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Abstract

This study examines primary school choice in seven states in rural north India, using data from a survey of schools and 1586 households in 274 villages. The analysis emphasizes the role of choice sets faced by rural households, given uneven provision of primary education, and of the relative importance of voice versus exit in household decisions on school choice. The overarching findings suggest that parents value the facilities and functionality of the chosen school and are sensitive to the characteristics of the alternatives available, with possible differences based on the gender of the child. Significantly, the odds that the chosen school is privately managed are lower when variables denoting quality of the government schools in the village are higher. However, the presence of vehicles for parental representation denoting voice does not matter in expected ways. Overall, parents might be discerning with respect to individual school characteristics rather than merely sorting over school management type.

Keywords: private schools, primary education, enrollment, exit, voice, India

JEL Code: I20, I28, I29

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Choosing Private Schools

Examining Primary School Enrollment Decisions in Rural North India

1. Introduction

In India, the provision of elementary or primary schooling to children has long been dominated by government and this continues to be the case. The ecology of primary schooling in India has however been changing rapidly in the past decades. A number of specific initiatives aimed at addressing the challenges of schooling unenrolled children have contributed to increasing enrollment.[1] While expansion in government primary schooling has absorbed a larger proportion of the increased enrollment private schools (Sankar, 2008), private providers operating on a commercial basis have made a significant contribution to increasing the size of the schooling market place. Since the 1990s, the number of private schools have burgeoned (Sankar, 2008; De et. al., 2011; Muralidharan and Kremer, 2006; Tilak and Sudharshan, 2001).

Private schools constitute a diverse category. They can be aided, i.e., receive state support, or unaided, recognized or unrecognized and these categories could differ across the states in India (Kingdon, 2005a; Dreze,2001). Although the growth of private schools has not been uniform across states or regions, the proliferation of private schools has resulted overall in a new dynamic of decisions by households regarding school choice. Public policy initiatives in primary education in India increasingly are being defined within a context of plural choices.

A key argument made in favor of private schools is the emergence of a "competitive" market for education, offering parents a certain kind of choice. Advocates of private education argue that private schools represent the possibility of exiting the public school system whenever parents lack the `voice' to effect quality improvements. Further, proponents claim that the threat of exit from private schools to government schools or competitor private schools provides an incentive for those running private schools to maintain quality and fulfill parental expectations (Mehrotra, 2006; Tooley,2007). There is also a perception that parents are now able to match better the nature of education `supplied' with the skills they aspire for their children.

[1]Primary education has been an arena of public action in India in recent years. The District Primary Education Programme (DPEP) was initiated in 1994 with the objective of providing universal access to school, reducing dropout rates and gaps in enrollment and improving learning achievement. The Sarva Shiksha Abhiyan (SSA) was introduced in 2001 to achieve universal primary enrolment by 2003. More recently, the Indian Parliament passed the Right of Children to Free and Compulsory Education Act on 4 August 2009 and it came into force on 1 April 2010. India is also signatory to the Millennium Declaration, 2000, which has the universalization of primary schooling by 2015 as one of eight Millennium Development Goals (MDG).

Many argue, however, that this is not often the case, observing that there is substantial variation in the quality of schools, even within the private sector (PROBE,1999; De,2011; Tilak,2001; Goyal, 2009;Chudgar, 2012). Not all private sector schools necessarily provide better education. There is some evidence that across rural India there exist private schools that are no better than government schools they might compete with (Mehrotra, 2006a). Notwithstanding the presence of low fee private schools, many are still unaffordable for the socially disadvantaged (Harma, 2011, Harma,2009; Srivastava,2009), so that when private schools do provide quality education, this is often out of reach of a majority of the poor. Moreover, parents are not always able to judge the quality of education provided in private schools (Johnson and Bowles, 2010).

Particularly pertinent to these discussions is the uneven supply of private schools. Given that running private schools constitute commercial enterprise, some communities are far more likely to be served by private schools than others (De et.al.,2011; Muralidharan and Kremer, 2006; Pal, 2010). In a large proportion of villages in rural India, there are still no alternatives to the public school system. The potential for `exit' to ensure the upholding of quality of functioning is only valid when there exist appropriate alternatives, and the potential role and contribution of private schools might thus be exaggerated. Furthermore, parental choice of schools varies greatly across a number of dimensions, including but not confined to location, distance and costs and mediated by parental aspirations for children and attitudes towards education. All these collectively limit the extent to which competition among schools and payment on the part of parents can provide the necessary conditions for quality and accountability.[2] A discussion of school choice in these contexts is hence not straightforward and a nuanced understanding of parental choice of school types for their children is important to anticipate the reach and impact of interventions relating to the realization of universal and compulsory education.

Against this background, this study examines school choice of rural households, using a unique dataset of households and schools in select states in rural India collected as part of the PROBE Revisited Survey in 2006.[3] The focus is on two issues that merit deeper inspection in the context of rural India. The first pertains to the choice sets faced by rural households given that private provision of primary education is uneven and the second is the relative importance of voice versus exit in household decisions on school choice.

Recent scholarship is attentive to issues like variation in quality of schools, both within the private and government sectors and the relative power parents have to influence parameters of

[2]Another concern is that social streaming will either replicate or exacerbate preexisting inequalities and cleavages within society, particularly ones relating to gender and caste. (Jeffrey, 2005; Mehrotra,2006)

[3]The original survey conducted for the PROBE Report in 1996 (PROBE,1999) constituted structured interviews with households and educational facilities in randomly-selected villages in the states of Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh and Himachal Pradesh. The PROBE Revisited Survey returns to the same villages, but with the formation of new states Uttaranchal and Jharkhand and Chhattisgarh, it covers a larger number of states. (De, et.al., 2011) reports on the findings of PROBE Revisited.

school quality and functioning (Srivastava,2007; Fennell,2007; De et. al., 2011; PROBE,1999; Jeffrey,et.al.,2005; Johnson and Bowles,2010). Most of these works tend to be case studies or of a qualitative nature. There is comparatively less quantitative work for India on how parents choose schools for their children (Pal,2010; Harma,2011; Munshi and Rosenzweig,2006). This paper investigates school choice and role of parental voice and exit using quantitative techniques to complement and supplement our understanding of household school choice.

The paper seeks to accomplish this through three specific ways. First, it explicitly accounts for the school choices available to households by including the presence and number of private and government schools and factors that influence the placement of these private schools. Second, since choice of schools is relative to the options available to parents, the analysis incorporates a set of characteristics of the chosen school but also that of the alternatives available, private and government in order to identify the drivers of school choice. Third, the paper attempts in a limited way to clarify the possible role of `voice' and `exit', capturing the push and pull factors that constitute school choice.[4]

The section that follows outlines the context of the work and describes data from the survey with regard to school availability and school choice decisions. Section 3 presents the analytical model that underpins the study and outlines the empirical strategy. Section 4 presents the models and results from the empirical analysis. The last section concludes the paper.

