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Affirmative Action Through Quotas: The Effect on Higher Education In India

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Introduction

Affirmative action policies that require colleges to admit a certain quota of minority students hold out the promise of "leveling the playing field," providing equality of opportunity for groups that, in some cases, have suffered from centuries of discrimination. The potential benefits to minority students are perceived to be large relative to the costs, which are generally assumed to fall on displaced majority students who may be forced to attend slightly less selective colleges as a consequence of the policy. Perhaps because of this perception, it has proved difficult for governments to remove or even scale back affirmative action programs. Indeed, in countries such as India, where affirmative action is intended to reduce caste-based schooling inequalities, the size of the quota has increased over the years to cover more backward castes. In some states, fully 50 percent of college admissions are reserved for students from lower castes.

This calculation of costs and benefits ignores what may be the major cost of the Indian system: its negative effect on the average quality of institutions of higher education and, in particular, the more selective colleges. This is a consequence of the significant changes in the distribution of student abilities at all colleges this policy entails; the larger changes recorded in high-end

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colleges; and the recognized effect of peer ability on individual schooling. All affirmative action programs will not generate this cost. It is the large size of the quota in India in conjunction with other specific features of the policy, as well as the vast difference in schooling abilities across castes at elementary and secondary levels of schooling, that cause the system to be so costly.

The low quality of India's higher education sector is widely recognized. For example, a 2005 NASSCOM-McKinsey report maintained that only 25 percent of India's engineering graduates were employable. While low quality is frequently blamed on the unchecked expansion of the higher education sector, this cannot be the whole story. Most of India's top IT and engineering firms find their recruits from the most selective colleges to be insufficiently trained, causing the firms to run their own extensive in-house training programs. The success of the IT sector is commonly attributed to these programs, rather than to India's engineering colleges (Arora 2007).

The reduction in the average quality of the higher education sector, particularly of top-level colleges, may reduce the growth potential of the economy. The distributional effects of the policy are uneven. While the reduction in college quality hurts all members of unreserved castes, who are not subject to quotas, and even some of the reserved castes, the policy does benefit those members of backward castes who would not be admitted to engineering colleges in its absence; despite the low quality of colleges, there are significant returns to an engineering degree (Bertrand, Hanna and Mullainathan 2007). However, these benefits accrue only to those backward caste students who are able to complete a high school education, generally those from households that are relatively well off.

Factors that contribute to the costs of the policy

The costs of the policy reflect the large number of seats that are reserved for backward castes. Equally important, however, is another aspect of its design: While admission to any college is determined exclusively by the student's score in a state-wide entrance examination, the system imposes no minimal standards for admission other than the requirement that students must achieve at least a 50 percent score in the 12th standard school-leaving examination. This percentage is reduced to 45 percent for students from the most backward castes, the "scheduled" castes and tribes (SCs and STs). That is, colleges must admit students from reserved castes until the quota is met, regardless of whether this implies a large drop in the average ability of its students. If students from low castes achieve a grade high enough to warrant admission in the "open" category, their numbers are not counted against the quota; it can only be filled by students who would otherwise not be admitted to the college in question.

The admission of a relatively large number of under-qualified students will necessarily lower the mean ability of students in any course or field of study and simultaneously increase variance. The magnitude of these changes in student composition is likely to be large, not just because of the relatively large size of the quota but also primarily because of the significant difference in abilities between reserved and unreserved categories of student.

Data on test results for the 14,696 students who took the 2007 engineering entrance examination (the CET exam) in the state of

Maharashtra, one of India's leading industrial states and home of its financial capital, Mumbai, provide evidence on the difference in initial caste-based schooling ability or academic levels. Grouping CET scores by deciles reveals that 85 percent of students in the top decile come from upper castes (UCs) with only 2 percent drawn from scheduled castes and tribes (Figure 1). In contrast, scheduled caste students (SCs) account for 41 percent of those in the lowest decile of the CET distribution, while other backward castes (OBCs) account for 42 percent and upper castes for only 17 percent.

