Peer Effects in Graduate Education: Evidence from India

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October, 2012

Abstract

We study the impact of exogenously assigned peer groups on the academic performance of MBA students at a leading Indian graduate business school. Contrary to most existing studies which focus on peer effects in schools or undergraduate settings, we investigate the presence of peer effects in the graduate context. Self-selection in peer group formation is circumvented by utilizing the school's policy of exogenous allocation of students to two types of peer groups - academic sections, where peers are deliberately chosen to maintain homogeneity of academic ability and demographic characteristics across sections and residential dormitories where peers are determined by a lottery. Academic performance is measured through grade point average in mandatory first-year courses. We examine the impact of peer academic ability (performance in the school's standardized entrance examination), gender, caste and undergraduate background (degree from an elite engineering institution). All peer variables are highly significant at the dormitory level. Fewer peer variables are significant at the academic section level. We find that proportion of higher caste students in the peer group has a significant positive impact on lower caste (Scheduled Caste and Schedule Tribe) students at both academic section and dormitory levels. Proportion of peers with a degree from an elite engineering institution has a significant positive impact on students from regular undergraduate institutions at the dormitory level. Also, proportion of females in the peer group has a positive impact on the performance of male students at the dormitory level.

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JEL Codes: I21, I23, I25

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I. Introduction

The study of peer effects in education has come to occupy a prominent place in the ongoing effort to understand the determinants of educational outcomes. The impact of a student's peers on his/her academic performance has joined traditional determinants such as student ability, teacher quality and parental involvement as a critical driver of academic performance (Sacerdote, 2011). In this paper, we study the impact of exogenously assigned peers on the academic performance of MBA students at a leading Indian graduate business school. The primary challenge in the empirical identification of peer effects is self-selection arising from students selecting their peer groups.[1] One way to circumvent this issue is to examine institutional settings where peers are exogenously assigned. This strategy has been deployed quite widely in measuring peer effects in educational institutions. For instance, Sacerdote (2001) uses the randomized assignment of roommates at Dartmouth College to identify peer influences in academic outcomes and social decisions. More recently, Carrell, Fullerton and West (2009) have used random assignment of students to squadrons at the United States Air Force Academy to study the impact of peer academic ability on course performance. We follow this strand of literature by examining two different types of exogenous peer allocation mechanisms within the school: allocation to academic sections and residential dormitories.

Each incoming cohort of MBA students at the school must take 15 mandatory courses during their first year in the program. To create a manageable class size for faculty, students are exogenously allocated to one of four academic sections. Interactions pertaining to course work are largely confined to peers within these sections. The school administration actively attempts to preserve a level of homogeneity across sections – in particular, there is an effort to ensure that the academic ability of students (in terms of their pre-MBA educational characteristics) and

[1] See Sacerdote (2011) and Epple and Romano (2011) for a detailed discussion of issues in empirically identifying peer effects.

the demographic composition of the classroom are similar. We call this category of peers, academic peers.

All students are required to spend the duration of the program (2 years) in one of the dormitory blocks situated on campus. Students are allocated to blocks through a lottery, and there is no attempt to ensure demographic or academic homogeneity across blocks. Student life at the school is characterized by the presence of a strong dormitory culture with much social interaction between students within a block. Surmising that social peer interaction might spillover into academic work, we examine a second category of peers within dormitory blocks. We call them social peers. This allows us to test for the impact of peer effects in two very different allocation mechanisms: academic sections where there is an explicit intent to homogenize pre-MBA academic characteristics across sections and dormitory blocks where peers are allocated purely at random through a lottery system.

Using detailed demographic and course performance data for the 2007 and 2008 cohorts of MBA students, we analyze the effect peers exert on a student's Grade Point Average (GPA) separately for academic and social peer groups. We focus on performance in first-year mandatory courses, since these have a common examination across sections and instructors are required to ensure uniform standards for grading across sections. This largely eliminates the salience of idiosyncratic factors in grade determination. We focus on four characteristics of the peer group: the proportion of higher caste students, proportion of female students, proportion of students with an undergraduate education from the Indian Institute of Technology (IIT) and peer academic ability (as measured by performance on the standardized Common Admission Test (CAT) – a mandatory entry requirement for the school).

