

Primary Education as a Fundamental Right

Cost Implications

In an attempt to attain the goal of universal primary education, many developing country governments, including India, have abolished official fees in primary education. The 86th amendment to the Indian Constitution made free and compulsory education a fundamental right for all children in the age group 6-14 years. There are other direct and indirect costs that can deter children from going to school. In this paper, using a rich nationwide data set, the authors construct the incompressible direct costs of attending primary school in India. After controlling for the opportunity cost of going to school (as proxied by the ratio of children's wages to adult's wages), it is found that the direct costs of education adversely affect the probability of children going to school, more so for children from poorer households. The results show that relative to boys, girls are more likely to be affected by the direct costs of schooling. The authors show that making primary education completely free will not increase the attendance rates to 100 per cent. They find that the government will have to incur an additional minimum expenditure of over Rs 2,900 crore every year in order to defray the basic or incompressible cost of attending school.

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The National Commission to Review the Working of the Constitution recommended that all children enjoy the fundamental right to free and compulsory education. In addition, girls and children from scheduled caste (SC) and scheduled tribe (ST) households would have judicially enforceable right to education until they are 18 years of age. This move was lauded because the right to education became justiciable. Article 45¹ of the Constitution pertaining to primary education being only a directive in nature is not justiciable.

The 86th amendment to the Indian Constitution enacted in December 2002 made free and compulsory education a fundamental right for all children in the age group 6-14 years.² The bill specifies that every parent or guardian of a child has to "enrol his child, or, as the case may be, ward in a recognised school, cause the child to attend such school with at least such minimum regularity as may be prescribed; and provide the child full opportunity to complete elementary education".³ Following up on this amendment, the Free⁴ and Compulsory Education Bill, 2004 was proposed and has since then been studied by the Central Advisory Board of Education.

While the decision to make education a fundamental right is commendable, it appears that the decision did not take into consideration the associated financial implications. In his note, Subhash C Kashyap, a member of the National Commission to Review the Working of the Constitution and the chairman of its Drafting and Editorial Committee, states, "It is doubtful whether the actual costs of providing free and compulsory education to nearly half of India's population up to the age of 18 years have been worked out before making such recommendation" (p 259).

The National Advisory Council (NAC) in its draft recommendation on the Sarva Shiksha Abhiyan (SSA) states, "The government of India must make a beginning by making a firm financial commitment, which has been lacking so far".⁵ First, there is a need to step up expenditure on school infrastructure.⁶ The second

broad head relates to wages and salaries of teachers. The third area is the recurring expenses per child for providing free education, mid-day meals, etc. The second and third heads of expenditure can be combined to arrive at the total annual recurring expenses per child⁷ for every state.

In this paper we look at one particular component of the annual recurring expense, viz, what is the bare minimum additional cost of providing free education in rural India? More specifically, we have calculated how the probability of attending school changes with the "incompressible cost" of going to a primary school. For the purpose of discussion that follows, we look at the sum total of costs incurred on the following: expenditure on tuition, examination fees, other fees, books and stationery in a government (public) school. It is reasonable to argue that the sum total expenditure on the above five items can be viewed as the incompressible cost of going to a primary school. Given that at the bare minimum the government needs to defray this incompressible cost, we generate a ball park estimate of the additional expenditure that will be incurred by the government.

In order to generate reasonable estimate of the incompressible cost of going to a primary school, it is important to have a nationwide rich data set that gives information on schooling expenses incurred on each child among rural households. Such detailed data was collected by National Sample Survey Organisation (NSSO) as part of its nationwide survey on 'Participation in Education'. The survey was conducted during July 1995-June 1996.⁸ This unique data set has detailed information on expenditure on schooling.

It is well documented in the Indian context that households incur substantial expenditures on education (tuition fee, examination fee and other fees), both in government and local body schools [Panchamukhi 1990; Tilak 1996a, 1996b, 2002, 2004]. In 1995-96, the average expenditure per student pursuing primary education in rural India in a government school was Rs 219, for

students going to local body schools, private aided schools and private unaided schools were respectively Rs 223, Rs 622 and Rs 911 respectively at 1995-96 prices [National Sample Survey Organisation 1998].

Tilak (2002) concludes, "households from even lower socio-economic background, low income groups, households whose primary occupation is not high in the occupational hierarchy, all spend considerable amounts on acquiring education, including specifically elementary education, which is expected to be provided by the state free to all" (pp 55-56). The Public Report on Basic Education in India [PROBE 1999] finds that in northern states of India, such costs are substantial: "In fact, "schooling is too expensive" came first (just ahead of the need for child labour) among the reasons cited by PROBE respondents to explain why a child had never been to school" (p 32).

