CHANGING EDUCATIONAL INEQUALITIES IN INDIA IN THE CONTEXT OF AFFIRMATIVE ACTION*

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Indian society suffers from substantial inequalities in education, employment, and income based on caste and ethnicity. Compensatory or positive discrimination policies reserve 15% of the seats in institutions of higher education and state and central government jobs for people of the lowest caste, the Scheduled Caste; 7.5% of the seats are reserved for the Scheduled Tribe. These programs have been strengthened by improved enforcement and increased funding in the 1990s. This positive discrimination has also generated popular backlash and on-the-ground sabotage of the programs. This paper examines the changes in educational attainment between various social groups for a period of nearly 20 years to see whether educational inequalities have declined over time. We use data from a large national sample survey of over 100,000 households for each of the four survey years—1983, 1987–1988, 1993–1994, and 1999–2000—and focus on the educational attainment of children and young adults aged 6–29. Our results show a declining gap between dalits, adivasis, and others in the odds of completing primary school. Such improvement is not seen for Muslims, a minority group that does not benefit from affirmative action. We find little improvement in inequality at the college level. Further, we do not find evidence that upper-income groups, the so-called creamy layer of dalits and adivasis, disproportionately benefit from the affirmative action programs at the expense of their lower-income counterparts.

The past century has been characterized by a massive worldwide educational expansion. Increasingly complex economies demand a better-educated workforce. Moreover, in a globalizing world culture, nation-states are increasingly expected to take over the duty of educating citizens (Meyer, Ramirez, and Soysal 1992). However, whether educational expansion is sufficient to reduce educational inequalities or whether explicit affirmative action is needed remain thorny issues facing many national governments, with little empirical evidence to guide future policies.

Research on educational stratification suggests that inequality in education between different social strata continues and sometimes even widens in spite of educational growth (Halsey, Heath, and Ridge 1980; Hauser and Featherman 1976). Results from a pathbreaking project comparing educational changes across 13 diverse countries shows that with two exceptions, the impact of parental socioeconomic status on children's educational opportunity remained stable or even widened (Shavit and Blossfeld 1993). Widening socioeconomic differences are particularly evident at upper levels of education. Perhaps the most ironic finding in this line of research is that in communist societies, too, cultural capital reflected in father's educational level increased children's chances of gaining higher education (Treiman, Ganzeboom, and Rijken 2003), and even as access to education became universal in primary school, ethnic inequalities widened in high school (Hannum 2002).

The literature on why these inequalities persist or even widen in spite of the increases in overall educational levels remains poorly developed. However, some insights

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from cultural reproduction theorists (Bourdieu 1973; Bowles and Gintis 1976; Collins 1979) may be useful in deepening our understanding. These theorists have argued that educational certificates exclude the marginalized groups from high-prestige jobs and, hence, educational systems devised by the elites often contain many hurdles that aid in excluding the subordinate groups from higher education. This may be particularly relevant given that educational expansion is often associated with economic changes that call for higher educational levels. This observation has led to the hypothesis of maximally maintained inequality, which suggests that educational inequality remains unchanged until enrollment at a given level reaches the saturation point, estimated at around 95% of the population completing that level of education (Raftery and Hout 1993).

These arguments pose serious challenges to nation-states seeking ways of reducing educational inequalities between various social strata. If educational expansion as well as generally egalitarian education policies fail to diminish educational disadvantages for marginalized groups, what alternatives are available for policy intervention? Affirmative action, or positive discrimination, has been seen as one avenue for directly reducing educational inequalities (Pong 1993).

However, while the empirical evidence described above suggests that educational expansion does not lead to reduction in educational inequalities based on social origin, few studies have examined the success or failure of affirmative action programs empirically. Although it is usually not feasible to directly evaluate the consequences of affirmative action, India provides an interesting natural experiment because affirmative action policies have been implemented for nearly half a century, with the benefits restricted to some clearly defined disadvantaged groups but not others. Given half a century of the existence of affirmative action programs that were strengthened in the 1990s, this paper, which seeks to evaluate changes in educational inequalities, compares the educational achievements of three groups: (a) historically advantaged groups, (b) disadvantaged groups that are subject to affirmative action, and (c) disadvantaged groups that are not subject to affirmative action.

INDIA: THE PORTRAIT OF A STRATIFIED SOCIETY

Historically, India has been a predominantly Hindu nation, though with a substantial degree of religious diversity. With 12% of the population being Muslim, India is home to the second largest Muslim population in the world. Christians form about 3% of the population, while Jains, Sikhs, Buddhists, and other smaller religious groups constitute another 3%. Nonetheless, the Hindu stratification system has tended to dominate Indian society. A significant percentage of Muslims, Christians, and Sikhs identify with caste groups defined by Hindu traditions.

According to the Hindu religion, as articulated in the *Vedas*, Hindu society is classified into four *varnas* or castes: *Brahmin* (priest and teacher), *Kshatriya* (ruler and warrior), *Vaishya* (trader), and *Shudra* (servant). These are further subdivided into many smaller castes or *jatis*.[1] Additionally, the two groups that are lowest in the social hierarchy, *dalits* and *adivasis*, have been left outside the caste system. The dalits, originally called "untouchables" and later renamed *harijan* ("children of God") by Mahatma Gandhi, are now also referred to as the Scheduled Caste, and adivasis or tribals, as the Scheduled Tribe. Note that in the Indian context, "scheduled" has a specific meaning that is different from the common English usage. The Scheduled Caste and Scheduled Tribe are referred to as such because a list of the castes and groups was drawn and enumerated in two separate schedules of the Constitution of India.

1. A large body of anthropological literature has been devoted to the study of the caste system in India. Some of the debates within this literature are summarized in Gupta (1991). A broader discussion of the origins of the caste system is, however, beyond the scope of this paper.

Dalits are the lowest in the caste hierarchy and have been historically excluded from the caste system under the justification that they are so low that they do not deserve to be assigned a caste. They were therefore known as "untouchables," as distinct from caste Hindus, who belong to one of the four broad castes. The low status of dalits is supposedly due to their engagement in occupations that are considered polluting or profane, such as skinning animal carcasses, butchery of animals, removal of human waste, attendance at cremation grounds, washing clothes, and fishing. Upper caste Hindus avoid physical contact with people engaged in these polluting tasks. This includes the prohibition of interactions involving any kind of direct physical contact, such as sharing utensils and water wells, as well as exclusion from social activities (Bayly 1999; Beteille 1969; Mendelsohn and Vicziany 1998; Shah et al. 2006). Although the Indian Constitution makes untouchability illegal, it continues to be practiced. Social distance and exclusion are common in both villages and cities, and news reports about horrific atrocities against the dalits surface periodically. In our fieldwork, we have come across many instances in which social distance and exclusion translate into active discrimination in access to government services and employment (Desai, Adams, and Dubey 2006).

Adivasis are believed to be the "original people" of the land. Tribal groups follow customs and practices that not only are distinct from mainstream Hinduism but also tend to vary from tribe to tribe. The adivasis are geographically separated, frequently living in hill communities at a significant distance from Hindu villages, and subsist on forest produce. The geographic separation was sharpened by the creation of scheduled areas for tribal people under the British government (Beteille 1969).

Religion provides another major axis of stratification in India. With the division of British India into India and Pakistan, a vast number of Muslim middle-class families migrated out of India, leaving behind the poorer Muslims (Engineer 2001). Consequently, in modern India, Muslims have occupied a niche position characterized by self-employment in petty business and urban residence. Muslims have tended to fall behind Hindus and Christians in access to formal sector jobs and education (Government of India 2006). Muslims have long suffered from some social discrimination, but it seems to have been heightened in the past decade with the emergence of Hindu fundamentalism.

Although religion and associated notions of ritual purity may well have formed the basis of initial social stratification, historical events—both in Colonial India and following independence—have combined to overlay a political and an economic dimension to caste inequalities in India. There is considerable argument about the importance of the caste system to Indian stratification before the arrival of the British in India (Dirks 2001), but there is little doubt that caste and religion form major axes of social stratification in contemporary India (Gupta 1991; Hasan 2001; Sharma 1999).

Three dimensions linking caste, tribe, and religion to socioeconomic status in modern India are noteworthy: geography, occupation, and income. First, adivasis have tended to live in forests and have been concentrated in rural areas. Moreover, adivasis often live in states that have lower educational attainment.[2] The absence of adivasis from the South, the region with a high educational level, may be an important factor in the lower educational attainment of adivasis. In contrast, Muslims are largely concentrated in urban areas. Second, the caste system historically was occupationally driven. Although these boundaries were never totally rigid and may have been relaxed even further in modern times, Table 1 clearly indicates that upper caste Hindus and others[3] are far more likely to be in the

2. Adivasi concentration in the North East, Madhya Pradesh/Jharkhand region and parts of Rajasthan, Gujarat, and Maharashtra is well documented. This concentration is partly a function of historical circumstances, with certain remote areas being left untouched by the advent of Hinduism, and partly due to the political process underlying a classification that assigned only certain indigenous groups to adivasi status.

