

Academic Track Choices, Educational Achievements and Social Inequality in India

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Abstract Expansion of educational opportunities has the potential to overcome social and economic inequalities. Educational achievements might be used as a social policy tool to reduce socio-economic inequalities by improving labor market outcomes. However, the benefits derived depend on academic choices an individual makes and the social group he or she belongs to. Children from marginalized social groups choose different academic tracks than those from privileged ones, which accounts for further differences in labor market outcomes. The present study examines whether social background defines educational achievements in India. The findings reveal that students with marginalized background have significantly lower test scores at all three tested educational levels (high school, bachelor and MBA). Social background remains the strongest predictor for educational achievements even after controlling for academic track choices and previous performance of the students. Using the social transformation theory, the study further concludes that differences in achievement scores by socio-economic background could be reduced by aspirational marginalized students; however, those cannot be erased completely.

Keywords academic track choices, educational achievements, higher education, social group inequalities, social transformation

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1. Introduction

Unequal access to resources maintains inequalities [Atkinson, 2015; Deshpande, 2011; Lin, 2000], especially between privileged and marginalized social groups [Loveless, Whitefield, 2011]. Following sustainable development goal SDG10 on Reduced inequalities, governments introduced various solutions to lessen socio-economic inequalities [Desai, Kulkarni, 2008; Stiglitz, 2012]. One of the possible solutions is improvement in educational achievements that enhances individuals' economic and social prospects [Qazi et al., 2018; Yirmiyahu, Rubin, Malul, 2017] and improves their further labor market outcomes [Lin, Lutter, Ruhm, 2018; Zax, Rees, 2002]. However, if inequality in educational achievements exists across social groups at different stages of students' academic paths, marginalized social groups will attain poor labor market outcomes [Gregorio, Lee, 2002; Reimer, Pollak, 2009]. It may also cause an increase of inequality in the future, leading to more socio-economic disparities [DeJaeghere, 2020; Heckman, 2011; Thorbecke, Charumilind, 2002]. Therefore, reducing inequalities in educational achievements among social groups accounts for a decrease in socio-economic disparities [Lin Lutter, Ruhm, 2018; Zax, Rees, 2002].

Reducing inequality in educational achievement does not mean that all students should get the same grades; it means that the variance in the grades between social groups should not be too high. In other words, it means that the average academic performance should vary within rather than across social groups, especially after control for academic track selection, school quality, parental education, and other extraneous variables.

Previous studies demonstrated that a significant factor of lower education achievements is unequal access to resources, which may appear due to poor household economic position, limited parental education, or poor school quality in the marginalized groups [Alcott, Rose, 2017; Autor et al., 2016; Banerjee et al., 2007; Burns, Garcia, 2017]. At the same time, the literature reveals that academic track selection contributes heavily to the rise of inequalities in academic achievements [Härkönen, Sirniö, 2020]. Privileged social groups prefer academic tracks with better prospects in terms of wages, employment, and occupational status [Reimer, Noelke, Kucel, 2008], while marginalized social groups prefer vocational tracks or conventional occupations [Metz, Fouad, Ihle-Helledy, 2008; Trow, 1973]. For instance, graduates of humanities have lower labor market outcomes than graduates of natural sciences [Arcidiacono, 2004; Hango et al., 2021; Prescod et al., 2018].

Researchers point out that equal opportunities for track selection provided for students irrespective of their socioeconomic background during the schooling years could be fruitful in reducing inequalities in the future [Blossfeld, Blossfeld, Blossfeld, 2015; Breen et al., 2009; Härkönen, Sirniö, 2020]. However, this may also increase the risk of poor academic achievements and course dropouts [Birkelund, 2020].

In general, the role of educational achievements in reducing inequalities is understudied [Birkelund, 2020; Dollmann, Weißmann, 2020; Sianou-Kyrgiou, Tsiplakides, 2011]. For instance, the existing literature does not give a clear answer whether differences in educational achievements shrink when we control for academic track selection and other extraneous variables. The present study fills this gap with the help of longitudinal data from India.

Our research contributes to the existing literature in two ways. Firstly, it answers whether controlling for academic track selection and college types can reduce differences in educational achievements across social groups. Secondly, it considers whether academic performance differences between socio-economic groups decrease or increase during high school, bachelor's, and MBA education levels, thereby potentially enabling policymakers to make better policy interventions.

The article consists of the following sections. Section 2 highlights the main literature findings regarding educational achievements and social mobility. Section 3 presents data description and methodological strategy. Section 4 discusses the findings of the current study. Finally, Section 5 provides conclusions and implications.

