

An Exploratory Study of the Role of Educational
Incentives in Primary Education in Gujarat

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An Exploratory Study of the Role of Educational Incentives in Primary Education in Gujarat

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Abstract

This study explores the role of incentives—monetary or non-monetary compensation offered to children so that an educational need is fulfilled or perceived cost is brought down—in attaining certain expected educational enrolment and retention outcomes. It draws on a survey conducted in six villages in Gujarat. Incentives themselves may not be that critical in improving access and retention performance; other socio-economic and school-related factors may be more significant in ensuring access and retention. However, incentives may have help in keeping the poorer performers in school.

1. Introduction

Achieving the goals of “education for all” calls for attention to both educational provision and increasing the demand from the users or beneficiaries of education—families and communities. The traditional approach to educational planning, until recent times when a mission-oriented approach to elementary education was introduced, has focused on the former—providing school infrastructure and teachers, expanding opportunities for targeted groups like girls and children belonging to deprived groups, and reforming curriculum. However, what may affect demand for education among certain economically-deprived communities are the high perceived direct and indirect costs associated with schooling and certain social barriers that work against gender and social equality in educational access ([1]). “Incentives” constitute one route to reducing the perceived costs of schooling from the perspective of communities that are socially and economically deprived. They are expected to attract hitherto deprived child segments to school (resulting in higher enrolment rates) and to keep them there (as evidenced by higher attendance rates, lower dropout and repetition rates) so that the children receive at least elementary education. Incentives thus have a dual role: attracting children to school—that is, by overcoming any social and economic barriers to enrolment; and overcoming those factors that may contribute to lower attendance and dropping out. The latter may include both supply-side factors, like poor quality education, and high opportunity and indirect costs of schooling, in the case of girls and certain social groups.

Educational “incentives” are monetary or non-monetary compensation offered to children and their families so that an educational need is fulfilled or perceived cost is brought down, in order to enable achievement of a desired educational goal. Examples of incentives include scholarships to children of certain sections of society, free books and uniforms, bicycles to girls who reach upper primary school, and monetary instruments like the ‘Vidyalakshmi’ bonds (Gujarat) and Kanya Vidya Dhan Yojana (Uttar Pradesh) for girls. In other countries, educational vouchers, cash transfers to parents and enrolment-based school funding constitute aspects of incentive provision ([2]). The National Child Labour Programme (NCLP) in India is an example of a conditional cash transfer program designed to ensure attendance of rehabilitated child laborers in bridge courses. The mid-day meal scheme now has expanded significantly and has taken on the

character of a universal incentive rather than a targeted incentive, unlike the case of scholarships and free textbooks.

This study seeks to explore the role of targeted incentives in attaining certain expected educational enrolment and retention outcomes among socially deprived children and their communities. That is, the relationship between educational performance and incentives would indicate the impact of targeted educational provision on decision-making at the household level (see [3] for a summary status of social disparities and out-of-school status). The study does not attempt to link incentives with achievement levels of children, and limits itself to the stated aims of incentives, namely improving access and retention. The broader implications of any incentive scheme is the linkages it has with other levels of education (for instance, secondary and higher education), and the horizontal linkages with other social safety nets (for instance, scholarships that may result in a stronger income effect rather than a price effect, linkages with anti-poverty measures, and linkages with implementation systems of the state).

In other words, the policy implications of assessing the role of educational incentives would deal with the following dimensions: (a) distribution of incentives across different groups in society, (b) inclusion and exclusion errors associated with targeting incentives, (c) implementation of an incentive scheme so that a price effect is ensured, (d) impact on social and gender equity, and educational performance, (e) differential targeting and ensuring match between need and provision, and (f) impact at the family and community level educational decision making.