3. For this analysis, we combine upper caste Hindus with other religions, including Sikhs, Jains, Christians, and others. Hindus are more than 90% of this category. The educational attainment of Sikhs and Jains is as high

Table 1. Caste and Religious Differences in Socioeconomic Characteristics in 1999–2000[a]

	Upper Caste Hindus and Others[b]	Dalit	Adivasi	Muslim	All
Urban Residence	30.6	19.4	10.7	34.6	27.2
Region					
Central	34.6	39.8	40.0	39.7	36.6
Mountain/North	1.4	1.1	0.4	3.0	1.4
North	6.6	7.6	0.7	1.9	5.8
West	16.6	10.2	21.4	10.1	15.1
South	29.2	24.6	11.9	19.9	25.8
East	9.2	15.2	16.9	19.4	12.1
North East	2.4	1.7	8.8	6.1	3.2
Total	100.0	100.0	100.0	100.0	100.0
Household Occupation					
Professional	15.4	6.0	5.7	11.5	12.4
Merchant/sales/service	11.0	8.0	3.4	15.1	10.2
Farmer	30.1	14.6	33.7	18.1	26.3
Farm labor	17.3	42.4	37.1	18.3	23.8
Other manual labor	19.6	24.2	15.0	29.9	21.2
Unemployed/retired/missing	6.6	4.9	5.1	7.2	6.2
Total	100.0	100.0	100.0	100.0	100.0
Mean Household Size	4.8	4.8	4.8	5.6	4.9
Mean per Capita Expenditure	731.4	495.6	453.0	600.5	648.7
Sample Size	74,687	18,113	13,326	14,183	120,309
Weighted Percentage	61.74	18.65	8.87	10.74	100.00

[a]The sample size is 120,309 households from 55th round of the NSS data.

[b]Others includes Christians, Sikhs, Jains, Buddhists, and other minority religious groups not classified as dalit or adivasi.

professional or merchant/sales/clerical category than dalits and adivasis. Dalits and adivasis are overwhelmingly more likely to be manual laborers and less likely to own land. Third, the data on the per capita consumption expenditure[4] in Table 1 show that dalit and adivasi households have substantially lower per capita expenditure than upper caste Hindus and other religious groups, and Muslims fall in between.

EDUCATIONAL INEQUALITIES

India has undergone significant educational expansion in recent years. As Table 2 indicates, educational attainment increased for both males and females between 1983 and 1999–2000 for all social groups, albeit overall educational attainment remains low.

However, stratification in Indian society is reflected in inequalities in educational attainment across caste, religion, and ethnic boundaries (Anitha 2000; Dreze and Sen

as that for upper caste Hindus, while Christians have somewhat higher education. Also, recent legislations distinguish between various groups within the upper caste Hindus, but for much of the period covered by our study, this distinction is less meaningful.

4. The per capita expenditure in Table 1 is in 1999–2000 prices. The exchange rate at that time was about Rs 44.5 per US$1.

1995). Educational inequalities between upper caste Hindus and other religions on the one hand and dalits, adivasis, and Muslims on the other remain evident throughout the period 1983–2000. Note that in 1983, adivasis had the lowest educational attainment, followed by dalits and then Muslims. Muslims suffered from lower educational attainment than upper caste Hindus and other religious groups, yet owing to their concentration in urban areas, their overall educational attainment was slightly higher than that of dalits and adivasis in 1983.

Table 2 shows that even in 1999–2000, among males aged 24–29, the 37% of dalits and 44% of adivasis had never enrolled in formal schooling, compared with 17% among upper caste Hindus and other religious groups. Comparisons between upper caste Hindus and Muslim males also point toward a trend of Muslims lagging behind, with 32% never having enrolled in school in 1999–2000. A comparison among females points to similar inequalities.

A number of factors contribute to these disparities. As Table 1 indicates, dalits and adivasis are poorer than upper caste Hindus. In addition, dalit and adivasi children suffer from a number of other disadvantages. There are reported instances of dalit children suffering from discrimination by teachers and other students. At a college in the city of Aurangabad in the state of Maharashtra in Western India, 80% of the dalit students said that they were made to sit outside the classroom in primary school. In another study, a dalit school teacher recalled, "We were asked to sit separately. Our copy or slates were not touched by the teachers" (The Probe Team 1999:50). Dalit homes are located outside of the main village and consequently farther from schools. One Tamil Nadu villager observed that "None of the Scheduled Castes were even allowed to walk through the residential areas of the dominant castes or through the village's main street running through the residential areas of the dominant castes. They had to walk a long way along the periphery of the village to reach their huts" (Nambissan and Sedwal 2002:77). Teachers' behavior often tends to humiliate dalit students. Upper caste teachers have low expectations of dalit pupils and consider them to be dull and uneducable (The Probe Team 1999).

Adivasis, in addition to suffering from the same low expectations, face a different set of issues. They often live in hilly regions or forests that are relatively inaccessible. Demographically, tribal habitations are small and sparsely populated and hence lack many infrastructural facilities, including schools and roads. Even when schools are within walking distance for pupils, it is not unusual for the roads to become impassable during the monsoon and for the teachers, who often live in larger towns, to surreptitiously close the school. These factors are particularly constraining for tribal children who live in isolated communities. Language poses another major challenge for tribal education. Tribals normally speak local dialects rather than the main language of the state in which they reside, and tribal students feel further alienated when the teachers are not well trained to communicate in their tribal dialects (Sujatha 2002).

Muslim students suffer from similar disadvantages. Many Muslims would like to see education take place in Urdu, their mother tongue, but few schools accommodate this. Children often face harassment and ridicule, and rising religious tensions lead to children's alienation from school. Since Muslim families are disproportionately urban, access to schools is less likely to be a problem, but discrimination by teachers and a hostile school environment may pose a major impediment (Government of India 2006).[5]

5. Some observers have argued that a Muslim preference for educating children in *madrasas* at lower levels leads to difficulties when they are integrated in mainstream schools at upper levels, but recent statistics show extremely low levels of *madrasa* enrollment among Muslim children in India—less than 5% nationwide.

Table 2. Educational Attainment (in percentage) for Youths Aged 24–29 Between 1983 and 1999–2000, by Sex

	1983	1987–1988	1993–1994	1999–2000
Males				
Upper caste Hindu and other				
Never enrolled	26.88	27.46	21.19	17.08
Below primary	8.30	9.05	9.84	8.18
Primary completed	18.08	17.39	13.95	11.61
Middle school completed	19.93	17.50	18.28	20.47
Secondary completed	17.91	19.12	24.28	28.25
College graduate	8.91	9.48	12.46	14.41
Total[a]	100.00	100.00	100.00	100.00
Dalit				
Never enrolled	53.30	53.36	46.15	36.75
Below primary	10.57	9.39	10.89	11.21
Primary completed	15.06	15.69	13.49	13.87
Middle school completed	12.11	11.76	13.08	16.76
Secondary completed	6.80	6.86	12.87	16.58
College graduate	2.18	2.93	3.51	4.83
Total[a]	100.00	100.00	100.00	100.00
Adivasi				
Never enrolled	62.72	62.47	52.81	43.94
Below primary	9.62	9.58	12.21	11.52
Primary completed	13.16	10.94	12.81	11.17
Middle school completed	7.95	8.24	11.03	14.22
Secondary completed	5.35	7.03	8.55	14.21
College graduate	1.20	1.75	2.59	4.94
Total[a]	100.00	100.00	100.00	100.00
Muslim				
Never enrolled	45.18	46.41	39.41	32.27
Below primary	10.71	10.90	12.83	12.22
Primary completed	14.98	17.34	14.16	13.73
Middle school completed	14.41	12.51	14.39	18.16
Secondary completed	10.76	9.51	13.27	17.07
College graduate	3.96	3.33	5.94	6.55
Total[a]	100.00	100.00	100.00	100.00

(continued)

COMPENSATORY DISCRIMINATION

Attempts to redress some of these inequalities were made on two fronts: (1) social reformers attempted to change Hindu society to reduce the discrimination against dalits and adivasis; and (2) the British Government put in place a number of safeguards to "compensate" the

(Table 2, continued)

	1983	1987–1988	1993–1994	1999–2000
Females				
Upper caste Hindu and other				
Never enrolled	56.54	54.07	48.23	40.85
Below primary	6.73	8.04	8.43	8.29
Primary completed	13.90	13.61	12.07	10.97
Middle school completed	10.09	9.93	12.16	14.42
Secondary completed	8.53	9.58	12.57	16.38
College graduate	4.21	4.78	6.54	9.09
Total[a]	100.00	100.00	100.00	100.00
Dalit				
Never enrolled	84.28	84.77	77.45	67.39
Below primary	3.81	4.05	6.65	7.40
Primary completed	6.19	5.71	6.72	8.39
Middle school completed	3.68	3.27	5.54	8.81
Secondary completed	1.58	1.71	3.08	6.34
College graduate	0.46	0.48	0.56	1.67
Total[a]	100.00	100.00	100.00	100.00
Adivasi				
Never enrolled	87.85	85.25	81.42	71.20
Below primary	3.61	4.27	5.61	8.82
Primary completed	4.43	4.43	5.15	5.81
Middle school completed	2.71	2.87	4.52	7.33
Secondary completed	1.01	2.21	2.17	5.70
College graduate	0.40	0.96	1.13	1.14
Total[a]	100.00	100.00	100.00	100.00
Muslim				
Never enrolled	73.49	71.70	63.23	54.78
Below primary	6.89	8.29	9.00	11.24
Primary completed	10.13	9.61	11.75	10.73
Middle school completed	5.19	5.88	9.24	12.18
Secondary completed	3.28	3.33	5.08	8.90
College graduate	1.01	1.19	1.69	2.17
Total[a]	100.00	100.00	100.00	100.00

[a]Some totals may not sum to 100.00 because of rounding.

dalits and the adivasis. The compensatory measures increased in both scope and vigor of implementation after India gained independence (from British rule) in 1947 (Kothari 1970). The practice of untouchability was prohibited in the Indian Constitution, which was adopted in 1950. Additionally, the framers of the Indian Constitution put in place affirmative action policies that they viewed as temporary. However, continued disparities as well as the

growing electoral power[6] of the Scheduled Castes has led not only to a continuation but also to an expansion of affirmative action in recent years (Gupta 2005).