2. Literature review and study background

The human capital theory argues that labor market outcomes are directly proportional to the schooling years [Becker, 2009; Schultz, 1961]. Additional schooling years can reduce inequalities by providing opportunities for upward mobility [Breen, 2010; Breen et al., 2009] and improving the individual's economic standings within a social group [Chadha, Nandwani, 2018; Hannum, Buchmann, 2005; Jeffrey, Jeffery, 2004]. The reduced inequalities may further improve health [Jürges, Reinhold, Salm, 2011] and life satisfaction [Karabchuk, Soboleva, 2020; Lambert, Karabchuk, Joshanloo, 2022], especially among marginalized groups.

However, there is a contradiction of the above-mentioned argument disclosed by the previous empirical studies [Becker, Hecken, 2008; Hannum, Buchmann, 2005; Shavit, Blossfeld, 1993; Shavit, 2007]. Researchers find that despite increased schooling years, marginalized societal groups hardly change their educational strategies and tend to prefer vocational tracks [Reimer, Pollak, 2009; Trow, 1973] meaning that marginalized groups may stay in their own poverty loops by choice. Primarily, they opt for a vocational track due to certain individual and household characteristics, such as parental education level, academic performance, and personal interests [Fouad et al., 2008; Schindler, Reimer, 2011; Triventi, 2011]. Moreover, an individual's social background and academic abilities have an increased influence on the selection of tracks and majors at tertiary level [Black, Cortes, Lincove, 2020].

A theoretical explanation of such behavior could be the Rational choice theory. It argues that individuals rationally choose the available educational opportunities by considering various economic and social aspects [Breen, Goldthorpe, 1997; Davies, Heinesen, Holm, 2002; Salikutluk, 2016; Smith, 2017], including the associated risk or fear of downward mobility due to poor academic achievements [Breen, Goldthorpe, 1997; Stocké, 2007]. At the higher level of academic tracks, the doubt of success among students from marginalized social groups increases [Hango et al., 2021; Lopes, 2017]. Even if their selected academic tracks are similar to those chosen by students from privileged social groups, they may drop out in between due to their poor academic performance [Tjaden, Hunkler, 2017]. Hence, they choose vocational tracks that have lesser risk but also fewer benefits [Birkelund, 2020], which accentuates the inequality in labor market outcomes between privileged and marginalized social groups [Lopes, 2017; Reimer, Noelke, Kucel, 2008].

The differential approach of selecting academic tracks will prevail until the point where privileged segments have reached saturation, and students from marginalized social groups become aspirational to achieve more [Becker, Mayer, 2019]. These aspirational students will try to move up the social ladder by modifying their ascribed social status with the achieved one [Foladare, 1969; Kaufman, 2003; Linton, 1936], resulting in social transformation via aspirational behavior of marginalized social groups [Foladare, 1969; Kaufman, 2003; Becker, Mayer, 2019].

Social transformation theory explains the way marginalized students feel motivated and aspirational in the hope that educational achievement can improve their existing socio-economic conditions [Foladare, 1969; Kaufman, 2003; Becker, Mayer, 2019]. The theory offers a robust framework for understanding how aspirations toward education and a better economic position can elevate students with marginalized backgrounds. It challenges traditional deficit-based models and promotes a pedagogy of hope, agency, and empowerment. Therefore, to reduce inequalities in labor market outcomes, it seems reasonable to improve opportunities for academic track selection among social groups.

On the other hand, recent studies also showed that aspirational students might reduce the inequalities significantly, but it is not possible to erase them completely [Neidhöfer, Serrano, Gasparini, 2018; Blossfeld, Blossfeld, Blossfeld, 2015; Becker, Mayer 2019]. The present study tests this idea using longitudinal empirical data from India, the country with one of the highest levels of socio-economic inequalities between societal groups.

In India, educational and cultural environments differ from those in Western societies as Indian social practices are influenced by religion, caste, and ethnicity [Bhatnagar, Sinha, 2018; Meade, Singh, 1973; Bo-rooah, 2012; Deshpande, 2011]. Religion, caste, and ethnic identities

determine an individual's belonging to a closed group at his or her birth, which facilitates and strengthens socio-economic inequalities and limits social mobility [Dirks, 2011].

According to historical texts, Hindus were classified into four Varnas (social groups): Brahmins, Kshatriyas, Vaisyas, and Shudras¹ [Borooah, 2012]. These Varnas were considered crucial for determining an individual's social position and later on became a foundation for affirmative action policies [Deshpande, 2011]. As per the national datasets, these Varnas were classified into four caste categories, i.e., General category, Other backward classes (OBC), Scheduled Castes (SC), and Scheduled Tribes (ST). The OBC, SC, and ST students belong to the marginalized social background, while the General category students belong to the privileged social background [Gaur, Pandey, Sharma, 2024].