2. The Survey Data and its Empirical Context

The PROBE Revisited Survey 2006 covered 276 villages and 1586 households located in these villages. The five states originally covered, known as the PROBE states, include Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh, all of which traditionally fared poorly on social indicators. Himachal Pradesh, a state with an impressive record of primary schooling, was included to provide comparative perspective. In these `sample villages' all educational facilities for primary education were surveyed. In each `sample village', twelve households were randomly selected, among those that had at least one child in the age group of six to twelve years. In addition to this, in the PROBE States, educational facilities were surveyed in one `neighbouring village' within a specified population range. Including neighbouring villages in the survey enabled a larger number of schools to be included in the survey, without seriously disturbing the randomness of selection, and at the same time limiting the time and money involved in travelling between villages (De, 2011). The PROBE Revisited Survey returned to these villages in 2006, although different neighbouring villages

[4]The notion of school choice needs to be distinguished from decisions on school participation which is concerned with whether or not to send a child to school, although the school choice decision and the enrollment decision could be jointly determined. There is a rich literature on the latter aspect in the context of India and elsewhere, for example, Behrman (1999), Behrman and King (2001), Dostie and Jayaraman (2006), Drèze and Kingdon (2001).

were chosen and within the sample villages, the same households were not tracked. The PROBE Revisited survey thus includes both `sample villages' and `neighboring villages', the latter denoting villages where schools were surveyed but no households.

For the analysis of private school placement, data on educational facilities in both sample and neighbouring villages are used. For the analysis of household choice of schools however the study confines itself to sample villages, where households were surveyed. This paper pertains exclusively to the 2006 survey and the analysis is restricted to only those children enrolled in classes one through five and for children not enrolled, the sample pertains to the age group that is expected to attend primary schools.

3. Schooling options in the villages

In the survey villages, the number of all schools had increased by over 60% from 236 to 380 since the original survey in 1996; the number of private schools had increased enormously. Whereas in 1996, private schools constituted 17% of all schools in the survey, in 2006, they formed 25% of schools surveyed. Of the villages surveyed (both sample and neighbouring), over 45% of them had one or no primary school and close to half had one or fewer upper primary schools, implying that in these villages the question of school choice within the village is irrelevant. Of the sample and neighbouring villages, about 51% of the villages had no private primary school and 93% of them had no private upper primary school, underscoring the overwhelming reliance on the government school system for a majority of villages in the PROBE states. The role of private schools in these contexts is hardly relevant in the context of public policy, as are household decisions regarding school choice. If one considers the sample villages alone, close to 70% (190) of the villages surveyed (274) had no private primary school and 75% of the remaining that did had only one private primary school.

4. Private and government schools compared

An interesting aspect is the systematic pattern of private school placement (Pal, 2010; Muralidharan and Kremer, 2006). The 2006 survey suggests that private schools tend to be found in villages that are larger (Table 1). Private schools tend to be located closer to the roads, to railways stations and district headquarters. In short, private schools tend to be in more accessible villages where perhaps they can more easily service a large clientele from surrounding villages. In

the sample villages, private schools are significantly newer that government schools reflecting that the growth of private schools is a relatively recent phenomenon.[5]

A logit model regressing private school presence on different community characteristics including other school facilities underscores the selective placement of private schools (Table 2).[6] In general, the probability that a private primary school is present in a sample village is associated positively with the presence of other educational facilities be it pre-primary facilities (like the anganwadi) or government primary schools, perhaps signifying some notion of aggregate demand. There is also an apparent bias towards villages endowed with better social and physical infrastructure (primary health centres and electricity) as also non-tribal villages. There is some evidence that the presence of private primary schools is associated with the number of private upper primary schools in the village.[7]One issue with such a model is the presence of unobservables that might introduce bias in the estimates (Pal, 2010). Including state effects could redress this to some extent. However, the results do not change with the inclusion of state fixed effects.[8]

The correlates of private upper primary school presence are somewhat different (Table 2). Strikingly, a village is less likely to have a private upper primary school the greater the number of government primary and upper primary schools, although there is positive association with the number of private primary schools. This suggests perhaps that those enrolled in government primary schools tend to continue in government schools for upper primary classes and that the presence of government schools is therefore associated with a lower probability of private upper primary school presence. Dropping the variable denoting number of private primary schools results in the number of households becoming a significant variable, representing the population that is serviced. The age of the oldest school also has a positive association indicating that villages with a long history of schooling are more likely to attract private schools. As with private lower primary presence, private upper primary schools tend to be present in villages that are more accessible. These findings make a case for accounting explicitly for choice set and school availability in the context of household decision making.

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[5]Muralidharan and Kremer (2006) use a nationally representative sample to find that richer states have fewer rural private schools. States, districts, and villages with poor public school performance are each more likely to have private schools. They also find that in 2003, 28% of the population of rural India had access to fee-charging private schools in the same village. Nearly 50% of the rural private schools the sample were established 5 or fewer years before the survey, and nearly 40% of private-school enrollment is in these schools.

[6] The presence of government schools has not been analyzed here since the in the sample, almost all villages in the sample had a government primary school.

[7]While state school presence is assumed to be exogenous, the presence of any sort of private school is likely endogenous. An alternate model is therefore run without the number of private upper primary schools and the results are robust.

[8]Pal (2010) extends this model to instrument for community characteristics that might influence both placement of private schools as well as the infrastructure in the villages, using the PROBE Survey data (1996). The results are broadly consistent with the findings here. The standard errors for all the models were clustered at the block level, a block being an administrative aggregate of villages and a relevant unit for development planning.

Apart from the differences between government and private schools in terms of placement in communities, the data on schools points to significant differences, on average, between private and government schools (Table 3). A larger proportion of private schools offer English as a medium of instruction. Although fewer function out of their own building, in terms of other facilities such as drinking water, toilet, fans and library, a larger proportion of private schools have functional facilities. A lower proportion of private schools reports facing a shortage of teachers. On average, private school teachers are younger and a larger proportion of them are graduates. However, significantly fewer have had formal teacher's training. It is also apparent that on average sample children attending private schools travel longer to get to school than their counterparts in government schools and pay significantly higher on school fees, transport and supplies. Interestingly, they also spend more on private tuitions.[9] Notwithstanding these differences, it is important to note the significant diversity of school attributes within each group, private and government. For example, only half of the private schools surveyed operated in *pucca* houses. Around a tenth operated from *kaccha* houses (De,2011). Observations on the variation in school quality within private and government schools holds good on a much broader level and in other contexts as well (Chudgar,2012; Tilak, 2001; Goyal,2009).