The reservations, or quotas, for dalits and the adivasis relate to three broad categories: employment, educational, and political, the first two being the most significant for the bulk of the dalit and the adivasi populations (Thorat, Aryana, and Negi 2005). Fifteen percent of government jobs at all levels are reserved for dalits, and 7.5% for adivasis. This includes jobs in central government; in state government; and in public sector units, such as the telephone corporations and public sector steel mills. Since government is the largest formal sector employer, accounting for over 66% of all jobs in India, this is a substantial benefit. Similarly, 15% and 7.5% of the places in higher education are reserved for dalits and adivasis, respectively, although states can observe different quotas based on their dalit and adivasi populations. With rapid population growth and an increase in mass education, college admissions have become increasingly competitive in India, especially with regard to admission to medical and engineering colleges. Policy makers believed that having access to places reserved for dalit and adivasi candidates would help reduce some of the educational disparities. Additionally, the Seventy-third and Seventy-Fourth Constitutional Amendment Acts led to the reservation of seats in local governments (called *panchayat* and *nagarpalika*) for dalits, adivasis, and women, along with greater devolution of political power to the local governments. Many dalit political action groups are focusing on local governments and working to ensure that dalit candidates manage to get representation in local governments, which are charged with the implementation of many schemes directed toward the "weaker sections" of the society.

These programs have been strengthened in the past two decades. In the employment arena, quotas were initially implemented only at the time of recruitment into government service. In the 1990s, continued absence of dalits and adivasis from the upper rungs of the civil service led to the implementation of quotas in promotions, too. Also, by the late 1980s, it became increasingly clear that one way in which upper caste administration tends to subvert affirmative action is through not filling the reserved posts by claiming that there is a lack of suitably qualified dalit or adivasi candidates. When the posts remain unfilled for several years, they are quietly transferred to the general quota. Hence, new policies were enacted to prohibit this practice. In the educational sphere, affirmative action in college admissions was initially limited to lower cutoff scores for dalit and adivasi candidates at the time of the admission but was later transformed into specific quotas reserved for dalit and adivasi candidates.

In addition to employment and educational quotas, the government has also instituted a variety of programs to help defray the cost of education. These include a number of schemes such as the provision of scholarships and fellowships at all levels, midday meals, uniforms, stationery, and books. One scheme, funded by the central government, provides four years of remedial tutoring to select secondary school students to prepare them for gaining entrance into colleges and universities. Although many of these programs started out substantially underfunded, their allocation has increased considerably between 1975 and 2000. The Fifth Five Year Plan (1974–1978) allocated 0.6% of all plan expenditure for special schemes for disadvantaged groups, whereas the Eighth Plan (1992–1997) allocated 1.67%, and the Ninth Plan (1997–2002) allocated 1.97%.[7]

6. Caste has always been a very powerful political force, with many political parties being formed on the basis of caste. Consequently, considerable political power devolves to caste leaders who can deliver the vote banks (Frankel et al. 2000).

7. Central government expenditure in India is divided into nonplan expenditure, which consists of basic governmental expenditure, and plan expenditure, under which various development schemes are organized.

EFFECTIVENESS OF COMPENSATORY DISCRIMINATION POLICIES

In theory, these various policies should lead to increases in dalit and adivasi educational attainment. Scholarships and other forms of financial aid reduce the cost of education. Special schools and remedial tutoring increase college preparedness, and reserved quotas in competitive colleges encourage parents to educate their children, thereby reducing middle and secondary school drop out. Most importantly, reservations in government employment enhance returns to education for the dalits and adivasis. Even primary education can substantially enhance the earning potential for dalit and adivasi candidates because they then become eligible for lower level government jobs instead of having to rely on sporadically available manual labor in the private sector. However, a number of factors mitigate this potentially positive effect.

Not coincidentally, while the implementation of affirmative action was being strengthened, the resentment against it was also growing, particularly because the government sought to increase the scope of affirmative action to add quotas for Other Backward Classes (OBCs) besides dalits.[8] This action followed the report of the Mandal Commission and led to widespread riots in 1990. The resentment flared up again as the government sought to introduce quotas for other backward castes in highly competitive engineering and management schools in 2006. This dissent has unified higher caste Hindus against affirmative action and led to increased sabotage at the local level, where these policies are to be implemented. Upper caste Hindus express their resentment by arguing that while compensatory discrimination seeks to redress the inequities suffered by dalits and adivasis, the individuals taking advantage of these benefits belonged to a rich "creamy layer" and were never subject to the severe discrimination faced by their poorer brethren. These critics are highly vocal, and the public discourse is rife with prejudice against dalit and adivasi students, whom they view as undeserving and as taking away the privileges of the deserving upper caste Hindus. For example, in a public meeting at a college in a small town, we heard numerous comments from the professors about the problems of teaching ill-equipped dalit students who attend college due to the bounty of scholarship monies.

On the other side, dalit and adivasi critiques of affirmative action charge that these policies are poorly implemented and have had very little effect. While the government reserves seats for dalit and adivasi students at college level, village schools continue to discriminate, preventing them from taking full advantage of these reservations (Galanter 1997). Although there has been a substantial increase in literacy among dalits and adivasis, the rise is primarily a product of the population-wide increase in literacy and educational attainment levels. At least one observer suggests that, "Our proposition is not that the state has failed to make a real difference in the lives of untouchables. Rather, the argument is that any major beneficial impact has tended to arise from polices directed to the whole population and not merely to untouchables" (Mendelsohn and Vicziany 1998:119). According to this argument, while upper social classes have long sought higher education, lower-income families, be they dalit or upper caste Hindu, are also beginning to develop high educational aspirations for their children. Increased access to school has made the fulfillment of these dreams feasible, and dalits and adivasis, rather than benefiting from affirmative action, have shared in this educational expansion along with poor upper caste Hindus.

8. Initial affirmative action in India focused on dalits and adivasis. However, caste stratification extends beyond these categories, and the Mandal Commission appointed by the Government of India advocated affirmative action benefits for OBCs located above dalits but significantly below the upper castes in terms of socioeconomic achievements.

CONCEPTUAL FRAMEWORK AND RESEARCH DESIGN

The above brief description of educational inequalities and the nature of affirmative action policies in India raise a number of questions; many are analogous to the affirmative action debates in other countries (Sowell 2004). We focus on the following questions:

First, have educational differences between dalit, adivasi, and other groups declined over time? Much of what is known about the educational differences between the dalits and adivasis and the general population comes from published tabulations of census and other government data or from cross-sectional analyses (Kulkarni 2002; Mendelsohn and Vicziany 1998; Nambissan and Sedwal 2002; Sujatha 2002). However, little is known about *changes* in these differences over time. Hence, this paper is possibly one of the first to examine trends in these inequalities.

Second, if there is a decline in educational differences, is it consistent across different educational levels or is it disproportionately concentrated at certain educational stages? The literature on educational stratification suggests that although social origins have an important effect at the beginning of the educational career, they become less salient at higher levels of education, possibly because differential dropout rates early on reduce differences among students (who continue) on unmeasured dimensions of socioeconomic status (Mare 1981). However, in the context of educational expansion at lower levels of education, one might see these differences emerging at later stages along the educational ladder. In contrast, affirmative action programs may lead to a narrowing of the educational gap in college education. While schemes providing free textbooks and meals have been instituted for dalit and adivasi primary school children, the policies become intensified at upper educational levels with the provision of residential middle schools, reservations in higher education, and scholarships. This may lead to a narrowing of the gap in college graduation between dalits/adivasis and others. Hence, whether the educational gap at the college level has increased or decreased remains an empirical question with substantial policy implications.

Third, is the decline in educational differences concentrated in groups that are subject to affirmative action, the dalits and adivasis, or is it shared by other disadvantaged groups, such as Muslims? It is difficult to distinguish between changes that are associated with affirmative action vis-à-vis those that are secular in nature. It may be that in an era of educational expansion, educational attainment increases for all groups, particularly for the poor and the marginalized, due to increased construction of schools, midday meal programs, increased parental demand for schooling, and growing educational requirements by employers. Thus, as upper-class educational attainment begins to approach a saturation point, the differences between the privileged and the underprivileged may decline at lower educational levels (Mare 1980).