Apart from Hindus, other religious groups, such as Muslims, Christians, and Sikhs, also witnessed a shift in their caste system. Clause 3 of the Scheduled Caste Order 1950, appended to Article 341 of the Indian constitution², states that certain low castes belonging to Sikhism deemed to be a member of SCs [Fazal, 2017]. Similarly, Muslims were classified into the General and OBC categories [Dasgupta, 2009].

In the Indian education system, students have three academic track choices after their 10th grade, i.e., science, commerce, and arts streams. After high school (12th grade), a student may continue in the chosen stream or select a different one. The selection of streams often defines students' job opportunities in the labor market [Arcidiacono, 2004; Bertschy, Cattaneo, Wolter, 2009]. Since recruiters value graduates from the same professional tracks who are also good performers at every educational level [Yeravdekar, Behl, 2017], previous academic performances and track selection become essential.

3. Data and methods

The empirical analysis is based on a unique dataset of students' academic performance at different educational levels obtained from the Common Admission Test (CAT), 2018. The CAT is an entrance examination for the prestigious Indian Institutes of Management (IIMs) and other renowned private institutions. The sample consists of students appearing for the CAT examination³, which has a minimum cri-

¹ Brahmins were priests or teachers by profession and were considered the higher class. Kshatriyas consisted of warriors and rulers, and Vaisyas were traders. These two castes were also regarded as the elite section of the society. Shudras, comprising people who performed menial jobs, were regarded as the marginalized segment [Borooah, 2012; Deshpande, 2011].

² The Constitution of India (Scheduled Castes) Order, 163 (1950): [http://socialjustice.nic.in/writereaddata/UploadFile/CONSTITUTION \(SC\) ORDER 1950 dated 10081950.pdf](http://socialjustice.nic.in/writereaddata/UploadFile/CONSTITUTION%20(SC)%20ORDER%201950.pdf) (accessed 02.09.2025).

³ It is an aptitude test required for admission in MBA programs in India, similar to the Scholastic Aptitude Test (SAT) conducted in the U.S college admission process.

terion of bachelor's in any stream. The exam tests students on their quantitative ability, data interpretation, logical reasoning, verbal ability, and reading comprehension. The CAT result is a relative score, i.e., the candidate's rank is calculated in percentile compared to those of other candidates who have scored less than him/her (the range of CAT score is from 0 to 100).

To identify educational achievement differences between social groups in time, this research considers educational achievements at three educational levels: a) high school, b) bachelor's, c) professional entrance exam for Masters of Business Administration (MBA). A student's performance in the MBA entrance exam is an essential determinant of labor market outcomes [Bertschy, Cattaneo, Wolter, 2009; Brand, Halaby, 2006; Black, Smith, 2004]. Better performance in the MBA entrance exam ensures admission into a more prestigious college, which increases a candidate's chances of improving his or her labor market outcomes [Baruch, Peiperl, 2000; Forrester, 1986]. For instance, a management graduate in India earns approximately 30 to 40 percent more than a non-management graduate [Dhar, 2012; Yehuda, Uday, Bijaya, 2019; Yeravdekar, Behl, 2017]. Recruiters and students value these prestigious colleges as they provide a higher socio-economic return [Bordón, Braga, 2020; Lin, Lin, 2012; Tan, Morgan, Zagheni, 2016].

Table 1 presents descriptive statistics that highlights the achievement inequalities among privileged and marginalized social groups through their mean educational achievement scores.

Table 1. **Descriptive statistics**

Variable	General		OBC		SC		ST	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
CAT percentile	52.79	28.78	43.64	28.17	38.66	26.01	34.45	24.16
Bachelor's %	70.33	9.85	68.85	9.51	65.36	9.02	64.25	9.10
HSC %	78.41	11.84	76.96	12.54	72.48	12.23	70.22	12.44
SSC %	82.34	10.91	81.62	11.40	77.96	11.79	75.35	12.17
<i>Academic Track</i>								
Arts	0.02	0.15	0.03	0.18	0.04	0.19	0.05	0.22
Commerce	0.32	0.47	0.22	0.42	0.20	0.40	0.26	0.44
Science	0.66	0.47	0.74	0.44	0.76	0.42	0.69	0.46
<i>Educational Board at SSC</i>								
CBSE	0.56	0.50	0.42	0.49	0.48	0.50	0.44	0.50
State Boards	0.31	0.46	0.51	0.50	0.44	0.50	0.40	0.49
Cambridge A-Level	0.00	0.03	0.00	0.02	0.00	0.01	0.00	0.02
CISCE	0.06	0.23	0.03	0.17	0.03	0.18	0.07	0.26
ICSE	0.08	0.26	0.04	0.20	0.04	0.20	0.09	0.29
International Baccalaureate	0.00	0.01	0.00	0.01	—	—	—	—