We find that peer CAT score, proportion of higher caste students, proportion of students with an elite engineering undergraduate degree and proportion of females have a highly significant impact on a given student's GPA. Further, by restricting the analysis to particular subsamples of our data, we find that an increase in the proportion of higher caste students is

associated with a higher GPA for lower caste (Scheduled Caste and Scheduled Tribe) students while an increase in the proportion of female students is associated with a higher GPA for male students.

We believe that our study of peer effects at a graduate institution in India is an important addition to the literature for several reasons. Broadly, our study serves to extend the geographic scope of the peer effects literature. While there have been peer effects studies in geographies other than the United States (e.g. Ding and Lehrer (2007) study students in Chinese secondary schools, Jain and Kapoor (2012) study MBA students in India), the majority of the literature has focused on undergraduate institutions in the United States (e.g. Sacerdote (2001), Zimmerman (2003), Carrell et. al (2009)). Our study represents a step towards understanding peer effects in the Indian setting using exogenous allocation of peers.

More importantly, our study contributes to the important question of whether peer effects persist at the graduate level. Conventional wisdom would suggest that compared to high school and undergraduate students, graduate students are more focused and self-driven, hence less susceptible to peer influence. For instance, using data on US medical school students, Arcidiacono and Nicholson (2005) find that peer academic ability and medical specialty choices have little impact on academic performance. Our results suggest that this is not the case in our context – peer effects can still play an important role in mature young adults following a professional degree such as an MBA.

Finally, the school maintains reserved seats for students from the so-called Scheduled Castes and Tribes in keeping with the Indian government's educational policies on encouraging participation in higher education from students from historically underprivileged backgrounds. In addition, the school also encourages gender diversity in its programs. We believe that such institutionally encouraged diversity within the student body allows us to contribute to the continuing discussion about the impact of class composition on academic outcomes (e.g. Hoxby (2000)).

The rest of the paper is organized as follows: Section II provides a review of the related literature, Section III describes the dataset used and outlines our empirical strategy, Section IV presents results and Section V concludes.

II. Literature Review

Manski (1993) outlined three channels through which peers can exert influence on an individual: endogenous effects, exogenous effects and correlated effects. Endogenous effects represent situations where the individual and peer outcomes influence each other. In an academic context, this would mean that the GPA of an individual would be correlated with the GPA of his/her peer group (Epple and Romano, 2011). The second channel, exogenous effects, refers to situations where the behavior of an individual is correlated with the background characteristics of his/her peers (Epple and Romano, 2011). Returning to the educational context, this means that the GPA of a particular student would be correlated with the background characteristics of his/her peers – for instance, the proportion of peers with an elite educational background. Finally, correlated effects refer to an association between the background characteristics of students in the same peer group (Epple and Romano, 2011).

As Sacerdote (2011) notes, in educational settings, the presence of these effects present an obstacle towards the empirical identification of peer effects. First, if students self-select into peer groups in a manner which is opaque to the observer, then it becomes difficult to distinguish the causal connection between peer characteristics and individual performance, on the one hand, from the self-selection effects, on the other. Second, if both student and peer outcomes impact each other then it becomes difficult to identify the direction of impact. Further, the presence of both endogenous effects and exogenous effects make it difficult to isolate either effect.

Starting with Sacerdote (2001), studies have used exogenous allocation of peers to circumvent these problems, particularly self-selection. For instance, Sacerdote (2001) used the

randomized assignment of freshman year roommates and dormmates at Dartmouth College to measure peer impacts. The study found that peer effects in academic performance (as measured by GPA) were significant among roommates while peer effects in social activities (such as the decision to join fraternities) were present both at the roommate and dormmate level. More recently, Carrell, Fullerton and West (2009) use data on exogenously assigned squadron peers at the United States Air Force Academy and find evidence of significant peer effects. For their sample of freshman students, a 100-point increase in peer-group average SAT verbal score increased an individual student's GPA by approximately .4 points (on a scale between 0 and 4). Importantly, they also uncover the presence of non-linearities in the magnitude of peer effects suggesting that the peer impacts might be heterogeneous across the distribution of academic ability.