This paper gives strength to the view adopted in the bill that subsidisation of tuition needs to go beyond basic fees and must defray other related costs. Subsidisation of other basic components of user fees that children have to bear in primary schooling can go a long way in increasing enrolment and retention. The case for subsidisation comes from our result that lower direct costs of schooling result in higher probability of attending school. We find that probability of children going to school in the bottom three non-food expenditure quartiles is lower than the reference group which is children belonging to households in the highest quartile. We find that a unit change (increase from the mean) in logarithm of cost decreases the probability of attendance by 3 percentage points. Moreover the effect is more pronounced for poorer households, since a unit change (increase from the mean) in the logarithm of cost decreases the probability of children from the lowest quartile going to school by an additional 3 percentage points as compared to the household from the top quartile. This gives credence to the credit constraint argument on why so many children are not attending school.

We find support for the hypothesis that cost of schooling matters more for the girls as against boys. Our estimates suggest that gender bias is most pronounced in households belonging to the bottom quartile. We also find that the opportunity cost of schooling as proxied by the ratio of children's wages to adult wages adversely affects schooling decisions. A unit change in this ratio reduces the probability of going to school by 13 percentage points. This suggests that the indirect costs (opportunity costs) of schooling adversely affect the probability of going to school. This effect can offset the improved probability of attending school on account of slashing of direct costs of schooling.

Next, we seek to find the additional costs that the government needs to incur in order to make primary education free. However, we find that making primary education free will not translate into 100 per cent primary school attendance. This is so because there are other factors (sex, opportunity cost of education, attitudes towards education, etc) that influence attendance decisions. We show that making primary education completely free will increase the attendance rates to only 89 per cent. Our calculations suggest that the government will have to incur, at the minimum, an additional expenditure of over Rs 2,900 crore every year in order to defray the basic or incompressible cost of attending school.

Valid concerns can be raised about the validity of the dated information used in this paper. However, we do not believe that this is a fatal flaw. The objective of this paper is to estimate how much the probability of attending school changes in response to a reduction in cost of schooling. Second we want to arrive

at a ball park estimate of the size of additional resources at the minimum the government needs to commit.

The paper is organised in the following way: In Section I we discuss the determinants of school attendance. Section II discusses the empirical model and data used. We provide probit estimates and explain our results in Section III. Section IV provides a ball park estimate of additional resources that the government needs to commit, Section V concludes.

I Determinants of School Attendance

The literature⁹ on child schooling [Chin 2002, Dreze and Kingdon 2001, Duraisamy 2002, Grootaert and Patrinos 1999, Kochar 2001, Leclercq 2001a, 2001b] reveals the following stylised facts. First, parental education has a strong positive influence on schooling outcomes and in particular for the girl child. The impact of mother's education is more pronounced for the girl child than for boys. Second, the economic well-being of the household as measured by income or wealth indicators affects the likelihood of going to school. Poorer households are prone to income shocks and unable to insure themselves. Credit constraints prevent them from borrowing. They are less likely to send their children to school and more likely to pull the children out of school in the event of an adverse shock. Hence, there is also a link between the occupation of the household head and the likelihood of going to school. Third, sibling rivalry too is important. Girls are likely to be pulled out of school in order to help with household chores. Fourth, school availability and school quality are important determinants of school enrolment and attendance. In our empirical exercise, we control for all these using individual, household, community and village level information.

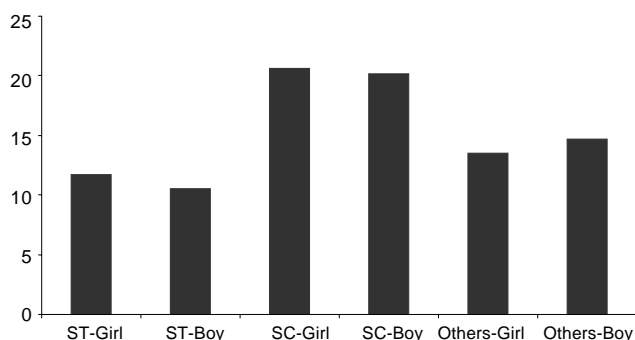
We now briefly describe our data, present select summary statistics and then proceed to highlight a few standard issues in the literature. Since we concentrate on primary schooling, we look at children in the age group 5-12,¹⁰ covering 46,430 children. In addition to household-specific information, the survey provides us cost information for children who go to school. For those who do not go to school the reasons for not attending school were recorded.

Nearly 29 per cent of the children in our sample do not go to school. This includes those who have never enrolled and those who are not attending any more. There are sharp differences across gender. While nearly 23 per cent of boys in our sample do not attend school, the corresponding number for the girls is 35 per cent.

