct responses in the control robust to the social desirability bias (i.e., the treatment effect μ_q is not significantly different from zero), we check for any correlation between observable demographics and the direct reports of the sensitive answer. We do this by fitting a linear probability model as follows:

$$(Direct\ sensitive\ answer\ to\ the\ sensitive\ question)_{qi} = \text{Constant} + \gamma X_i + \varepsilon_i \qquad (3)$$

The dependent variable is 1 if the respondent reports the sensitive answer and X_i is the vector of observable demographics.

We skip this analysis for the questions where we find significant under-reporting of the sensitive answer in the direct measure. This is because in such questions there is evidence of social desirability bias in the direct responses. So, an analysis of these biased direct reports could lead to incorrect inferences, which is the key point we are trying to make in this paper.

3.2 Internal consistency robustness check

To empirically test for the presence of any internal consistency bias, for each of questions 2, 3, and 4, we specify the following regression model:

$$(No.\ of\ yeses\ or\ noes\ out\ of\ five)_{qi} = \text{Constant} + \beta X_i + \mu_q Treatment\_Dummy_i + \alpha_1 Robustness\_Dummy + \alpha_2 Treatment\_Dummy * Robustness\_Dummy + \varepsilon_i. \qquad (4)$$

Here α_1 captures if the main-sample control is different from the robustness control, while α_2 captures if the veiled-treatment in the robustness sample had a differential impact relative to the impact of the veiled-treatment in the main sample.

4. Results

In total, 431 students took part in our survey, which includes the main sample and the samples for the three individual robustness checks, each with a separate between-subject control and

treatment. The split of the sample into the various groups is detailed in Table A1 in the Appendix. About 60 percent of the students in our survey (main and individual robustness samples) belong to the general category (non-reserved), and 29 percent belong to the reserved-caste category (Other Backward Classes (OBC), Scheduled Castes (SC), and Scheduled Tribes (ST)). The remaining 11 percent chose not to answer this question. See Table A1 for these details.

Table 3: Chi-Square Test of Independence b/w treatment and control group (p-values)

Demographic Variables	Main Study	Robustness Check 1	Robustness Check 2	Robustness Check 3
Gender (Male/Female)	0.19	0.95	0.88	0.70
Reservation Category (General/Reserved)	0.62	0.14	0.91	0.99
Area (Urban/Rural)	0.86	0.24	0.76	0.33
Year (First/Second)	0.77	0.68	0.71	0.80
Religion (Hindu/Non-Hindu)	0.27	0.31	0.63	0.99

A chi-square test of independence was used to determine if all the demographic variables are distributed randomly between the treatment and control groups. We find no significant difference in the proportion of these characteristics across the two groups. These findings are consistent across the main sample and the three individual robustness checks (see Table 3).

Table 4: Proportion of sensitive answer in the control group

	Question	% of Sensitive Answer
1.	Do you believe that caste based reservation while allocating seats at your institute is justified or not?	41%
2.	Do you believe that within your institute, reserved caste category students have inferior academic ability relative to general category students?	46%
3.	In the 2nd year are/were you willing to include a student of inferior academic ability than yours in your study group?	21%
4.	In the 2nd year are/were you willing to include a reserved-caste category student in your study group?	5%
5.	Do you believe that there is sufficient informal social interaction between general and reserved-caste category students within your institute?	13%

Table 4 presents the direct measure, that is, the percentage of respondents in the control who report the sensitive answer when asked directly. Table 5 shows the level of under-reporting in the control group relative to the veiled treatment after controlling for observable demographics. Table 6 reports the correlation between the demographic variables and direct responses for the questions where we do not find significant under-reporting.

Table 5: Effect of Veiled Treatment on the report of sensitive answer

	(Q1) Is caste based reserva-tion justified	(Q2) Do RC students have inferior academic ability	(Q3) Will you include an inferior academic ability student	(Q4) Will you include a reserved category student	(Q5) Is there sufficient informal interac-tion
Proportion of Sensitive Answer in the Control Group	0.41	0.46	0.21	0.05	0.13
Veiled Treatment	-0.01 (0.13)	-0.3 (0.14)	0.43*** (0.15)	0.17* (0.10)	-0.12 (0.14)
Robustness Dummy		-0.12 (0.21)	0.04 (0.23)	0.24 (0.15)	
Treatment*Robustness		-0.41 (0.28)	0.17 (0.31)	-0.32 (0.21)	
Demographic Controls	Yes	Yes	Yes	Yes	Yes
Observation	168	225	217	219	168
R^2	0.03	0.07	0.06	0.02	0.03