[9] That parents who enroll their children in government schools spend more on textbooks is somewhat counterintuitive and it is not known whether parents in private schools use second hand textbooks or not that account for this anomalous figure.

Table 1: Sample Private and Government Schools Compared

Attributes	Government	Private	t-statistic for equality of means &Z-statistic for proportion	
Village Characteristics				
Population	2162.4	3377.6	-3.2	***
Households	337.2	524.9	-2.5	***
Hamlet	5.9	8.1	-1.3	*
Proportion of Scheduled Castes in the village	23.4	33.3	-1.3	
Proportion of Scheduled Tribes in the village	9.7	6.4	1	
Proportion of Other Backward Castes in the village	38.7	48.9	-1.4	
Proportion of Muslims in the village	4.5	4.8	-0.3	
Distance from the nearest road	1.6	1.1	1.6	*
Distance from the nearest bus station	3.6	3.5	0.2	
Distance from the nearest railway station	36.2	26.5	2.3	**
Distance from the nearest district headquarters	48.1	40.1	2.2	**
School Characteristics				
Age of the school	37.6	12.6	17.3	***
Proportion of teachers present	80.2	81.2	-1.7	*
Number of teachers per class	77.5	88.7	-2.3	**
Proportion of schools				
- where English is a medium of instruction	0.8	29.5	-10.4	***
- facing a shortage of teachers	66.8	28.8	8.5	***
- with a building	83	55.2	6	***
- with drinking water facility	88	96.5	-2.3	**
- with toilet facility	57.9	91.7	-5.1	***
- where playground is available	63.3	57.5	1.1	
- with a functional electric fan	15.6	32.1	-3.8	***
- with a functional library	39.4	81.3	-3.2	***
- with blackboard	93.2	95.7	-0.9	
- with chalk	92.8	93.3	-0.2	
Teacher characteristics				
Teacher's age	39.3	29.6	22.1	***
Proportion of teachers who are male	67.9	66.3	0.7	
Proportion of teachers with formal training	69.6	25.1	19.4	***
Proportion of teachers who are graduates	65	70	-2.4	**
Costs				
Time taken to go to school	11.8	21.2	-7.8	***
School fees	32.9	835	-13.9	***
Other fees (exam, yearly fees, etc.)	11.6	110.6	-7.7	***
Textbooks	30.4	19.7	-14.3	***
Uniforms /clothes	189.6	376.8	-7.7	***
Supplies (Slates, pencils, notebooks)	170	279.6	-6.5	***
Private tuitions	48.3	204.7	-5	***
Transport to and from school	20.6	175.5	-3.9	***
Other	18.8	41.4	-1.9	*
Total fees	539.9	2354.4	-13.3	***

Two-tailed tests using non-missing observations*10% significance, ** 5% significance, *** 1% significance level.

Table 2: Summary Statistics of Community Characteristics of Sample and Neighbouring Villages

Variable	Number of Observations	Mean / Proportion	Standard Deviation	Minimum	Maximum
Population	498	2392.9	2650.0	72	20000
Number of households	501	373.3	515.3	10	5000
Number of hamlets	477	5.8	7.2	0	85
Proportion of Scheduled Castes in the village	492	22.4	19.7	0	100
Proportion of Scheduled Tribes in the village	492	7.5	17.9	0	100
Proportion of Other Backward Castes in the village	492	36.5	28.8	0	100
Proportion of Muslims	492	4.7	12.2	0	100
Distance from the nearest paved road (kms.)	497	1.6	3.3	0	35
Distance from the nearest bus station (kms.)	497	3.6	4.3	0	30
Distance from the nearest railway station (kms.)	497	34.5	44.2	0	300
Distance from the District headquarters (kms.)	497	46.8	41.5	0	400
Nearest government health centre (kms)	496	4.6	6.1	0	35
Availability of electricity	497	NA	NA	0	1
Availability of Safe Drinking water	497	NA	NA	0	1
Post office is in the village	496	NA	NA	0	1
Number of primary health centres	496	0.4	0.6	0	4
Number of ration shops	497	1.0	1.2	0	10
Mahila mandal	494	NA	NA	0	1
Sakhi	496	NA	NA	0	1
Number of government primary schools	512	1.5	0.9	0	5
Number of government upper primary schools	512	0.5	0.6	0	2
Number of private (upper) primary schools	512	0.1	0.3	0	2
Oldest school in the village (years)	496	49.6	27.7	5	161
Number of anganwadis	498	1.4	1.0	0	5
Number of non formal education centres	498	0.1	0.4	0	4

PROBE Revisited Survey 2006

NA means Not Applicable

Table 3: Private School Availability and Community Characteristics

Explanatory Variables	With private upper primary school		Without private upper primary school		With private primary school		Without private primary school	
	Z	AME	Z	AME	Z	AME	Z	AME
Population	1.2	0.00003	1.21	0	-0.46	0	-0.48	0
Number of households	-0.95	-0.00009	-0.7	-0.0001	1.29	0.00003	1.92 *	0
Number of hamlets	0.17	0.00052	0.34	0.0012	1.05	0.0007	0.34	0.0003
Proportion of Scheduled Castes in the village	0.56	0.00078	0.66	0.0009	1.95 *	0.00148	1.51	0.0011
Proportion of Scheduled Tribes in the village	-3.17 ***	-0.00509	-3.18 ***	-0.0051	0.14	0.00006	0.19	0.0002
Proportion of Other Backward Castes in the village	-0.81	-0.00095	-1.12	-0.0013	-1.92 *	-0.00186	-1.88 *	-0.0023
Proportion of Muslims	0.15	0.00028	-0.05	-0.0001	-0.67	-0.00041	-0.43	-0.0005
Distance from the nearest paved road (kms.)	-0.36	-0.0029	-0.51	-0.0045	-1.53	-0.00811	-1.34	-0.0073
Distance from the nearest bus station (kms.)	0.22	0.00192	0.32	0.0028	-1.19	-0.00221	-0.47	-0.001
Distance from the nearest railway station (kms.)	-0.56	-0.00038	-0.94	-0.0007	-2.02 **	-0.00491	-1.9 *	-0.0073
Distance from the District headquarters (kms.)	-1.39	-0.00099	-1.32	-0.0009	-1.92 *	-0.00053	-0.17	-0.0001
Nearest government health centre (kms)	-1.53	-0.00648	-1.43	-0.0063	-0.33	-0.00052	-0.07	-0.0002
Availability of electricity	2.93 ***	0.29023	2.62 ***	0.2535	-1.64	-0.06891	-1.01	-0.0315
Availability of Safe Drinking water	-1.31	-0.14384	-1.03	-0.1145				
Post office is in the village	0.77	0.04499	0.64	0.0375	-1.38	-0.023	-1.68 *	-0.0317
Number of primary health centres	2.62 ***	0.12488	2.47 **	0.1291	-1.05	-0.01545	1.1	0.0306
Number of ration shops	0.41	0.00626	0.6	0.0093	2.07 **	0.03005	2.03 **	0.0318
Mahilamandal	-3.36 ***	-0.20413	-3.21 ***	-0.1948	1.48	0.06683	1.49	0.0422
Sakhi	1.57	0.10005	1.57	0.1013	-0.74	-0.02584	0.8	0.0254
Number of government primary schools	3.07 ***	0.14494	2.75 ***	0.1324	-3.79 ***	-0.05781	-2.12 **	-0.0799
Number of government upper primary schools	-0.16	-0.00891	-0.14	-0.0076	-2.39 **	-0.04474	-1.42	-0.0503
Number of private (upper) primary schools	3 ***	0.28621	_	_	1.67 *	0.04679	_	_
Oldest school in the village (years)	-0.26	-0.00027	0.49	0.0005	1.97 **	0.00271	1.95 *	0.0025
Number of anganwadis	1.66 *	0.07024	1.62	0.0691	-0.68	-0.02283	-0.53	-0.0154
Number of non-formal education centres	1.69 *	0.1044	1.5	0.1005	0.4	0.00409	0.65	0.0123
Constant	-2.07 **		-2.03 **		-0.9		-0.34	
Number of Observations	498		498		440		440	
Proportion of observations correctly classified	78.71		78.92		98.86		98.86	
Wald statistic	Chi-2 26=67.16***		Chi 2 26=69.89***		Chi 2-24=79.98***		Chi2 =79.218***	
Likelihood Ratio statistic	LR(26)=249.218***		LR(25)=238.608***		LR(24)=177.03***		LR(23)=169.5***	
Log likelihood	-220.48		-225.78		-26.16		-29.93	
Pseudo R2	0.36		0.35		0.77		0.74	

