

Is Globalization Breaking Down Indian Caste Discrimination?

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1 Introduction

Munshi and Rosenzweig (2006) considered the hypothesis that globalization provides new opportunities for low and middle caste Indians. They studied parents' decisions to send their children to English or Marathi language schools. Since most university instruction is in English, a trend toward English school education might indicate a trend towards university and hence professional occupations. They found that low and middle caste students are moving toward English schools, and concluded that these castes perceive new professional opportunities.

I follow up on their study by testing two implications of their conclusion:

1. Since university admission is determined by exam scores, an increase in professional opportunities should decrease the caste gap in exam scores.
2. If students choose English schools to increase their chance of university admission, then there should be a selection effect, that students who achieve high grades also choose English school. Therefore, English choice and high grades should be positively correlated.

I find that the sample is too small to determine the sign of the correlations for both hypotheses at the 99% confidence level. The point estimates suggest that the caste gap in exam scores is declining by 0.34% per year. While grades and English study are positively correlated at the 99% level for Brahmins, they are

Table 1: Data summary statistics. Sample standard deviations appear in parentheses.

summary.table	Whole Sample	Marathas	Brahmins
English schooling	0.261 (NA)	0.180 (NA)	0.388 (NA)
Female	0.491 (NA)	0.512 (NA)	0.457 (NA)
Dad’s education (years)	11.571 (3.456)	10.249 (3.123)	13.651 (2.886)
Age	19.984 (2.722)	19.620 (2.689)	20.555 (2.680)

not for Marathas. The point estimates indicate that Brahmins who receive English instruction score 4% higher, and Marathas score 3.4% higher. Both of these tentative results support the claims of Munshi and Rosenzweig.

2 The Data

I obtained Munshi and Rosenzweig’s (2006) data through the American Economic Review’s Data Availability Policy. They randomly selected 4770 past and present students from the schools in the Dadar district of Bombay, oversampling the underrepresented high caste students. They surveyed one parent of each student, asking about both parents’ caste, age, income history, profession, education and whether they used caste networks to gain past employment. They also asked about their child’s age, gender, language of school instruction, school final exam scores and cost of tuition.

To simplify my study, I focused on the 862 student subsample that had completed high school and were either Maratha (middle) or Brahmin (high) caste. Note that both Marathas and Brahmins living in Bombay speak the Marathi language. Some summary statistics of this sample appear in Table 1.

3 Results

I ran a (reduced form) linear regression of several variables (English schooling, caste, gender, cohort) on exam scores. Since exam scores are whole numbers, I also estimated an ordered probit model in which latent exam ability is rounded to an observed exam score. Apart from σ , all parameter estimates are the same. The standard errors are different, since the ordered probit model does not consider the rounding gap between

Table 2: Parameter estimates for the effect of the listed variables on final exam scores.

result.table	MLE Ordered Probit	OLS
Constant	58.538 (0.678)	58.538 (0.810)
English schooling	3.952 (0.975)	3.952 (1.441)
English schooling * Maratha caste	-0.509 (0.996)	-0.509 (2.005)
Dad's education (years, compared to mean)	1.269 (0.147)	1.269 (0.151)
Brahmin	8.294 (0.948)	8.294 (1.187)
Female	2.312 (0.905)	2.312 (0.860)
Cohort (years, compared to mean)	0.107 (0.211)	0.107 (0.204)
Cohort * Brahmin caste	-0.340 (0.332)	-0.340 (0.327)
Sigma	12.470 (0.282)	12.531 (NA)

a non-integral linear forecast and an integral observation evidence of a mismatch. The estimates appear in Table 2, with standard errors in parentheses.

The caste-gap exam score gap of 8.3% is large – over two thirds of the standard deviation of unobserved variation. This reflects the large differences in incentives Marathas and Brahmins face from caste discrimination. The point estimate of the gap change is -0.34% per year which indicates that the gap between Brahmins and Marathas is narrowing. However, the symmetric 99% confidence interval, $(-1.2, 0.52)$ includes some positive numbers, so the sample size is too small to rule out the possibility that the gap is increasing. Nonetheless, this estimated decline in the gap is consistent with the hypothesis that caste discrimination is declining in professional occupations.

The second hypothesis is only somewhat clearer. While the data clearly show that among Brahmins, there is a positive correlation between English schooling and high grades, there was insufficient data to determine if a similar positive correlation exists for Marathas. English schooled Brahmins get grades 4.0% higher than their Marathi-schooled counterparts, with a 99% confidence interval $(1.4, 6.5)$. The estimated English premium for Marathas is only 3.4%, with a 99% confidence interval $(-0.12, 7.0)$.¹ These correlation estimates are consistent with the hypothesis that English education is perceived as providing more professional opportunities. However, the improvements in opportunities are apparently higher for Brahmins than Marathas.

¹The estimated covariance of the English premium estimate and English premium for Marathas estimate is -0.02.

4 Limitations

The data has several limitations that prevent me from identifying some confounding effects. There is considerable affirmative action in both school and university admissions in the form of scholarships and quotas. These affect incentives to study hard and to learn English. For example, if quotas make English schools very competitive for Brahmins to enter, then there would be a selection effect that Brahmins who attend English schools are smarter and achieve higher grades.

In the data, many parents who studied at university did not attend an English high school. They probably received private English tuition instead. Thus, many wealthy Brahmins might be attending a Marathi language school and still planning to attend university.

While income data is available, it is problematic. Since their data does not record family size, it can not identify how much income is available for the child's education. Even if this were available, it would not help study incentives without first identifying the price of different forms of education, including private English tuition.

The dataset did not contain the date students took their final exams. This could lead to a selection effect where more ambitious children complete their exams earlier. If the children were uniformly sampled by graduation date, and students became more ambitious over time, then there would be a double-effect each year: not only would students work hard to get higher grades, there would on net be more young ambitious students. Thus, changes in incentives should be amplified in the data.

Education is a gradual process, which has been likened to capital accumulation. Thus, decisions made 10 years earlier affect the final exam scores observed in the data. Unforeseen changes in incentives clearly do not change earlier decisions. Thus, a small change in exam scores reflects a bigger change in incentives. Data on earlier educational achievements would help map the exam score gap changes.