	General		OBC		SC		ST	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
NIOS	0.00	0.03	0.00	0.02	0.00	0.03	0.00	0.03
<i>Educational Board at HSC</i>								
CBSE	0.54	0.50	0.36	0.48	0.42	0.49	0.42	0.49
State Boards	0.39	0.49	0.60	0.49	–	–	–	–
Cambridge A-Level	0.00	0.02	0.00	0.01	0.53	0.49	0.49	0.50
CISCE	0.04	0.19	0.02	0.13	0.02	0.14	0.05	0.21
ICSE	0.04	0.19	0.02	0.13	0.02	0.14	0.05	0.21
International Baccalaureate	0.00	0.02	0.00	0.01	0.00	0.01	–	–
NIOS	0.00	0.06	0.00	0.06	0.01	0.08	0.00	0.07
<i>University Type</i>								
Central University	0.10	0.30	0.09	0.29	0.11	0.31	0.13	0.34
Deemed University	0.14	0.35	0.08	0.28	0.08	0.27	0.10	0.31
Foreign University	0.00	0.03	0.00	0.02	0.00	0.02	0.00	0.02
IITs	0.02	0.14	0.03	0.16	0.05	0.22	0.06	0.23
NITs	0.03	0.16	0.04	0.19	0.05	0.22	0.07	0.25
Others	0.04	0.19	0.05	0.22	0.05	0.22	0.04	0.20
Private University	0.12	0.32	0.07	0.26	0.07	0.25	0.08	0.27
State University	0.56	0.50	0.64	0.48	0.59	0.49	0.52	0.49
Age	24.11	2.54	23.97	2.19	24.57	2.60	24.60	2.64
Gender	0.36	0.48	0.30	0.46	0.31	0.46	0.34	0.48
N	157550		33211		14692		3952	

Notes: HSC = Higher Secondary Certificate (12th Grade), SSC = Secondary School Certificate (10th Grade), CBSE = Central Board of Secondary Education, CISCE = Council for the Indian Certificate Examinations, ICSE= Indian Certificate for Secondary Education, NIOS = National Institute of Open Schooling, IIT = Indian Institute of Technology, NIT = National Institute of Technology.

To identify the predictors of educational achievements, we used the Ordinary Least Squares (OLS) regression technique because the dependent variable (educational achievements) is continuous [Hutcherson, 1999].

The main independent tested variables were 1) the selected academic track (out of the three tracks) and 2) social-ethnic group (out of the four caste categories).

The literature revealed that predictors of educational achievements include family income, parental education, and educational expenditure [Carruthers, Wanamaker, 2013; Dee, 2005; Evans, Schwab, 1995]. Since data on these variables were not available, the study used an alternate approach suggested in the literature that considers previous academic performance as it is directly influenced by students' personal qualities and the household environment [Boissiere, Knight, Sabot, 1985]. Data on academic performance at the previous educational level (Secondary School, High School, and bachelor's) was

used in the model as the control variable along with gender and age. For instance, while estimating factors for educational achievements at the HSC level, SSC's performance data was included in the model.

Apart from individual and household level variables, school or university quality indicators proved to be significant predictors of educational achievements [Behrman, Birdsall, 1983; Card, Krueger, 1992; Glewwe, 1999; Black, Cortes, Lincove, 2020; Thiele et al., 2016]. Thus, our model includes educational boards and university type as control variables. Educational boards can be considered as a robust measure for providing information regarding school quality in India [Bhattacharji, Kingdon, 2015; Jain, Prasad, 2018] and have been broadly divided into seven categories (Table 1). These educational boards follow stringent criteria to accredit schools based on different quality parameters [Bhattacharji, Kingdon, 2015]. Similarly, university type at the bachelor's level also provides information regarding the quality of a student's university during a bachelor's course and has been broadly divided into eight categories (Table 1).

The model also includes geographical state-level variables to control for variances on the regional level.