PROBE Revisited Survey 2006; AME means Average Marginal Effects. *10% significance, ** 5% significance, *** 1% significance level.

5. Choosing Schools: Patterns , Correlates and Trends

The 2006 PROBE Revisited survey showed that 80 percent of children were enrolled in government schools and 20 percent in private schools. This is roughly the same distribution as was found during the original PROBE survey 1996 (PROBE,1999). This pattern also mirrors the preponderance of government schools in the study villages and the relatively limited reach of private schools.

School choice appears to vary systematically across caste, economic status and gender. Children from Scheduled Caste (SC) and Scheduled Tribe (ST) households are overwhelmingly represented in government schools (92 and 93 percent respectively) although about two-thirds of children from the ``general castes'' are also enrolled in government schools, with about one-third in private schools. Boys seem more likely to be enrolled in private schools than girls. Overall, 22 percent of enrolled boys are in private schools compared with 17 percent of enrolled girls. This is consonant with patterns for the country as a whole. For instance, Sankar(2008) reports that children from disadvantaged communities overwhelmingly attend schools within the public sector (over 90%), which include government as well as aided private schools. She finds that girls are more likely to be enrolled in public sector schools relative to boys.

Sending children to private primary schools is associated with significantly larger expenses. The 2006 survey found that since 1996 the average cost of sending a child to a government school has declined, while the cost of private schooling for primary children has risen significantly with the average annual cost rising from Rs.739 in 1996 to Rs.1053 in 2006 at constant prices (De et al, 2011). At the upper primary level the average cost of sending a child to private school in 2006 was almost three times as much as sending them to the government school. Affordability is therefore a critical aspect of school choice. This too is similar to the All-India pattern where those from the lowest expenditure quintile mostly attend government schools, having increased from 85% to 90% between the mid-eighties and 2004-05 (Sankar, 2008). In contrast, the share of children attending schools in the public sector who belong to the richest quintile, traditionally low, has been declining (from 55% to 42%) in the same span. Despite the existence of low fee private primary schools that many claim put good quality education within the reach of the poor (Tooley, 2007), some find that even LFPs are unaffordable to the economically and socially disadvantaged (Harma,2011;Srivastava, 2007).[10]As in most developing countries, one of the key reasons cited for low levels of school participation in India is the cost, including the opportunity cost, of education

[10]Harma (2011) finds that LFP school costs are unaffordable for over half of the sampled children, including the majority of low caste and Muslim families. Alderman et. al., (2001) find that in Pakistan while even the poorest households use private schools extensively, that utilization increases with income.

(Glick and Sahn, 2006 ; Alderman, 2001). Although tuition in public primary schools is negligible and almost completely subsidized, the overhead costs of books and uniforms can be quite high, dissuading poor families from sending their children to school (PROBE, 1999). These considerations transfer to school choice decisions as well. Harma (2011) points out that while low cost private schools are greatly preferred under current conditions, parents might actually want a well-functioning government school system, suggested that opting for private school enrollment is conditioned on the quality of the alternatives available.

The translation of preferences for school choice is also mediated by considerations other than costs, especially by perceptions and aspirations of parents for their children and the particular circumstances of the household.[11]In the survey, households who did have a choice between government and private schools were asked to state their preference between the two, assuming that both charged the same fees. Of all those studying in government schools, 62% said they would prefer the local private school whereas only 17% of those in private schools said they would prefer the local government school. This suggests that while fees are a constraint, other factors might be at work. Indications are that quality of instruction and regularity of functioning are also important aspects in school choice that go beyond school costs (Table 4a & 4b) This confirms findings that parents' choice of schools could relate to school characteristics, including multigrade teaching, facilities, proximity and so forth (Glick and Sahn, 2006;Pal, 2010; Harma, 2011; Alderman,2001).

[11]De, et.al. (2011) discuss how parental aspirations have changed since the PROBE Survey, especially the desire to educate girl children and the perceived benefits of putting children through school, ranging from better jobs and marriage prospects to a better quality of life.

Table 4(a) Reasons for enrollment

Reasons the child is not enrolled in a private school		
Reason	**Number of responses**	**As percentage of total responses**
Private school is too costly	209	64
Too distant	42	13
Poor quality teaching	13	4
Private school is not recognized	9	3
Cannot get admission	4	1
Poor infrastructure	1	0
Others	48	15
	326	**100**
Reasons the child is not enrolled in a government school		
Reason	**Number of responses**	**As percentage of total responses**
Poor quality teaching	78	37
Irregular functioning	43	20
Too little supervision by teachers	35	16
English not taught	20	9
Poor infrastructure	9	4
Too distant	7	3
Excessive physical punishment	1	0
Others	20	9
Total	**213**	**100**

Notes: This question was asked only for children enrolled in a private school. This question was asked only for children enrolled in a government school and restricted to villages where there was at least one private school. Multiple responses were allowed.

