The Impact of Lowering of Academic Standards on Educational Outcomes: Evidence from An Unusual Policy in India*

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Abstract

In 1983 the Indian state of West Bengal abolished the teaching of English at the primary level from public schools, narrowing the curriculum to the other subjects then taught. The objective of this intervention - a lowering of the existing academic standards - was to make primary education more accessible, particularly for poorer and rural children, who at that time had low enrollment and high dropout rates. Using two large data sets from India and a difference-in-differences strategy, I investigate the effect of this unusual policy on educational outcomes in West Bengal. I find that there was a positive and significant effect of the policy on subsequent educational attainment, and that this was larger for children from poorer families. However, there was simultaneously a large increase in expenditure on private tutoring. This suggests that families who could afford to do so were supplementing the skills of their children by private purchases, since in a multilingual country like India, a knowledge of a common language like English has significant benefits later in life, both in the labor market and otherwise.

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1 Introduction

In 1983 the Indian state of West Bengal abolished the teaching of English at the primary level from public schools.[1] Till that time, all primary students in West Bengal had to learn two languages from grade 1 - Bengali, the vernacular, and English. The objective of this reform was to make education more accessible to poorer and rural children, who at that time had low enrollment and high dropout rates. English would henceforth be taught only from grade 6. In this paper I investigate how this abolition of English affected educational outcomes in West Bengal.

The abolition of English was looked upon as a lowering of educational standards, since the resultant narrowing of the curriculum was expected to enable students and parents to divert the same amount of resources to learning fewer subjects. It was expected that schooling outcomes like enrollment and years of schooling would improve as a result. On the other hand, the policy likely negatively impacted English language skills, which many employers consider important. Since prospective employers knew which cohorts learned English from grade 1 and which did not, the returns to schooling were also presumably lower.

The no-English policy was designed and adopted when the Left Front - an alliance of mostly communist parties and other left-leaning parties - was in power. The political base of the communists was largely concentrated in the rural areas and among the disadvantaged populations and an urge to improve the state of their education underlay the implementation of this particular policy. For example, Jasodhara Bagchi, a prominent left-leaning intellectual, argued in 1981 that "the burden of the failure so far (in educational attainment) has to be shouldered by *a system of education which teaches English at every stage*", referring to the pervasive high dropout rates in the primary level at that time, and she urged the government to do away with English at the primary level (Bagchi, 1981).[2]

[1] Primary level typically encompasses grades 1-5 in India.

[2] It has also been alleged that another important reason behind the policy was ideological - a strongly-ingrained belief that "a knowledge in English will entitle one with a privileged and exclusive status", something the Marxists find abhorrent (quoted from Guha Thakurta, 1998). It is instructive to note here some recent scholarship regarding the design and execution of education policy in the British-ruled colonial period in India and Bengal. It has been argued that the "native elites", composed of the upper classes and castes, were so organized and powerful that they were able to divert the direction of this policy to the detriment of the larger sections of the Indian population. For example, Acharya (1998) discusses how the Bengali middle class was able to subvert the policies of the British colonial administration so that most of the limited funds available was spent on "subsidizing English education

Assuming that the abolition of English was a lowering of academic standards one would expect the following to happen, as far as educational outcomes are concerned. First, we might expect an increase in school enrollment. Students and parents, who previously shunned schools for fear of being unable to cope up, are more likely to join now. Second, for the same reason, we might expect to see an increase in the number of years of education in the population.

However, faced with the prospect of a decline in job market opportunities, those who can afford them could switch to private schools, which were not constrained by the no-English rule, or arrange for private tutoring at home.[3] That is, these households could supplement the English language skills of their children by private purchases. In this case, particularly if there is a transfer of students from public to private schools, there might be some adverse effects on those remaining in public schools, if the students who transfer are also the ones who are higher performing and more motivated. These adverse peer effects, combined with any adverse teacher effects due to a similar transfer of better teachers, may dampen any positive effects on educational attainment the abolition might otherwise have had. It might also increase the gap in English language skills (and presumably, future wages and earnings) between children whose families can afford private purchases and children whose families cannot afford to do so.

In fact, some prominent Bengali economists dissented to the abolition of teaching of English because of this possibility of segregation, while arguing against wanton experimentation with the education of children. For example, Bhabatosh Datta wrote, "if English does scare children, so should arithmetic", and went on to argue that "knowledge of English is bound to remain at a premium for a long time and it will be unfortunate if this premium is enjoyed only by a very select group.... The only result of such a course (abolition of English) will be that there will be a mushrooming growth of private English-teaching schools and coaching classes. The reported government decision *will not eliminate English at the primary stage. It will only confine the teaching of English to the well-to-do* and encourage the growth of private commerce in the teaching of the subject" (Datta, 1981).

Some suggestive evidence as to the desirability of a good knowledge of English in a multilingual

for the *bhadralok* (upper class and upper middle class families)" rather than educating the poorer classes. The no-English policy of the Left Front can be seen as an extreme reaction to what they may have considered such persistent "elitism".

[3] In many parts of India, it is common for parents to supplement the education that their kids get from school by arranging for extra coaching at home - this private coaching is often called private tuition or private tutoring.

country like India can be had from examining the enrollments in English-medium schools.[4] In West Bengal and the other five states that will form the basis of my subsequent investigations, the percentages of primary-grade children attending English-medium schools are given in Table 1. A steep gradient with respect to household income is immediately discernible - children from higher-income households attend English-medium schools at much higher rates than those from lower-income households. In none of these states is English the mother tongue or vernacular.[5]

I investigate the effect of this policy on educational outcomes in West Bengal. Using two large data sets from India and a difference-in-differences strategy, I examine whether the abolition led to any improvements in school outcomes at the primary stage, particularly among rural and poorer students. I also analyze whether there were transfers to private schools and/or increased hiring of private tutors by families with children, possibly to offset the decline in English language skills due to the abolition.

I do not find any positive effect of the program on school enrollment, in either the rural sector or the urban,- however, there was a positive and significant effect on school attainment, as measured by the number of years of schooling. Moreover, this improvement was relatively larger for children from poorer families. However, there has also been a significant increase in expenditures on private coaching - many more households in West Bengal were supplementing the education of their children by hiring private tutors. These suggest that those who could afford to do so were supplementing the skills of their children by private purchases, most probably a consequence of the fact that a knowledge of English had significant benefits later in life.

It is interesting to note here that the abolition of English from primary schools in West Bengal was short-lived. In the face of widespread public dissatisfaction, the Left Front government was forced to backtrack on its English teaching policy in the late 1990's. First, a commission set up in 1998 recommended the teaching of English from an earlier stage, and the government reintroduced English from grade 3 in 1999. Next, a report by the U.S. consultancy firm McKinsey & Company on industrial prospects in West Bengal noted that the state was poor at creating a pool of people

[4] An English-medium school is one where the medium (language) of instruction is English.

[5] Note also that the future payoffs need not be confined to higher wages in the labor market. Speaking of education in general, Sen (1999) writes,"even with the same level of income, a person may benefit from education - in reading, communicating, arguing, in being able to choose in a more informed way, in being taken more seriously by others and so on. The benefits of education, thus, exceed its role as human capital in commodity production." It is conceivable that many of these non-pecuniary benefits are relevant to a knowledge of English too.

proficient in spoken English, which was a crucial disadvantage for the sunrise industries like those in the IT sector the state was trying to promote and develop (Mitra, 2002). Though subsequently a committee appointed by the state government to advise on issues of K-12 education recommended a return to the earlier no-English policy (Anandabazar Patrika, 2003), the government decided in favor of reinstating English from grade 1 itself and this was implemented in the 2004-05 academic year.

This study is related to two strands of literature. The first strand analyzes efforts to improve educational outcomes in developing countries. Duflo (2001) finds that a large school construction project in Indonesia, where the government built more than 60,000 primary schools throughout the country between 1973 and 1978, led to a significant increase in educational attainment of affected children. Ravallion and Wodon (2000) analyze the effect of a targeted enrollment subsidy in rural Bangladesh and show that it increased schooling among children, by far more than it reduced child labor. Banerjee et al (2007) argue that two experiments conducted in urban slums in Mumbai and Vadodara, India, - a remedial education program where young women from the community were hired to teach basic literacy and numeracy skills to children and a computer-assisted learning program providing each child with two hours of shared computer time per week - were both very effective, and look promising as policy tools. Kremer (2003) reviews recent randomized evaluations of educational programs in developing countries and discusses lessons for education policy. My study, looking at an unusual policy experiment in India, provides important evidence regarding its effectiveness and lessons for similar policies, highlighting both the intended and unintended consequences.

The second strand of literature that this paper is related to analyzes policies relating to language skills of individuals. Though there have been many studies in the field of labor economics that relate to language skills of individuals, almost all of them are concerned with the labor market implications. In my case, I am mostly concerned with the effect of the policy on educational outcomes.[6] In the process this paper provides evidence on the effects of a policy intervention that seeks to boost educational attainment by changing curriculum and standards.

[6] In future work it would be interesting to analyze the effects of the no-English policy on labor market outcomes of the affected cohorts. However, even the first cohorts affected by the abolition were only in their early '20s in 2004, the latest year for which comprehensive all-India employment and earnings data (NSS 60th round; see section 4 for details about NSS surveys) are available. This precludes an analysis of labor market effects at current time.

This paper is most closely related to Angrist and Lavy (1997), who look at the labor market effects of a similar policy - the abolition of teaching in French from the secondary level in Morocco. Beginning in 1983, the medium of instruction for new cohorts of Moroccan sixth graders was switched to Arabic. Angrist and Lavy find that the policy has led to a substantial lowering of wages and earnings in the labor market. Unlike this study, however, Angrist and Lavy do not focus on educational outcomes, though they note a decline in French language skills of the affected cohorts.

The policy change in Morocco was similar to the one implemented in West Bengal. However, unlike in Morocco, students from West Bengal participate in a labor market that spans across several Indian states, if not nationwide, and hence have to compete with students from these other states, which did not have a similar no-English policy. In addition, these students who are affected by the abolition also have to compete with older workers from West Bengal, who learnt English from grade 1 and were presumably better-skilled in that language. This would lead to strong incentives for people to supplement their skills by private purchases if these skills are valued in the labor market. In this case, depending on the availability and affordability of private schools and of private tutoring outside of school, the fall in skills in the relevant language may be relatively muted. When I look at West Bengal after the abolition of English, this mechanism seems to have played an important role.

The rest of the paper is arranged as follows. In section 2, I analyze some possible effects of the abolition of English in a simple theoretical framework. Section 3 describes the different data sets used in the estimation. In Section 4 I describe how I identify the program effects. Section 5 discusses the results. Section 6 concludes. In an appendix I discuss whether the existence of an all-India program called Operation Blackboard may have biased some of my results. References, tables and figures follow.

2 Theoretical Framework

This section presents a simple theoretical framework to analyze the effects of educational standards. I begin with a slightly modified version of Costrell's (1994) model to show how a change in standards will have different effects on different students. Next I allow individual families to supplement their children's education by private purchases (private schools and/or private coaching)

and look at how such expenditures may be affected by a change in standards.