The regression analysis has been performed for three different educational levels of educational achievements, namely, high school, bachelor's, and entrance exam, i.e., CAT as follows:

$$12th\ Grade\ Scores = \beta_0 + \beta_1 X_i + \beta_2 Y_i + \beta_3 Z_i + \varepsilon \quad (1)$$

$$Bachelor's\ scores = \beta_0 + \beta_1 X_i + \beta_2 Y_i + \beta_3 Z_i + \varepsilon \quad (2)$$

$$CAT\ percentile = \beta_0 + \beta_1 X_i + \beta_2 Y_i + \beta_3 Z_i + \varepsilon \quad (3)$$

$$12th\ Grade\ Scores = \beta_0 + \beta_1 X_i + \beta_2 Y_i + \beta_3 Z_i + \beta_4 X_i Y_i + \varepsilon \quad (4)$$

$$Bachelor's\ scores = \beta_0 + \beta_1 X_i + \beta_2 Y_i + \beta_3 Z_i + \beta_4 X_i Y_i + \varepsilon \quad (5)$$

$$CAT\ percentile = \beta_0 + \beta_1 X_i + \beta_2 Y_i + \beta_3 Z_i + \beta_4 X_i Y_i + \varepsilon \quad (6)$$

In all equations, X_i is the vector containing variables of academic choices, i.e., science, arts, and commerce. Vector Y_i comprises an individual's social group (General, OBC, ST, SC). Finally, Vector Z_i contains control variables, including previous academic performances, school educational board, university type, gender, region, and age.

Equations 1, 2, and 3 measure the educational achievement predictors testing for the impact of social groups and students' academic track choices controlling for previous academic performances, school educational board, university type, gender, region, and age. Equations 4, 5, and 6 include interaction effects between academic tracks and social groups to see if social groups define the influence of track choices on the outcome variable. A brief description of the variables is presented in Table 2.

Table 2. Summary description of variables

Variables	Description
CAT percentile	Aggregate score in the Common Admission Test
Bachelor's%	Aggregate score at bachelor's level
HSC%	Aggregate score at HSC level (year 12)
SSC%	Aggregate score at SSC level (year 10)
Academic Track	Field of study opted after SSC, i.e., Arts, Commerce, or Science
Educational Board	Educational board deciding the quality of education at the SSC and HSC level
University Type	University in which the individual is enrolled during bachelor's
Age	Age of the student
Social Group	Background of the student, i.e., General, OBC, SC, ST
Gender	Gender of the student
Region	Region where the student is residing (states classified into regional zones decided by the Indian government)

4. Results and discussion

4.1. Effect of academic choices and performance on achievement inequality

Our research demonstrated that differences in educational achievement scores across social groups partially decreased when controlled for individual's academic track selection and previous performances along with the other variables. The marginalized social groups continued to perform poorly as compared to the General caste at different stages (Table 3). Achievement inequalities dropped across social groups at the HSC level; however, marginalized students failed to perform on par with General category students. Despite controlling for track selection and previous performances, the results highlighted that those inequalities in the HSC performance scores are linked with the social group variable.

On the contrary, at the bachelor's educational level, the differences in educational achievement scores across social groups increased. This result demonstrates that, at the bachelor's level, marginalized students perform worse than those from privileged groups. It means that providing equal academic pathway opportunities for all students irrespective of their social background will not solve the inequality challenge as less privileged groups will acquire lower scores, which will maintain educational achievement inequalities.

Similarly, at the third educational level, the findings display that performance score inequality increases in the CAT percentile. This demonstrates that though increased schooling years improve educational achievements of marginalized students, educational achievement differences remain in place. The above might mean that students from marginalized social background did not develop the professional skills required to perform well in MBA entrance exams [Lin, Lin, 2012; De Alwis, Parr, Guo, 2020].

Table 3. **Achievements' inequality after controlling for academic choices and performance**