The nature of Indian compensatory discrimination programs provides us with an interesting analytical handle. Although discussions about affirmative action policies for Muslims took place at many moments in Indian history, Muslims have not received preferential treatment or reservations. Thus, a comparison of educational improvements for Muslims and dalits/adivasis would help us distinguish between secular improvements in education for all marginalized groups vis-à-vis improvements for groups that are subject to affirmative action.

Fourth, do the benefits of affirmative action, if any, percolate to lower-income groups, or are they limited to the "creamy layers" of the dalit and adivasi populations? While the illegitimate use of the affirmative action programs by upper-income dalit and adivasi families remains a running theme in the Indian discourse on affirmative action, its echoes are also found in the many other discourses around the world. For example, in the United States, attempts are being made to focus on class rather than race as an axis of affirmative action in such programs as the revamped University of Texas program following the Hopgood decision (Tienda, Leicht, and Lloyd 2002); and in Brazil, attempts are made to reserve special

quota for Afro-Brazilians within programs that focus on the poor (Boston and Nair-Reichert 2003). We examine changes in educational inequalities at various income levels to see if upper-income dalits and adivasis have disproportionately benefited.

DATA AND METHODOLOGY

We are fortunate to have access to individual-level survey data between 1983 and 2000 to help us address some of the issues outlined above: the National Sample Surveys (NSS). The NSS have a long history in Indian economic and social research. Started in 1950, these surveys are conducted annually and provide important socioeconomic data for planning purposes. Approximately every five years, these surveys collect employment and consumption expenditure information for a large sample of over 100,000 households with half a million residents. For Indian social scientists and policy makers, they serve the same function as the Current Population Surveys in the United States. The NSS are the only surveys providing comparable information over a long period for India. Until about seven years ago, they were released in a tabulated form only. They have now become available to researchers as raw data at the household and individual levels.

Using the NSS (Rounds 38, 43, 50, and 55), we examine changes in educational attainment for individuals aged 6–29 at four points in time: 1983 (Round 38), 1987–1988 (Round 43), 1993–1994 (Round 50), and 1999–2000 (Round 55). Pooling the four rounds provides us with a large sample of males and females aged 6–29. The analytic sample for the different educational transitions ranges from 190,502 for primary enrollment to 37,941 for college enrollment for males; the corresponding figures for females are 171,163 and 21,976. (Exact sample sizes in the various social group categories at different educational levels and for the four rounds of data for males and females separately are available from the authors upon request.) It is important to note that unlike many other studies based on surveys collected at a single point in time or census data, in which changes over time are inferred from comparisons across cohorts, this paper relies on four comparable surveys carried out between 1983 and 2000. This approach offers a number of advantages. Closer temporal proximity between education and the independent variables, particularly household income, allows for richer analysis. In addition, sample attrition associated with mortality and recall bias for older respondents is reduced, increasing the robustness of results.

Further, following the prevailing practice in educational stratification literature (Mare 1981; Raftery and Hout 1993; Shavit and Blossfeld 1993), we focus on educational transition rather than the final educational attainment. This model can be represented as a series of transitions, where P_{ik} represents the probability that student i at level k will successfully complete the transition to level $k + 1$. Y_{ik} is the log odd of the likelihood of transition, X_{ij} represents the set of j independent variables, and β_{jk} are the logistic regression coefficients measuring the effect of variable X_{ij} on Y_{ik}. Thus, we estimate the following model:

$$Y_{ik} = \ln(P_{ik} / 1 - P_{ik}) = \beta_{ok} + \sum_{j} \beta_{jk} X_{ij}.$$

We focus on five transitions, analyzing each separately: (1) any enrollment in school (age 6–11); (2) completion of primary school, conditional on entering school (ages 12–17); (3) completion of middle school, conditional on completing primary school (ages 14–19); (4) completion of secondary school, conditional on completion of middle school (ages 18–23); and (5) completion of college, conditional on completion of secondary education (ages 24–29). Primary school in India typically consists of grades 1–5, and middle school consists of grades 6–8, with minor state-level variations. The typical age for completion of primary school in India is 11 years, and that for middle school is 14. College involves completion of 15 years of schooling; typically 12 years of school and 3 years of college. Professional degrees, such as engineering or medicine, usually imply an additional year of college. Conditional transition probabilities without controls for the various survey years

and levels of education for males and females are shown in Table 3. Note that for each transition, individuals who did not complete the previous transition are not included in the sample; that is, they are effectively censored.

Notably, educational transitions in India differ from those observed in other countries. In general, educational transition rates decline as students progress along the educational ladder. However, in India, both entering and completing primary education seem to pose a substantial hurdle, but after a student completes primary school, his or her likelihood of completing middle school does not decline perceptibly. This may be because some villages have no primary school, but villages that are closely connected to towns have both primary and middle schools, or because after children obtain primary education in the village, it may be easier when they are slightly older to send them outside of the village to attend a middle school. An alternative explanation may be related to unobserved individual characteristics associated with early school success. Given the high degree of social stratification, poor and marginalized children may never progress beyond a year or two of school and may drop out, but those who figure out how to navigate the school system are able to get through primary as well as middle school.

We estimate the logistic regression described earlier while controlling for urban residence, region of residence, household size, and inflation adjusted per capita household expenditure (used as a marker of permanent income).[9] We also control for age and include a squared term for age, since we expect age to have a nonlinear effect on school progression. These models are estimated separately for males and females. (Descriptive statistics for the independent variables are available from the authors upon request.) It is important to note that the analytical sample gets progressively more selective as we move from the analysis of primary enrollment (in which all children are included) to that of primary completion (in which only those who enrolled in school are included), to middle school completion (in which only those who have completed primary school are included), and so on.

The use of household expenditure as a measure of household's permanent income is a common strategy for research in developing countries, where agricultural income is often difficult to measure (Grosh and Glewwe 2000) and households often engage in expenditure smoothing over long periods due to irregular agricultural income. One caveat about using household income as a predictor in our analysis is noteworthy. Household income determines the educational opportunities of a child and is also a function of the education level of a household's working members. Thus, in using income as an independent variable, we face a potential problem of endogeneity. In order to deal with this, we set the upper age limit of our analytic sample to age 29. Indian households are often extended, with more than one working member contributing to the household. Younger family members are rarely the primary contributors of household income.[10] Moreover, for the analysis of early educational transitions, the contribution of children to household income is likely to be far more limited.

Two sets of independent variables are of primary interest: caste/religious categories and historical period. Caste is divided into four categories: (1) dalit, (2) adivasi; (3) Muslim; and (4) all others. Dalits include people who have identified themselves as being of Scheduled Caste and are Hindus, Sikhs, or Buddhists. While dalits may follow Christianity or Islam, they are eligible for affirmative action only if they come from a Hindu, Sikh, or

9. For the present analysis, we capped monthly per capita household expenditure at Rs 10,000 and recoded 795 cases with higher expenditures to Rs 10,000. This recode affects less than 0.1% of the total sample and substantially increases the robustness of our expenditure data.

10. For married females, this issue is somewhat more problematic. This variable reflects the socioeconomic status of the household into which they are married rather than the household in which they grew up. However, given the educational homogamy, there is likely to be a fair degree of similarity between the two households. We expect this issue to be a smaller concern for early transitions because they involve younger women, who are more likely to be unmarried.

Table 3. Probability of Completing Educational Transition, Conditional on Completing Prior Educational Transition, for Various Social Groups, 1983–2000 (without controlling for socioeconomic background)

	Males					Females				
	Primary Enrollment	Primary	Middle	Secondary	College	Primary Enrollment	Primary	Middle	Secondary	College
1983										
Upper caste Hindu and other	.66	.83	.67	.58	.33	.51	.82	.64	.55	.33
Dalit	.50	.71	.56	.44	.24	.31	.71	.49	.41	.22
Adivasi	.42	.69	.57	.47	.18	.25	.71	.48	.39	.29
Muslim	.50	.73	.57	.48	.27	.39	.73	.51	.43	.24
1987–1988										
Upper caste Hindu and other	.66	.84	.70	.63	.33	.55	.83	.66	.61	.33
Dalit	.50	.77	.59	.51	.30	.34	.74	.50	.46	.22
Adivasi	.42	.75	.57	.47	.20	.28	.72	.55	.48	.30
Muslim	.50	.77	.57	.50	.26	.41	.74	.52	.45	.26
1993–1994										
Upper caste Hindu and other	.80	.86	.77	.68	.34	.70	.84	.75	.65	.34
Dalit	.65	.77	.65	.55	.21	.52	.73	.60	.50	.15
Adivasi	.59	.78	.64	.56	.23	.45	.76	.64	.49	.34
Muslim	.64	.74	.67	.54	.31	.56	.75	.64	.52	.25
1999–2000										
Upper caste Hindu and other	.82	.86	.80	.66	.34	.76	.86	.79	.68	.36
Dalit	.72	.77	.70	.55	.23	.63	.76	.67	.53	.21
Adivasi	.66	.77	.70	.57	.26	.58	.78	.68	.51	.17
Muslim	.67	.74	.68	.54	.28	.62	.76	.69	.51	.20
Change 1983–2000										
Upper caste Hindu and other	.16	.03	.13	.08	.01	.25	.04	.15	.12	.03
Dalit	.22	.06	.15	.11	–.02	.32	.05	.18	.11	–.02
Adivasi	.25	.08	.14	.10	.07	.33	.06	.19	.12	–.12
Muslim	.17	.00	.11	.06	.01	.23	.03	.18	.08	–.04

Buddhist background. About 96% of the dalits in our sample are Hindu, Sikh, or Buddhist. Adivasis include the Scheduled Tribe population following any religion. Muslims include anyone who self-identifies as being Muslim but not adivasi.[11] Finally, about 90% of the category "upper caste Hindus and others" consists of upper caste Hindus but also includes Christians, Sikhs, and Jains. We combine these groups because in spite of some variation, they tend to have similar socioeconomic backgrounds and educational attainment, and also because interaction terms with a large number of categories are difficult to interpret.