Using the data on reasons why a child did not attend school, we find that parents' or the child's attitude (no tradition in community, education not considered useful and parents not interested) towards education matters. Over 50 per cent of the respondents feel that education is not useful. The issue of difference across the minority (social) groups,¹¹ viz, scheduled castes and scheduled tribes, is important. However, since the primary focus of this paper is cost of schooling and not the differences in educational outcomes of children from minority households, we do not provide a detailed discussion on the same.¹²

Figure 1 clearly brings out the fact that a large percentage of households attribute the reason for the child not attending school to financial reasons. We also find variations across the social

Figure 1: Percentage of Households Giving Financial Reasons for Child Not Attending School, by Social Group



Note: ST: Scheduled Tribes, SC: Scheduled Castes.
Source: NSSO 1998.

groups. We also examine the distribution of children by status of attendance (never enrol, dropped out, currently attend) and the household's monthly per capita expenditure (MPCE) (Figure 2). We find that as one moves up the MPCE classes the percentage of children who dropped out declines and the percentage of children currently attending increases.

These suggest that household economic factors are crucial in primary school attendance decisions. There are two factors at play: first the opportunity cost of schooling may be too high, second schooling might be too expensive for poor households. Hence in the empirical analysis, we control for the opportunity cost of schooling, in order to quantify the impact of direct costs on schooling decisions.

The studies in the Indian context have not explicitly focused on the cost of education. In India, households do incur large expenditures on children going to private schools, government and local body schools [Panchamukhi 1990, Tilak 2004, 2002, 1996a, 1996b]. Ilahi (2001) recognises that ignoring the direct costs of schooling leads to a missing variable problem in schooling, labour and housework regressions. In the Indian context, we seek to explore this issue in greater detail.

II Empirical Model

We estimate a probit model to quantify the effect of the different variables on the decision to attend. We correct the standard errors for heteroscedasticity.

Next we describe some of the important variables which are the focus of our analysis. A description of the other control variables is in the appendix.

School attendance: We have information on whether a child is attending school, enrolled but not attending (dropout) or whether the child has never enrolled. For our analysis we group the latter two categories. The reason we group the two categories is because we do not have information on the characteristics of the household when the decision to dropout was taken.¹³ Hence our dependent variable is binary (0 being not attending and 1 being attending school).

Household wealth: Since we do not have information on ownership of assets, we control for household economic characteristics by constructing a proxy for wealth. Other studies have used principal component analysis to construct an index of well-being of the household [Filmer and Pritchett 2001]. Our variable is

derived by summing the household's annual expenditure on non-food (excluding education) items. As an explanatory variable we include dummy variables (Quart1-4) representing the (wealth or non-food expenditure) quartile that the household falls in. The mean annual expenditure in the four quartiles is Rs 1,423, Rs 2,476, Rs 3,653 and Rs 7,585 respectively. We believe that this measure is a good proxy for assets and is not endogenous (like income), thereby not biasing our estimates. Households with higher levels of non-food expenditure are relatively better off than households spending little on non-food items.

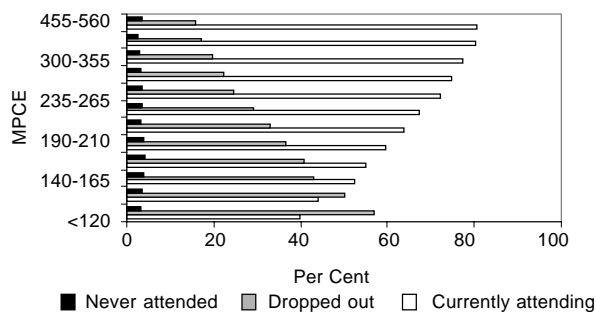
Measuring the cost of education: Cost of schooling is one of the major determinants of whether a child would enrol and attend school regularly. We, however, do not have information on what the direct cost would have been for the children who do not go to school. The standard way to tackle this problem is to construct average expenditure across households over a geographical unit (village or district). This is the approach adopted in such situations [Ilahi 2001, Grootaert and Patrinos 1999, Mason et al 1997]. We construct an exogenous measure of cost in the following manner. We utilise the breakdown of academic costs incurred by a student going to a government or a local body school, according to the following categories; expenditure on tuition, examination, other fees, books, stationery, uniform, transport, private coaching and other academic expenditure. It is reasonable to argue that the average expenditures incurred under the first five categories for a child going to a public school (where fees are not demand driven) are exogenous. At the same time constructing this average (according to social group thus taking account of subsidies provided to scheduled castes and scheduled tribes) for those going to public school gives us the basic cost that needs to be incurred over a geographical region. We construct the cost measure at the village level. In the absence of sufficient observations for any particular village, we impute the cost at the district level (such cases are a very small percentage of our sample).