Effect of Educational Standards

Consider an economy populated by a continuum of students, each with a given inherent ability. However, inherent ability is unobserved - employers can only observe whether a student has completed the prevailing educational standard or not. Thus a student's future wage depends on her meeting the standard. The standard is set by policymakers, and utility-maximizing students (or their parents) choose whether to meet the standard or not. (In our case we can think of the standard as primary schooling. Note that the assumption of a single standard is for simplicity only, there can be multiple additional standards like middle or secondary schooling, post-secondary education, etc.)

The utility function of the student is given by $U_i = U_i(L_i, w_i)$, where w_i denotes future earnings (or productivity), determined by educational attainment e_i, and L_i denotes leisure.[7] Define student i's educational production function as $e_i = e_i(L_i)$, where educational attainment e_i is a concave, decreasing function of student leisure. Let L_0 be the maximum amount of leisure, and $e_0 = e_i(L_0)$ be the zero-effort level of educational attainment.[8] In what follows, I sometimes use the inverse production function, $L_i = l_i(e_i)$.

In a world with perfect information, employers could distinguish individual productivity and pay the corresponding wages. Each student would pick up a point on his production function, depending on his preferences. The resulting equilibrium for a representative student is shown in Figure 1 - at equilibrium, she would choose an education level of e_i^* and get the corresponding wage, $w_i = e_i^*$. With an education standard, however, the system is effectively pass-fail - and the student's wage-leisure constraint becomes a step function as follows. (In this simple model, where employers cannot see true ability and only know whether the standard has been met, additional education beyond the standard is not rewarded. So no graduate has any incentive to do more than what is needed to graduate. Similarly for the non-graduates. This assumption is made for simplicity only, relaxing it does not change any of the main results.) The standard is the

[7] For simplicity we assume that wages equal educational attainment, i.e. $w_i = e_i$. Also, for developing countries like India we should broadly interpret L_i as the opportunity cost of schooling, be it in terms of child labor or household labor or just leisure. Of course, some direct costs of schooling - like buying books, uniform, etc. - might also be important.

[8] For simplicity e_0 is assumed to be greater than zero and to be the same for all i. This implies that the education production function faced by the student - see below and Figure 1 - is concave till L_0 and vertical thereafter.

education level required to graduate, say $\widehat{e}$. In equilibrium, the education level of the graduates will be equal to the standard, $\widehat{e}$ and this will be their wage. Similarly, the non-graduates have an education level of e_0 each, and this will be their wage. ($\widehat{L}_i$, $\widehat{e}$) and (L_0, e_0) are the only points among which the student will choose, and she chooses the one on the higher indifference curve. In Figure 2, the student depicted meets the standard. It is below $\widetilde{e}$, the maximum standard that the student will meet, given by $U_i(l_i(\widetilde{e}), \widetilde{e}) = U_i(L_0, e_0)$. (Meeting any standard higher than $\widetilde{e}$ yields a utility strictly lower than dropping out, so the student will not graduate.) Her preferred standard though is e_i^*.

To examine the effects of a lowering of academic standards in this framework, suppose that the initial standard was $\widehat{e}^{initial}$, and that it has now been lowered to $\widehat{e}^{final}$. Then the following happens.

i) First, it is evident from Figure 3 that those students who were meeting the standard would continue to do so, since their $\widetilde{e}$'s, which were already above $\widehat{e}^{initial}$, would be above $\widehat{e}^{final}$. Thus there are no discouraged dropouts. But most of them will suffer a fall in utility.

ii) However, some students who were not meeting the standard earlier would do so now, as the standard can be met through a lower effort, see Figure 4. Since they meet the standard only if it falls in the range marked ab in Figure 4, their utility goes up.

iii) There is no change in the utility of those students who were neither meeting the standard earlier, and nor do now. These students have a sufficiently high opportunity cost of schooling, and even a somewhat lower standard may not be enough to make them meet the standard.

Though simple and stylized, the above discussion makes clear that the gains from a fall in standard accrue to those students who had not been meeting the standard earlier but now do, as their wages go up. Conversely, students who had already been meeting the standard are now worse off, since their wages (which depends on their educational attainment, in turn determined by the existing standard) go down.[9]

To formalize this, consider a simple Cobb-Douglas form for the utility function. The exponent α denotes the relative weight on future wages and earnings vis-a-vis current opportunity costs

[9] This also illustrates the sense in which a policy of lowering the standards can be considered redistributive, more likely to be undertaken by populist or left-wing governments. These governments might put more weight on the income gains of the lower ability individuals, compared to income losses for people at the top, and hence acquiesce in a lower standard. As mentioned earlier, the policy was undertaken when a coalition of communist and leftist-leaning parties, called the Left Front, was in power in West Bengal.

(or leisure). Also, for simplicity, I assume that the form of the educational production function is the same for all students. What differs across students is the value of α, students with greater preference for leisure or higher costs of schooling (both direct and opportunity costs) have higher values of α. Under perfect information, a representative student solves

$$Max \;\; U_i = U_i(L_i, e_i) = L_i^{\alpha_i} e_i^{1-\alpha_i} \;\; \text{subject to } L_i = l_i(e_i)$$

The first-order condition (FOC), with respect to e_i, for this maximization problem is $\alpha_i.e_i.l_i'(e_i) + (1-\alpha_i).l_i(e_i) = 0$. Doing comparative statics with respect to α, we get

$$\frac{de_i}{d\alpha_i} = \frac{l_i(e_i) - e_i.l_i'(e_i)}{l_i'(e_i) + \alpha_i.e_i.l_i''(e_i)} < 0$$

so that students with higher α_i's choose lesser amounts of schooling, and vice versa.

Under imperfect information, the choice facing students is only between $(\widehat{L}_i, \widehat{e})$ and (L_0, e_0). In this case, if a student α_s chooses to meet the standard, then all students with α_i below α_s choose to meet it. On the other hand if a student α_t chooses not to meet the standard, all students with α_i above α_t choose not to meet it. This follows from the fact that if $U_i(\widehat{L}_i, \widehat{e}) > U_i(L_0, e_0)$ for a student with α_s - so that she meets the standard - then $U_i(\widehat{L}_i, \widehat{e}) > U_i(L_0, e_0)$ for all students with α_i below α_s, and they all meet the standard. And conversely.

However, one important element is missing from the above discussion. This is the possibility of private provision of schooling. Suppose that students or their families have some resources at their disposal and can decide whether to spend part of these resources to join a private school instead of a public one. Public schools are free, but private ones charge a tuition fee,- also private schools, which are not directly controlled by policymakers, are not affected by the change in standards. Prospective employers can observe the type of school one has been to. To see what might happen, note that after a reduction in standards, which is binding on the public schools, students in these schools suffer a decline in utility (see Figure 3). This is because for these students, who were already graduating under the earlier more rigorous standard, the reduction in standards affects their educational attainment and hence their wages. If this decline in utility is greater than the utility loss from tuition costs of private schools, then they would switch to private schools, where standards have not changed. Applying the intuition of the above discussion to this context implies that there will be stratification, in that the students left in public schools will be the ones with higher costs of schooling. That is, after a lowering of standards, if a student with a value of α^j switches to private school, then all students with α^i lower than α^j will also switch. Conversely, if

a student with α^p remains in the public school, all students with α^i higher than α^p will also do so.

Household Expenditures on Private Coaching (Tutoring) in Education

Next I relax the assumptions of the model that inherent ability of a person, proxied by his or her level of schooling skills (education), is completely unobserved and that employers only get to see whether a student has completed the standard or not. Instead I assume that employers get a (noisy) signal about prospective employee's true educational attainment. I also assume that the level of skills or education can be increased by private purchases,[10] and that a higher level of education monotonically increases the chances of providing a better signal in the job market.[11] In other words, passing the standard is still important,- however, a person can increase his chances of providing a better signal, and thereby getting a better job and/or higher wages, by acquiring more education. One way to acquire these skills (or higher education), that are demanded by potential employers, is by private purchases as mentioned.

To model the effect of a change in educational standards in this framework, consider a family that is deciding how to allocate its income (resources) V between buying private coaching for the child (X_e) and all other goods (X_H), and how to allocate its time between schooling and leisure.[12] For simplicity, assume that the child currently attends a public school where she gets an education worth $\widehat{e}$, and that this schooling is free. That is, the current educational standard is set at $\widehat{e}$. The expenditure on private coaching serves to enhance the education level or skills of the child by $\delta(X_e)$, where δ is an increasing, twice differentiable and concave function.[13] The price of private coaching is p. Total educational attainment, or the actual level of skills, is given by $\widehat{e}+\delta(X_e)$.

[10] By private purchases I refer to expenditures on schooling-related activities other than attending a public school. These activities may include attending a private school and/or hiring tutors who teach children outside of regular school. The latter is known as private coaching or private tuition in India.

[11] Formally, I assume that the function relating the job market signal to schooling skills or education satisfies the Monotone Likelihood Ratio Property - given a higher signal, the probability that it is coming from someone who has higher education is larger than the probability that it is coming from someone with lower education.

[12] In this model, transferring to a private school and buying private coaching are exactly analogous - both involve sacrifices in terms of money (foregone consumption of other goods) and both increase the level of skills of the child in question. For simplicity the following analysis assumes that X_e refers to private coaching.

[13] The function δ determines how a unit of private coaching translates into a unit of schooling skills. This is assumed to satisfy the usual regularity conditions that ensure an interior maximum.

The household's problem is to maximize its utility function $U(e, L, X_H)$, where e is the total of schooling skills acquired by the child. The utility function is assumed to be increasing and concave in its arguments. I consider a representative household here, so to save notation I do not index utility by i. Formally, the family chooses X_e, L and X_H to solve[14]

$$Max \qquad U(e, L, X_H) \qquad \text{subject to} \qquad V = X_H + p.X_e$$
$$L = l(\widehat{e} + \delta(X_e))$$
$$e = \widehat{e} + \delta(X_e)$$

Since I want to study the effect of a change in education standards on private purchases of educational services, I will focus on the choice of X_e. Substituting the constraints in the utility function, the maximixation problem can be re-written as:

$$Max \quad U(\widehat{e} + \delta(X_e), l(\widehat{e} + \delta(X_e)), V - p.X_e)$$

The first-order condition for X_e from this maximization yield the following necessary condition for an optimum

$$U_e^{'}(.).\delta^{'}(X_e) = -U_l^{'}(.).l'(.).\delta^{'}(X_e) + p.U_{X_H}^{'}(.) \qquad .... \quad (FOC)$$

This is the familiar marginal benefit equals marginal cost result - the household increases spending on private coaching to the point where the marginal benefit from another unit equals the opportunity cost. The second order condition will be satisfied if $|l^{''}|$ is not very large (and the cross-partial terms of the utility function are not too large).

I am interested here in the comparative statics exercises of a change in the prevailing educational standard, $\widehat{e}$. Totally differentiating the FOC and making use of the second-order condition yields $\frac{dX_e}{d\widehat{e}} < 0$.[15] Thus, if the educational standard at the public school is lowered, parents will supplement their kids' education through private coaching. Of course, they may also shift to a private school where a similar lowering of standards has not taken place. In either case there will

[14] In this specification, we assume that the uncertainty is about the level of overall education. We can alternately assume that employers can always see for sure whether the standard has been met, the uncertainty only relates to the amount of additional education. The results are similar, so for simplicity we stick to this specification.