Note that while Indian society is divided into thousands of small subcastes, or *jatis*, the Indian statistical system does not collect systematic data on caste identification. The last census to report detailed *jati* information was in 1931, and since then, the census and major national surveys have asked questions only regarding whether individuals belong to dalit or adivasi groups and the religion they follow. In 1999–2000, the caste question in the NSS further subdivided upper caste Hindus into OBCs and "forward" castes, but for much of the period under investigation, we can differentiate only the major categories, such as dalits, adivasis, Muslims, and others. Conceptually this is not problematic because until the mid-1990s, the affirmative action programs were mainly geared toward dalits and adivasis as a group as opposed to all other groups. However, after 1992, some affirmative action programs were also initiated to address the needs of OBCs. These programs are weaker than those for dalits and adivasis and have not yet been fully implemented, but inasmuch as they increase the advantages offered to the non-dalit, non-adivasi population, any decline in educational differences between upper caste Hindus and others and dalits/adivasis that we might find would be a lower-bound estimate.

RESULTS

The results of logistic regression analyses conducted for males and females separately are presented in Table 4. The estimates show that dalits, adivasis, and Muslims all are less likely to progress to the next educational level, conditional on finishing one level, than upper caste Hindus and members of other religions. This disadvantage is large and statistically significant for each of the educational transitions we analyzed and for males as well as females. It is worth noting that log household per capita expenditure, while large and statistically significant in all models, has the greatest effect on children enrolling in school and on those completing college, suggesting that parental economic status has the largest impact at the two extremes of educational ladder. Further, the slopes of urban residence and log of household expenditure on schooling attainment for females are consistently higher than those for males, suggesting that gender differences in education narrow under more favorable schooling circumstances.

In order to examine *changes* in social inequalities in the 1980s and 1990s, we interact dalit, adivasi, and Muslim variables with a set of dummy variables denoting historical period. Given the difficulties in interpreting interaction terms in a logistic regression, we present the results from this analysis in Table 5 as a set of predicted probabilities for successfully completing each of the educational stages of interest, conditional on completing the previous educational level, for the four social groups separately. In calculating these probabilities, we hold the value of the other independent variables at their means.

The first thing to note in this table is that the addition of two-way interactions between being dalit, adivasi, or Muslim with three variables reflecting historical period (i.e., the addition of nine variables) is statistically significant at both early and late educational transitions for males and females alike, as indicated by the chi-square statistic. This suggests that the social inequalities with respect to school enrollment have

11. Caste and religious affiliations are not always mutually exclusive. A small percentage of the population is Christian and dalit, or Muslim and adivasi. Neither of these groups is eligible for reservation based on affirmative action programs.

Table 4. Coefficients From the Logistic Regression Analyzing the Transition From One Educational Level to the Next

	Primary Enrollment	Primary	Middle	Secondary	College
Males					
Period (ref. = 1983)					
1987–1988	0.013	0.154**	0.102**	0.207**	0.036
1993–1994	0.712**	0.141**	0.420**	0.418**	0.059
1999–2000	0.888**	0.145**	0.593**	0.329**	–0.023
Social group (ref. = upper caste Hindu and other)					
Dalit	–0.504**	–0.452**	–0.394**	–0.346**	–0.215**
Adivasi	–0.733**	–0.475**	–0.405**	–0.302**	–0.251**
Muslim	–0.786**	–0.705**	–0.592**	–0.519**	–0.253**
Region (ref. = central states)					
Mountain	0.993**	0.468**	–0.114**	0.244**	–0.617**
North	0.599**	0.183**	–0.185**	0.354**	–0.686**
West	0.878**	0.576**	0.266**	–0.039	–0.472**
South	0.898**	0.713**	0.395**	–0.003**	–0.425**
East	0.323**	0.079**	–0.229**	–0.206**	0.011
North East	0.835**	0.649**	0.307**	–0.032	–0.370**
Other control variables					
Age	1.476**	2.954**	2.641**	1.261**	0.489
Age, squared	–0.067**	–0.092**	–0.073**	–0.029**	–0.008
Urban residence	0.551**	0.432**	0.318**	0.479**	0.477**
Household size	0.032**	0.001	0.003	0.003	0.019**
Log per capita expenditure	0.680**	0.345**	0.387**	0.580**	0.802**
Constant	–11.507**	–23.845**	–25.205**	–16.988**	–13.107**
Number of observations	190,493	140,205	115,658	80,790	37,939

(continued)

changed over time, as have the inequalities in college completion. These changes are net of any secular changes that might have occurred due to rising levels of household income or urbanization.

Further, with other factors held at their mean values, for upper caste Hindu and other males, the probability of ever enrolling in school increased from .715 in 1983 to .858 in 1999–2000, an increase of about 14 percentage points. Over the same period, enrollment for dalit males increased by 20 percentage points in their probability of enrollment, and that for adivasi males increased by 21 percentage points. This has helped to narrow the disparities between high caste Hindus and dalits/adivasis. For males, the gap in the probability of completing primary education, conditional on enrollment, also narrowed. Among females, the corresponding gain in primary enrollment for upper caste Hindus between 1983 and 1999–2000 is 25 percentage points, compared with 33 percentage points for dalits and 35 percentage points for adivasis.

(Table 4, continued)

	Primary Enrollment	Primary	Middle	Secondary	College
Females					
Period (ref. = 1983)					
1987–1988	0.176**	0.115**	0.119**	0.269**	0.045
1993–1994	0.854**	0.184**	0.556**	0.455**	0.072
1999–2000	1.248**	0.323**	0.791**	0.515**	0.077
Social group (ref. = upper caste Hindu and other)					
Dalit	–0.579**	–0.496**	–0.514**	–0.418**	–0.439**
Adivasi	–0.744**	–0.364**	–0.381**	–0.363**	–0.329*
Muslim	–0.665**	–0.639**	–0.620**	–0.581**	–0.512**
Region (ref. = central states)					
Mountain	1.111**	0.611**	–0.102	0.261*	–0.527**
North	0.891**	0.445**	0.034	0.470**	–0.360**
West	1.207**	0.675**	0.338**	–0.267**	–0.505**
South	1.197**	0.844**	0.606**	–0.169**	–0.629**
East	0.830**	0.114**	–0.044	–0.527**	–0.250**
North East	1.417**	0.728**	0.589**	–0.155**	–0.444**
Other control variables					
Age	1.297**	2.219**	2.545**	0.303	0.425
Age, squared	–0.064**	–0.069**	–0.073**	–0.007	–0.009
Urban residence	0.867**	0.607**	0.582**	0.760**	0.694**
Household size	0.036**	0.009*	0.008*	0.006	–0.009
Log per capita expenditure	0.864**	0.488**	0.565**	0.747**	1.002**
Constant	–12.397**	–19.473**	–25.441**	–8.007**	–12.580
Number of observations	171,157	102,496	81,240	52,205	21,976

*$p < .05$; **$p < .01$

While Muslims also underwent a substantial improvement in school entry, their improvement lagged behind that of dalits and adivasis. Moreover, while likelihood of school entry increased for Muslim males over this period, their likelihood of primary school completion declined. For females, gains for dalit and adivasi females outpaced the gains for Muslim females in school enrollment. Muslim females had the lowest gains of all groups in primary school completion, conditional on enrollment.