Since all engineering colleges are required to reserve seats for students from scheduled castes and tribes, the very low numbers of SC/ST students in the top decile of the CET distribution implies that the variance in students' initial ability will be greater in the more selective colleges. This is graphically revealed in Figure 2, which groups Maharashtra's engineering colleges into 10 groups by the mean CET score of upper caste male students. For each group of colleges, the figure first displays a box plot of the CET cutoff scores for male upper caste students for all colleges in the group and then, immediately adjoining it, for male scheduled caste students admitted under the reservation policy. In the lowest quality colleges, the CET cutoffs for SC students overlap with those of upper caste students. However, as college quality improves, the maximum CET cutoff score for SC students in any college in that group falls considerably short of the minimum CET cutoff score for upper caste students.

Figure 1

Proportion of upper caste (UC), other backward caste (OBC) and scheduled caste (SC) students by CET deciles.

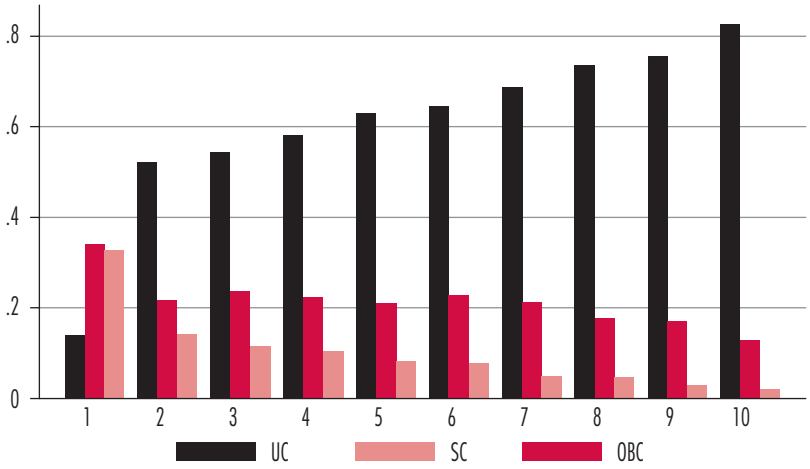
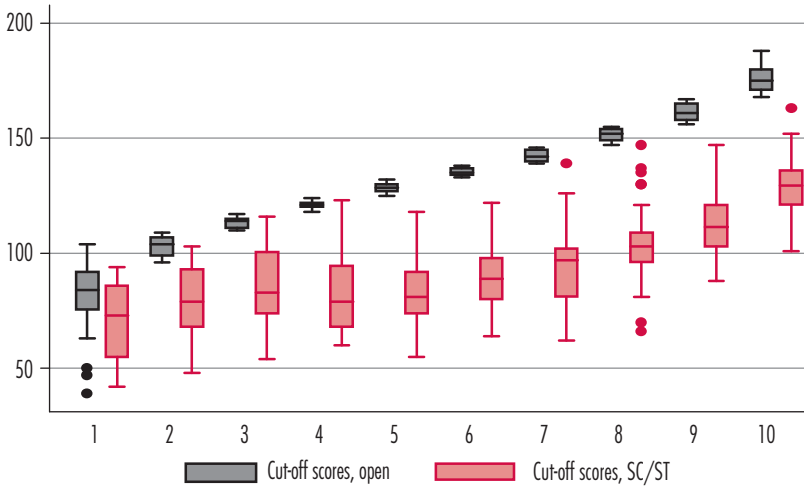


Figure 2

CET cutoff scores for upper caste and scheduled caste males, by colleges grouped by selectivity.



Evidence on the effect of student composition on individual performance

The design of the system is premised on the belief that mixing low-ability students with those of significantly higher ability improves learning, at least for low-ability students. Unfortunately, research results belie this assumption. An analysis of student achievement, based on data on the cumulative grade point average scores of all students enrolled in one of Maharashtra's top engineering colleges, reveals that a higher mean ability of students improves learning for upper caste students, but not for those who are admitted through the reservation system. For these students, learning is negatively correlated with the mean ability of the classroom. This result mirrors those that result from distinguishing students not by caste, but by their place in the academic distribution. For students in the top half of the ability distribution, learning increases with the mean ability of their classmates; for those in the bottom half of the distribution, the effect is negative.