Following on from Hoxby (2000) and Hoxby and Weingarth (2005), a debate has grown around the exact structure of peer effects. The standard linear-in-means model of peer effects – outcome as a function of student's background characteristics, peers average academic ability and peers average outcome – suffers from the limitation of restricting all peer effects to the mean. Naturally, this approach fails to reveal the heterogeneity in peer impacts. For instance, the impact of one high ability student on another high ability student might be substantially different than the impact of a high ability student on someone of lower ability. Recent evidence has strongly come out in disfavor of the simple linear-in-means model of peer effects. For example, Hoxby and Weingarth (2005), Lavy, Paserman and Schlosser (2008) and Imberman, Kugler and Sacerdote (2009) find that high ability students benefit more from their high ability peers whereas lower ability students are adversely affected by having high ability students around. Further, the demographic composition of the peer group has also come to be regarded as an important driver of academic performance: using student data from Texas elementary schools and exploiting random variation in the gender and racial makeup of cohorts within a school and grade, Hoxby (2000) finds that a rise in the proportion of females in a particular

cohort is associated with higher scores on the Texas Assessment of Academic Skills test for students of both genders. Carrell and Hoekstra (2011) find that exposure to children from troubled families reduces reading and math test scores of students and increases the incidence of classroom misbehavior.

In the Indian context, Jain and Kapoor (2012) and Sekhri (2011) analyze peer effects in higher education. Jain and Kapoor (2012) implement the empirical strategy closest to ours: using data on the random assignment of MBA students at the Indian School of Business to study and residential groups, the authors study the impact of peer academic ability on academic performance. Informal interaction between students in residential groups appears to have a larger impact on academic performance than interaction in study groups.

Sekhri (2011) looks at inter-caste peer effects in college education in India. The study uses admission records and university exam results of two government colleges in India for the years 1998 – 1999 to 2002 – 2003. Using college exit scores as the outcome measure, she finds that higher caste peers of better academic ability have a negative impact on the performance of lower caste students with peer impacts being positive within caste. In a similar vein albeit in a non-peer effects setup, Robles and Krishna (2012) using data from an elite engineering institution in India find that lower caste students seem to underperform when compared to their higher caste peers in the same major. These India specific studies provide the main motivation behind the inclusion of caste as a key peer characteristic in our study.

As the survey of the literature above suggests, the issue of caste in higher education in India has received a lot of academic attention. However, the issue of gender and higher education in India remains less explored. Indian higher education has seen a marked upward shift in the proportion of women participating in both undergraduate and graduate institutions. Chanana (2007) reports that the enrolment of women in higher education in India climbed from 32 percent of all students in 1991-1992 to approximately 40 percent in 2002 – 2003 but evidence of the impact this has had on both other female and male students remain scant.

Largely motivated by this question, we examine the impact of peer gender on the academic performance of students.

III. Data and Empirical Strategy

We use data for the 2007 and 2008 cohorts of MBA students. Our data includes a wide variety of demographic pre-MBA characteristics including details of a student's undergraduate education, caste, gender, work experience and performance on standardized entrance examinations. The administrators of the business school provided all the data. Summary statistics are provided in Table 1. Across the two years, approximately 20 percent of the students are female, the majority (approximately 70 percent) is higher caste, the average CAT score is 40 out of a 100 and approximately 33 percent of the students have a degree from the Indian Institute of Technology.

Insert Table 1 here

Our outcome is the grade point average attained by a student in the fifteen mandatory courses undertaken during their first year. Grades are determined on a four-point scale ranging from zero to 4.0. Faculty members who teach the same course follow similar syllabi and almost identical grading schemes across academic sections. This largely mitigates the problem of idiosyncratic variation in student grades across sections. The average GPA for our sample is 2.9 with a standard deviation of 0.64.