*Note: Positive value of the veiled treatment reflects the increase in reporting of the sensitive answer under the veiled treatment compared to the control group. Standard error in parenthesis. *p<0.1; **p<0.05; ***p<0.01*

Our analysis shows that the responses of main sample participants to the sensitive questions 2, 3, and 4 are robust to any internal consistency bias. Columns (2), (3), and (4) in Table 5 report the results of regression equation 4 for the three questions. There is no significant difference between the responses of robustness sample control and the responses of main sample control (see the coefficients of Robustness Dummy). Also, for each of the 3 questions, the impact of veiled treatment (treatment effect) in the robustness sample is not significantly different from the impact of veiled treatment in the main sample (see the coefficients of Robustness*Treatment). This suggests that the respondent's answer to one question did not affect their response to other questions.

In the control group, where the participants were asked the sensitive question directly, but under anonymity, the proportion of sensitive answer is sizable, as shown in Table 1. From Question 1 we find that 41% of the participants report that caste-based reservation while allocating seats at their institute is not justified. From Question 2 we find that 46% of the participants believe that reserved-caste category students have inferior academic ability relative to general category students. From Question 3 we find that 21% of the participants are/were unwilling to include an inferior academic ability student in their study-group. From Question 4 we find that 5% of participants are/were unwilling to include a reserved-caste category student in their study group. From Question 5 we find that about 13% of the participants report a lack of informal interaction between the general and reserved category students.

Result 1: (a) *41 percent participants report that caste-based reservation in seat-allocation is not justified.* **(b)** *46 percent participants believe that reserved-caste category students have inferior academic ability relative to general category students.* **(c)** *13 percent participants report a lack of informal interaction between the general and reserved category students.*

Table 5: Effect of Veiled Treatment on the report of sensitive answer

	(Q1) Is caste based reservation justified	(Q2) Do RC students have inferior academic ability	(Q3) Will you include an inferior academic ability student	(Q4) Will you include a reserved category student	(Q5) Is there sufficient informal interaction
Veiled Treatment	-0.01 (0.13)	-0.3 (0.14)	0.43*** (0.15)	0.17* (0.10)	-0.12 (0.14)
Robustness Dummy		-0.12 (0.21)	0.04 (0.23)	0.24 (0.15)	
Treatment*Robustness		-0.41 (0.28)	0.17 (0.31)	-0.32 (0.21)	
Demographic Controls	Yes	Yes	Yes	Yes	Yes
Observation	168	225	217	219	168
R^2	0.03	0.07	0.06	0.02	0.03

*Note: Positive value of the veiled treatment reflects the increase in reporting of the sensitive answer under the veiled treatment compared to the control group. Standard error in parenthesis. *p<0.1; **p<0.05; ***p<0.01*

The central aim of our paper is to ascertain whether traditional anonymous surveys are effective in eliciting truthful responses on issues related to caste-based reservation. We find significant under-reporting of the sensitive answer in the control group relative to the veiled treatment for two of the five questions in our survey (see the coefficients of Treatment Effect in Table 5). In Question 3, the proportion of students who report that they are unwilling to include an inferior academic ability student in their study group increases from 21% in the control group to 64% in the veiled treatment. There is under-reporting of about 43 percentage points ($p < 0.01$). In Question 4, 5% of the control group participants state that they are unwilling to include a reserved caste category student in their study group. This increases to 22% in the veiled treatment. There is under-reporting of about 17 percentage points ($p < 0.1$).

Result 2: *There is significant underreporting about both, the tendency to exclude a reserved-caste category student as well as the tendency to exclude an academically-inferior student from one's study group. The tendency to exclude a reserved-caste category student increases from 5 percent in the direct measure to 21 percent in the veiled measure. The tendency to exclude an academically-inferior student increases from 21 percent in the direct measure to 64 percent in the veiled measure.*

The underreporting that we observe here has implications for studies that want to accurately measure and analyse the attitudes of students towards caste-based reservation and its beneficiaries. Elicitations under standard anonymous surveys do not reflect the true beliefs of students. We have shown evidence for the presence of stigma associated with reporting of the sensitive answer, even under strict anonymity, and hence standard surveys might under estimate the level of socially-undesirable perceptions and attitudes.

Finally, in questions where there is no significant under-reporting of the sensitive answer, we check for any correlation between the demographic variables and reporting of the sensitive answer in the control group. Using the linear probability model[4], we find that reporting of the sensitive answer is significantly correlated with the reservation category of the respondent (see the coefficients of Reserved Category in Table 6) while other demographics are uncorrelated. In Question 1, students belonging to the reserved category are 27 percentage points more likely to report that caste-based reservation is justified compared to the general category students ($p < 0.05$). In Question 2, general category students are 33 percentage points more likely to report that reserved category students have inferior academic ability relative to reserved-category students ($p < 0.01$).