If one includes expenditures on all education related heads, the average expenditure on educating a child in public or local body schools¹⁴ is Rs 336 per annum (with a standard deviation of 456). That there is considerable variation in the cost of education across the states of India has been documented before (Appendix Table 1). However since we exclude the endogenous part of the cost, the average for our measure (of cost) across all social groups is Rs 146 with a standard deviation of 117. An average by social groups reveals that scheduled castes and tribes have mean costs of Rs 126 and Rs 149 respectively while other social groups have a mean of Rs 151. We statistically test for the significance of correlation between this cost variable and the proportion of students attending school in a village and do find not any significant correlation. This further validates the assertion that the cost figure we use is not endogenous to the demand for schooling in the village. We also construct two more cost measures: one including transport costs and another including transport costs and the expenditure on uniforms, as a robustness check. In our regressions we use logarithms of the cost variable arrived at by summing expenditure on tuition, examination, other fees, books, stationery (Log Cost).

Competing opportunities: Following, Grootaert et al (1999) we capture the indirect cost of school attendance by using a dummy for distance to school (over two kilometres or less than that).

In addition, we control for the monetary aspect of the opportunity cost. In the event of the child attending school the household foregoes income that would have accrued to it if the child

Figure 2: Distribution of Children by Status of Attendance and Household Monthly Per Capita Expenditure (MPCE)



Source: NSSO 1998.

had instead worked. Hence employment opportunities available to the children and the wages paid to children are important determinants of schooling decisions. In order to capture this, we use information collected by NSSO as part of the employment unemployment survey conducted in 1993-94. This data provides information on wages of children and adults.

We control for the opportunity cost or the lost earnings by taking the ratio of average wage of a child to the average wage of an adult. Due to paucity of observations we are unable to construct this variable either at the village level or at the district level. We have enough observations to construct this variable at the NSSO region level.¹⁵ Our conjecture is that higher this ratio the lower should be the probability of children attending school.

The descriptive statistics are presented in Appendix Table 2.

III Results

We estimate four different specifications. One could put all variables and the interactions between relevant variables in one specification, but as we point out some variables are highly correlated. Hence we run separate specifications. As part of specification A, we are interested in understanding how the economic status of the household affects the probability of the child going to school and whether direct and indirect costs of education matter. In specification B, our interest is to uncover for which households cost of education matters most. We achieve this by interacting the cost term with the expenditure quartiles.¹⁶ In specification C, we are interested in understanding whether cost of education matters differently for boys and girls. Hence we interact the dummy denoting girl child with the cost variable. Finally, in specification D, we wish to understand whether there are differences in gender discrimination across households in the expenditure quartiles. Consequently, we interact the dummy denoting girl child with these quartiles.

Before we proceed to discuss the results specific to the four specifications, we would like to point out that the coefficients on household characteristics are in line with the existing literature. Our discussion is based on Table 1. We find that the probability of children from scheduled caste households going to school is lower by 4 percentage points as compared to others. For children from scheduled tribe households it is lower by 15 percentage points.¹⁷ The sex of the household head and his or her educational attainment affect school attendance. We find that the probability of a child going to school from a household headed

by a literate person is higher by 25 percentage points as compared to children from households headed by an illiterate. We find that having a woman as head of the household does contribute to better child outcomes. In line with findings in the literature, we find that the older the child the higher the probability of going to school. The marginal effect on the age squared variable is negative. The probability of a girl going to primary school is lower by 16 percentage points. The gender bias can be traced to the perception that returns to educating the male child are higher as compared to the girl child [NCERT 1995e, Dreze and Sen 1995]. The presence of children below the age of five reduces the probability of the child going to school by 3 percentage points. This indicates that other older children in the household may not be going to school because they might have to take care of the infants in the households. On the other hand, the presence of people over the age of 60 increases the likelihood of children going to school. This is consistent with the conjecture that elderly people participate in household economic and non-economic activities, thereby not requiring children to partake in such activities.

Before turning to the discussion on the economic factors, a word about the village level variables used in the analysis might be in order. An important incentive to make children attend school is mid-day meals. Presence of a school with the mid-day meal scheme in the village increases the likelihood of children going to school. We find that the coefficient associated with the total literacy campaign is statistically insignificant.¹⁸ The availability of all weather roads and accessibility to communication facilities (telephone) affect the likelihood of attendance positively while the availability of bus services do not seem to make a difference.