VARIABLES	HSC%	Bachelor's%	CAT percentile
<i>Academic Track (Ref: Science)</i>			
Arts	4.77*** (0.12)	-2.14*** (0.12)	-7.12*** (0.29)
Commerce	4.83*** (0.05)	-2.62*** (0.05)	-5.07*** (0.13)
<i>Social Groups (Ref: General)</i>			
OBC	-0.75*** (0.05)	-0.85*** (0.05)	-4.97*** (0.13)
SC	-1.87*** (0.08)	-2.73*** (0.07)	-6.98*** (0.18)
ST	-2.73*** (0.15)	-3.09*** (0.14)	-7.07*** (0.34)
<i>Academic Performance</i>			
Bachelor's%			0.23*** (0.01)
HSC%		0.25*** (0.00)	0.72*** (0.01)
SSC%	0.74*** (0.00)	0.14*** (0.00)	0.69*** (0.01)
<i>Educational Board (Ref: CBSE)</i>			
State Boards 10 th Grade	-0.60*** (0.07)	0.06 (0.06)	-4.62*** (0.17)
Cambridge A-Level 10 th Grade	3.28*** (0.92)	0.13 (0.96)	7.55*** (1.91)
CISCE 10 th Grade	3.11*** (0.11)	1.00*** (0.11)	5.55*** (0.27)
ICSE 10 th Grade	2.93*** (0.09)	0.78*** (0.09)	5.17*** (0.22)
International Baccalaureate 10 th Grade	4.64* (2.41)	0.51 (2.20)	12.02*** (4.05)
NIOS 10 th Grade	2.07** (0.98)	1.08 (0.70)	3.46* (1.80)
<i>Educational Board (Ref: CBSE)</i>			
State Boards 12 th Grade	0.35*** (0.07)	-0.69*** (0.07)	-3.96*** (0.17)
Cambridge A-Level 12 th Grade	-9.59*** (1.31)	3.16*** (1.17)	17.25*** (2.38)
CISCE 12 th Grade	-0.39*** (0.13)	-1.69*** (0.14)	-0.19 (0.33)
ICSE 12 th Grade	-0.77*** (0.12)	-1.41*** (0.13)	-0.17 (0.31)
International Baccalaureate 12 th Grade	-6.36*** (1.19)	3.76*** (1.25)	10.94*** (2.67)

VARIABLES	HSC%	Bachelor's%	CAT percentile
NIOS 12 th Grade	-1.71*** (0.43)	-1.11*** (0.30)	-7.14*** (0.77)
<i>University Type (Ref: Central University)</i>			
Deemed University		4.82*** (0.08)	-1.52*** (0.20)
Foreign University		2.11** (0.95)	4.48*** (1.65)
IITs		2.97*** (0.15)	14.26*** (0.26)
NITs		4.19*** (0.12)	7.98*** (0.27)
Others		1.89*** (0.11)	-6.85*** (0.27)
Private University		4.63*** (0.08)	-3.86*** (0.21)
State University		1.44*** (0.06)	-2.34*** (0.16)
Age	-0.05*** (0.01)	0.15*** (0.01)	2.25*** (0.03)
<i>Region of India (Ref: Central)</i>			
North	1.16*** (0.06)	-0.68*** (0.06)	1.72*** (0.14)
South	3.75*** (0.07)	1.00*** (0.06)	-5.95*** (0.16)
East	-3.06*** (0.06)	0.79*** (0.06)	-1.45*** (0.16)
West	-4.07*** (0.07)	-0.34*** (0.06)	6.66*** (0.16)
North East	-0.27 (0.18)	-0.73*** (0.16)	-0.50 (0.42)
Female	-0.27*** (0.04)	2.46*** (0.04)	-8.74*** (0.10)
Constant	17.03*** (0.28)	33.34*** (0.28)	-122.63*** (0.82)
Observations	206,701	206,622	206,622
R-squared	0.52	0.32	0.49

Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.2. Interaction effects

The estimation of the interaction effects disclosed that marginalized students at the secondary (SSC) educational level who opted for science were performing poorly as compared to those in the General category (Table 4). The worst performing category is ST, followed by SC and OBC. Despite students having equal opportunities for profes-

sional choices, the differences in the HSC scores due to social groups remained stable.

Table 4. Interaction effect of academic choices and social groups

VARIABLES	HSC%	Bachelor's%	CAT percentile
<i>Social Group (Ref: General)</i>			
OBC	-0.49*** (0.06)	-1.13*** (0.06)	-5.24*** (0.15)
SC	-1.81*** (0.09)	-3.10*** (0.08)	-7.91*** (0.21)
ST	-2.58*** (0.17)	-3.85*** (0.17)	-9.23*** (0.41)
<i>Academic Track (Ref: Science)</i>			
Arts	5.14*** (0.15)	-2.59*** (0.15)	-7.81*** (0.36)
Commerce	4.97*** (0.05)	-2.87*** (0.05)	-5.52*** (0.14)
<i>Interaction effects</i>			
OBC*arts	3.04*** (0.25)	-1.98*** (0.26)	-11.17*** (0.62)
OBC*commerce	3.61*** (0.11)	-3.09*** (0.10)	-10.02*** (0.25)
SC*arts	2.94*** (0.42)	-4.77*** (0.37)	-14.56*** (0.87)
SC*commerce	2.99*** (0.18)	-4.41*** (0.16)	-9.24*** (0.37)
ST*arts	2.11*** (0.73)	-5.65*** (0.65)	-10.02*** (1.50)
ST*commerce	1.88*** (0.30)	-3.91*** (0.27)	-7.75*** (0.61)
<i>Academic performance</i>			
Bachelor's%			0.23*** (0.01)
HSC%		0.25*** (0.00)	0.72*** (0.01)
SSC%	0.74*** (0.00)	0.14*** (0.00)	0.70*** (0.01)
<i>Educational Board (Ref: CBSE)</i>			
State Boards 10 th Grade	-0.60*** (0.07)	0.06 (0.06)	-4.62*** (0.17)
Cambridge A-Level 10 th Grade	3.26*** (0.92)	0.17 (0.96)	7.64*** (1.91)
CISCE 10 th Grade	3.11*** (0.11)	0.99*** (0.11)	5.55*** (0.27)