The present study is designed as an exploratory exercise. The role and impact of educational incentives on access and retention is a relatively under-studied area. A study commissioned by the World Bank (see [4] pp.264-266) to overcome the gap in the incentive literature noted that apart from problems in the delivery of incentive schemes, the schemes themselves did not seem to be effective in increasing enrolment and attendance, and in reducing drop out. The teachers ranked textbooks, uniforms, stationery and allowances, in that order, as important incentives. It was not clear to what extent the current schemes had contributed to increasing enrolment or reducing drop out, and what level of incentives would be needed to bring out-of-school children back to school. In any case, the level of scholarship provided was way below the earnings of working children who did not attend school. In an exchange of experiences among development

practitioners, incentives were, however, felt to have had a positive impact in terms of their role in meeting the costs of education. Other points noted were the often inadequate quantum of incentives, poor implementation of the schemes, and the lack of information about incentives among parents (<http://www.solutionexchange-un.net.in/en/Download-document/49-Adequacy-and-Coverage-of-Incentives-to-Achieve-UEE.html>, retrieved on July 31, 2008). The practitioners also note that incentives may work better in a functional school system, and that any system of incentives has to show flexibility in its approach and be implemented well.

The specific questions this paper addresses are: Do those receiving incentives show significantly higher levels of schooling completion and in-school status than those who do not? Do those receiving incentives show significantly lower levels of drop out and never-enrolled status than those who do not?

2. Methodology and data collection

Given the exploratory nature of the study, it was decided to sample three villages in each of two districts of Gujarat. Surendranagar, which has a large Other Backward Classes (OBC) and Scheduled Caste (SC) population, and Sabarkantha, which has a large Scheduled Tribe (ST) population, were selected as the study districts. The villages were selected at random, ensuring that the selected villages had all the socio-economic categories. A survey of all the households (nuclear family unit) in each village was conducted. To coordinate the survey data collection exercise, two retired primary school teachers from the districts were appointed as team leaders. They have been involved in a variety of administrative responsibilities and are aware of the intricacies of eligibilities for and disbursement of incentives. They are also aware of the caste composition of the villages in the two districts. They hired five young teachers for data collection. The team was trained in data collection through a one-day workshop.

Three villages were selected from Sabarkantha. These were Padar (which included two more associated villages/habitat Mahudi and Shantipura), Shangal (one and two) and Kolundra (which included Jalaram village and factory compound habitat). All the households (476) of these three villages were covered, village-wise numbers being: Padar: 188, Shangal: 140, Kolundra: 148. In Surendranagar district, Chikasar, Alampura and Ambada villages were selected. Since the villages in Surendranagar are large, 953

households were covered in the survey, village-wise numbers being: Chikasar: 404, Alampura: 309, Ambala: 240.

Data was collected at the family level and then at the child level if the child is in the age group 6-14 years. A family is defined as a group comprising the children and their parents. At the family level the data collected included father's education, occupation, religion, caste, income (estimated from agricultural, labour and other revenues, family expenditure (monthly), mother's education, family composition by age and sex and number of literate and illiterate family members above 14 years of age classified by sex. At the child level data on child's age, sex, educational status during 1999-2006 (whichever years are applicable), current schooling status and types of incentives received during 1999-2006 (with cross-checking through the school), attendance records (from the schools) and home study patterns. In addition, interviews with teachers and selected parents were conducted.

3. Summarization of data

One of the major supply side interventions is the building of primary schools in almost every village and providing the necessary infrastructure (see [5]). In Gujarat there is a primary school within a radius of 1 km from every village. Also, in all the sampled schools the student-teacher ratios are significantly less than the national ratio 40:1. For Alampura it is 25.4:1, for Ambada 34.12:1, for Chikasar 37.57:1 for Shangal 25.1:1 and 31:1, each for Kolundra and Padar Mahudi (ssamgujarat.org/annual_report2005/Chapter_01.html).

In the sampled villages, the percentages of dropped-out and never-enrolled students are quite low; only 2.57% of a total of 1208 children are never enrolled and 0.9% dropped out, i.e. the in-school status accounts for nearly 96.5%. This at first glance may appear surprising, but is in conformance with the International Educational Statistics report that the average primary school net attendance rate in Gujarat is more than 90% (huebler.blogspot.com/2007/12/primary-school-attendance-by-state-in.html). Table 1 shows the number of never-enrolled and dropped-out children classified according to sex and caste.

Table 1: Number of never enrolled and drop-out children classified according to the caste, religion and sex.

Caste	Never enrolled			Drop out		
	Male	Female	Total	Male	Female	Total
SC	1	3	4	3	6	9
ST	10	11	21	1	1	2
OBC	3	3	6	4	7	11
Total	14	17	31	8	14	22

Though the numbers of dropped-out and never-enrolled are larger among females, they are not significantly higher. However, among children belonging to ST, the number of never-enrolled is found to be significantly higher than the other castes. Table 2 summarizes the background economic conditions of the sampled children's family classified by caste.