[15] The above exercise assumes that the maximization problem has an interior solution both before and after the change in the educational standard, implying families were incurring positive expenditures on coaching both before and after the change. However, it is easy to see that there will be some families who were not buying any private coaching before the reduction in standards (corner solution), but do so afterwards.

be an increase in the amount of resources spent on the child, and a reduction in spending on other goods X_H.

To sum, the results in this section show that ceteris paribus, a lowering of educational standards - such as the abolition of teaching of English which narrows the curriculum - will be expected to increase overall educational attainment. This is because some students who were dropping out earlier would graduate now (see Figure 4), leading to an increase in the average number of years of schooling attained. However, since this schooling might be worth less now because of a reduction in standards (lower English language skills in the case of West Bengal), there might be an exodus of students to private schools, accompanied by an increase in private coaching.

3 Data

I use data from multiple sources. The main source of data is surveys conducted by the National Sample Survey Organization (NSSO) in India. The NSSO conducts the National Sample Survey (NSS), which is a nation-wide, large-scale, continuous survey operation conducted in the form of successive rounds. The NSS surveys are the primary and most reliable source of information on several important indicators in India, particularly those relating to households and individuals like consumption, poverty, employment and educational attainment. For my primary analysis I use data from the two education rounds of the NSS surveys - the 42nd round and the 52nd round. The 42nd round was canvassed from July 1986 to June 1987, and the 52nd round from July 1995 to June 1996. These are large household and individual-level survey datasets, covering all states and regions of India. These surveys contain detailed information both at the household level and at the individual level, including data on household composition, income and expenditure, educational attainment, etc. Since the 42nd round survey was canvassed in 1986-87 and the 52nd round in 1995-96 and both surveys include detailed information on various aspects of schooling of children from various ages, using both of these surveys allows me to estimate the program effects while controlling for pre-program differences, if any. Note that the first cohort affected by the policy is the one that was in grade 1 in 1983, but the full effects might be evident only after a few years.

The data on price indices are drawn from various sources. The adjustments for inter-state price differences follow the numbers given in Deaton and Tarozzi (2005). Deaton and Tarozzi

use the 43rd and 50th expenditure rounds of the NSS surveys to calculate not only the weights used in the price indices, but also to calculate the prices (or unit values) themselves based on the information on expenditures. Some of the data on price indices also come from this study. For the remaining data I use a couple of sources - the World Bank Database on Poverty and Growth in India (1996), which contains detailed statistics on a wide range of topics in India, and the press releases of the Government of India, Press Information Bureau.

4 Identification and Estimation Strategy

4.1 Identifying the Program Effects

Like most developing regions, education in the early '80s in West Bengal (and other Indian states) was in a state of flux. Most schooling variables, including enrollment and number of years of schooling, were trending upwards. In order to avoid spuriously attributing to the no-English policy effects that were instead secular in nature, or at least common to all the states, my empirical strategy focuses on difference-in-differences estimation. That is, I compare the evolution of various schooling indicators in West Bengal (enrollment, number of years of schooling, private school attendance and expenditure on private coaching) in the post-program period with those in other (similar) Indian states during the same period, after controlling for any pre-program differences.

To do this, I begin by finding Indian states that were either i) similar to West Bengal in the early 1980s with respect to schooling indicator and/or ii) had differences that were relatively stable for the period prior to 1983, when the no-English policy was implemented in West Bengal. This group of states will serve as the control group for West Bengal once I take out the initial difference, if any.

To implement the above strategy empirically, I look at school enrollment for children from the 42nd round who were not affected by the policy. Children who were more than 12 years old during the 42nd round of the NSS survey, which was canvassed between July 1986 and June 1987, would have attended grade 1 much before 1983 and hence would be unaffected by the no-English policy. I take all children aged between 12 and 18 years at the time of the survey and divide

them into groups based on their age - each age-group is considered a cohort.[16] I compare school enrollment for these age-groups in West Bengal with those in other Indian states - looking at the experience of successive age cohorts will show the trends in schooling outcomes prior to 1983 and whether these trends were similar or different in various states compared to West Bengal. The states for which the differences from West Bengal are either negligible or stable over the three cohorts constitute my control group. That is, the states for which the levels and trends in school enrollment are similar to those in West Bengal, for the period just before the no-English policy was enacted in West Bengal, can be considered as being on the same trajectory as West Bengal and hence constitute the appropriate comparison group for evaluating the effect of the no-English policy.

Formally, I run the following regression for each age-cohort

$$y_{ijs} = \alpha + \beta.x_{ijs} + \gamma.z_{js} + \delta_s.\theta_s + \varepsilon_{ijs} \qquad ....(1)$$

Here y_{ijs} refers to school enrollment of the ith child in the jth household in the sth state. x_{ijs} are the individual controls, which include age, sex, a dummy for the child being brother or sister of the head of the household, and a dummy for the child being the grandchild of the head of the household. (The last two variables are included to control for the fact that educational outcomes may differ depending on the relationship of the child to the head of the household, as some previous literature suggests that distribution of household resources may depend on the relationship of children to household head.) z_{js} are the household-level variables, and include per capita household expenditure, per capita household expenditure squared, sex of head of the household, dummies for different categories of parental education and dummies for belonging to the Scheduled Castes and the Scheduled Tribes.[17]

[16] Since many researchers have expressed concern that age may not always be correctly reported in these household surveys, I have tried to smooth over reported ages by considering age-groups with multiple-year bands viz. 12-13, 14-16 and 17-18. (I have considered 14-16 as a separate age-group as age-heaping - the phenomenon where respondents' reported ages are found to be clustered around particular numbers - is pervasive for ages ending in 5 in Indian surveys.) I also repeated the analysis with alternate classification of age groups - 12-14 and 15-18. In the text I only show the results for the former group, - the results for the second group are similar and hence not reported.

[17] In India certain segments of the population are designated as Scheduled Castes and Scheduled Tribes. These groups have traditionally been discriminated against by other better-off groups and constitute the most disadvantaged sections of the population. The educational attainment of children belonging to Scheduled Castes and Scheduled Tribes typically lag behind that of other children - I include dummies to control for any effect stemming from belonging to these groups.

θ_s refers to the state dummies for the different states in India. I exclude the smaller states and am left with 17 larger ones. These 17 states are Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. The omitted states (and union territories) are Arunachal Pradesh, Goa, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Andaman & Nicobar Islands, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Delhi, Lakshadweep and Pondicherry. These are either small union territories administered directly by the government of India, or relatively sparsely populated states, many concentrated in northeast India,- these states are not directly comparable to West Bengal or the other 16 bigger states.

As mentioned earlier, the dependent variable relates to school enrollment - it is a binary (0-1) indicator for whether the child ever enrolled in a school. The regression is also run separately for girls, as several of the individual and household variables may affect girls differently. Since the program began in 1983 (students in first grade in 1983 were the first to be affected), someone who was under 12 years at the time of the 42nd round (1986-87) might potentially be affected. (Children in India often enter school quite late, sometimes as late as in age 8.) So I restrict attention to the age-groups who would have been in grade 1 immediately preceding the program.

Equation (1) is run separately for the urban and rural sectors and separately for each of the three age cohorts. West Bengal is the omitted category. The standard errors reported are robust to heteroscedasticity and take account of the clustering in the survey design. For each regression, I note the significance or otherwise of the other state dummies - the candidate states are those that either satisfy (i) insignificant values of δ_s for each of the three cohorts, or (ii) significant but stable values of δ_s over the three cohorts. I find that the following five states were most similar to West Bengal - Assam, Gujarat, Haryana, Karnataka and Orissa.

The results for these five states are in Table 2. (The complete set of results for all 16 states, including these five, are available on request.) For the urban regions, all of these five states – Assam, Gujarat, Haryana, Karnataka and Orissa – have generally insignificant differences with West Bengal. The result holds for both overall enrollment (meaning both sexes included) and female enrollment, and it holds for all the 3 age cohorts considered. As for the rural sector, compared to both Assam and Gujarat, overall enrollment in West Bengal is significantly lower, but the differences over successive cohorts are similar in magnitude. The differences with the

other states are either small or only significant for one particular age-group.

In other words, among the other 16 major states of India, these five are the ones that were similar to West Bengal at the time it abolished English from its primary schools. Table 3 summarizes the values of some important socioeconomic indicators for these states vis-a-vis West Bengal. As is evident, West Bengal is similar to these states in terms of these indicators too, suggesting that unobserved differences across states, which might have differentially affected the evolution of schooling indicators over time, are unlikely to be large and significant. For example, mean per capita expenditures in West Bengal are close to most of these states (though Haryana is slightly richer), while the percentage of disadvantaged households and the percentage of households with literate parents are also quite similar. Note that West Bengal has consistently ranked 8th in the nation in terms of Human Development Index - a summary measure computed by the Planning Commission of India which looks at eight different aspects of development performance - while the five states in my control group occupy ranks close to West Bengal (on either side).

A couple of other points should be noted here. It might be argued that some of the program effects that I find later might stem not from the abolition of English but other similar programs in West Bengal.[18] There were no other important educational policy change at the primary and secondary level in West Bengal around this time, but there were two other programs implemented by the Left Front - the land reforms program (operation barga) and the devolution of power to village-level councils (panchayati raj). However, it is unlikely that a general land reforms program (most of whose effects would be expected to come through a rise in incomes, which I control for in the regressions) or a change in local governance structure would have first-order effects on schooling outcomes. This is particularly so as public schools in West Bengal (and India) are neither locally-financed nor locally-operated, but rather financed and run by the state government. Note that both the land reforms and panchayati raj programs affected mostly the rural regions, while the abolition of English was a statewide affair, affecting urban areas also. The timing of these programs was also somewhat different. In particular, the land reform program affected different regions and districts at different points in time, a fact utilized by Banerjee,

[18] I am not aware of any significant educational policy change around this time in any of the states constituting my control group. Also, since there are 5 states in my control group, spread across different regions of India, it is highly unlikely that some policy, educational or otherwise, implemented in a single state would significantly bias the results. Further, binary comparisons between West Bengal and each of the individual states in my control group, not reported here, yielded very similar results.

Gertler and Ghatak (2002) in their study of the program. This is in contrast to the abolition of teaching in English, which affected all schools in the state simultaneously.[19] Finally, note that even though the Left Front was first elected in 1977, the abolition of English came after it had been in power for six years, in its second term in power. So my analysis is unlikely to be contaminated by effects due to a change in party control of the state government in West Bengal.

However, there was an *all-India* program called Operation Blackboard initiated towards the end of the 1980s, which targeted primary-school going children and aimed at improvements in school quality. In an appendix I discuss whether the existence of this program can have contaminated some of the interpretations of my results.