Combining the two factors—that is, the gains in the likelihood of enrollment and in primary school completion—we find that over the period 1983–2000, the probability of completing primary school grew by 9, 14, 20, and 8 percentage points, respectively, for upper caste Hindus and others, dalit, adivasi, and Muslim males; commensurate gains for females were 22, 30, 29, and 19 percentage points, reflecting a lower initial starting point for females (data not shown but available upon request). These observations are consistent with Table 3: with no control variables, dalit and Muslim males started out (in 1983) at the same level in terms of entry into formal schooling, but the probability of enrollment

Table 5. Predicted Probability of Completing Educational Transition, Conditional on Completing Prior Educational Transition, for Various Social Groups, 1983–2000 (with controls for age, place of residence, and household size)

	Primary Enrollment	Primary	Middle	Secondary	College
Males					
1983					
Upper caste Hindu and other	.715	.871	.704	.584	.334
Dalit	.602	.799	.628	.484	.285
Adivasi	.546	.780	.630	.504	.209
Muslim	.545	.785	.598	.477	.284
1987–1988					
Upper caste Hindu and other	.720	.881	.728	.635	.337
Dalit	.602	.840	.656	.559	.377
Adivasi	.542	.826	.642	.511	.233
Muslim	.547	.813	.594	.514	.271
1993–1994					
Upper caste Hindu and other	.840	.884	.789	.682	.346
Dalit	.748	.831	.707	.596	.269
Adivasi	.703	.837	.691	.636	.288
Muslim	.708	.783	.682	.546	.318
1999–2000					
Upper caste Hindu and other	.858	.887	.817	.660	.327
Dalit	.798	.829	.745	.585	.274
Adivasi	.759	.832	.755	.598	.313
Muslim	.718	.776	.693	.535	.261
Change 1983–2000					
Upper caste Hindu and other	.143	.016	.113	.076	–.007
Dalit	.196	.030	.117	.101	–.011
Adivasi	.213	.052	.125	.095	.104
Muslim	.173	–.009	.095	.058	–.023
Chi-square test for period interactions with dalit, adivasi and Muslim	18.53	23.78	12.46	10.430	19.830
Probability (df = 9)	.029	.005	.188	.317	.019

(continued)

for dalit males increased from .50 in 1983 to .72 in 1999–2000, while that for Muslim males rose from .50 to .67. Muslim females started out ahead of dalit females (as evident in Table 2 from the statistic pertaining to the "never enrolled" category); but their enrollment probability grew from .39 to .62, while dalit females starting from a low probability level of enrollment of .31 caught up and even marginally surpassed Muslim females with a probability of enrollment in school of .63 between 1983 and 1999–2000 (Table 3). Adivasi

(Table 5, continued)

	Primary Enrollment	Primary	Middle	Secondary	College
Females					
1983					
Upper caste Hindu and other	.569	.854	.670	.576	.323
Dalit	.408	.787	.557	.467	.284
Adivasi	.365	.809	.570	.460	.314
Muslim	.424	.775	.515	.484	.248
1987–1988					
Upper caste Hindu and other	.615	.869	.695	.641	.331
Dalit	.446	.816	.578	.543	.273
Adivasi	.401	.807	.622	.562	.315
Muslim	.459	.782	.541	.515	.273
1993–1994					
Upper caste Hindu and other	.751	.878	.779	.681	.341
Dalit	.640	.809	.674	.599	.182
Adivasi	.592	.841	.698	.630	.404
Muslim	.622	.793	.664	.550	.267
1999–2000					
Upper caste Hindu and other	.818	.894	.817	.701	.348
Dalit	.733	.832	.728	.597	.267
Adivasi	.710	.852	.756	.603	.191
Muslim	.671	.804	.708	.545	.206
Change 1983–2000					
Upper caste Hindu and other	.249	.040	.147	.125	.025
Dalit	.325	.045	.171	.131	–.018
Adivasi	.345	.044	.186	.143	–.123
Muslim	.247	.029	.193	.061	–.041
Chi-square test for period interactions with dalit, adivasi and Muslim	43.990	7.570	2.120	8.060	18.530
Probability (*df* = 9)	.000	.578	.985	.528	.029

Note: After controlling for age, place of residence, and household size.

males and females started out far behind both Muslims and dalits and managed to narrow the gap substantially.[12]

We used Muslims as a foil to suggest that gains in dalit/adivasi education are not solely a part and parcel of secular educational gains for everyone. But to our surprise, we

12. Since dalits and adivasis are disproportionately located in rural areas and Muslims in urban areas, a greater educational expansion in rural areas might account for some of these differences. However, we controlled for urban residence in our multivariate analysis, and a separate analyses for urban and rural residents (not reported here) showed similar pattern. Moreover, in spite of investments in the construction of schools in rural regions, urban areas enjoy an unmistakable edge in proximity to schools and quality of schooling, and the differences between Muslims and dalits/adivasis emerge in the completion of primary school, conditional on enrollment. Presumably enrollment is affected by the presence of schools, while completion is affected by other factors.

found that in some instances, Muslims have not even gained as much as the upper caste Hindus and other minority religions and have fallen behind other groups over time. This is surprising given that Muslims are concentrated in urban areas and have higher incomes than dalits and adivasis (Table 1). Recent literature on Muslims reflects a sense of deprivation and their disengagement with the wider civil society (Government of India 2006), and this slow rate of educational progress may well be a constituent of that.

Returning to Table 5, we find that while completion probabilities improved for all groups, for middle and secondary level schooling, differential growth is not statistically significant. However, although the chi-square tests for interaction coefficients for middle and secondary levels of schooling are not statistically significant, in all four regressions, dalits and adivasis have a higher growth rate than upper caste Hindus and Muslims.

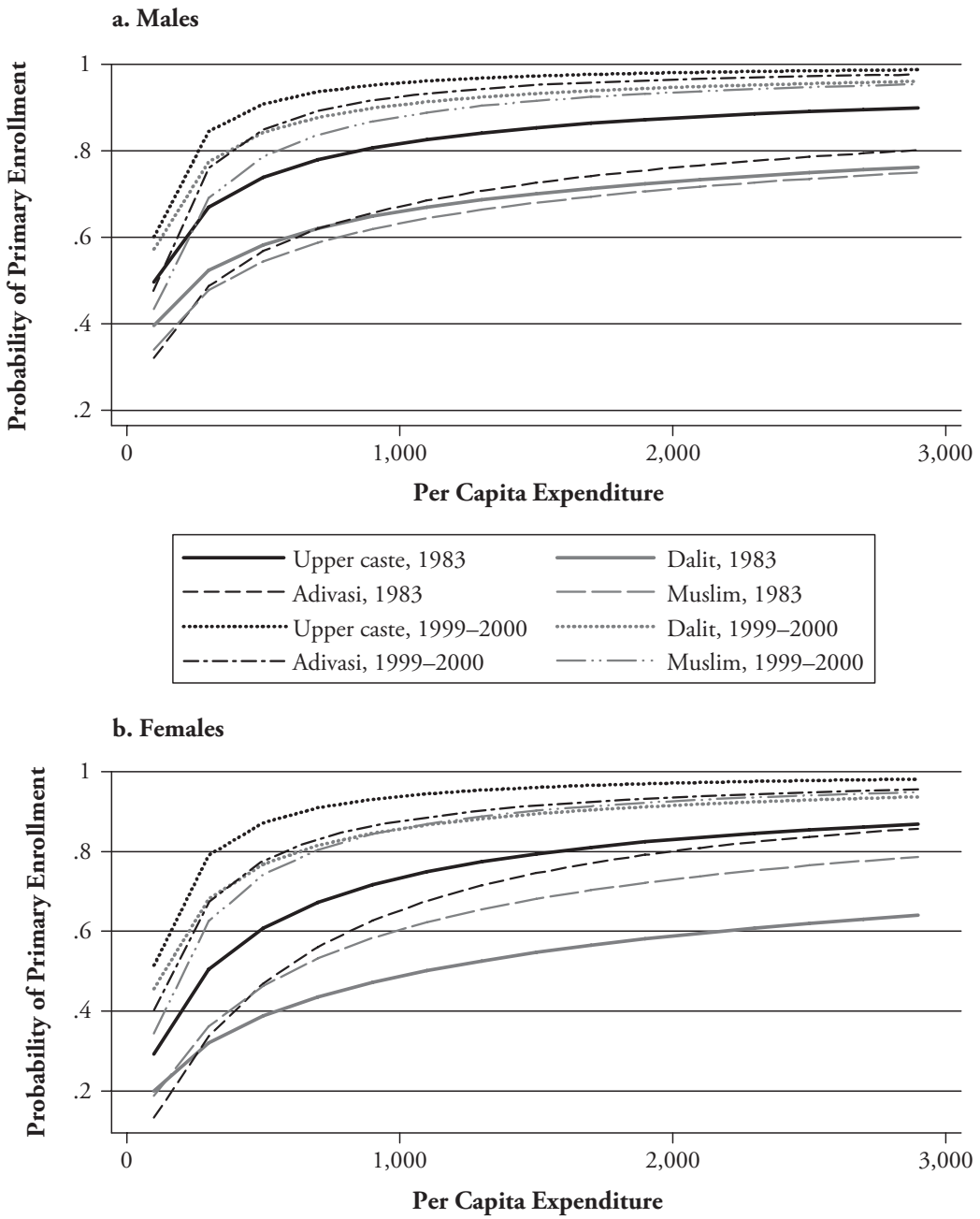
The story for college graduation, conditional on completing secondary school, is different. Here, only two groups experienced an absolute increase in the probability of graduation in the 1980s and 1990s: adivasi males and upper caste Hindu and other females. The improvement for adivasi males is substantial (0.104), and that for upper caste Hindu females is minor (0.025; see Table 5). However, over this period, Muslim males and females as well as dalit males and females experienced a decline. Note that our analysis (and the preceding discussion) focuses on the transition rate. However, because more dalit and adivasi students completed primary school in the 1990s than in the 1980s, the greater number of dalit students entering college in 1990s resulted in higher absolute numbers of *dalit* and adivasi college graduates even when the probability of college graduation, conditional on graduating from secondary school, did not improve.