VARIABLES	HSC%	Bachelor's%	CAT percentile
ICSE 10 th Grade	2.93*** (0.09)	0.78*** (0.09)	5.18*** (0.22)
International Baccalaureate 10 th Grade	4.65* (2.42)	0.50 (2.19)	12.00*** (4.06)
NIOS 10 th Grade	2.04** (0.98)	1.08 (0.69)	3.41* (1.80)
<i>Educational Board (Ref: CBSE)</i>			
State Boards 12 th Grade	0.35*** (0.07)	-0.68*** (0.07)	-3.94*** (0.17)
Cambridge A-Level 12 th Grade	-9.61*** (1.31)	3.18*** (1.17)	17.28*** (2.39)
CISCE 12 th Grade	-0.41*** (0.13)	-1.67*** (0.14)	-0.16 (0.33)
ICSE 12 th Grade	-0.78*** (0.12)	-1.40*** (0.13)	-0.17 (0.31)
International Baccalaureate 12 th Grade	-6.44*** (1.19)	3.87*** (1.25)	11.15*** (2.67)
NIOS 12 th Grade	-1.72*** (0.43)	-1.08*** (0.30)	-7.09*** (0.77)
<i>University Type (Ref: Central University)</i>			
Deemed University		4.82*** (0.08)	-1.49*** (0.20)
Foreign University		2.13** (0.95)	4.52*** (1.65)
IITs		3.03*** (0.15)	14.41*** (0.26)
NITs		4.23*** (0.12)	8.10*** (0.27)
Others		1.90*** (0.11)	-6.82*** (0.27)
Private University		4.65*** (0.08)	-3.82*** (0.21)
State University		1.46*** (0.06)	-2.30*** (0.16)
Age	-0.05*** (0.01)	0.14*** (0.01)	2.25*** (0.03)
<i>Region of India (Ref: Central)</i>			
North	1.14*** (0.06)	-0.66*** (0.06)	1.74*** (0.14)
South	3.75*** (0.07)	1.00*** (0.06)	-5.97*** (0.16)
East	-3.07***	0.79***	-1.45***

VARIABLES	HSC%	Bachelor's%	CAT percentile
	(0.06)	(0.06)	(0.16)
West	-4.09***	-0.32***	6.68***
	(0.07)	(0.06)	(0.16)
North East	-0.28	-0.71***	-0.52
	(0.17)	(0.16)	(0.42)
Female	-0.27***	2.47***	-8.73***
	(0.04)	(0.04)	(0.10)
Constant	16.98***	33.39***	-122.51***
	(0.28)	(0.28)	(0.82)
Observations	206,701	206,622	206,622
R-squared	0.52	0.32	0.49

Robust standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

At the bachelor's education level, inequalities in achievements across social groups increased for students who had opted for science. The opposite tendency was discovered for students who had opted for arts or commerce, here inequalities across social groups reduced. However, they achieved significantly lower scores in absolute numbers compared to their counterparts who had opted for science. This indicates that better academic track selection can improve achievements within a social group; however, it may not reduce achievement inequalities across social groups completely.

Similarly, at the CAT educational level, our research shows that students who had opted for science largely performed well in CAT compared to arts and commerce students. This result is in line with previous findings, highlighting the importance of choosing natural sciences and engineering over arts as academic tracks at the early stages of schooling [Arcidiacono, 2004; Reimer, Noelke, Kucel, 2008].

4.3. Discussion

The study revealed that students from marginalized social backgrounds, such as OBCs, SCs, and STs, continue to perform poorly compared to those from privileged backgrounds at different education stages despite their track selection. The results for Indian panel data are consistent with the existing literature, which suggests that increasing years of schooling can hardly reduce achievement inequalities across social groups [Breen, 2010; Walters, 2000].