4.2 Empirical Strategy

Using data from the $42nd$ and $52nd$ rounds of the NSS, I estimate the following regression

$$\begin{aligned} y_{ijs} = \alpha + \beta.x_{ijs} + \gamma.z_{js} + \delta_s.\theta_s + \delta_{WB}.WBdummy \\ +\delta_{52}.52dummy + \beta_{52}.(52dummy * x_{ijs}) + \gamma_{52}.(52dummy * z_{js}) \\ +\delta_{52WB}.(52dummy * WBdummy) + \varepsilon_{ijs} \end{aligned} \quad \ldots. \ (2)$$

Recall that i here indexes an individual child, j the corresponding household, and s the particular state the child belongs to. So y_{ijs} refers to the schooling indicator for the ith child in the jth household in the sth state. As earlier, x_{ijs} are the individual controls while z_{js} are the household-level variables - I use the same controls as in the identification regressions. The sample consists of children aged 12-16 (or of children attending primary grades in school, see later). Note that all children in my sample from the $42nd$ round were unaffected by the program, whereas children from West Bengal in my sample from the $52nd$ round were affected. WBdummy is a dummy for West Bengal. 52dummy is a dummy for the $52nd$ round, taking the value of 1 for

[19] There were also some pro-worker reforms undertaken by the Left Front government after it came to power. Besley and Burgess (2004) argue that pro-worker labor market regulations in India, including West Bengal, have been associated with lower levels of manufacturing activity. However, this is unlikely to significantly affect educational attainment, particularly at the primary level. One might be concerned that lower levels of manufacturing might affect the returns to education, but demand for a good education, particularly with strong English language skills, was high in West Bengal during this period, as evidenced by the anecdotal reports cited in section 5.6.

observations from the $52nd$ round and 0 for observations from the $42nd$ round. The $52nd$ round dummy captures any secular change during this period that was common to all the states. The seventh and eighth terms on the RHS are the interaction terms between the control variables and the $52nd$ round dummy, included to allow for the fact that the effect of these controls may have changed between the two rounds. The main variable of interest is δ_{52WB}, the coefficient on the $52nd$ round dummy interacted with the West Bengal dummy. This captures any differential change in West Bengal due to the program, and gives the effect of the program on educational outcomes in West Bengal relative to the 5 control states and in comparison to the pre-program period. A significant coefficient for δ_{52WB} will imply that the abolition of English affected educational outcomes in post-abolition West Bengal, which thereby followed a different path from that of the control states.

As earlier, I run separate regressions for the rural and the urban sectors (NSS surveys are stratified by sector). In each sector, I run a separate regression for the girls. Moreover, as briefly discussed earlier, it is likely that the effects of the abolition of English will vary by household economic status. To see whether this has indeed been the case, I divide the population into quartiles in terms of per capita household expenditure and then run the above regressions separately for each expenditure quartile. Within each quartile, I run a separate regression for the girls.

The different schooling indicators I include in my analysis as dependent variables are as follows.

School enrollment

The first variable I look at is enrollment in school. Male enrollment in West Bengal and most of the other Indian states was relatively high by the early '80s, but female enrollment was still lagging behind. Equation (2) is run on y_{ijs}, a binary variable that takes the value of 1 if the ith child (of jth household in sth state) ever enrolled in a school, zero otherwise. I run both probit and OLS (linear probability) regressions. I report only the OLS results - the probit results are very similar to the OLS results and are available on request.

The sample consists of children aged 12-16 years. I compare school enrollment of children who were not affected by the abolition with school enrollment of children who in West Bengal were affected by the abolition. The data on the former set of children come from the 42nd round of the NSS survey, canvassed in 1986-87, while data on the latter set of children come from the 52nd round of the NSS survey, canvassed in 1995-96. Since I use a difference-in-differences

estimation strategy, this analysis will show whether children in West Bengal who were affected by the abolition of English witnessed any differential growth in enrollment compared to same-aged children from the same cohort in the other states, after controlling for initial pre-program differences, if any.

I use the age-group 12-16 years for the following reasons. First, almost all children in India move on to middle school by the time they are 12 years old (if they ever enrolled and did not drop out earlier), so a cutoff at 12 years enables me to analyze their primary schooling outcomes. Second, as mentioned earlier, children who were more than 12 years old during the 42nd round of the NSS survey, which was canvassed between July 1986 and June 1987, would have attended grade 1 before 1983 and hence would be unaffected by the no-English policy. This helps me in constructing my control group for the difference-in-differences estimation. Third, I use a cutoff of 16 years since some children over 16 years old, particularly rural girls, have already been married off and hence difficult to relate to their parents' families from the survey, which I need to do in order to control for parental education and household expenditures in my regressions. Also, children more than 16 years old during the NSS 52nd round survey in 1995-96 may have been unaffected by the no-English policy in West Bengal, while those less than 16 years old would have been affected. So a cutoff at 16 years helps me in constructing my treatment group.

Number of Years of Schooling

Given enrollment in school, the most important indicator of educational attainment is the number of years of schooling attained. In 1983, when the teaching of English was abolished in West Bengal, schooling in India, including West Bengal, was characterized by high dropout rates, particularly in the primary and post-primary grades. So the effect of the policy on total schooling attained will be a key determinant of its success or otherwise.

The dependent variable is the number of years of schooling that a child has attained. The regression is run on children who ever enrolled in a school. The same regression (equation (2)) is run, except that here I add the age at entry to school as an additional regressor. This is to control for the fact that children who started school at an earlier age will have had more years of schooling by the survey date, ceteris paribus (if they are still enrolled). The sample used is the same as that for school enrollment - children aged 12-16 years.

Private school attendance

Next I look at the choice between private and public schools. Public schools, financed wholly or mostly by the state government, are bound to implement the no-English policy in the primary grades. But the private schools would be relatively free from such constraints - and one might expect some public school students to switch to private schools if employers or parents (or the students themselves) put a premium on better English language skills. However, since most new private schools have to be approved by a state board of education, whose members are appointed by the state government, the supply of new private schools may not always increase in proportion to the demand for them. Under such circumstances, families may opt for private tutoring as discussed below.

I define a binary variable which takes the value 1 if the child in question attends a private school, 0 otherwise. The same regressions are run, but with two changes. The first is that instead of looking at the 12-16 age cohorts across the two surveys as earlier, I now look at the children currently studying in primary grades (5th grade or below). That is, I compare the private school attendance rates of children studying in primary grades during 1995-96 in West Bengal, who were affected by the abolition of English, with private school attendance rates of children studying in primary grades during the same year in the other states, after controlling for initial differences using data on primary grade children from 1986-87. This is necessary because in the data I only observe the type of school *currently* attended - I do not know the type of schools attended by children in earlier levels or grades. That is, I do not know whether children aged 12-16 years at the time of the surveys, who are now (at the time of the surveys) studying in middle schools or secondary schools or have dropped out, attended public or private schools in earlier years when they were studying in primary grades.[20] The second change is that instead of age I now put in the variable denoting the grade being currently attended as a regressor, as it may better reflect the demand for private schooling.[21]

[20] I ran my earlier regressions with this alternate definition of the sample - children studying in primary grades instead of children aged 12-16 years - the results are similar and hence not reported. I slightly prefer looking at children aged 12-16 years for two reasons. First, restricting the sample to children currently (at the time of the survey) enrolled in primary grades raises the question of selection bias, as the abolition of English may have had effects on dropout behavior in West Bengal. Second, some children in the control group enrolled in primary grades at the time of the 42nd round in 1986-87 can have been partly affected by the abolition in West Bengal, which began from 1983. So this strategy might give a slight under-estimate of the program effects (most of the effects are likely to occur only with a lag, as students and families come to terms with the implications of the abolition).

[21] Note that this variable - private school attendance - is observed only for students who are *currently* enrolled, so there is a selection issue involved here (children dropping out are unlikely to be a random sample of the overall

Expenditure on coaching

The last two variables of interest concern the expenditure on private coaching. There are several reasons why one may expect higher expenditures on private coaching in West Bengal following the abolition of teaching of English, if there is an inherent demand for better English language skills, at least from some families. One reason is if private schools are slow to respond, so that the number of seats in private schools falls short of the demand for them. Private coaching here may be an alternative to acquire the extra skills private schooling might have imparted. Also, for parents not prepared to switch all the way to private schools (high fees, greater distances from home, etc.), such coaching may enable incremental increases in desired skills.

I define two variables. The first relates to the probability of a student availing of private coaching, while the second measures the amount of money spent by a family on its child for such coaching. The former is a binary indicator taking the value of 1 for a student if any positive amounts, however small, were spent on her for private coaching. The second variable measures the amount of such expenditures on the child. The two measures complement each other, and help us in distinguishing whether any increase in overall coaching expenditures is due to more families buying private coaching, or individual families increasing their spending.

For each of these two private coaching variables, I run the same regressions as those for private school attendance, with a small change. The type of school attended - private or public - is now introduced as an additional regressor, since their respective effects on private coaching may be different. Note that the second variable - total expenditure on private coaching - is a censored variable - having a value of zero for all those who decide not to avail of any extra at-home coaching.[22]

population). If there were variables that influence dropout, but otherwise are independent of type of school or expenses when enrolled, one could use them as exclusion restrictions and correct for the non-random selection. In the absence of such variables, I estimated regressions which include polynomials of the predicted values from the selection (current school enrollment) equation. The results are very similar and available on request.

[22] Though expenditure on coaching is a censored variable (censored at zero), I run simple OLS regressions. I also run tobit regressions,- however, Deaton (1997) argues that tobit models can give misleading results in the presence of heteroscedasticity. Heteroscedasticity is indeed a problem in my case, as even among the richer households, there are many children without any coaching expenditures (or little, if any). The tobit results, which are qualitatively similar, are available on request.

5 Results

This section describes the results. I run separate regressions for the rural and the urban sectors, and within each sector I run separate regressions for girls. I also run these regressions separately for each of the four expenditure quartiles.[23]

5.1 Enrollment

The results are in Table 4. At the time of the no-English policy, West Bengal lagged slightly behind the other states, as shown by the coefficients on West Bengal dummy,- however, the differences are not significant in most cases. The coefficients on the 52nd round dummy are positive but small and insignificant, suggesting that there was little trend in school enrollment during this period independent of the effects of other independent variables. The no-English policy does not seem to have affected school enrollment in West Bengal any differently compared to the other states, the coefficients on West Bengal dummy interacted with the 52nd round dummy are all small, close to zero and never statistically significant.

The coefficients on the other variables have the usual signs. Being female has a strong negative effect on school enrollment, and the effect is significantly higher in the rural sector, highlighting the low enrollment rates of girls in that sector. Income, proxied by per capita household expenditure, has a strong positive influence, particularly in the rural sector, and for girls in that sector. A child's age in itself does not have a significant effect in any of the regressions. In the rural sector, being a sibling (brother or sister) of the head of the household has a significant negative effect on enrollment (compared to being the son or the daughter). Children belonging to the scheduled castes and scheduled tribes have a significantly lower probability of enrolling in school - the effects are higher for children belonging to scheduled tribes, for girls and in the rural sector.[24]

[23] For enrollment and private school attendance, there are few significant differential effects across expenditure quartiles. These results are not shown but available on request.

[24] For brevity I do not show the coefficients on the dummies for different levels of parental education (and household expenditure squared) - these have the expected signs. I also do not report the coefficients on the interactions of the explanatory variables with the 52nd round dummy. These results are available on request.