The decline in college completion among dalits is somewhat ironic. Much of the social strife surrounding affirmative action has centered on dalits and their perceived ease of gaining admission to college. Our results show that at this level, the success rates for dalits have not improved at all. This seems to be a *prima facie* evidence that affirmative action does not help dalits at the college level and is consistent with anecdotal evidence about rising antipathy toward dalits among college students and professors. However, one caveat needs to be considered. Because the gap between dalits and upper caste Hindus/others has narrowed at the primary and middle school levels, more dalit children are completing high school, and less social selection is occurring at the early stage. If this argument holds, we should see a widening gap between the two groups (dalit and upper caste Hindus and others), and the fact that this gap has not widened even more (as it has for Muslims) could be due to affirmative action. It is also important to note that although we focus on college completion rather than college entry, affirmative action is directed to college entrance, not graduation. However, the intent behind the program is presumably to increase college graduation, and not just enrollment.

In our final analysis, we examine changes in transition probabilities for different income groups. In order to examine the possibility of the "creamy layer" of dalit and adivasi community appropriating the benefits of affirmative action, we explore the differences in the predicted probabilities at different per capita household income levels. In deference to parsimony, we restrict our discussion to the three educational transitions for which significant changes in educational inequalities were observed in Table 5—primary enrollment, primary completion, and college completion—and only for the earliest and for last periods (1983 and 1999–2000).

Figure 1 shows the predicted probability of enrollment in primary school for males and females from various social groups. The results indicate an improvement in primary school enrollment for all income groups, with a proportionately larger improvement at a household expenditure of about Rs 300–500 per month for both males and females. In evaluating these graphs, note that the median per capita expenditure ranged from Rs 363 in 1983 to Rs 457 in 1999–2000; that is, most of the population is located at the lower end of the income distribution in these figures. We find proportionately greater improvement in primary school

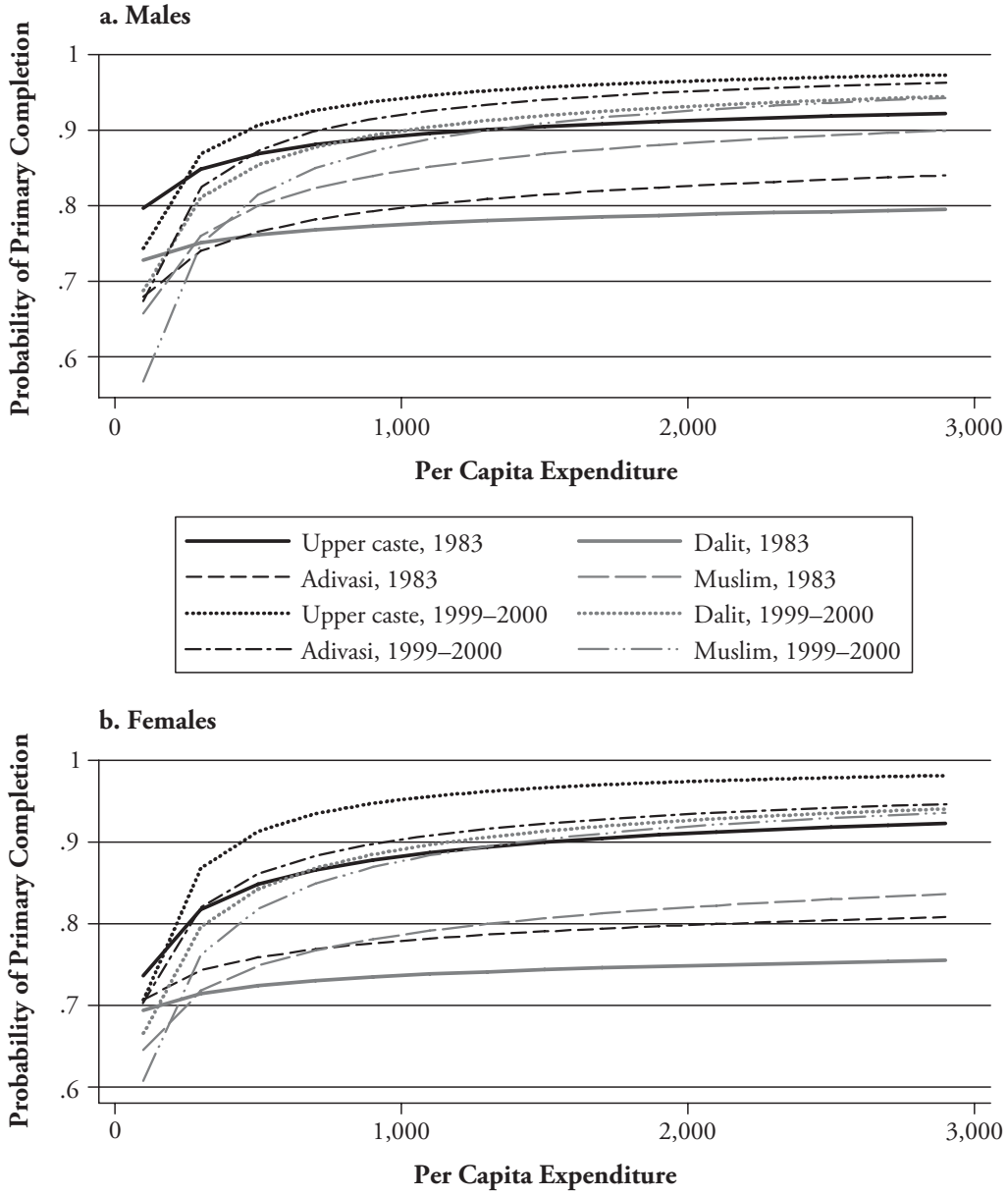
Figure 1. Predicted Probability of Enrollment in Primary School: 1983–2000



enrollment among households spending less than Rs 500 per capita (i.e., about US$10 per month) than among higher income levels in both 1983 and 1999–2000. Nonetheless, it is important to note that at all income levels, dalit, adivasi, and Muslim children continue to experience a lower likelihood of enrollment than Hindu males and females, although this disadvantage diminishes greatly at upper income levels.

Figure 2, which focuses on the completion of primary school, conditional on enrolling in school, also shows substantial decline in disparities between various social groups at

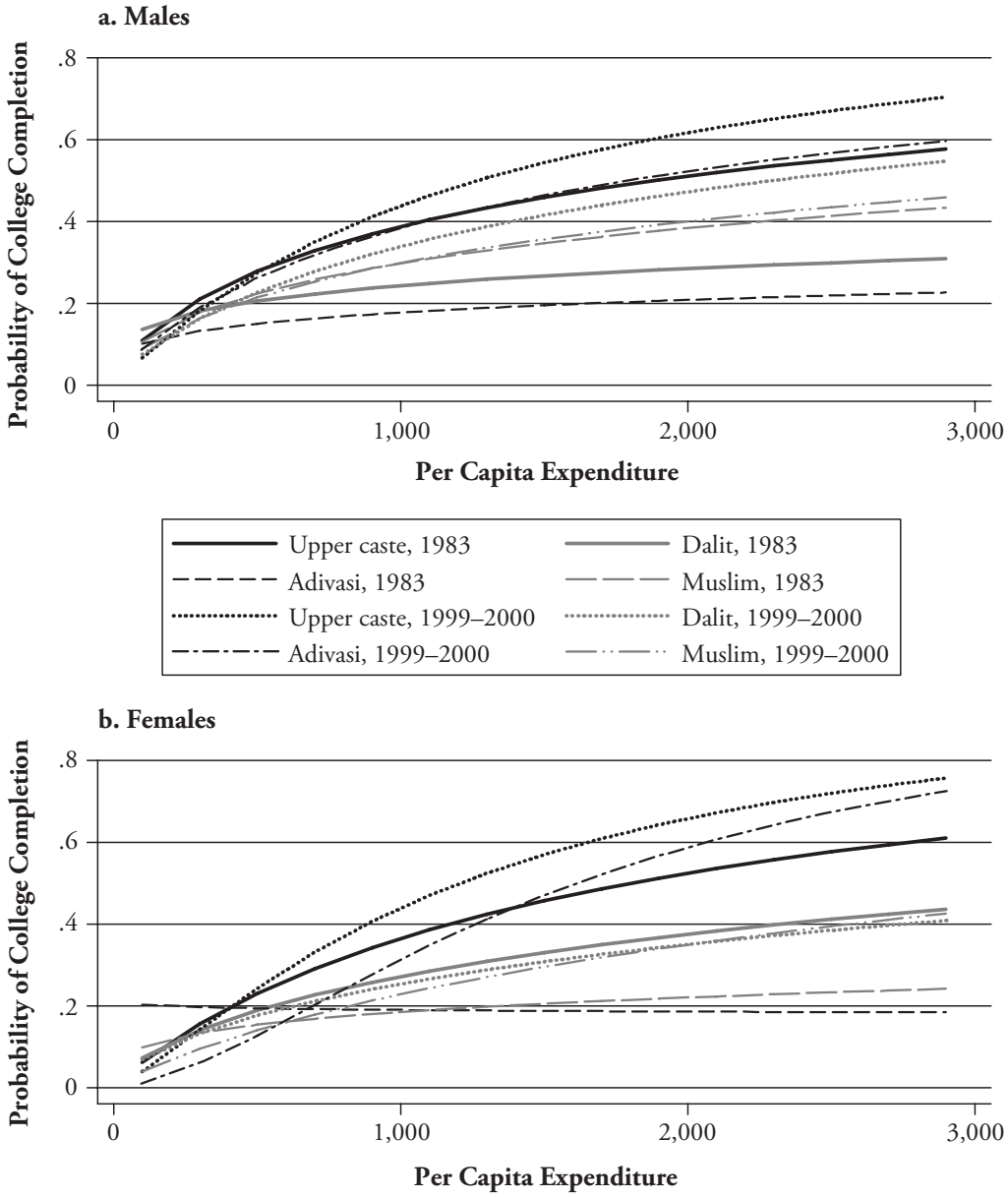
Figure 2. Predicted Probability of Primary School Completion, Conditional on Enrollment in Primary School: 1983–2000