The four variables – CAT score, gender, caste and an undergraduate degree from an elite engineering institution – comprise the key peer characteristics in this study. Peer groups are defined at two levels: academic peers are those members of a particular cohort (2007 or 2008) who were assigned to the same academic section. Social peers are defined as those members of a cohort who were assigned to the same dormitory block. Dormitory block assignments are undertaken through a lottery process, ensuring random allocation of students to blocks while academic section assignments are undertaken based on certain pre-MBA characteristics.

Specifically, incoming students are split into 75 percentiles of four members each based on their CAT scores, educational background and work experience. Each student is then assigned to one of four sections. This ensures that the distributions of these characteristics are similar *across* sections. Further, some students may be reassigned to other sections to maintain parity of caste and gender ratios. Although, student assignment is based on observable, pre-treatment characteristics and thereby not random, peers are still exogenously assigned. Hostel assignments take place through a lottery system thereby making peer allocation entirely random.

Exploiting the exogenous allocation of peers across academic sections and dormitories, we estimate the following equation:

$$C_{isct} = \alpha_0 + \alpha_1 X_{it} + \alpha_2 \frac{\sum_{j \neq i} X_{jsct}}{n_{sct}-1} + \delta_{ct} + \varepsilon_{isct} ,$$

where C_{isct} is the course grade for student i, in peer-group s (social or academic), in course c and in semester-year t. X_{it} represents a vector of pre-program controls at the individual level. Controls for academic ability include CAT score, undergraduate degree from an elite engineering college, graduate degree pre-MBA and general undergraduate engineering education. Personal controls include age, marital status, religion, indicator for region of birth, indicator for work experience pre-MBA, caste and an indicator if the student's reported hometown state is different than his/her state of birth. Financial controls include annual income of the student's family[2] and an indicator if the student took out a bank loan to fund his/her MBA. $\frac{\sum_{j \neq i} X_{jsct}}{n_{sct}-1}$ represents our four main peer variables of interest: CAT score, caste, IIT undergraduate and gender. Means are taken over individuals in the relevant peer group taking the same course. δ_{ct} represents fixed effects at the course-semester-year level. In order to account for correlation in error terms within a particular peer group, we adjust standard errors for clustering at the peer group (social/academic) – course – semester – year level. ε_{isct} represents the error term.

[2] We imputed the missing values of this variable by replacing them with the median of the overall distribution due to skewness in the data. In our regressions, we include an indicator value for the imputed variable values.

IV. Results

A. Main Results

We begin by presenting means of the peer variables of interest for all dormitory blocks and academic sections in Tables 2 and 3.

Insert Table 2 and 3 here

We have 25 distinct values for each of the peer variables of interest for social peers as opposed to only 8 different values for academic peers. We also find considerably less variation of values between academic sections compared to dormitory blocks, which is consistent with the fact that assignment to sections explicitly attempts to preserve homogeneity across sections while dorm rooms are assigned randomly. For these reasons, we believe that peer effects due to social peers are of greater significance in our study than that due to academic peers, although we present both sets of results.

Table 4 presents results for our baseline specification. The first column presents results for social peers and the second column presents results for academic peers.

Insert Table 4 here

For social peers, all the variables are significant at the 1 percent level. In accordance with a large portion of the academic peer effects literature, we find that our proxy for academic ability – CAT scores and proportion of IIT undergraduates – has a strongly significant, positive impact on course performance with coefficients of 0.0168 and 0.340, respectively. An increase in the proportion of higher caste students in the peer group is associated with a lower GPA with a negative coefficient of 0.2. In accordance with Hoxby (2000), we find that a higher proportion of females in the social peer group has a positive impact on GPA with a coefficient of 0.256. In contrast, for academic peers the only significant coefficient is a negative impact of 0.0294 of peer CAT score at the 5 percent level.

B. Inter-Caste Impacts

In Table 5, we present results on inter-caste impacts. Specifically, we run the baseline specification but restricted to sub-samples. For example, the first row of results is arrived at by restricting the baseline regression to lower caste students while the second row presents results of the baseline specification restricted to higher caste students.