This implies that the system of quotas hurts both upper caste students and those who enter under a quota; raising the mean ability of the student group in selective colleges by removing quotas would benefit upper caste students. Simultaneously, lower- caste students would also benefit from being placed in a program with other students of similar ability levels.

This result is qualified by the very large discrepancy in initial ability (as measured by CET scores) across lower and upper castes. The very low CET scores of even those SC/ST students who (with the policy) place in the best 10 percent of colleges implies that in its absence they would only place into colleges of considerably lower quality. Because the drop in the quality of the college is likely to be large, it is difficult to predict how well these students will do, based on results that are derived from a sample for which the variation in mean ability is far less extreme.

The extent of the achievement or learning gains that the removal of the policy would confer depends on the changes in the mean and variance of student ability in different colleges that would follow. The data depicted in Figure 2 suggest that the gains are likely to be considerable, particularly for high-end colleges. More precise estimates are available from our data on individual test scores in a single college. For the most selective field offered in this college, the removal of the affirmative action policy would raise the average CET score by 10 points, from 181 to 191 (out of 200). The limited range of CET scores, however, does not fully reflect the difference in student ability within a class across these regimes. In terms of the merit rank of students, the average rank in this top field or course would fall from 879 out of 14,696 to as low as 136. In the lowest ability field in the surveyed college, the removal of quotas would drop the average merit rank of students from 4938 to 2856.

Alternative affirmative action policies

It is possible to reduce the costs of the existing system in several ways. For example, the government allows India's premier engineering institutions, the Indian Institutes of Technology (IITs), to adopt a policy that is less damaging in terms of its effect on quality. These colleges do not follow the prevailing system of admitting backward caste students until the quota is filled regardless of how low the student may rank in the overall merit list. Instead, their test scores must exceed a stipulated level, even though this level is below that for open category

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students. If the number of SC/ST students who meet the cutoff is less than required by the policy, then the colleges admit additional students into a yearlong preparatory course. On successful completion of the course, the students can register for the first year of the regular degree program.

This effectively increases the mean ability of students in the regular program and reduces the variance in ability, consequently enhancing individual student achievement. Unfortunately, there is no study to date that examines whether participation in the preparatory course enhances the future learning of those students admitted to it.

The IIT policy shifts the responsibility for improving the quality of elementary and secondary schooling, particularly for members of scheduled castes and tribes, from the government to the private sector. Many believe that the private sector is better equipped to affect improvements in school quality. However, there is a cost: As with the affirmative action policy in general, the IIT system only redresses schooling conditions for those among the scheduled castes and tribes who complete high school with a grade that makes them eligible for admission to engineering colleges. In urban Maharashtra, only 27 percent of the SC/ST students between the ages of 18 and 25 in 2004 completed higher secondary school (grade 12), compared with 43 percent from upper castes. Data on the per capita expenditure of those SC/ST households whose children have completed higher secondary school reveals that they are relatively wealthy compared with other households from this caste. Their monthly per capita expenditure is Rs. 6,613, while those of households whose children do not complete 12th grade is only Rs. 3,622.

The most effective policy would require the government to address caste-based schooling inequalities at the primary and secondary level. Research has shown that these inequalities primarily reflect the difference in the quality of government schools attended by children from scheduled castes and tribes relative to those from upper castes (Jacob, Kochar and Reddy 2009). A policy that addresses this quality difference is the only one that will substantially improve the lives of all households from backward castes. And, it is also the most effective way of limiting the reduction in the quality of higher education imposed by an affirmative action policy at the college level.

The concern, of course, is that since the affirmative action policy does reduce the consequences of poor quality schools for the better-off SC/ST households, it lowers the demand for political action to improve elementary and secondary schooling. Under these conditions, the far more difficult policies necessary to improve elementary schooling may not be forthcoming. However, it is only these changes that can truly reduce social inequalities and simultaneously improve the quality of higher education.

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