5.2 Number of Years of Schooling

Though there does not seem to have been any positive effect of the no-English policy on school enrollment, the results in Table 5 on number of years of schooling show significant though modest improvements by children in West Bengal following the abolition. Before the policy was implemented, West Bengal lagged behind the other states in my control group, in both the rural and the urban sectors, and both for all children and for girls. However, between the 42nd and the 52nd rounds, children in West Bengal significantly narrowed the gap between them and their peers from other states. The improvement was larger for the boys in the urban sector, but in the rural sector the girls improved at a faster rate, as seen from a comparison of the coefficients on all children and the coefficients on girls. Note that these improvements were over and above the overall improvements common to these states during this period, when the average number of years of schooling for children in this age-group (12-16) increased by about one and a half years in both the urban and the rural sectors.

Like for enrollment, being female has a strong negative effect on years of schooling attained, and this is more pronounced in the rural sector. A child's age at entry to school is also significantly negatively correlated with years of schooling. Unlike for enrollment, relationship to the head of the household does not seem to have much effect. The results suggest that children belonging to the scheduled castes and scheduled tribes in the rural sector complete a lower number of years at school, though the coefficients are generally small and not significant. Like for enrollment, household expenditure is a strong positive indicator of school attainment, particularly for girls in the rural sector.

5.3 Private School Attendance Rates

Recall the discussion in section 2 that if families continue to value English-language skills and believe that development of such skills will be impaired if schools teach English only from grade 6, they might switch to private schools, which are not bound by the no-English policy, and/or private coaching at home. The results for enrollment in private schools are shown in Table 6. Before the no-English policy, West Bengal had a somewhat higher percentage of its students enrolled in private schools, more so in the rural sector. However, after the abolition, there is not much differential change in either sector compared to other states.

Interestingly, the female dummy is not significant in the regression for all children, suggesting that there is no difference among boys and girls in terms of attending private schools, as long as they are currently enrolled. Unlike for enrollment and school attainment, most other variables do not have any significant effect, except for household expenditure which positively affects private school attendance in the urban sector, and belonging to scheduled tribes which negatively affects such attendance. It is also interesting that household expenditure does not matter when it comes to enrolling children in private schools in the rural sector - it is possible that the rural regions are supply-constrained as far as private schools are concerned.

5.4 Probability of a Student using Private Coaching

The results for the probability of a student using private coaching at home are in Table 7. Compared to the other states, a higher fraction of West Bengal families was hiring private tutors for their children at the time of the no-English policy. This was true for both the rural and the urban sectors, and for both all children as well as for girls (though the incidence was somewhat smaller in the rural sector and slightly smaller for girls compared to overall).

During the period between the two rounds, there was little overall change across the states. This is true for either sector,- though the coefficients for the urban sector are positive they are not significant. But interestingly, as far as West Bengal is concerned, there is a significant increase in the percentage of students availing of private coaching. The effect is particularly large in the urban sector, where the incidence of private coaching significantly increased - by 16-17 percentage points - for both all children and for girls. The increase is also significant in the rural sector, but only for all children, and is relatively modest.

Not surprisingly, among the other explanatory variables, household expenditure has the most effect on the probability of a student having private tutors, both for all children and girls. Most other variables are either insignificant or only marginally significant, except the current grade of the child - possibly a proxy for the fact that as one moves into higher grades, the curriculum becomes more diversified and demanding, with a corresponding increase in the demand for private coaching.

5.5 Total Expenditure on Coaching

The results for the amount of money spent on private coaching mirror those for the share of students availing of such coaching. Table 8 shows that at the time of the abolition, households in West Bengal were already spending larger sums of money on private coaching compared to their counterparts from other states, particularly in the urban sector. There were no overall trends in private coaching across the control states during this time period, as seen by small and statistically insignificant coefficients on the 52nd round dummy.

Interestingly, the expenses on private coaching increased significantly in West Bengal after the no-English policy. In the urban sector, the average amount spent on private tutors increased by $132 for all children, and by $152 for girls. The increases are much more modest in the rural sector, though even here the differences from other states are significant, both for all children and for girls.

Like in Table 7, household expenditure has the largest effect on total expenses on private coaching. The current grade of the child and private school attendance also positively affect the expenses, mirroring earlier results on number of students using private coaching. It is interesting to note that the gradients for these are generally much higher in the urban sector compared to the rural sector - e.g., the increase in expenditure on private coaching in the rural areas following the same increase in household expenditure is less than half of that in urban areas. One possible reason for this may be the lack of an adequate number of tutors or tutoring facilities in the rural sector compared to the urban sector.

5.6 Discussion

To sum, the results suggest that there was some improvement in school attainment in West Bengal in the post-abolition period, as measured in terms of years of schooling attained, though this was not accompanied by any significant changes in enrollment. Simultaneously, however, there were large increases in the number of students availing of private coaching as well as the money spent on such coaching, as parents in West Bengal presumably sought to supplement the skills of their children by hiring private tutors. Given the significant importance of English language skills in the labor market and otherwise, parents may have been increasingly inclined to supplement the

skills that their kids learn at the local schools.[25] There were no significant changes in private school attendance, though given the possibility of supply-side bottlenecks it is likely that some of the increases in private coaching reflect pent-up demand for private schools.

Experience of households belonging to different expenditure quartiles

One important feature concerning these changes - increases in the number of years of schooling and in usage and expenditure on private coaching - is the divergence in the experience of children belonging to different quartiles (in terms of household expenditure). Table 9 shows the results for educational attainment disaggregated by expenditure quartiles. The top panel (Panel A) shows the results for the urban sector, the bottom panel (Panel B) for the rural sector,- columns (1) and (6) include all expenditure quartiles, while columns (2)-(5) and columns (7)-(10) are for the four individual quartiles.[26] As is evident, most of the gains in educational attainment accrued to children from the bottom expenditure quartiles. This is true for both the sectors (though the effects are not statistically significant in the urban sector), and for both all children and for girls, but particularly for the rural sector. For example, children belonging to the poorest expenditure quartile in the rural sector witnessed an increase of 0.67 years of schooling,- the increase (1.00) being even larger for girls (columns (2) and (7) respectively). Conversely, children belonging to the richest expenditure quartile in West Bengal actually saw some relative decline, though this is not always statistically significant (columns (5) and (10) respectively).

Tables 10 and 11 show the results for private coaching. The results for the urban sector are given in Table 10. The top panel shows the results for the probability of a student using private coaching. As is evident, the no-English policy seems to have affected households in different quartiles differently. There is no evidence of any significant increase in the probability of a child using private coaching in West Bengal as far as the poorest quartile is concerned, either for all children or for the girls. On the other hand, there are significant increases by households belonging to the two middle quartiles, particularly by households belonging to the third (upper

[25] Recall that the comparative statics exercise of the model in section 2 predicted that one should expect higher private spending on education in case of a decline in educational standards at school.

[26] Columns (1)-(5) include both boys and girls, while columns (6)-(10) show the results for the girls. Columns (1) and (6) include all expenditure quartiles (results reproduced from earlier tables), columns (2) and (7) are for children belonging to the poorest expenditure quartile, columns (3) and (8) are for children belonging to the lower middle expenditure quartile, columns (4) and (9) are for children belonging to the upper middle expenditure quartile and columns (5) and (10) are for children belonging to the richest (top) expenditure quartile.

middle) quartile. There are no significant increases for children in the top quartile.

The results for the amounts of money spent on private coaching - shown in the bottom panel of Table 10 - are even more striking. Spending on such coaching by families in West Bengal rose very significantly after the no-English policy. What is perhaps equally important, the increases were not equally spread across the expenditure quartiles. In the bottom quartile, the increases in private coaching were small and statistically insignificant. But the increases were large and substantial in each of the other three quartiles, although the increase in the top quartile was not significant for girls.

Table 11 shows the results for the rural sector. These are similar to the results for urban sector,- however, the increases, both in the probability of a child using private coaching and the total expenditures on such coaching, were lower compared to the urban sector (and not always statistically significant). There is still a hierarchy across the expenditure quartiles, though. This is particularly true for expenditure on private coaching, where there actually was a decrease in the poorest quartile but significant increases in all the other quartiles (the largest increases coming in the top quartile).

These results suggest that the no-English policy affected different children differently - while there were significant improvements for poorer children in school attainment, they may have suffered relatively in not being able to avail of private tutoring at the same rate as their peers from the richer families. It is possible that the private coaching the more affluent families were purchasing would have its effects later in life - this might create or widen the gap (in subsequent educational attainment or labor market outcomes) between the different groups in the future.

There is also some anecdotal evidence in favor of private tutoring. For example, Guha Thakurta (1998) writes about the mushrooming growth of private institutions offering courses in English from primary level and/or 'spoken English' classrooms. Further, there was also a "mad rush" for admission in English medium schools - schools where the medium (language) of instruction was English.

Overall, the analysis suggests that the results of the abolition of teaching of English were mixed. There were some significant improvements in school attainment following the policy, and this was accompanied by significant increases in private coaching, as parents in West Bengal sought to supplement the education of their children by hiring private tutors. Also, the no-English policy

did not have any effect on enrollment, and this suggests that schooling outcomes in the primary level in West Bengal were also dependent on factors other than the compulsory study of English. Possible such factors, as often mentioned in journalistic accounts and in popular media, include teacher absenteeism, lack of adequate infrastructure, etc.

6 Conclusion

In this paper I study the effects of an important educational intervention in West Bengal, a state in eastern India. In 1983, the government of West Bengal abolished the teaching of English from primary schools. I argue that this intervention may be expected to improve educational outcomes for students who were earlier struggling with the curriculum, and improve their educational attainment. However, it may also have some unintended effects. Aware of the benefits of a good knowledge of English in the labor market and in private life, which is likely to be compromised by this policy, families may spend private resources to acquire such skills. This may, somewhat ironically, widen the gap between the poor on the one hand and the rich and the middle-class on the other, something the program was ostensibly designed to narrow.

The results are somewhat intriguing. Though there does not seem to have been much beneficial effect of the no-English policy on school enrollment, there has been a significant increase in educational attainment, as measured by years of schooling. This is true for both the rural and the urban sectors, though for girls in the urban sector the effect is not statistically significant. What is perhaps more important, the results suggest that children from the poorer families, as measured by household expenditures, witnessed larger relative improvements in school attainment than their peers from the richer families. In as much as a key objective of the policy was to improve educational attainment for the disadvantaged sections of the society, it can be deemed partly successful. However, one important consequence of the policy in West Bengal was the steep rise in the incidence of private coaching. As Tables 7 and 8 show, many more parents in West Bengal were hiring private tutors for their children, and they also significantly increased the amount of money they were spending on such tutoring. Not surprisingly, the largest increases were often in the richest quartiles, particularly for the amount of expenditure on private coaching. This suggests that well-to-do parents were increasingly supplementing the education that their children got at school by private purchases (hiring tutors at home). It is an intriguing result

of a program aimed at improving the educational attainment of the poorer and disadvantaged students. The anecdotal evidence referred to earlier - mushrooming growth of private institutions offering courses in English, and of institutes offering spoken English courses - describes the same phenomenon.

As mentioned earlier, one important effect of the abolition of teaching of English should be lower English language skills, with its attendant negative labor market implications. However, counteracting this effect would be better employment and job prospects because of higher educational attainment, particularly for students from poor and lower middle-income families. Because it is too early - the cohorts affected by the no-English policy would have barely entered the labor force at the time of the latest survey available - I have not been able to look at wages and other employment outcomes of the abolition. In future work it would be interesting to see whether the positive effects of the no-English policy on years of schooling were able to negate the adverse effects on lower English language skills.