Result 3: *In the questions where we find no measurement bias in the direct measure the following correlations are notable. Students belonging to the reserved category are 27 percentage points more likely to report that caste-based reservation is justified compared to the general category students. General category students are 33 percentage points more likely to report that reserved category students have inferior academic ability relative to reserved category students.*

[4] We get similar results under logit and probit specifications.

Table 6: Correlation b/w direct responses and observable demographics

	(Q1) Is reservation justified (No=1)	(Q2) Do RC students have inferior academic ability (Yes=1)	(Q5) Is there sufficient informal interaction (No=1)
Reserved Category	-0.27**	-0.33***	0.01
	(0.13)	(0.11)	(0.10)
Male	-0.05	0.19	-0.01
	(0.15)	(0.13)	(0.11)
Age	0.03	0.02	0.04
	(0.03)	(0.03)	(0.03)
Area-Urban	-0.05	0.14	-0.17
	(0.16)	(0.13)	(0.12)
Second Year	0.05	0.11	-0.07
	(0.12)	(0.10)	(0.09)
Non-Hindu	-0.33	0.02	-0.22
	(0.24)	(0.17)	(0.18)
Robustness Dummy		-0.05	
		(0.11)	
Observation	70	96	70
R^2	0.09	0.13	0.08

*Note:*p<0.1; **p<0.05; ***p<0.01*

5. Conclusion

The results show that around 41 percent of MBA students at a business school in India believe that reservation based on caste is not justified. 46 percent believe that reserved caste-category students have inferior academic ability. We also find that a general category student is more likely to report such beliefs compared to a reserved category student.

More importantly, we show the presence of social desirability concerns in answering sensitive questions related to caste and study-group formation, even under strict anonymity. In particular, when participants are asked under anonymity *and* a veil, we find that the inferred tendency to exclude a reserved-caste category student from one's study group increases from 5 percent in the direct report (under only anonymity) to 21 percent in the veiled treatment (under both anonymity and veil). One of the possible drivers of this tendency is also underreported in the direct report. We find that the tendency to exclude a student with inferior academic ability from one's study group increases from 21 percent in the direct report to 64 percent in the veiled measure.

Thus, social desirability concerns bias measurements using anonymous surveys to investigate caste-related issues. Thus, such measurements and analyses of underlying mechanisms run the risk of being inaccurate. Certainly, using our data, we cannot say why there is a tendency to exclude reserved-caste category students from study groups. The data only *suggests* a statistical discrimination channel: 46 percent of participants believe reserved-caste category students have inferior academic ability, and (using the veiled measure) 64 percent want to exclude students with inferior academic ability. But the anonymous direct reporting of the latter, the tendency to exclude inferior-academic-ability students, is found affected by social desirability bias. As such, it seems imprudent to conclude that it is this statistical channel that is causing

the discrimination towards reserved-caste category students in endogenous study-group formation. Furthermore, our finding shows that it may not be possible to study this discrimination using direct anonymous reporting.

Finally, our findings have certain policy implications. The fact that 41 percent students believe that caste-based reservation is not justified seems to indicate a need for sensitization of general category students (where the "not justified" belief is more prevalent) about the need for such a policy. The fact that endogenous study-group formation may exclude reserved-caste category students from certain study groups they may want to join to improve their grades or learning indicates that reservation in admission may need to be supported by nurturing policies post admission. More specifically, many business schools in India sort student exogenously in the first year of their MBA, but allow for endogenous sorting in the second year. Our finding on caste-based discrimination in endogenous sorting suggests that exogenous sorting even in the second year is worth considering.

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Appendix

Table 1: Descriptive Statistics - Sample Size

	Control Group	Treatment Group	Overall
Sub-Sample			
Main Study	105	121	226
Robustness Check 1	37	36	73
Robustness Check 2	32	32	64
Robustness Check 3	34	34	68
Gender			
Male	150	178	328
Female	44	40	84
NA	14	5	19
Reservation Category			
General	124	132	256
Reserved Category (OBC, SC, ST)	51	73	124
NA	33	18	51
Religion			
Hindu	138	164	302
Non-Hindu	16	25	41
NA	54	34	88
Area			
Urban	155	172	327
Rural	32	42	74
NA	21	9	30
Year			
First Year Student	91	115	206
Second Year Student	103	104	207
NA	14	4	18