Table 4(b): Perception of private school respondents as to why children do not go to the government school

Reason	**Number of responses**	**As percentage of all responses**
Regular Teaching	83	50
Parents not satisfied with Government school	35	21
English Teaching	34	20
Fee is lower	14	8
Others	41	25
Total	**166**	**100**

Note: This was asked of the principal whenever possible or a head teacher or any other teacher in the school that the enumerators surveyed.

The sensitivity of school characteristics brings into focus the role of exit and voice in parental choice of schools (Fennell, 2007; Srivastava, 2007).[12] As long as households have ways of expressing themselves, they can make demands on schools in ways that can effect quality improvements. One such expression is through voice and can imply individual initiative or

[12]Fennell (2007) and Srivastava (2007) adapt the framework of exit, voice and loyalty, proposed by Hirschman (1970) to explain the life of institutions or organizations, to school choice in the context of rural India.

collective bodies like parents associations and village education committees. Where such voice is lacking or ineffectual and there exist alternatives, parents could potentially exit, opting for another school and choosing to vote with their feet. The survey data suggests that parents opt out of schools for their irregular functioning, poor quality of teaching, language of instruction, etc. From the private schools' perspective, 21% feel that parents opt for the particular private schools because they are dissatisfied with the government school. Half of all parents of sample children who are enrolled suggest that the regular functioning of private schools (which may or may not reflect the threat of exit) as being the reason for choosing the private school in question. These could indicate either that there was no voice in these alternatives and hence parents opted for exit or that the chosen option offers greater scope for exercising voice. This aspect has been somewhat neglected in quantitative work on schooling choice in India; this paper makes an attempt to address this issue, albeit in a limited way.

Existing scholarship on India suggests that the choice is nuanced and often depends on specific social contexts. Munshi and Rosenzweig (2006), for example, find that male working-class-lower-caste-networks continue to channel boys into local language schools that lead to the traditional occupation, despite the fact that returns to nontraditional white-collar occupations rose substantially in the 1990s. In contrast, lower-caste girls, who historically had low labor market participation rates and so did not benefit from the network, are taking full advantage of the opportunities that became available in the new economy by switching rapidly to English schools. In a different vein, Hill et al, (2011) find in a case study of a Rajasthani village that despite the overwhelming correlation between caste status and enrolment in government and private schools, school choice can be quite complex. A dysfunctional government school GUPS Hindi was contributing to children flowing into other schools and out of school altogether in some cases. But a functional government Sanskrit school was valued by parents and though explicitly orientated to Brahmin values and culture, the school was well patronized by low caste children who benefited from the sense of ownership and voice Brahmin families appeared to be able to exercise at the school. They find that access to a functioning government school for low caste and economically weak households ameliorates social stratification in some small ways. [13]

These findings underscore the need to account for a richer characterization of the school choice problem in quantitative analysis, especially accounting for the ecology of primary schooling within the village as well as of some representation of voice or exit.

[13]Srivastava (2007), Johnson and Bowles (2010), Jeffrey (2005) are other studies that document these aspects in detail.

6. Analyzing Private School Enrolment

There have been several approaches to examine the drivers of school choice, emanating from a simple analytical household model but differing in its empirical operationalization (Alderman and King, 1998; Alderman,2001; Behrman,1999; Behrman and King, 2001; Gertler and Glewwe, 1992; Glick and Sahn, 2000; Glick and Sahn, 2006). Schooling decisions are typically assumed to be household-level decisions reflecting parental preferences for school characteristics subject to particular constraints imposed by household characteristics and perceptions. The choice of schools or schooling is in a sense an outcome of a cost benefit analysis for the household. The costs could include both direct costs such as tuition fees, transport, supplies, etc. or could mean opportunity costs (foregone wages, foregone help with domestic activities). Benefits can be taken to represent higher wages and increased human capital or some payoffs in the future.[14]

6.1. The Empirical Model

Following Alderman (2001), parents are assumed to derive utility from consumption of goods (C) and human capital (H) of the children. The utility function has the form U=U(C, H[A]) where A represents the school chosen. This refers to the characteristics of the school that a child attends and hence influences the child's human capital. School attributes (S) are assumed to be partly exogenous but partly influenced by the demands parents are able to make on the school management through voice (V) which include among other things parents associations, village education committees and so on. Parents face three choices: to not enroll a child at all, to send the child to private school (P) and to send the child to government school (G). Each is associated with different costs and human capital accumulation.

A household is assumed to choose the option that maximizes household utility.

$$U^* = Max(U_0, U_G, U_P)$$

The utility function is characterized as

$$U(C, H[A])$$

And is assumed to take the form

$$U_{ij} = \alpha_0 H_0 + \alpha_1 C_{ij} + \varepsilon_{ij}$$

with consumption being specified generically as income minus expenditures for particular school types and the no schooling option so that

$C_{ij} = \left(Y_j - P_j\right)$ where j= 0, G, P

[14]Drèze and Kingdon (2001) discuss the assumptions and caveats of using a household model.

To operationalize this model, we assume that the human capital production function is of the form

$$\alpha_0 H_{ij} = \gamma_j S_j + \mu_i V_j + \beta_i F_i + \epsilon_j I_i + \delta_j$$

The schooling choice is analyzed within a multinomial logit specification. The probability of choosing one of the schooling alternatives is

$$Pr(U^* = U_j) = [1 - Pr(U^* = U_0)] \frac{\exp\left(\frac{U_j - \varepsilon_j}{\sigma}\right)}{\left\{\exp\left(\frac{U_G - \varepsilon_G}{\sigma}\right) + \exp\left(\frac{U_P - \varepsilon_P}{\sigma}\right)\right\}^{\sigma}}$$

The probability of not enrolling a child is

$$Pr(U^* = U_0) = \frac{\exp\left(\frac{U_0 - \varepsilon_0}{\sigma}\right)}{\exp\left(\frac{U_0 - \varepsilon_0}{\sigma}\right) + \left\{\exp\left(\frac{U_G - \varepsilon_G}{\sigma}\right) + \exp\left(\frac{U_P - \varepsilon_P}{\sigma}\right)\right\}^{\sigma}}$$

The assumption that the government and private schools are closer substitutes than either of them with the `no school option' requires that $0<\sigma<1$. A finding that $\sigma \geq 1$ would reject the null hypothesis. The empirical counterparts representing these classes of variables are informed by insights from existing work in the Indian context on choice of schools as well as the central preoccupations of the paper, namely, the notion of effective choice and the relative roles of ``exit'' and ``voice''.