We now turn our attention to economic factors. We find that the coefficient pertaining to the variable capturing the indirect cost of schooling (ratio of children's wages to adult wages) is significant and negative. This shows that if child work is an attractive proposition the child is less likely to go to school.

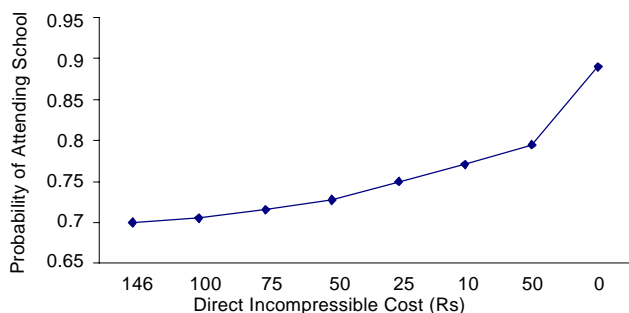
We find that the probability of a child from a household in the bottom three expenditure quartiles going to school is lower as compared to children from the top quartile. The probability of a child going to school is 10-12 percentage points lower for the poorest households as compared to the richest households. The results also show that after controlling for the opportunity cost of schooling, direct costs of education do reduce the probability of attending school. Alternatively, a unit change (increase) in logarithm of cost (Rs 250) decreases the probability of going to school by 3 percentage points.

The results from specification A have established that after controlling for the opportunity cost of schooling and the economic status of the household, an increase in the direct costs of education will decrease the probability of attending school.

Having established these baseline results we now focus on the variables of interest from the specification B-D. The coefficients on the interaction term between wealth (expenditure) quartile and cost clearly brings out the fact that cost of education reduces the probability of children going to school in the bottom three quartiles more as compared to households in the top quartile (reference group). For the poorest households, the effect of a unit change in logarithm of cost reduces the probability 3 percentage points more than the richest households.

Our results also show the nexus between economic status and gender bias. We have already established that the probability of a girl going to primary school is lower by 16 percentage points.

Figure 3: Costs and Attendance



The interaction between the girl dummy and quartile dummy captures the varying levels of gender bias at different economic strata of society. We find that such bias exists primarily in the poorest households with a girl in the poorest households having a probability of attendance 5 percentage points lower than boys. However, we find that there are no systematic differences between girls and boys from households in the second and third expenditure quartiles. This is true since the coefficient on the term interacting the quartile dummy and the gender dummy is insignificant. This is in line with studies that have found that the enrolment rate for girls and boys tend to equalise for richer households.¹⁹

Further evidence that gender discrimination is at play is evident by looking at the interaction of the dummy reflecting girl child and the cost variable. The marginal effect is significant and negative²⁰ thus reflecting that direct costs of schooling girls more than boys. A unit change in logarithm of cost affects a girl's

probability 3 percentage points more than boys. This would suggest that gender specific issues in the context of user fees need to be addressed.

IV Additional Cost to the Government

As mentioned earlier, we find that making primary education free will not translate into 100 per cent primary school attendance (Figure 3).

We already established that there are other factors (sex, opportunity cost of education, attitudes towards education, etc) that can adversely influence attendance decisions. Figure 3 shows that making primary education completely free will increase the attendance rates to only 89 per cent.

We stated earlier that the government will have to incur an additional expenditure of nearly Rs 2,975 crore every year in order to defray the basic or incompressible cost of attending school. We arrive at this estimate based on the following numbers. The additional cost per student incurred by government to defray the basic cost is Rs 197.40. This number has been arrived at by adjusting for inflation the basic costs calculated using NSS data. Subsidies given to minority groups have been taken into account while calculating this average.

There are a total of 19.08 crore children in the age group 6-14 and in 1995-96 of these children 61 per cent attended government school and 29 per cent did not attend school. We assume that children who start attending school in response to free education will enrol in a government school. Therefore of the 19.08 crore

Table 1: Binary Probit of Current Enrolment (Children 5-12 Years): Marginal Effects