Appendix: Operation Blackboard

In 1986, only about 62% of rural boys and 40% of rural girls aged 6 to 14 were enrolled in school in India (Chin, 2005). In 1987, the government of India launched a major all-India program called Operation Blackboard (OB) to tackle this problem of low achievement. OB was aimed at substantial improvements in school quality. It tried to provide a second teacher to all single-teacher schools, a second classroom to all single-classroom schools and a teaching-learning equipment packet to all schools.

However, the general perception about OB is that it has not been a success. For example, Caroline Dyer, who has extensively studied OB, argues that "it is widely perceived to be an expensive failure. In terms of achieving its intention of establishing a minimum norm of essential facilities for primary schools, it was largely unsuccessful" (Dyer, 2001). Chin (2005), who examines the effects of the teacher recruitment drive, comes to a similar conclusion for the urban areas where the increase in number of teachers per 1000 children was only 0.16 (less than 1%). For the rural areas (where the increase in teachers was 2.16 per 1000 children) Chin does find some positive effects. But even then, the positive effects were concentrated only among the girls.

Operation Blackboard did not affect all states equally - in terms of classrooms built and

teachers recruited, there was some inter-state variation.[27] These inter-state differences in implementation might have been a potential problem if the program were successful, which was not the case. Further, the set of control states in my case is large and varied enough to eliminate (or at least dampen) any bias that might creep in from a significant impact of OB in one or two states. For example, I do not find any systematic differences in the evolution of the schooling indicators in states like Orissa (and Karnataka), which seem to have done better than the others in implementing OB. Also, OB seems to be in a position to make a difference only in the rural regions (Chin (2005), see above) but the abolition of English in West Bengal affected both rural and urban populations, and most of the effects obtained above are found in both the urban and rural areas, not only the rural areas (though there are some differences in magnitude).

Finally, one thing to note is that even though the central government spent huge sums on OB, OB expenditures were low relative to total expenditures on elementary education. State governments are responsible for most of the costs of school education, and they account for over 95% of the total spending on elementary education. This may help somewhat in understanding the modest impact of even such a large undertaking as OB.

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Table 1: Percentage of Primary-grade Children enrolled in English-medium Schools, by Expenditure Quartiles
(Selected Indian States, Urban Areas, 1995-96)

	Bottom (Poorest) Quartile	Lower Middle Quartile	Upper Middle Quartile	Top (Richest) Quartile
Assam	1	9	24	59
Gujarat	1	5	8	36
Haryana	1	14	18	45
Karnataka	5	21	47	78
Orissa	2	5	32	74
West Bengal	1	4	14	39

Source: Author's calculations from NSS 52^{nd} round survey, 1995-96.

Table 2: Identification Regressions, Enrollment in School
(Selected Coefficients from OLS regressions

	All Children			Female Children		
	Age during NSS 42nd round survey (1986-87)			Age during NSS 42nd round survey (1986-87)		
	12-13	14-16	17-18	12-13	14-16	17-18
Regressions for Urban Sector						
Assam	0.04^{+}	0.03	0.02	0.08	0.06	0.09^{+}
Gujarat	0.03	0.01	0.01	0.04	0.06^{+}	0.04
Haryana	0.06	0.05	-0.01	0.10^{+}	0.04	0.06
Karnataka	-0.02	0.00	-0.04	0.05	0.04	-0.04
Orissa	-0.04	-0.03	-0.03	0.01	0.00	0.04
Observations	9844	8864	7856	4606	4045	3423
R-squared	0.19	0.19	0.17	0.27	0.26	0.24
Regressions for Rural Sector						
Assam	0.06*	0.06*	0.06*	0.07^{+}	0.05	0.05
Gujarat	0.08**	0.06*	0.08*	0.05	-0.01	0.01
Haryana	0.10*	0.03	0.04	-0.05	-0.08	-0.06
Karnataka	0.04	-0.01	0.01	-0.01	-0.01	-0.02
Orissa	0.00	0.00	0.03	-0.06	-0.10*	-0.02
Observations	20229	17148	13084	8233	6644	4531
R-squared	0.23	0.22	0.20	0.28	0.30	0.32

Notes: The dependent variable is whether a child ever enrolled in a school - it is a 0-1 binary variable taking the value of 1 if the child ever enrolled, 0 otherwise. The coefficients shown here are for the dummy variables for the different Indian states - these take the value of 1 if the child is a resident of the particular state, 0 otherwise. West Bengal is the omitted category. (There are 17 Indian states included in the regression analysis, I only report coefficients on those states which will form my control group - see text for details.) The regressions also include age and sex of the child, a dummy for whether the child is a brother or sister of the head of the household, a dummy for whether the child is a grandchild of the head of the household, per capita expenditure of the household, per capita expenditure squared, dummies for different levels of parental education, a dummy for whether the household is headed by a female, and dummies for belonging to the scheduled castes or the scheduled tribes. All regressions are weighted and clustered according to the sample design. $^{+}$, *, ** denote significance at the 10, 5, and 1 percent levels. I also ran the corresponding probit regressions, the results are similar and hence not reported.

Table 3: Socioeconomic Indicators across Selected Indian States, 1986-87
(Households with Children in Primary Grades)

	Per Capita Expenditures Mean (in Rupees)	Percentage of Disadvantaged Groups (Scheduled Castes and Scheduled Tribes)	Percentage of Parents who are Literate	Rank among Indian States in HDI[1] in 1981 (1991, 2001)
Assam	112	19.45	44.94	9 (10, 14)
Gujarat	113	27.75	38.95	4 (6, 6)
Haryana	136	26.53	37.57	5 (5, 5)
Karnataka	100	19.04	50.60	6 (7, 7)
Orissa	100	29.52	41.01	10 (11, 11)
West Bengal	115	30.56	40.78	8 (8, 8)

Source: The human development index figures are from the Planning Commission of India's National Human Development Report (2002). All other numbers are from author's calculations from NSS 42nd round data, 1986-87.

[1] HDI stands for Human Development Index. This is calculated by the Planning Commission of India and looks at eight different dimensions of development performance: per capita expenditure, headcount poverty rate, literacy rate, a formal education enrollment index, infant mortality, life expectancy, access to safe water, and access to housing constructed with relatively permanent materials.

Table 4: Effect of the Abolition of English on Enrollment in School, OLS regressions
(Children aged 12-16 years)

	Urban Sector		Rural Sector	
	All Children	Female Children	All Children	Female Children
	(1)	(2)	(3)	(4)
Female	-0.06**		-0.13**	
	(0.01)		(0.01)	
Age	0.01	0.01+	0.00	0.00
	(0.00)	(0.01)	(0.00)	(0.01)
Sibling of head of household	-0.04	-0.12+	-0.10**	-0.13**
	(0.03)	(0.06)	(0.03)	(0.04)
Grandchild of head of household	0.01	0.05	0.12**	0.16**
	(0.04)	(0.04)	(0.03)	(0.04)
(Real) Per capita expenditure	0.04**	0.04**	0.15**	0.23**
(in '00 Rs)	(0.01)	(0.01)	(0.02)	(0.03)
Belonging to female-headed hh	-0.07*	-0.09*	-0.04	0.00
	(0.03)	(0.04)	(0.03)	(0.04)
Belonging to Scheduled Caste	-0.06*	-0.09*	-0.09**	-0.13**
	(0.03)	(0.04)	(0.02)	(0.03)
Belonging to Scheduled Tribe	-0.12+	0.02	-0.18**	-0.17**
	(0.07)	(0.09)	(0.03)	(0.04)
West Bengal	-0.02	-0.04+	-0.04*	0.00
	(0.02)	(0.02)	(0.02)	(0.02)
52nd round	0.02	0.06	0.04	0.02
	(0.10)	(0.14)	(0.11)	(0.16)
West Bengal * 52nd round	-0.01	0.00	0.00	-0.04
	(0.02)	(0.03)	(0.03)	(0.04)
Observations	8188	3802	15593	6666
R-squared	0.14	0.18	0.19	0.23

Notes: The dependent variable is a 0-1 binary variable, taking the value of 1 if the child in question ever enrolled in a school. West Bengal is a dummy variable taking the value of 1 if the child lived in West Bengal, 0 otherwise. 52nd round is a dummy variable for the 52nd round of the NSS, conducted during 1995-96, which gives the post-program effects. (The no-English policy in West Bengal was implemented in 1983, see text for details.) All regressions also include dummies for different levels of parental education, per capita expenditure squared and interactions of the explanatory variables with the 52nd round dummy. All regressions are weighted and clustered according to the sample design. $^{+}$, *, ** denote significance at the 10, 5, and 1 percent levels.

Table 5: Effect of the Abolition of English on Number of Years of Schooling, OLS regressions
(Children aged 12-16 years)

	Urban Sector		Rural Sector	
	All Children	Female Children	All Children	Female Children
	(1)	(2)	(3)	(4)
Female	-0.16^{+}		-0.32**	
	(0.10)		(0.07)	
Age	0.67**	0.64**	0.62**	0.59**
	(0.03)	(0.05)	(0.02)	(0.03)
Age at entry to school	-0.09**	-0.08**	-0.07*	-0.04
	(0.03)	(0.02)	(0.03)	(0.03)
Sibling of head of household	-0.07	-0.26	0.08	0.05
	(0.19)	(0.36)	(0.16)	(0.27)
Grandchild of head of household	0.07	0.05	0.05	0.17
	(0.20)	(0.22)	(0.15)	(0.20)
(Real) Per capita expenditure	0.57**	0.51**	0.34**	0.82**
	(0.07)	(0.09)	(0.11)	(0.14)
Belonging to female-headed hh	-0.12	0.19	-0.09	0.05
	(0.15)	(0.23)	(0.15)	(0.21)
Belonging to Scheduled Caste	-0.09	-0.09	-0.23*	-0.09
	(0.18)	(0.27)	(0.10)	(0.15)
Belonging to Scheduled Tribe	0.08	0.07	-0.16	-0.20
	(0.26)	(0.24)	(0.12)	(0.20)
West Bengal	-0.75**	-0.73**	-0.65**	-0.77**
	(0.13)	(0.18)	(0.09)	(0.12)
52nd round	1.68*	1.55	1.27*	1.72*
	(0.66)	(0.97)	(0.58)	(0.81)
West Bengal * 52nd round	0.30*	0.21	0.20^{+}	0.35*
	(0.16)	(0.21)	(0.12)	(0.17)
Observations	7495	3410	12603	4924
R-squared	0.47	0.46	0.44	0.43

Notes: The dependent variable is the number of years of schooling attained. West Bengal is a dummy variable taking the value of 1 if the child lived in West Bengal, 0 otherwise. 52nd round is a dummy variable for the 52nd round of the NSS, conducted during 1995-96, which gives the post-program effects. (The no-English policy in West Bengal was implemented in 1983, see text for details.) All regressions also include dummies for different levels of parental education, per capita expenditure squared and interactions of the explanatory variables with the 52nd round dummy. All regressions are weighted and clustered according to the sample design. $^{+}$, *, ** denote significance at the 10, 5, and 1 percent levels.