6.2. Data and Variables used

Following the analytical model above, this paper estimates child specific demand for type of school. First, we estimate a multinomial logit model (henceforth Model 1) that treats enrolment in government school, private school and not enrolling (including dropping out or continuing not to enroll) as three choices available to the household. Three sets of variables representing community or village characteristics, household or individual characteristics and school characteristics are included as explanatory variables. The school characteristics pertain to a summary representation of all government schools and all private schools available in the village. In the multinomial model, all the parameters are allowed to vary to allow for the differential relationships across choices.

Second, for only the subset of enrolled sample children a binary logit model estimates the correlates of school choice preference, where the dependent variable takes the value 1 if the chosen

school is private and 0 if the chosen school is a government school. This model accounts for school characteristics for the chosen school, and characteristics of the private and government schools that are not selected. This offers the richest possibility of testing whether on average individual school characteristics matter more than school type. Controlling for the characteristics of the selected school, it is possible to examine how the characteristics of the other private or government schools in the village that are not chosen influence the probability that the chosen school is privately managed.

The two empirical approaches imply a specific underlying choice structure. The multinomial model (Model 1) presumes a simultaneous choice between government school, private school and no schooling at all, but assumes that parents only sort across school management types. This presumes that the Irrelevance of Independent Alternatives (IIA) assumption holds. Under the IIA, the odds between choosing school types is independent of the third option of non-enrollment and hence a simple binary comparison between choice of private and government schools would not change when the non-enrollment option is added. This second model can also be interpreted as choice of schools conditioned on enrolment. It explicitly acknowledges that parents might choose particular schools rather than school types. If parents value particular school characteristics rather than sort schools simply by management type. This model allows the exploration of the associations between the characteristics of schools that are not chosen, controlling for the characteristics of the school that is chosen. In essence, it allows the possibility of examining how variables associated with a government or private school can influence the probability that the chosen school is private, holding the characteristics of the chosen school constant. The choice here then involves selecting a particular school over other schools in the village where these other schools are grouped into private and government schools.

Several assumptions underpin this approach. In the context of this work, the enrolment decision and choice of schools are best interpreted as recurring decisions that households potentially make each year. At each time period, a family chooses whether or not to send a child to a private school, government school or neither. In principle, this choice could be allowing the child to continue, readmitting a child who has previously dropped out or enrolling a hitherto unenrolled child. This choice could be quite different for children of different ages and very different processes could be at work for upper primary children relative to primary children.[15] Enrolment therefore represents admitting a child to school for an additional year which enables the pooling of all sample

[15]The issue of dropouts is important and different from non-enrolment because often it is closely linked to either individual student performance or labour needs of the households. This is however beyond the scope of the paper.

children. The sample is restricted only to primary classes and excludes discussion of upper primary schools.

The notion of using enrolment as opposed to attendance is a valid criticism in the context of India where enrolment is often nominal and the child rarely attends school. Further, it is also the case that many government schools enroll children in the village without regard to whether or not they are enrolled in private schools.[16] Notwithstanding these issues, the study interprets enrolment as reflecting the preference of parents for schools and hence relevant to the study of school choice. In this work, no distinction is made between various types of private schools. Although the data was collected on this aspect, there is reason to believe that parents might not be aware of these while making this decision. Another reason is that there is no comparable data for government schools.

A collection of variables representing school attributes include aspects that reflect costs of schooling, facilities and proxies for school quality. Costs of schooling are captured in this model by the average fees for all private and all government schools in the village. While the survey collected fees for all government schools in the village via a school questionnaire, the figure for private schools is derived from the average fees paid by the households who attend these private schools from the household questionnaire. This is a rough estimate given both the variability of fees across different classes and that the source of information is different.[17] Critical school infrastructure and facilities is represented by a facilities index. This is the average across schools in a specified category of the count of nine specific functional facilities including building, toilet, drinking water, fan, electricity, blackboard and playground.

A major constraint is a variable denoting distance to school. There are two reasons for this omission. First, the survey only collected the distance an enrolled child travels to attend school but not those of alternative schools not selected, so there is no accurate way to account for the relative distance of different options. Second, distance has a complicated influence on school choice. In general, it is apparent that those who send children to private school do so despite the distance and because private schools on average are further away from sample households than is the government school, it is hard to interpret this variable.

School functionality is more difficult to capture. This analysis uses a combination of the number of teachers per class and pupil teacher ratio (PTR) representing the potential attention students get in school. A high figure for these in the context of India could however reflect the popularity of the school, given the constraints of the school in scaling up staff members. Further, as De, et. al. (2011) point out, the PTR is often an artefact and in reality the situation could be

[16]The sample contains very few instances of children enrolled in both the government and private schools and they have been excluded from the analysis.

[17]Fees are used as a proxy for all costs. As discussed earlier, there are several other costs involved. But these other costs could be contaminated by parental investment in children independent of the choice of schools.

considerably different. Other variables are therefore included to represent school functionality. A binary variable is included that takes the value one if the school reports a shortage of teachers and zero otherwise. Other variables include proportion of teachers present at the time of the survey, proportion of enrolled students attending at the time of the survey. The proportion of enrolled students attending is a catch all measure of functionality. While this is a noisy measure since it reflects a single day's attendance, the assumption is that the survey happened on a typical day. A higher proportion in school presumably is a positive reflection on quality. Another binary variable indicates if the school offers English as a medium of instruction or not.[18]

In general for all the binary variables, in defining the characteristics of the alternatives available in terms of schools, there are many possibilities that were considered, since an average across alternatives makes little sense. Two formulations were considered. The variables could either represent the characteristics of the majority of schools or whether or not that characteristic is present in at least one of the alternative options. In this paper, the latter option is considered under the assumption that parents who value a characteristic, say, English instruction, will look for an alternative school that offers that characteristic. From the perspective of a school choice decision, it makes sense to see if the characteristic of value to parents is available with any alternative rather than the number or proportion of such alternatives. This logic is applied to all binary variables.

Since the choice of schools depends on the availability of such choice in the first place the model includes data on the number of private schools and government schools, both primary and upper primary, available in the area. The number of schools in the village is an imperfect proxy for a choice set. In particular, private schools are typically located on main roads and in a way such that it attracts children from a number of surrounding villages. Children are sometimes enrolled in schools outside the village. Since only a few children in the sample attend school outside the village, this is unlikely to be a major problem.[19]

The models include both the number of private primary schools as well as a binary variable for whether a private primary school is present or not, which is a useful control in the absence of spatially explicit information on school location. The intercept term captures the impact of excluded variables or unobservables, for example whether or not a private school has recognition, parental preference for school type, etc. The underlying assumption here is that while community

[18]Other variables such as the teacher's sex might also be a driver of enrolment decision, potentially critical for girls, physical punishment, multiclass teaching were included but dropped since there were several missing observations.