In line with previous studies, this empirical research demonstrated that though schooling years improved the educational achievements of the students from lower social background, these students do not develop the skills required for further professional MBA exams [Lin, Lin, 2012; De Alwis, Parr, Guo, 2020].

Professional skills are considered an absolute necessity by prestigious educational institutions. Students having inadequate professional skills, evaluated through the performance in competitive entrance exams, failed to qualify for these institutions. Since recruiters value college prestige more than skills, inequalities in professional achievements will further amplify for those who failed to qualify for prestigious educational institutions [Bordón, Braga, 2020]. Even if students from marginalized social backgrounds enter such prestigious institutes with the help of affirmative action policies, their predicted poor performance in the future hinders further professional opportunities [Frisancho, Krishna, 2016; Lopes, 2017]. This forces them to look for Government-provided jobs, where affirmative action policies are applicable, rather than jobs in the private sector, which mostly prefers professional skills [Desai, Kulkarni, 2008].

The empirical results of the study showed that the performance of students with poor social background hardly improved even after opting for professional tracks that provided occupational orientation. At the same time, one finding of the study resonates with the hypothesis of the social transformation theory that individuals with aspirational mindset can reduce inequalities. It was found that students from a marginalized background who had opted earlier for science managed to perform better than their arts and commerce counterparts at the CAT entrance exam. It clearly signifies that individuals with high aspirations performed better and had higher probability to improve their labor market outcomes as compared to their counterparts who did not select academic tracks.

The social transformation theory allows to interpret this result as follows: individuals try to enhance their ascribed status acquired by birth (caste) through efforts [Foladare, 1969; Kaufman, 2003; Linton, 1936]. Although these aspirational students with marginalized background reduced educational achievement inequalities by their better performance, they did not eliminate those inequalities completely [Becker, Mayer, 2019; Blossfeld, Blossfeld, Blossfeld, 2015; Neidhöfer, Serrano, Gasparini, 2018].

The study concludes that it is not possible to achieve transformation towards fewer social inequalities by merely providing equal opportunities for choosing academic tracks. The research results extend the idea of Barakat & Shields [2019] by identifying the importance of academic choices and previous performances along with primary and secondary educational attainment in developing economies.

5. Conclusions and policy implications

The findings of the research generate several implications for teachers and career counselors. First, in order to build familiarity with the professional tracks, early interventions, such as ensuring success in math classes, are required [Hall, Nishina, Lewis, 2017]. Second,

more attention should be paid to culturally oriented guidance [Metz, Fouad, Ihle-Helledy, 2008; Neault, Mondair, 2011], which can help in shaping the careers of students from marginalized social groups, thereby improving their professional achievements. Third, as an individual's family and social background play a crucial role in career-related choices [Fouad et al., 2015], it becomes vital to increase societal awareness of the benefits of choosing academic tracks from early ages.

Research-based recommendations for the government could be as follows: first, the government can probably consider formulating policies that encourage schools and colleges to improve academic achievements across social groups. Government can ask schools and colleges to provide social category-wise data of achievements by students' social group. This will put pressure on schools and colleges to improve the performance of the marginalized social groups.

Second, the government can probably consider establishing elite schools, which could prepare talented students from the marginalized social groups who do not have access to basic resources [Jagnani, Khanna, 2020]. Government assistance can be in the form of college special programs aimed at preparing students for professional entrance exams, such as CAT.

Third, the unequal provisioning of education during the initial school years can enhance professional achievement inequalities [Stier, Herzberg-Druker, 2017]. Therefore, to harness the potential of educational expansion during the initial years, developing countries may focus on increasing school enrolment rates, improving teacher-student ratio, and increasing educational expenditures [Coenen et al., 2018; Valente, 2019].

Finally, there are many countries like India, those with high socio-economic inequalities rooted in the social-ethnic background of the societal groups and rigid social mobility, including sound Western economies with large number of immigrants or refugees, which could be classified as marginalized communities. Children from such marginalized groups also choose different academic tracks as compared to children from the native community [Dollmann et al., 2023]. Thus, the findings of the study are relevant in improving their educational and socio-economic status.

The study concludes that social group factor remains the strongest and most significant predictor of educational achievements even after controlling for academic track selection. Due to the data limitations, this research did not test for other social factors, including gender, age, school/university type, geographical area, and previous academic performance. Future studies could consider the above as well as more social-demographic factors, such as parents' education level, parents' employment status, family size, income, or rural-urban divide.

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