Table 6: Effect of the Abolition of English on Enrollment in Private Schools, OLS regressions
(Children enrolled in Primary School)

	Urban Sector		Rural Sector	
	All Children	Female Children	All Children	Female Children
	(1)	(2)	(3)	(4)
Female	0.00		0.00	
	(0.02)		(0.01)	
Age	0.00	0.01	0.01**	0.02**
	(0.01)	(0.01)	(0.00)	(0.00)
Sibling of head of household	0.03	0.05	-0.02	0.05
	(0.07)	(0.12)	0.00	(0.06)
Grandchild of head of household	0.06	-0.04	0.00	-0.01
	(0.06)	(0.06)	(0.02)	(0.02)
(Real) Per capita expenditure	0.14**	0.15**	0.00	0.02
	(0.02)	(0.03)	(0.02)	(0.03)
Belonging to female-headed hh	-0.04	0.05	0.01	0.00
	(0.05)	(0.08)	(0.02)	(0.03)
Belonging to Scheduled Caste	-0.02	0.02	0.00	0.00
	(0.04)	(0.05)	(0.02)	(0.02)
Belonging to Scheduled Tribe	-0.03	-0.16**	-0.05**	-0.05**
	(0.10)	(0.05)	(0.01)	(0.02)
West Bengal	0.07	0.08	0.12**	0.12**
	(0.04)	(0.05)	(0.02)	(0.02)
52nd round	0.13	0.04	-0.13+/*	-0.08
	(0.12)	(0.14)	(0.07)	(0.08)
West Bengal * 52nd round	-0.06	-0.09	0.00	-0.01
	(0.05)	(0.06)	(0.03)	(0.03)
Observations	7998	3723	13542	5839
R-squared	0.14	0.17	0.09	0.09

Notes: The dependent variable is a 0-1 binary variable, taking the value of 1 if the child in question is enrolled in a private school. West Bengal is a dummy variable taking the value of 1 if the child lived in West Bengal, 0 otherwise. 52nd round is a dummy variable for the 52nd round of the NSS, conducted during 1995-96, which gives the post-program effects. (The no-English policy in West Bengal was implemented in 1983, see text for details.) All regressions also include dummies for different levels of parental education, per capita expenditure squared and interactions of the explanatory variables with the 52nd round dummy. All regressions are weighted and clustered according to the sample design. $^{+}$, *, ** denote significance at the 10, 5, and 1 percent levels.

Table 7: Effect of the Abolition of English on Number of Students using Private Coaching, OLS regressions (Children enrolled in Primary School)

	Urban Sector		Rural Sector	
	All Children	Female Children	All Children	Female Children
	(1)	(2)	(3)	(4)
Female	-0.03^{+}		-0.01	
	(0.02)		(0.01)	
Grade at school	0.03**	0.02**	0.02**	0.02**
	(0.01)	(0.1)	(0.00)	(0.01)
Attending a private school	0.06^{+}	0.03	0.03	0.02
	(0.03)	(0.04)	(0.03)	(0.03)
Sibling of head of household	0.00	0.01	-0.03	-0.06^{+}
	(0.06)	(0.09)	(0.03)	(0.04)
Grandchild of head of household	0.05	0.02	0.04*	0.03
	(0.06)	(0.05)	(0.02)	(0.03)
(Real) Per capita expenditure	0.07**	0.10**	0.10**	0.10**
	(0.02)	(0.02)	(0.02)	(0.03)
Belonging to female-headed hh	0.00	0.04	0.03	0.05
	(0.05)	(0.06)	(0.03)	(0.04)
Belonging to Scheduled Caste	0.02	0.04	0.01	-0.01
	(0.03)	(0.05)	(0.02)	(0.02)
Belonging to Scheduled Tribe	-0.04	0.00	0.00	0.03
	(0.05)	(0.09)	(0.02)	(0.03)
West Bengal	0.27**	0.25**	0.23**	0.21**
	(0.03)	(0.04)	(0.02)	(0.02)
52nd round	0.09	0.10	0.00	-0.02
	(0.10)	(0.11)	(0.08)	(0.11)
West Bengal * 52nd round	0.16**	0.17**	0.07*	0.05
	(0.04)	(0.05)	(0.03)	(0.04)
Observations	7993	3719	13502	5821
R-squared	0.22	0.21	0.18	0.15

Notes: The dependent variable is a 0-1 binary variable, taking the value of 1 if the child in question received private coaching at home, 0 otherwise. West Bengal is a dummy variable taking the value of 1 if the child lived in West Bengal, 0 otherwise. 52nd round is a dummy variable for the 52nd round of the NSS, conducted during 1995-96, which gives the post-program effects. (The no-English policy in West Bengal was implemented in 1983, see text for details.) All regressions also include dummies for different levels of parental education, per capita expenditure squared and interactions of the explanatory variables with the 52nd round dummy. All regressions are weighted and clustered according to the sample design. $^{+}$, *, ** denote significance at the 10, 5, and 1 percent levels.

Table 8: Effect of the Abolition of English on Expenditure on Private Coaching, OLS regressions
(Children enrolled in Primary School)

	Urban Sector		Rural Sector	
	All Children	Female Children	All Children	Female Children
	(1)	(2)	(3)	(4)
Female	-9		-2	
	(7)		(2)	
Grade at school	13**	12**	5**	5**
	(2)	(3)	(1)	(1)
Attending a private school	24*	9	12**	9+
	(10)	(13)	(5)	(5)
Sibling of head of household	5	37	-5	-8
	(25)	(52)	(4)	(6)
Grandchild of head of household	27+	15	7+	8
	(16)	(14)	(4)	(6)
(Real) Per capita expenditure	49**	64**	21**	21**
	(12)	(20)	(4)	(5)
Belonging to female-headed hh	-6	2	2	1
	(12)	(15)	(4)	(5)
Belonging to Scheduled Caste	0	2	-1	0
	(7)	(9)	(3)	(4)
Belonging to Scheduled Tribe	-8	-10	-3	-2
	(11)	(17)	(2)	(2)
West Bengal	79**	77**	31**	28**
	(11)	(14)	(3)	(4)
52nd round	7	-9	23	7
	(64)	(63)	(19)	(34)
West Bengal * 52nd round	132**	152**	25**	17*
	(25)	(37)	(6)	(8)
Observations	7971	3711	13459	5799
R-squared	0.18	0.25	0.12	0.10

Notes: The dependent variable is the expenditure on private coaching for the child in question. West Bengal is a dummy variable taking the value of 1 if the child lived in West Bengal, 0 otherwise. 52nd round is a dummy variable for the 52nd round of the NSS, conducted during 1995-96, which gives the post-program effects. (The no-English policy in West Bengal was implemented in 1983, see text for details.) All regressions also include dummies for different levels of parental education, per capita expenditure squared and interactions of the explanatory variables with the 52nd round dummy. All regressions are weighted and clustered according to the sample design. $^{+}$, *, ** denote significance at the 10, 5, and 1 percent levels.

Table 9: Effect of the Abolition of English on Number of Years of Schooling, by Expenditure Quartiles
OLS regressions
(Children aged 12-16 years)

	All Children					Female Children				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A										
Urban Sector										
52nd round	1.68*	0.21	-0.24	2.98	1.43	1.55	-0.19	-0.52	1.27	0.90
	(0.66)	(1.07)	(0.55)	(0.68)	(1.09)	(0.97)	(1.95)	(1.62)	(1.19)	(0.92)
West Bengal * 52nd round	0.30*	0.48	0.34	0.21	-0.51**	0.21	0.57	0.44	0.64	-0.58*
	(0.16)	(0.34)	(0.28)	(0.33)	(0.19)	(0.21)	(0.50)	(0.33)	(0.53)	(0.27)
R-squared	0.47	0.36	0.40	0.48	0.62	0.46	0.39	0.44	0.47	0.58
Panel B										
Rural Sector										
52nd round	1.27*	1.10	3.32	2.29+	0.61	1.72*	1.43	1.31	2.32**	1.86
	(0.58)	(1.05)	(1.04)	(1.58)	(0.90)	(0.81)	(1.24)	(0.83)	(0.80)	(1.50)
West Bengal * 52nd round	0.20+	0.67**	0.46+	0.24	-0.31	0.35*	1.00**	0.13	0.42	-0.43+
	(0.12)	(0.23)	(0.28)	(0.23)	(0.18)	(0.17)	(0.38)	(0.42)	(0.32)	(0.25)
R-squared	0.44	0.36	0.40	0.43	0.48	0.43	0.31	0.39	0.43	0.52

Notes: See notes to Table 5 for details. Columns (1) and (6) include all expenditure quartiles, columns (2) and (7) are for children belonging to the poorest expenditure quartile, columns (3) and (8) are for children belonging to the lower middle expenditure quartile, columns (4) and (9) are for children belonging to the upper middle expenditure quartile and columns (5) and (10) are for children belonging to the richest (top) expenditure quartile. $^{+}$, *, ** denote significance at the 10, 5, and 1 percent levels.

Table 10: Effect of the Abolition of English on Private Coaching, by Expenditure Quartiles
Urban Sector, OLS regressions
(Children enrolled in Primary School)

	All Children					Female Children				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable:										
Whether got Private Coaching										
52nd round	0.08	-0.09	-0.07	0.05	0.04	0.10	-0.09	-0.20	0.35	0.08
	(0.10)	(0.13)	(0.08)	(0.05)	(0.14)	(0.11)	(0.15)	(0.20)	(0.11)	(0.19)
West Bengal * 52nd round	0.16**	0.02	0.23**	0.35**	-0.07	0.17**	0.07	0.17+	0.39**	-0.14
	(0.04)	(0.08)	(0.07)	(0.08)	(0.08)	(0.05)	(0.09)	(0.10)	(0.11)	(0.10)
R-squared	0.22	0.21	0.27	0.27	0.20	0.21	0.21	0.23	0.31	0.23
Dependent variable:										
Expenditure on Private Coaching										
52nd round	7	-53**	-91*	43	36	-9	-18	-60	58	-64
	(64)	(56)	(45)	(65)	(36)	(63)	(65)	(43)	(77)	(49)
West Bengal * 52nd round	132**	21	67**	211**	167+	152**	21	74**	222**	220
	(25)	(14)	(22)	(31)	(105)	(37)	(15)	(28)	(40)	(148)
R-squared	0.18	0.19	0.21	0.22	0.16	0.25	0.21	0.27	0.27	0.28

Notes: See notes to Tables 7 and 8 for details. Columns (1) and (6) include all expenditure quartiles, columns (2) and (7) are for children belonging to the poorest expenditure quartile, columns (3) and (8) are for children belonging to the lower middle expenditure quartile, columns (4) and (9) are for children belonging to the upper middle expenditure quartile and columns (5) and (10) are for children belonging to the richest (top) expenditure quartile. $^{+}$, *, ** denote significance at the 10, 5, and 1 percent levels.