Table 2: Percentage of children classified by monthly expenditure and caste

Monthly Expenditure	SC	ST	OBC	General	Percentage of children
<1000	65	57	66	20	62
1001-1500	5	16	23	49	20
1501-2000	13	19	8	21	12
2001-3000	10	2	2	10	3
>=3000	7	6	1	0	3
Total	100	100	100	100	100

Most of the children are from weak economic backgrounds though the general category children seem to be slightly better placed; however, only 19 children belong to this category.

Table 3 shows the classification of children by their parents' educational background and caste.

Table 3: Percentage of children from different castes, by educational background of parents

Caste(Religion)		Attended school		Not attended school		Total
		Primary Education Completed	Primary Education not completed	Neo-literate	Non-literate	
SC(Hindu)	Father	74	7	1	18	100
	Mother	35	3	7	55	100
ST(Hindu)	Father	70	1	5	24	100
	Mother	23	3	4	70	100
OBC(Hindu)	Father	55	7	14	24	100
	Mother	24	2	19	55	100
OBC(Muslim)	Father	82	9	0	9	100
	Mother	43	9	0	48	100
General(Hindu)	Father	100	0	0	0	100
	Mother	89	6	5	0	100

Clearly General (Hindu) parents, especially the mothers, are better educated.

4. Incentives: A broad picture

Given the focus of this study, this section provides a broad picture of some of the dimensions of the incentives that children have received. (See Annexure 1 for a list of the incentives.) One significant feature of the distribution of incentives is that 91.8% of the children (92.4% of the boys and 90.2% of the girls) received at least one incentive during their stay in school. This distribution appears to be irrespective of the caste status of the children.

Table 4: Percentage receiving incentives, by sex and caste

	Boys	Girls
SC	86.08%	84.72%
ST	88.79%	89.08%
OBC	94.96%	92.00%
General	87.10%	85.00%
	92.38%	90.20%

Note: 101 out of the 104 Muslim children in the sample are covered under OBC; 94.4% of the 54 boys and 98% of the 50 girls have received incentives.

In terms of the number of incentives received per year of stay in school, more than half have received above two to three.

Table 5: Percentage receiving incentives, by number of incentives

	Number	
No incentives	69	5.90%
Two or less	212	18.14%
Above two to three	662	56.63%
Four or more	226	19.33%
	1169	

Examining the relative importance of the various incentives, not surprisingly, uniforms and scholarships (each accounting for about a third of the total number of incentives received by the children over the period for which records were studied), and textbooks (about 28 percent), are the three most important; all the others accounting for less than four percent.

Table 6: Relative importance of incentives

Type of incentive	Total number for all children, all years	
Uniforms	4023	33.9%
OBC scholarships	2758	23.2%
SC/ST scholarships	1209	10.2%
Economically backward scholarships	106	0.9%
Education kits of NPEGEL	267	2.2%
Textbooks	3371	28.4%
Schoolbags	140	1.2%
Others	5	0.0%
	11879	100.0%

Note:

1. 'Others' include educational material support, workbooks and other minor support.
2. Most of the 'Education kits of NPEGEL' is accounted for by one year when such kits were distributed.

5. Data analysis and findings

We have already noted (cf. Table 1) that in the sampled villages the percentage of never-enrolled and dropped-out students is extremely low, and so will not be addressing this issue here. Whether this picture extends to major areas of the state, or whether there are other factors peculiar to this sample (like the impact of the mid-day meal scheme which observations indicate is being implemented well) needs further examination.

Regarding attendance, we probe further to see whether economic and educational backgrounds of the parents, castes, religions and gender have an effect on the average attendance (proportion of days a student attended the school out of 225 working days). We have calculated the average attendance for children belonging to each of the above categories. None of the differences in average attendance between a pair of castes, parents' educational backgrounds, religions, genders are found to be significant at 5% level of significance.