Variables	Specification A		Specification B		Specification C		Specification D	
	Marginal Effects	P Values	Marginal Effects	P Values	Marginal Effects	P Values	Marginal Effects	P Values
Schooling Cost and Economic Status								
Log cost	-0.03	0.00	-0.03	0.00	-0.03	0.00	-0.03	0.00
Wealth quartile 1	-0.12	0.00			-0.12	0.00	-0.10	0.00
Wealth quartile 2	-0.06	0.00			-0.06	0.00	-0.05	0.01
Wealth quartile 3	-0.05	0.00			-0.05	0.00	-0.04	0.06
Log cost * wealth quartile 1			-0.03	0.00				
Log cost * wealth quartile 2			-0.01	0.00				
Log cost * wealth quartile 3			-0.01	0.00				
Girl child * log cost					-0.03	0.00		
Girl child * wealth quartile 1							-0.05	0.08
Girl child * wealth quartile 2							-0.01	0.60
Girl child * wealth quartile 3							-0.02	0.50
Ratio of children's wages to adult wages in the district	-0.13	0.00	-0.13	0.00	-0.13	0.00	-0.13	0.00
Controls								
Girl child	-0.16	0.00	-0.16	0.00			-0.14	0.00
Age of child	0.43	0.00	0.43	0.00	0.43	0.00	0.43	0.00
Squared age of child	-0.02	0.00	-0.02	0.00	-0.02	0.00	-0.02	0.00
Female household head	0.10	0.00	0.10	0.00	0.10	0.00	0.10	0.00
Literate household head	0.25	0.00	0.25	0.00	0.25	0.00	0.25	0.00
No of children in the HH less than five years	-0.03	0.00	-0.03	0.00	-0.03	0.00	-0.03	0.00
No of members in the HH over 60 years	0.02	0.00	0.02	0.00	0.02	0.00	0.02	0.00
Social group (scheduled caste)	-0.04	0.00	-0.04	0.00	-0.04	0.00	-0.04	0.00
Social group (scheduled tribe)	-0.15	0.00	-0.15	0.00	-0.15	0.00	-0.15	0.00
Distance to nearest primary school	-0.12	0.00	-0.12	0.00	-0.12	0.00	-0.11	0.00
Presence of telephone in the village	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
Total literacy campaign	0.02	0.11	0.02	0.11	0.02	0.11	0.02	0.11
Mid-day meal	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00
All weather roads	0.02	0.02	0.03	0.02	0.03	0.02	0.03	0.02
Availability of bus service	0.01	0.46	0.01	0.46	0.01	0.45	0.01	0.44
Total number of observations		45853		45853		45853		45853
Pseudo R square		0.188		0.188		0.188		0.188

State Specific Geographical Dummies (Not reported here).

children, 79 per cent will be attending government school. Free education would imply subsidisation not only for those not attending school but also for those currently attending government schools. Hence the government will incur an additional cost of Rs 2,975 crore on account of this initiative. Currently the net enrolment rate is 83.7 per cent and this implies that the government will need to incur a cost of Rs 2,910 crore.²¹ It is important to note that this is in addition to whatever the government provides as current subsidies. Of course we are not calculating the cost implications of the increased enrolment in terms of higher outlays on mid-day meal scheme, school infrastructure, etc.

V Conclusion

Issues relating to free and compulsory have been actively debated worldwide. A World Bank survey of user fees in primary education across 79 countries revealed the following picture. Of

the 79 countries, tuition fees were implemented in 30 countries despite the fact that only 19 countries had legal tuition fees. In the following 11 countries fees were “implemented illegally”: Benin, Ethiopia, Indonesia, Vietnam, India, Nepal, Colombia, Bosnia, Latvia, Russia and Egypt [Kattan and Burnett 2004].

In India, the 86th Amendment to the Constitution made free and compulsory education a fundamental right for all children in the age group 6-14 years. The objective of this paper is two-fold. First, we estimate how the probability of attending school changes in response to a reduction in cost of schooling. Second, we provide an estimate of the minimum quantum of resources that the government needs to commit.

We use the 52nd round (1995-96) nationwide data of the National Sample Survey Organisation (NSSO), India, to examine the factors affecting schooling decisions in rural India. We focus on direct costs of primary schooling, viz, fees, books, and stationery, an issue of paramount importance if the MDG have to be met. As is evident the contribution of this paper is in terms of quantifying the impact of cost of primary education. Tuition fee apart, there are a host of other expenditures (books, stationery etc) which households incur on school going children. Without incurring these costs it might not be possible to accrue the benefits of going to school. We show that after conditioning on the standard controls including opportunity cost of schooling, such direct costs adversely affect the likelihood of attending primary school. We have shown that both direct and indirect cost of schooling lower the probability of school attendance. However, we also find that making primary education free will not translate into 100 per cent primary school attendance, since there are other factors (sex, opportunity cost of education, attitudes towards education, etc) that influence attendance decisions. Direct costs of schooling affect girls and boys differently. Girls are less likely to school on account of direct costs of schooling.