Table 11: Effect of the Abolition of English on Private Coaching, by Expenditure Quartiles
Rural Sector, OLS regressions
(Children enrolled in Primary School)

	All Children					Female Children				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable:										
Whether got Private Coaching										
52nd round	0.00	-0.37*	-0.67	0.71	0.22	-0.02	-0.37	-1.29	0.73	-0.13
	(0.08)	(0.17)	(0.70)	(0.69)	(0.20)	(0.11)	(0.26)	(0.84)	(0.98)	(0.28)
West Bengal * 52nd round	0.07*	-0.04	0.10	0.08	0.18**	0.05	-0.04	0.08	0.11	0.07
	(0.03)	(0.04)	(0.06)	(0.06)	(0.06)	(0.04)	(0.05)	(0.07)	(0.08)	(0.09)
R-squared	0.18	0.12	0.19	0.16	0.24	0.15	0.09	0.19	0.17	0.18
Dependent variable:										
Expenditure on Private Coaching										
52nd round	23	-24	-90	23	-25	7	-9	-83	-20	-109
	(19)	(19)	(83)	(73)	(90)	(34)	(19)	(91)	(92)	(195)
West Bengal * 52nd round	25**	-10*	16*	20*	87**	17*	-12+	15+	19+	70*
	(6)	(5)	(8)	(2)	(20)	(8)	(6)	(8)	(11)	(35)
R-squared	0.12	0.10	0.19	0.15	0.14	0.10	0.11	0.21	0.17	0.14

Notes: See notes to Tables 7 and 8 for details. Columns (1) and (6) include all expenditure quartiles, columns (2) and (7) are for children belonging to the poorest expenditure quartile, columns (3) and (8) are for children belonging to the lower middle expenditure quartile, columns (4) and (9) are for children belonging to the upper middle expenditure quartile and columns (5) and (10) are for children belonging to the richest (top) expenditure quartile. $^{+}$, *, ** denote significance at the 10, 5, and 1 percent levels.

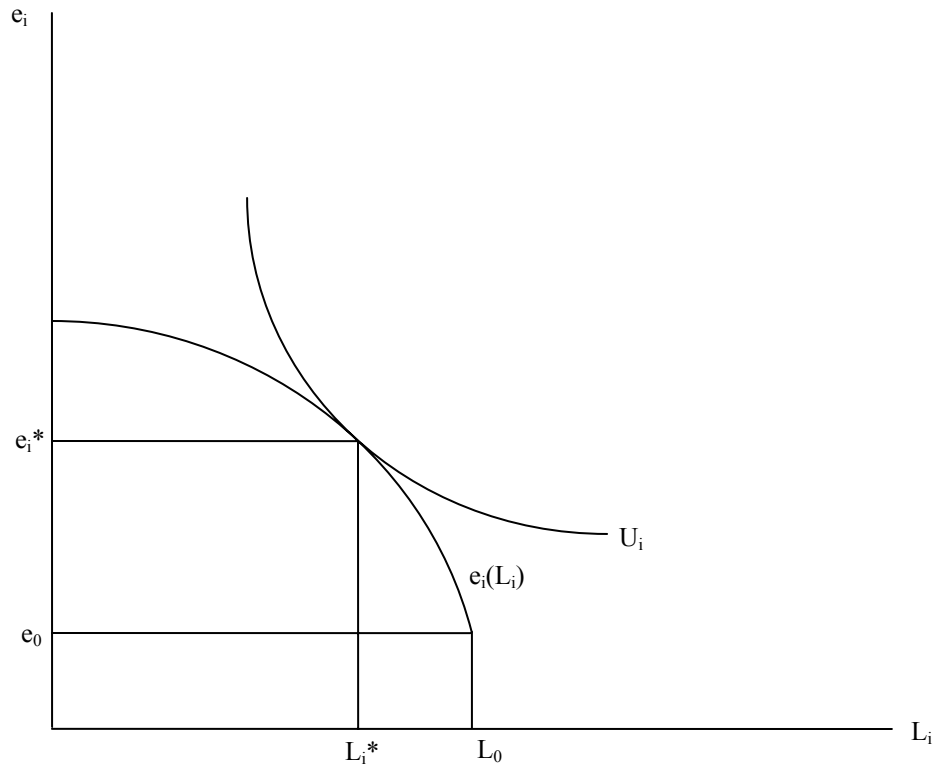

Figure 1

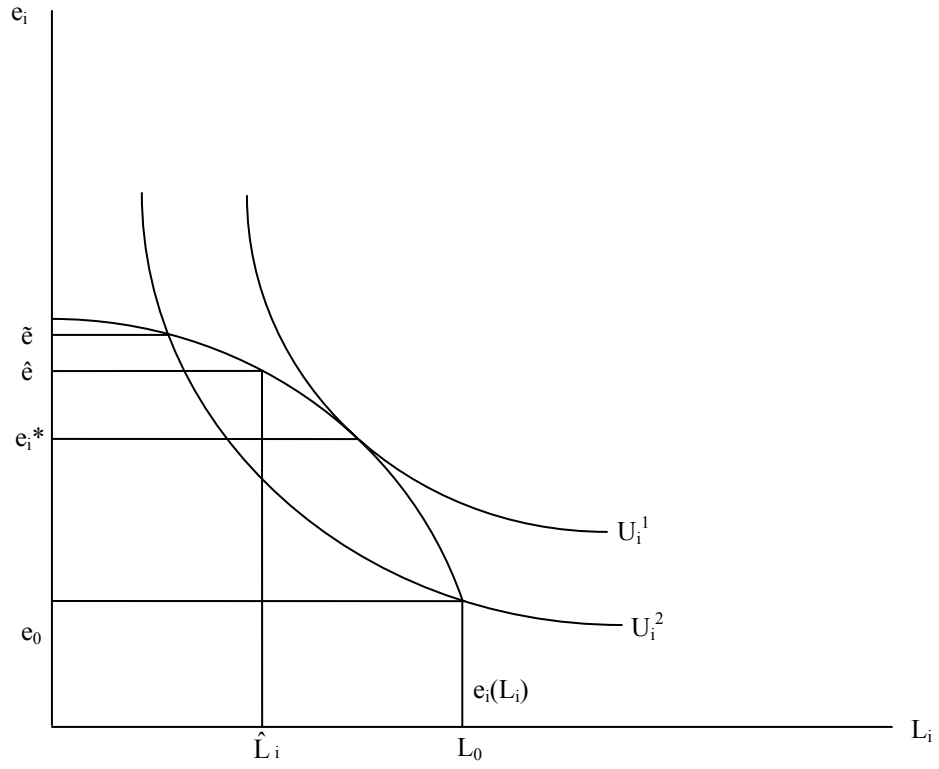

Figure 2

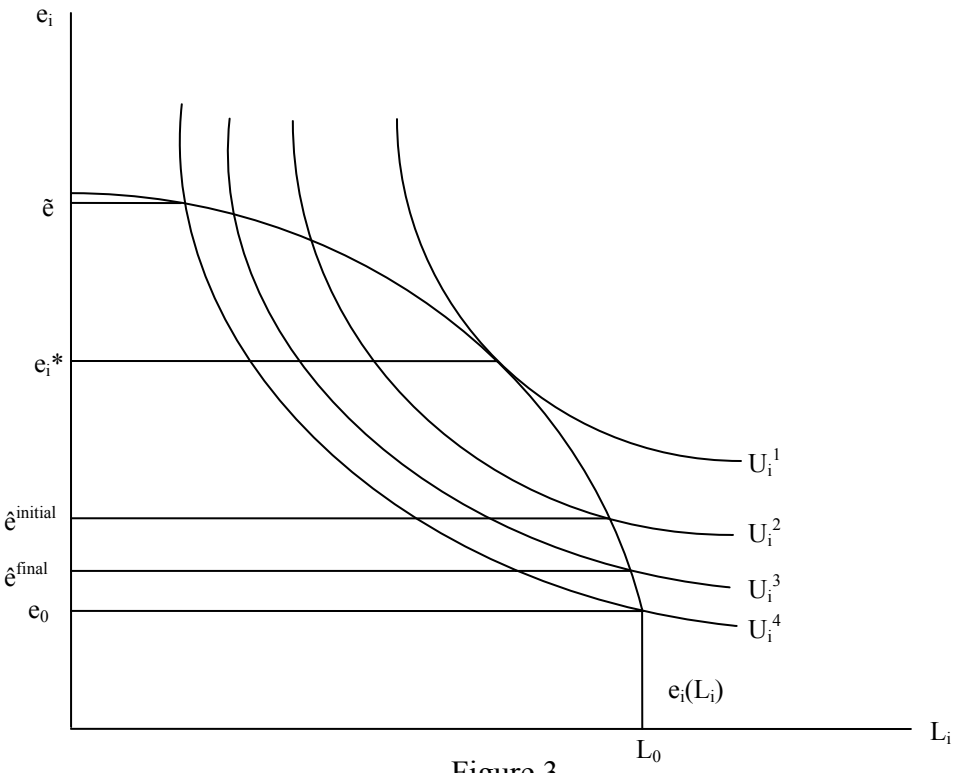

Figure 3

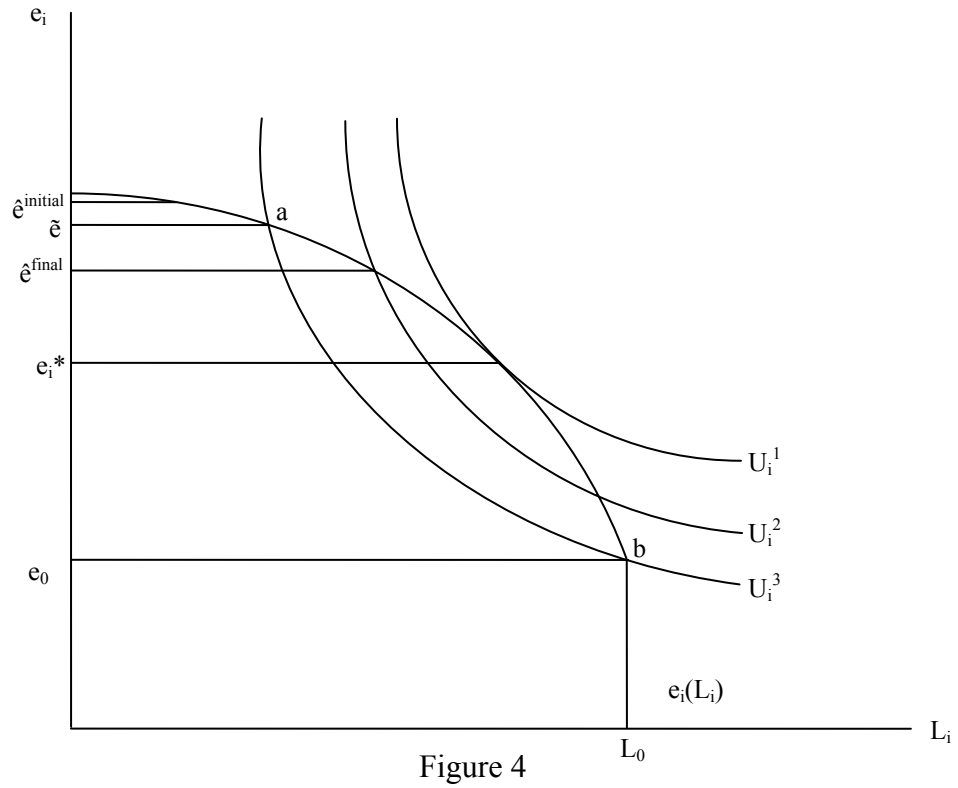

Figure 4