Many incentives are provided to a student based on his/her performance in the previous class, his/her attendance rate (numbers of working days are all equal to 225 in the sampled primary schools) and his/her socio-economic background, so as to encourage him/her to attend the school regularly. In other words, two students performing equally well but having different socio-economic backgrounds are entitled to different number of incentives. To study the impact of incentives on attendance rate, we consider the average number of incentives received by a student per year as a measure. It should be noted that we have ignored the relative importance of different incentives for simplicity. We find that the correlation coefficient between this measure of incentive and average attendance is 0.02 which is highly insignificant. Thus incentives do not seem to have any effect on attendance.

Next, we investigate whether the performance of a child is affected by the incentives controlling for other factors viz., his or her sex, caste, religion, parents' educational background, monthly family expenditure, father's occupation, attendance rate and the nature of support he or she receives for study at home. As a measure of performance of a student we have taken the average number of grades passed per year of his or her schooling. Thus the measure lies between 0 and 1, 1 being the case when a student passes without repeating a class. The performance measures for the never-enrolled and dropped-out students are taken as zero. The number of children who migrated in the sampled villages from other parts is very small. For our analysis we have taken them as non-repeaters.

Next, we ran a regression of performance measure on average number of incentives received per year controlling for the other potential influencing variables mentioned above viz., attendance rate (proportion of days attended school out of 225 working days), monthly expenditure (1 if <1000, 2 if between 1000 and 1500, etc.), mother's education

(=1, if completed elementary education or neo literate, 0, otherwise), father's education (same as mother), home study (0 for no study, 1 for irregular study, 2 for with the help of family members, 3 for self-study), father's occupation (1-3, corresponding to three categories), sex (male =1, female =0), religion (Muslim =1, Hindu =0,) and a dummy for each of the castes SC, ST and OBC. The regression coefficient of average number of incentives has come out to be insignificant. On further investigation it was found that 87% of the observations have performance measure values equal to 1 which possibly add to the error part substantially and thus making it insignificant.

Next, we ran a regression for the group of students (comprising 111 students) whose performance measures are less than 1 and greater than 0. These are the students who have repeated at least one year. Instead of taking performance measure as the dependent variable, we take a logit transformation of the performance measure (which resulted in the enhancement of R^2 to 0.425) and ran a regression on the average number of incentives controlling for the same factors as above. The results are exhibited in Table 7.

Table 7: Performance of repeaters

Model	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	1.627	.422		3.859	.000
Average Number of Incentives	.495	.082	.477	6.066	.000
Average Attendance	-1.256	.300	-.338	-4.185	.000
Mothers' Education	.015	.023	.058	.662	.510
Fathers' Education	.003	.014	.019	.183	.856
Monthly Expenditure	-.424	.299	-.127	-1.416	.160
Study at Home	-.186	.141	-.102	-1.322	.189
Fathers' Occupation	.033	.133	.020	.251	.802
Sex	-.148	.082	-.132	-1.801	.075
Religion	-.295	.110	-.216	-2.689	.008
SC	-.413	.367	-.190	-1.125	.263
ST	-.401	.433	-.095	-.927	.356
OBC	-.539	.326	-.298	-1.652	.102

Note: Dependent Variable: $\ln((\text{performance measure})/(1-(\text{performance measure})))$

The results show that for this group of students, average number of incentives, average attendance and religion are statistically significant at 5% level and sex is significant at 7.5% level. Notice that the results indicate that an increase in average number of

incentives would tend to enhance the performance but contrary to intuition attendance has a negative effect on the performance. One explanation of such an anomalous result could be that in this group there are students who attend school regularly for having mid-day meal, but are not so serious about learning. Also it is a bit surprising to find that monthly expenditure does not have a significant effect on performance.

6. Concluding discussion

This study has brought out some interesting results which are worth studying further. First, if the data is a reflection of ground reality prevailing in rural Gujarat then the state may have attained a very high enrollment level and has been able to reduce the drop-outs among children to low levels. So improving enrollment and reducing drop-out may no longer be top priorities, thus allowing more attention to quality of education. Further research is needed to understand this phenomenon. It is also interesting to note that levels of enrollment and drop-out are not dependent on incentives, gender, caste, religion, income and educational background of the parents. Also, it has been observed that attendance rate does not depend on any of the factors mentioned above. One hunch which needs to be explored is the role of the mid-day meal scheme in improving attendance rates.