[19]For those children in the sample who attend school outside the village, the characteristics of the chosen school are not available and a dummy is used to denote missing data.

characteristics might influence availability of (private) schools, an individual household cannot influence the choice set so that options are treated as exogenous.

It has been widely recognized that that the availability of schooling options as well as a few school characteristics could be endogenous, influenced by unobserved parental preference of either schools or characteristics in schools (Glick and Sahn, 2006; Pal,2010). To resolve this, a variable representing ``voice'' was included, representing the (average) number of associations at the school and village level where parents can make demand on schools. This data is obtained from the household questionnaires rather than the school schedules where the functionality of these associations might be overstated. The interpretation of the coefficients on this variable is not straightforward. The existence of institutionalized or formal avenues for expressing voice is neither necessary nor sufficient. A positive coefficient could mean that parents value the presence of these associations, but a negative coefficient could mean that parents do not value these either because they do not care or that these associations make demands on them that have negative utility or simply because these are ineffective. The inclusion of a number of socio-economic characteristics of the community is expected to have substantial explanatory power for the presence of and even quality of (private) schools. These include the demographic composition as well as the infrastructural, physical and social, facilities in the village.

Finally, characteristics of the individual child in question as well as those of the household are included. Key variables in this context are the level of parents' education, their occupation and family composition, social and religious group.[20] The individual position or profile of children matters too. Birth order and gender are especially important. Due to the paucity of reliable and credible data on wealth and income status, occupational categories are used as proxies. Land ownership, an important correlate of wealth in rural India is also included to control for economic status. Despite the set of controls, it is entirely possible that the ability of the individual child is systematically related to whether or not a child is enrolled in a private school. However, if as observed in existing literature, school quality varies widely, then this is less of a problem, because only if private schools are consistently better is there an omitted variable bias. Further, it is possible to argue that the choice of school reflects parental aspirations rather than of student ability. Nevertheless, not being able to control for individual ability remains a constraint.

For all the models, dummy variables are included to capture those observations for which critical variables are missing. In particular, among the sample enrolled children, there were a few who either attended school outside the village or attended a school that was not surveyed. For all

[20]Different formulations were attempted, including the ratio of adults and children to capture the pressures on child time allocation, but the final models use only the number of children.

these observations, missing data for school characteristics is captured by a binary variable. This is to minimize the loss of information and to not introduce bias in the estimations.

6.3. Estimation and Results

The multinomial logit model (Model 1 in Table 5) underscores well known insights that the characteristics of the individual child and family matter for school choice as do school characteristics.[21]

Among school characteristics, it is apparent that the presence of institutions that offer fora for parent participation are negative for both choice categories, contrary to expectation, implying that the scope for `voice' has no relevance to choice of schools, whether private or government. If they do matter, it is perhaps via the impact they have on the facilities provided, but it does not seem to be the case that voice is valued in significant ways. Indeed, a collective reading of the coefficients on government and private schools points to exit as the relevant strategy for parents. For example, teacher shortage in private (or government) schools decreases the odds of choosing a private (or government) school . The higher the facilities index the greater the probability of being in a private school.

The analysis also confirms some prevalent insights into school choice in the context of rural India. Boys are more likely to be in school and older children less so, suggesting dropouts. Children belonging to larger families are more likely to remain unenrolled but if given family size they come from families with more girl children then they are more likely to be enrolled. Father's education increases the likelihood of enrollment and the and the higher the education level of the most educated male member, the greater the likelihood that the chosen school is privately managed. While mother's education per se has no significance, the presence of a highly educated female in the household increases the probability of enrollment, whether in private or government school. Scheduled castes are less likely to go into the private school system and given other things equal Muslims are less likely to be in government school relative to not being enrolled at all.[22] The presence of pre-schools in the village also is associated positively with government and private school enrollment. The farther the village is from the district headquarters the less likely the child is enrolled in private school. A Hausman test to test whether the IIA assumption holds suggest that the IIA assumption cannot be rejected, implying that the odds any pair of choices - of being not

[21]The results of the enrolment decision are not discussed here apart from the observation that here school characteristics seem less of a driver of enrolment decisions, barring variables indicating teacher shortage in government schools and fewer facilities in private schools, both of which are associated with a higher odds that a child is not enrolled relative. The odds are defined against the base category of being enrolled in a government school.

[22]This could be the effect of excluding *madrasas* from the analysis.

enrolled, choosing a private school and a government school – are independent of the third choice of not being enrolled at all.

Another way of assessing how school choice is influenced by alternatives and especially to capture variation among private schools themselves is to opt for a logit specification where parents choose between private and government schools. Unlike Model 1, Model 2 can incorporate controls for the characteristics of the chosen school, and also capture separately summary characteristics of the schools not chosen, grouped into government and private schools. Since children in the sample within a particular village go to different schools, the characteristics of the other schools, government and private, captures the attributes of schools available within a village without being contaminated by the possible influence parents might have on the characteristics of the chosen school. In effect, it is possible to assess the probability the chosen school is private when the characteristics of private schools and of government schools vary. If, given the characteristics of the chosen school (private or government), the characteristics of other schools are statistically significant then it suggests substitutability of schools within and across school management types as the case may be. In particular, whenever a variable representing the quality of a government school not selected is associated negatively with the probability that the chosen school is private, it implies that given the characteristics of other private schools, households are discriminating in their choice of primary school based on particular characteristics. If the characteristics of the government school options that are not chosen never matter, i.e. all coefficients are statistically insignificant, it implies that on average parents only choose a particular school from among private schools, implying that parents exhibit a strong preference for school management type and are only discerning in terms of quality variables for options within and among private schools. Table 6 provides the results.

Table 5: Multinomial Logit model for school choice: Government versus Private versus Non-Enrollment