Insert Table 5 here

Broadly, we find a highly significant, positive impact of the proportion of higher caste students on the academic performance of lower caste students. For social and academic peers, the coefficient is 0.397 and 2.536, respectively. Our results suggest that two channels may be at work in the inter-caste operation of peer effects: (1) Higher caste peers students may be extending academic support to their lower caste peers; (2) The presence of higher caste students might be creating a norm of higher work effort in the peer group.

We also note that an increase in the proportion of higher caste students is negatively associated with course performance of other higher caste students. For academic peers, the coefficient is negative 1.451 while for social peers it is negative 0.345. We believe that the two results above broadly suggest that diversity in the peer group is beneficial for academic performance overall.

C. Gender Impacts

In Table 6, we present results for the impact of the proportion of females in the peer group on course performance by restricting the baseline regressions to male and female students. Increasing proportion of female students is associated with higher grades for male students when we consider the social peer groups (0.255). On the other hand, an increase in the proportion of females for the academic peer group exerts a strongly negative impact on other female students (-2.910). Taken together with the results for our inter-caste impacts, our subsample estimations hint at the beneficial effects of diversity in academic performance.

Insert Table 6 here

D. Undergraduate Background

We consider the impact of peers having an undergraduate degree from an elite engineering institution in Table 7. We find that the proportion of social peers from IIT is positively associated with the scores of both non-IIT students (0.430) and IIT students (0.234) at significance levels of 1 and 5 percent, respectively.

On the other hand, the impact of academic peers with an IIT undergraduate degree is negative on other ex-IIT students with a coefficient of negative 0.771. Taking an IIT education as another proxy of academic ability, these results suggest that academically stronger peers have a positive impact on those who are less academically able while the impact on students of similar ability may depend on context. This result is somewhat contrary to prior studies which find that high ability students benefit more from their high ability peers whereas lower ability students are actually harmed by having high ability students around (e.g. Hoxby and Weingarth (2005))

Insert Table 7 here

V. Conclusions

We use two different mechanisms of exogenous allocation of peers to identify the impact of peer effects in Indian higher education: academic peers wherein students are assigned to sections based on an active intent to homogenize academic ability and demographic characteristics and social peers wherein students are randomly allocated to dormitories based on a lottery system.

Our results clearly indicate that peer effects have a significant impact on academic performance in the graduate educational context. We find that the proportion of higher caste students, the proportion of females and the proportion of peers with an undergraduate degree from elite engineering institutions have a positive impact on the academic performance of lower caste students, males and those without an elite engineering degree, respectively. Also, in

keeping with the broader literature on academic ability peer effects, we find that academic ability as signified by CAT scores have a positive impact on course performance. Our results underscore the importance of considering the demographic composition of peer groups, something of importance in India given the country's demographic diversity.

Future work will look to tease apart the impact of social and academic peers more definitively. Currently, some degree of overlap exists between social and academic peers: a student's dormitory peers may also belong to the same academic section and vice versa. However, given the difference in both point estimates and statistical significance across these two specifications, we are confident that common peers across these two groups are not driving the results. Further, given the wide range of demographic factors, which can come into play in mediating social interactions in India, future work will also seek to consider a fuller set of peer group characteristics.

References

Arcidiacono, P., & Nicholson, S. (2005). Peer effects in medical school. *Journal of Public Economics,89 (2-3)*, 327 – 350.

Carrell, S. E., Fullerton, R. L., & West, J. E. (2009). Does Your Cohort Matter? Measuring Peer Effects in College Achievement. *Journal of Labor Economics , 27* (3), 439 - 464.

Carrell, S.E., & Hoekstra, M.L. (2010). Externalities in the Classroom: How Children Exposed to Domestic Violence Affect Everyone's Kids. *American Economic Journal: Applied Economics, 2(1)*, 211 – 228.

Chanana, K. (2007, February 17). Globalisation, Higher Education and Gender. *Economic and Political Weekly of India* , 590 - 598.

Ding, W., & Lehrer, S. F. (2007). Do Peers Affect Student Achievement in China's Secondary Schools? *The Review of Economics and Statistics , 89* (2), 300 - 312.

Duflo, E., Dupas, P., & Kremer, M. (2011). Peer Effects, Teacher Incentives, and the Impact of Tracking: Evidence from a Randomized Evaluation in Kenya. *American Economic Review , 101* (5), 1739 - 1774.