most income levels for males and females in 1983 and 1999–2000. However, the disparities at lower income levels widen slightly, particularly for Muslim children. This may well be due to the improvement in school enrollment noted in Figure 1. Expansion in enrollment may result in all children entering school, but only those whose families have relatively higher incomes may be likely to progress beyond a year or two.

Results for college enrollment, reflected in Figure 3, are of far greater interest to the policy discourse, given the concern among upper caste Hindus that affirmative action for

Figure 3. Predicted Probability of College Completion, Conditional on Completing Secondary School: 1983–2000



dalits and adivasis keeps them out of college and privileges high-income dalits and adivasis against comparable Hindus. While one normally expects the likelihood of college completion to increase with household income, in 1983, this "normal" relationship is absent for dalit and adivasi males, indicating that income is not sufficient to increase the probability of college completion for these groups and that other factors (possibly discrimination) play a role. By 1999–2000, the curves for dalits and adivasis take on a more expected shape, with increases in the probability of college completion as income levels increase. Nonetheless, at no income level does their likelihood of college completion

exceed that of upper caste Hindus and others, belaying the fears of upper-income dalits and adivasis gaining at the expense of upper caste Hindus. We also see deterioration in the status of dalits at lower income levels, where most of the Indian population is located. At this level, adivasis seem to fare somewhat better than dalits, approaching graduation rates of upper caste Hindus and others at upper income levels.[13] At upper income levels, Muslim males have actually lost ground against their Hindu peers.[14]

We see a similar pattern among females, although differences by social group are even wider among females and are far less likely to diminish at upper income levels. Dalit females experience no gains in college graduation and even a slight decline for all income levels, Muslim females at upper income levels experience some gains, but these gains are small. Adivasi females form the only group that seems to approach graduation rates of upper caste Hindu and other females, and most of their gains are located at upper income levels.

To summarize the findings, our analysis of the changes in educational inequalities in India in 1980s and 1990s paints an interesting picture. Results show that educational inequalities between dalits and adivasis on the one hand and upper caste Hindus and others on the other have declined over time, particularly as it applies to primary education. We also note a mild decline in inequalities during middle school and high school, but these improvements are modest in size and are not statistically significant. The inequalities in college education have narrowed for adivasi males; but for all other groups, dalit males and females, and adivasi females, inequality seems to be widening rather than narrowing. There appears to be little evidence to support the fear that higher-income dalit and adivasi families, the so-called creamy layer, are disproportionately capturing the benefits of affirmative action policies. Our results also show that with rising income, adivasis are more able than dalits to achieve the parity in college graduation with upper caste Hindus and others.

Most importantly, the results show that while dalits and adivasis, groups benefiting from positive discrimination, have managed to narrow educational gaps in primary education, this has not been true for Muslims, who do not receive a preferential treatment.

DISCUSSION

The results presented above confirm some findings from the comparative educational stratification literature (Mare 1981; Raftery and Hout 1993; Shavit and Blossfeld 1993) and expand these in the context of affirmative action. Our results indicate the following.

First, the educational gap between Hindus and Muslims continued and sometimes expanded. This is a noteworthy finding in the context of current debates around Muslim deprivation in India following the publication of the Sachar Committee Report on Indian Muslims (Government of India 2006). The hypothesis of maximally maintained inequality (Raftery and Hout 1993) suggests that until the dominant group attains educational saturation at any given educational level (estimated at around 95% completion level), educational inequalities will continue to persist even in an era of educational expansion at about the same level. Our results are consistent with this.

13. Our results may be due to sample size limitations: dalits who have completed secondary schooling and are eligible to complete college are a small proportion of our sample, and of these individuals, the proportion whose households have high per capita expenditure is even smaller. Hence, these results should be treated with caution. However, sensitivity of the results is often due to a small number of cases rather than small percentages. We reconducted this analysis, combining males and females to increase the sample size, but the results did not change substantially.

14. The lowest expenditure threshold, Rs 100–300 per month, is where dalit/adivasi/Muslim males have a higher likelihood of graduation than upper caste Hindus and other peers. However, given the extremely small transition probabilities at this expenditure level, these differences, unlike the differences at the upper income levels, fall well within the 95% confidence interval and are not statistically significant.

Second, the gap between upper caste Hindu/other religious groups and dalits/adivasis diminished. This decline in inequality accelerated during the 1990s, a period of intensified affirmative action directed at dalits and adivasis.

Third, the educational gap declined at the primary school level rather than at the college level. Quotas in college admission have caused great public resistance. However, our results show no improvement and even mild deterioration in college graduation rates for dalits, casting doubt on the effectiveness of these policies. The decline in inequality at the primary level may be associated with affirmative action in employment. For low-skill jobs, there are vast differences in income between those who have a regular year-round job and those who are self-employed or work as casual laborers. About two-thirds of formal sector jobs are controlled by the government either in the public sector or in direct government employment. About 80% of the jobs in public sector enterprises in 1999 were categorized as Group C (driver, technician, typist, mechanic, and the like, often requiring education up to 8 or 10 grades) or Group D (food service worker, peon, sanitary worker, watchman, and the like, often requiring basic literacy). In 1999, nearly 29% of the public sector employees in Groups C and D were from dalit or adivasi background, while only 13% at the higher level fell in this category in spite of the mandated quota of 22.5% (Indiastat 2006).

Fourth, with controls for income and residence, dalits experienced a greater disadvantage in college graduation than did adivasis. These results need to be treated with caution because the literature on this issue is scant, and we can only conjecture the causes underlying this observation. Further, the results may also be skewed due to small sample sizes. Social exclusion patterns for dalits and adivasis may be quite different. Although there is some prejudice against the adivasis, adivasis tend to live in concentrated localities in mountainous regions. Thus, a majority of the Indian population has little contact with adivasis and little religious basis for discrimination. As a result, when adivasis move into urban areas and gain better income, they may be less likely to face the prejudice that is built into Hindu society, which sees dalits as being polluted and socially unacceptable. Some of the adivasi communities have gained considerable power in recent years after gaining mainstream jobs; the power of the *Meenas*, a tribal group in Rajasthan is legendary. In contrast, a dalit is always a dalit and, regardless of his or her income, continues to suffer from social exclusion and discrimination. Thus even upper-income dalits may face far greater difficulties in school than other groups, including adivasis, reducing their educational attainment. This is an important finding in the context of current Indian discourse. One of the alternatives to the current positive discrimination policies is to reserve quotas for economically disadvantaged groups—that is, affirmative action based on class rather than caste. However, our results suggest that even upper-class dalits fail to achieve their educational potential, and hence class-based affirmative action may not remedy all of the caste-based inequalities.

While this analysis indicates narrowing of educational inequalities between dalits and adivasis on one hand and upper caste Hindus and Sikhs, Christians, and Jains on the other during the 1980s and 1990s, it cannot positively attribute these changes to affirmative action policies, although these are the years during which affirmative action policies intensified. Educational inequalities are a function of many different factors: availability and quality of schools, returns to education, parental demand for schooling, and teachers' attitudes. Within the context of our analysis, it is not possible to show unambiguously that the changes we observed are the results of positive discrimination or affirmative action. The declining educational disadvantage of dalits/adivasis, the two groups benefiting from affirmative action, and the lack of improvement in the relative status of Muslims, who do not benefit from positive discrimination, suggest that affirmative action policies may have had some impact. However, this is at best a tentative conclusion and worthy of future research examining the impact of specific policies. Moreover, while educational inequalities declined in the context of Indian affirmative action policies, the size of this achievement was

modest. Although the situation is improving, at each educational level, dalits and adivasis continue to lag behind upper caste Hindus, Christians, and Sikhs, and these disadvantages seem to accumulate at higher levels of education.

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