Our calculations also suggest that the government will have to incur an additional expenditure of over Rs 2,900 crore every year in order to defray the basic or incompressible cost of attending school. As is evident, in this paper we have primarily

Appendix
Table 1: Average Expenditure (Rs) Per Student Pursuing Primary Education in Rural India, by State

State/Union Territory	Rupees	State/Union Territory	Rupees
Andaman and Nicobar Islands	623	Lakshwadeep	228
Andhra Pradesh	234	Madhya Pradesh	193
Arunachal Pradesh	483	Maharashtra	266
Assam	199	Manipur	625
Bihar	230	Meghalaya	753
Chandigarh	635	Mizoram	639
Dadra and Nagar Haveli	1863	Nagaland	1210
Daman and Diu	1523	Orissa	199
Delhi	702	Pondicherry	529
Goa	550	Punjab	890
Gujarat	172	Rajasthan	316
Haryana	687	Sikkim	686
Himachal Pradesh	501	Tamil Nadu	267
Jammu and Kashmir	721	Tripura	456
Karnataka	132	Uttar Pradesh	320
Kerala	658	West Bengal	245

Source: NSSO (1998).

Table 2: Descriptive Statistics

		Mean	SD
Scheduled tribe	1 if child belongs to a household from scheduled tribe else 0	0.16	0.38
Scheduled caste	1 if child belongs to a household from scheduled caste else 0	0.19	0.39
Head female	1 if household head is female else 0	0.06	0.24
Head literate	1 if household head is literate, 0 otherwise	0.52	0.50
#Children < age 5	No of children below the age of five in the household	0.76	1.00
#People > age 60	No of people over the age of 60 in the household	3.17	1.85
Non-food expenditure	Logarithm of the sum of household's annual expenditure on non-food items	8.00	0.65
Quart1	Mean expenditure in first quartile of non-food expenditure	1423.37	400
Quart2	Mean expenditure in second quartile of non-food expenditure	2476.65	285
Quart3	Mean expenditure in third quartile of non-food expenditure	3653.82	432
Quart4	Mean expenditure in fourth quartile of non-food expenditure	7585.64	6111
Incostv1	Logarithm of the sum of costs incurred on tuition, books, exam fees, stationery and other fees	4.71	0.82
Incostv2	Logarithm of the sum of costs incurred on tuition, books, exam fees, uniform, stationery and other fees	5.16	0.90
Incostv3	Logarithm of the sum of costs incurred on tuition, books, exam fees, uniform, stationery, transport and other fees	5.16	0.91
Girl	1 if child is a girl, 0 otherwise	0.46	0.50
Age	Age of child	8.75	2.30
Age squared	Square of age of child	81.94	40.17
Distance	0 if distance to nearest primary school is less than 2 kilometres else 1	0.05	0.23
Telephone	1 if telephone facility is available within the village else 0	0.35	0.48
All weather road	1 if villagers have access to all weather road	0.60	0.49
Bus service	1 if there is a bus road passing through the village/through its boundary and there is a bus stop for the village else 0	0.46	0.50
TLC	1 if village was covered under total literacy campaign else 0	0.48	0.50
Mid-day meal	1 if village has at least one school offering the mid-day meal programme else 0	0.35	0.48

focused on the subsidy implied by free primary education. Given the increase in enrolment rates, the government simultaneously needs to step up expenditure on school infrastructure, wages and salaries of teachers and other expenses including mid day meals, etc. This is a topic for future research. [\[1\]](#)

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Notes

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- As per Article 45, the "State shall endeavour to provide, within a period of 10 years from the commencement of the Constitution, for free and compulsory education for all children until they complete the age of 14 years".
- The new Article 21A reads as follows: "Right to Education – The state shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the State may, by law, determine."
- The valid reasons for not sending the child to school are: non-availability of an approved or transitional school within the prescribed distance and if the child suffers from a disability or disease preventing him or her from attending school. Section 7 of the bill clearly states that "No person shall prevent a child from attending an approved school" and Section 33 of the bill stipulates a penalty for contravention of Section 7.
- The bill states, "free education means imparting of elementary education to children in such a manner that the child or her parent or guardian does not have to incur any expenditure by way of tuition or any other fees or charges payable to the school, and may include, subject to rules made in this behalf, freedom for the parent or guardian from liability to incur expenditure, wholly or partly, on text books, stationery, uniforms, public transport, school meal, and such other items connected with elementary education of the child as may be prescribed".
- The National Advisory Council (NAC) has pointed out that way back in 1968, it was envisaged that public expenditure on education as a proportion to GDP will increase to 6 per cent over time. While GDP increased 61fold by 2002, public expenditure on education increased from 1.68 per cent to only 4.02 per cent by 2002 [Chavan 2004].
- As per the estimates of NAC investments to the tune of Rs 57,000 crore need to be undertaken to meet the current need for classrooms.
- The NAC in its draft recommendation on the Right to Education Bill points to the large "variation in the per-child budgets in different states". Based on the state budgets for 2004-05 the per-child/annum in the different states works out to be: Uttaranchal Rs 3,898; Maharashtra Rs 2,600; Madhya Pradesh Rs 1,990; Tamil Nadu Rs 1,997; West Bengal Rs 1,420; and Bihar Rs 212.
- For details on sampling design and other related issues see National Sample Survey Organisation (1998).
- The literature on determinants of school enrolment and attendance is large and exhaustive. Here we rely primarily on the key papers in the Indian context as well as the results of the four country study (Côte d'Ivoire, Colombia, Bolivia, Philippines) undertaken by Grootaert and Patrinos (1999). These studies in our view convey the flavour of the results found in the literature.
- This is the age group that is also considered by Dreze and Kingdon (1999).
- The Indian government's criteria for inclusion of any community in the list of scheduled castes and scheduled tribes are as follows. Scheduled castes are households characterised by extreme social, educational and economic backwardness arising out of the traditional practice of untouchability. On the other hand scheduled tribes are social groups that exhibit primitive traits, distinctive culture, geographical isolation, shyness of contact with the community at large and economic backwardness.
- Some attention has been devoted in the literature to the problems faced by children from scheduled tribe households (National Council of Educational Research and Training (NCERT) 1995a, 1995b, 1995c, 1995d).