Epple, D., & Romano, R. E. (2011). Peer Effects in Education: A Survey of the Theory and Evidence. *Handbook of Social Economics , 1B*, 1053 - 1163.

Hoxby, C. M. (2000). Peer effects in the classroom: Learning from gender and race variation. *NBER Working Paper No. 7867* .

Hoxby, C. M., & Weingarth, G. (2005). Taking Race out of the equation: School reassignment and the structure of peer effects. *Working Paper*.

Imberman, S., Kugler, A. D., & Sacerdote, B. (2009). Katrina's Children: Evidence on the Structure of Peer Effects from Hurricane Evacuees. *NBER Working Paper 15291* .

Jain, T., & Kapoor, M. (2012). The impact of peers on academic achievement: Formal versus informal peers. *Working Paper*.

Kremer, M., Levy, D. (2008). Peer Effects and Alcohol Use among College Students. *Journal of Economic Perspectives, 22(3)*, 189 – 206.

Lavy, V., Passerman, M., & Schlosser, A. (2008). Inside the Black of Box of Ability Peer Effects: Evidence from Variation in the Proportion of Low Achievers in the Classroom. *NBER Working Paper 14415* .

Manski, C. F. (1993). Identification of Endogenous Social Effects: The Reflection Problem. *Review of Economic Studies , 60* (3), 531 - 542.

Robles, V. C., & Krishna, K. (2012, January). Affirmative Action in Higher Education in India: Targeting, Catch Up, and Mismatch. *NBER Working Paper 17727* .

Sacerdote, B. (2001). Peer effects with random assignment: Results for Dartmouth rommates. *Quarterly Journal of Economics, 116(2),* 681 – 704.

Sacerdote, B. (2011). Peer Effects in Education: How Might They Work, How Big Are They and How Much Do We Know Thus Far? *Handbook of Economics of Education , 3*, 249 - 277.

Sekhri, S. (2011, March). Affirmative Action and Peer Effects: Evidence from Caste Based Reservation in General Education Colleges in India. *Working Paper* .

Zimmerman, D. J. (2003). Peer Effects in Academic Outcomes: Evidence from a Natural Experiment . *The Review of Economics and Statistics , 85* (1), 9 - 23.

Table 1: Descriptive Statistics for the 2007 and 2008 cohort of students

	Observations	Mean	Std. Dev	Min	Max
Grade Point Average	6885	2.905	0.635	0	4
Total CAT Score	6855	39.703	10.110	14.54	66.722
Female	6885	0.198	0.399	0	1
Higher Caste	6885	0.688	0.463	0	1
Undergraduate Degree from IIT	6885	0.325	0.468	0	1
Hindu	6885	0.882	0.322	0	1
Age	6885	23.869	1.877	19	30
Married	6885	0.052	0.223	0	1
Annual Family Income (in Rupees)	6885	521,472	564,553	0	5,000,000
Region of Birth: Southern India	6855	0.293	0.455	0	1
Region of Birth: Western India	6855	0.123	0.328	0	1
Region of Birth: Eastern India	6855	0.212	0.409	0	1
Region of Birth: Northern India	6855	0.333	0.471	0	1
Region of Birth: Central India	6855	0.037	0.189	0	1
Hometown State is different than state of birth	6885	0.275	0.446	0	1
Undergraduate Degree in Engineering	6855	0.897	0.304	0	1
Pre-MBA Graduate Degree	6885	0.074	0.262	0	1
Pre-MBA Work Experience	6885	0.721	0.448	0	1
Bank Loan to Fund MBA	6885	0.702	0.458	0	1