The regression analysis based on the full data set clearly showed that the access and retention performance is not affected by the average number of incentives after controlling for the other factors mentioned above. In addition, these factors also do not have a significant influence on the performance. Looking at the data more carefully we find that around 86% of the children's performance measure are equal to 1, the highest value, irrespective of the values taken by the other factors mentioned above. Thus the performance measure we use is not sensitive enough to capture the performance differences. This is because unless a child is found to be seriously lacking in progress, he or she may not have to repeat the same grade. Also before Class 3, children are not tested by an examination. Thus, performance measure of a child equal to 1 may not reflect the true measure of his or her educational performance. Performance measure equal to 1 most possibly does not mean that the child has acquired the basic skills of reading and writing which he or she is supposed to acquire even after completing the elementary education. So the question is what are the factors—community and family—that motivate them to continue.

However, the effect of incentives, attendance and religion came out significant with respect to the performances of the children if we consider only the poor performers (whose performance measure less than unity). However, there is a problem of endogeneity as one of the criteria for promotion to the next grade is rate of attendance itself. We also ran regression of logit performance on others excluding average attendance; the religion came out as insignificant but average number of incentives received is still found significant. So it may be interesting to investigate further whether incentives, as indicated here, truly encourage the poorer performers to remain in school.

It is not clear whether incentives alone, at the current levels, can bring into school the small numbers who are not enrolled or have dropped out. While on paper the list of incentives is long, the most important incentives are only three: scholarships, uniforms and textbooks. Interviews indicate that the scholarship incentive is taken very seriously by both teachers and parents. The head teachers prepare proposals for scholarships and supply of uniforms in July; these include the family income of the students and their marks—grades were introduced in the year preceding this study—in the last final examination. The proposals are consolidated grade-wise and according to sex. The head teachers then attend a camp organized by the Social Welfare Office in August for sanctioning incentives to eligible students. The scholarships are usually disbursed by end September or early October. The same is the case with respect to the other incentives. That is, there are no serious implementation issues in the sampled villages. The relative economic homogeneity, and parental awareness of the main incentives available, makes it easier for the teachers to handle differential targeting of incentives and to avoid inclusion and exclusion errors.

In brief, this exploratory study indicates that incentives in general may not be that critical in improving access and retention performance; the complex influence of other socio-economic and school-related factors may have a more significant role to play in ensuring access and retention. However, incentives may have a positive effect in keeping the poorer performers in school.

Annexure 1: Illustrative list of main incentives, Surendranagar, 2007**OBC:**

	Scheme	Conditions		Remarks
1.	Scholarship to pre-S.S.C. students	Income limit % required Boys Girls	Rs.15000 Pass Rs.75 Rs.100	EBC, Minority, Nomadic,11000 Pass
2.	Scholarship to SEBC students of Std. 1-7	Income limit Attendance Scholarship Boys Girls	Rs.15000 70% Rs.75 Rs.100	
3.	Two pairs of uniform to be provided free of cost	Income limit	Rs.15000	EBC, Minority, 11000, Nomadic,15000
4.	Scholarship to extremely backward class and most backward class students	Income limit Attendance Scholarship Std. 1 to 5 Std. 6 and 7	Rs.44500 70% Rs.750 Rs.900	

SC:

	Scheme	Details	Remarks
1.	Scholarship to students of Std. 1 to 4	No income limit % marks: 38 Scholarship Boys: Rs.75 Girls: Rs.100	Attendance: At least 70% and pass.
2.	Scholarship to SC Students in Std. 5 to 7	No income limit % marks: 38 Scholarship Boys: Rs.75 Girls: Rs.100	For private schools marks % is 45.
3.	Extremely backward class among SC student from Std. 1-7	No Income limit % marks: 38 Scholarship Boys: Rs.450 Girls: Rs.600 % attendance last year: 70	Available for two children. Two more 'girl children' are eligible.
4.	Scholarship to students whose parents are engaged in unclean/dirty occupation	No income limit % marks: 38 Scholarship Std. 1 to 5: Rs.400 Std. 6 & 7: Rs.600 Plus ad hoc Rs.550	Not eligible for any other benefit in any other scheme.
5.	Free books and uniform (two pairs) (Std. 1-7), landless labourers.	Income Limit: rural Rs.15976; urban Rs.21206 Scholarship: Rs.150 (Assistance for two pairs of uniforms) % marks: 38	Should belong to BPL family; parents should not be in service.

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