- We considered the possibility of modelling grade attainment in order to understand whether cost of education affects grade attainment. However, we opted against this exercise since we did not have any meaningful exclusion restrictions, i.e., have variables which affect the probability of enrolment but not grade attainment.
- Educational institutions are classified according to the type of management by which the institution is run. All schools run by the state, central government, public sector undertakings or autonomous organisations completely financed by the government are treated as government institutions. All institutions run by municipal corporations, municipal committees, notified area committees, zilla parishads, panchayat samitis, cantonment boards, etc., are treated as local body institutions. Private aided institutions are those, which are run by an individual or a private organisation and receive a maintenance grant from a government or local body. Private unaided institutions are managed by an individual or a private organisation and do not receive a maintenance grant either from a government or local body.
- For purposes of sampling and data collection, NSSO divides each state into different regions. Details on such geographical demarcations are available in the NSSO reports [NSSO 1998].
- In this specification we do not include the wealth quartiles. If we interact the cost variable with the quartile dummy then there is high correlation between the quartile dummy and the interaction term. This is so since 75 per cent of the observations in a quartile dummy are zeroes and hence 75 per cent of the corresponding interaction terms will also be zeroes leading to high correlation.
- Here we draw upon the contributions of a series of studies undertaken by the National Council of Educational Research and Training (NCERT 1995a, 1995b, 1995c, 1995d) and Rath (1995) carried out under the District Primary Education Programme (DPEP) research programme to explain why children from scheduled tribe households have poorer outcomes. As mentioned earlier, the scheduled tribes live in isolation, do not interact with others and exhibit economic backwardness. Existing studies have documented that quite a few tribal communities, especially those who have been in greater contact situations with the non-tribal communities, have shown interest in education of their children as motivation exists in such a situation. On the other hand the tribes living in isolation might not appreciate the value of education. Literature documenting the specific learning problems of tribal children (as perceived by the teachers) suggests the following impediments: low learner motivation, poor parent participation in the education of children, illiterate family background, irregular attendance and uninteresting curriculum. A large number of tribal parents have no formal education themselves. It is probably true that the success of programmes for universal primary education is correlated with parents' education.
- The Total Literacy Campaign (TLC) sought to achieve full literacy by imparting functional literacy to illiterates in the 15-35 age group. There were widespread differences across the states. For instance in Uttar Pradesh, very little interest was taken in the TLC and hence nothing has been gained from it in contrast to states like Kerala. Ghosh et al (1994) attribute the poor response in Uttar Pradesh to a "low political commitment to the eradication of illiteracy" (p 39).
- Higher levels of per capita household expenditure and the enrolment of girls are related. One study found that the enrolment rate for girls and boys equalises when the average per capita household expenditure is Rs 225 per month [NCERT 1995e]. There is evidence in the literature that better economic condition of the household, parental ability to pay extra tuition costs, provide books, stationery, clothes, create space and time for studies at home contributes to improved schooling outcomes for girls.
- For reasons similar to that mentioned in footnote 12 we do not include the dummy reflecting sex of child separately in the regression.
- An assumption that we make here is that households' expenditure on the incompressible cost is at the 1995-96 levels. In the absence of data on composition of household expenses on education for the current years we are forced to use the 1995-96 figures adjusted for inflation.

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