Table 2: Means of key peer characteristics by dormitory block and year

	2007			
	Higher Caste	IIT	Female	CAT Score
A	0.750	0.188	0	42.213
B	0.864	0.045	0.727	43.439
C	0.682	0.318	0.545	39.124
D	0.947	0.526	0	48.394
E	0.750	0.438	0	44.411
F	0.722	0.278	0	42.737
G	0.813	0.563	0.063	46.963
H	0.583	0.333	0	41.347
I	0.412	0.353	0	41.894
J	0.571	0.357	0	39.628
K	0.833	0.208	0.750	42.124
L	0.688	0.500	0	41.283
Executive Block	0.286	0.714	0	33.129
	2008			
	Higher Caste	IIT	Female	CAT Score
A	0.588	0.235	0	36.658
B	0.696	0.217	0.739	37.186
C	0.667	0.444	0.500	36.766
D	0.667	0.267	0	37.572
E	0.720	0.480	0.040	36.703
F	0.824	0.294	0	38.547
G	0.815	0.296	0	39.709
H	0.611	0.500	0	41.803
I	0.429	0.381	0	34.360
J	0.438	0.313	0	32.050
K	0.636	0.045	0.773	33.230
L	0.762	0.238	0	40.475
Executive Block	0	0	0	0

Table 3: Means of Key Peer Characteristics by Academic Section and Year

	2007			
	Higher Caste	IIT	Female	CAT Score
A	0.704	0.241	0.204	41.718
B	0.717	0.377	0.226	41.559
C	0.750	0.350	0.217	43.896
D	0.692	0.404	0.212	42.774
	2008			
	Higher Caste	IIT	Female	CAT Score
A	0.607	0.232	0.179	36.030
B	0.656	0.164	0.230	36.604
C	0.705	0.443	0.148	38.457
D	0.677	0.387	0.177	37.424

Table 4: Baseline Regression for Social and Academic Peers

	Social Peers	Academic Peers
Peer CAT Score	0.0168***	-0.0294**
	(0.00392)	(0.0114)
Proportion of Higher Caste Students in peer group	-0.200***	-0.108
	(0.0765)	(0.382)
Proportion of Females in Peer Group	0.256***	-0.391
	(0.0359)	(0.345)
Proportion of IIT Undergraduate Degree holders in peer group	0.340***	-0.0948
	(0.0608)	(0.102)
Academic Ability Controls	Yes	Yes
Demographic Characteristics Controls	Yes	Yes
Financial Status Controls	Yes	Yes
Course-Batch Fixed Effects	Yes	Yes
Observations	6,795	6,795
Adjusted R-squared	0.2531	0.247

Standard error clustered at the peer group – course – semester – year level.
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Inter-Caste Impacts

Proportion of Higher Caste Students in Peer Group	Social Peers	Academic Peers
Impact on Lower Caste Students	0.397***	2.536***
	(0.120)	(0.739)
Impact on Higher Caste Students	-0.345***	-1.451***
	(0.0897)	(0.367)
Other Peer Variables	Yes	Yes
Academic Ability Controls	Yes	Yes
Demographic Characteristics Controls	Yes	Yes
Financial Status Controls	Yes	Yes
Course Batch Fixed Effects	Yes	Yes

Standard error clustered at the peer group – course – semester – year level.
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Inter-Gender Impacts

Proportion of Females in Peer Group	Social Peers	Academic Peers
Impact on Males	0.255***	0.312
	(0.0360)	(0.392)
Impact on Females	0.244	-2.910***
	(0.195)	(0.732)
Other Peer Variables	Yes	Yes
Academic Ability Controls	Yes	Yes
Demographic Characteristics Controls	Yes	Yes
Financial Status Controls	Yes	Yes
Course Batch Fixed Effects	Yes	Yes

Standard error clustered at the peer group – course – semester – year level.
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Impact of undergraduate background

Proportion of IIT undergraduate degree holders in Peer Group	Social Peers	Academic Peers
Non- IIT Undergraduates	0.430***	0.107
	(0.0724)	(0.120)
IIT Undergraduates	0.234**	-0.771***
	(0.0953)	(0.182)
Other Peer Variables	Yes	Yes
Academic Ability Controls	Yes	Yes
Demographic Characteristics Controls	Yes	Yes
Financial Status Controls	Yes	Yes
Course Batch Fixed Effects	Yes	Yes

Standard error clustered at the peer group – course – semester – year level.
*** p<0.01, ** p<0.05, * p<0.1