Explanatory Variables	Private School				Government School			
Base category : Not currently Enrolled	Relative risk ratio	SE	Z statistic		Relative risk ratio	SE	Z statistic	
Sex (1=male)	9.53	4.75	4.52	***	4.23	1.89	3.23	***
Age (years)	0.41	0.05	-7.00	***	0.43	0.05	-7.35	***
Birth order	1.36	0.34	1.22		1.68	0.38	2.32	**
Number of girl children	2.14	0.56	2.92	***	1.74	0.40	2.43	**
Number of all children	0.40	0.09	-3.99	***	0.48	0.10	-3.66	***
Land owned (acres)	1.12	0.08	1.53		1.08	0.08	1.07	
Father's age (years)	1.01	0.02	0.40		1.01	0.02	0.56	
Mother's age (years)	0.98	0.03	-0.51		0.97	0.02	-1.28	
Father's education (years)	1.14	0.08	2.06	**	1.11	0.07	1.73	*
Mother's education (years)	1.02	0.11	0.17		0.92	0.09	-0.84	
Education of most educated male member	1.18	0.09	2.08	**	0.99	0.07	-0.08	
Education of most educated female member	1.22	0.12	1.94	*	1.18	0.11	1.71	*
Scheduled Caste	0.23	0.15	-2.19	**	0.96	0.57	-0.08	
Scheduled Tribe	2.20	2.19	0.79		1.40	1.20	0.39	
Muslim	0.45	0.37	-0.97		0.19	0.13	-2.32	**
Farming	0.47	0.26	-1.34		0.51	0.26	-1.33	
Casual worker (agriculture)	0.69	0.56	-0.45		1.13	0.79	0.17	
Casual worker (non-agriculture)	0.34	0.25	-1.46		0.77	0.48	-0.42	
Regular wage employment (non-permanent)	1.12	1.24	0.10		1.20	1.27	0.18	
Bihar	8.37	11.68	1.52		7.06	9.12	1.51	
Himachal Pradesh	4.26	17.38	0.36		15.66	62.64	0.69	
Jharkhand	1.75	3.29	0.30		2.28	3.96	0.47	
Madhya Pradesh	0.88	1.12	-0.10		0.73	0.87	-0.26	
Rajathan	0.83	1.12	-0.14		2.27	2.90	0.64	
Uttarakhand	5.74	13.94	0.72		1.15	2.72	0.06	
Population of village	1.00	0.00	1.04		1.00	0.00	0.13	
Proportion of Scheduled Castes in the village	1.05	0.03	1.96	**	1.03	0.02	1.17	
Scheduled Tribes in the village	1.00	0.00	-0.60		0.99	0.00	-1.75	*
Proportion of Other Backward Castes in the village	1.00	0.01	-0.33		0.99	0.01	-0.65	
Proportion of Muslims	1.01	0.02	0.49		1.01	0.02	0.4	
Distance from the nearest paved road (kms.)	0.90	0.07	-1.44		0.99	0.06	-0.16	
Distance from the nearest bus station (kms.)	1.11	0.11	1.10		1.11	0.10	1.19	
Distance from the nearest railway station (kms.)	0.97	0.01	-1.81	*	0.98	0.01	-1.42	
Distance from the District headquarters (kms.)	0.99	0.01	-0.47		0.99	0.01	-0.9	
Nearest government health centre (kms)	1.08	0.08	1.03		1.08	0.07	1.18	
Availability of electricity	4.68	4.75	1.52		3.05	2.68	1.27	
Availability of Safe Drinking water	7.25	10.54	1.36		1.06	1.43	0.05	
Mahila mandal	4.64	4.89	1.45		3.82	3.78	1.35	
Sakhi	3.54	3.42	1.31		2.47	2.29	0.98	

	Post office is in the village	0.36	0.48	-0.76		0.33	0.42	-0.86	
	Number of primary health centres	3.13	3.87	0.92		3.33	3.77	1.06	
	Number of ration shops	0.68	0.38	-0.69		0.79	0.43	-0.44	
	Number of private primary schools	0.04	0.08	-1.50		0.04	0.09	-1.47	
	Number of government primary schools	0.15	0.11	-2.47	**	0.27	0.19	-1.81	*
	Number of private upper primary schools	0.03	0.13	-0.86		0.46	1.76	-0.2	
	Number of government upper primary schools	6.78	8.43	1.54		9.95	11.77	1.94	*
	Does the village have a private school (1=yes)	0.01	0.02	-1.37		0.01	0.05	-1.17	
	Number of non formal education centres	1.66	1.87	0.45		2.74	2.94	0.94	
	Number of anganwadis	3.06	1.73	1.98	**	3.67	1.91	2.5	**
	Oldest school in the village (years)	1.00	0.02	0.15		1.01	0.02	0.35	
(G)	Facilities	1.05	0.30	0.17		1.06	0.28	0.21	
(G)	Benches	0.03	0.06	-1.55		1.00	1.97	0	
(G)	Pupil teacher ratio	0.95	0.08	-0.67		0.95	0.07	-0.7	
(G)	Pupil teacher ratio (squared)	1.00	0.00	0.51		1.00	0.00	0.58	
(G)	Proportion of teachers present	1.02	0.02	0.95		1.01	0.01	0.49	
(G)	Proportion of students present	0.99	0.02	-0.66		1.01	0.02	0.71	
(G)	Number of teachers per class	0.30	0.52	-0.69		0.34	0.55	-0.67	
(G)	Teacher shortage	0.12	0.13	-2.06	**	0.13	0.13	-2.11	**
(G)	Voice	0.20	0.17	-1.84	*	0.26	0.20	-1.71	*
(P)	Facilities	5.57	3.96	2.41	**	3.71	2.60	1.87	*
(P)	Benches	0.72	2.71	-0.09		2.16	7.73	0.22	
(P)	Pupil teacher ratio	1.25	0.40	0.70		1.32	0.40	0.9	
(P)	Pupil teacher ratio (squared)	1.00	0.01	-0.09		1.00	0.01	-0.43	
(P)	Proportion of teachers present	1.00	0.05	-0.06		1.06	0.05	1.27	
(P)	Proportion of students present	1.02	0.03	0.55		1.01	0.03	0.23	
(P)	Number of teachers per class	0.05	0.14	-1.11		0.05	0.12	-1.21	
(P)	Teacher shortage	0.19	0.81	-0.39		3.95	16.68	0.33	
(P)	Voice	0.05	0.10	-1.40		0.05	0.11	-1.42	
(P)	English medium instruction	1.12	2.95	0.04		0.32	0.83	-0.44	
(G)	Government average fees	1.00	0.00	-0.44		1.00	0.00	-1.01	
(P)	Private average fees	1.00	0.00	0.18		1.00	0.00	0.73	
	Log likelihood	-476.87							
	Number of Observations	1205							
	Likelihood Ratio (LR) chi2(148)	793.93							
	Prob > chi2	0.00							
	Pseudo R-squared	0.45							

PROBE Revisited Survey 2006; SE means Standard Errors; NA means Not Applicable. The Hausman Test of IIA assumption is unable to reject the null, with chi-squared of 1.839 (df=67) and 0.821 (df=69) when categories government and private are dropped in turn.

It is evident that whenever the government school is of good quality, represented by the number of facilities it has, the proportion of primary grades that have benches and is not short of teachers, the odds of the chosen school being private are lower. The data suggests too that given the characteristics of the available options, the newer the government school the lower that odds of the chosen school being privately managed. Likewise, whenever the private schools possess these characteristics the odds that the chosen school is private are higher. This suggests that given the choices of private schools available should government schools have these characteristics, this would probably increase the chances that the child is in a government school, and vice versa. These suggest sorting over characteristics rather than school management type. That the medium of instruction in private schools is English appears to influence whether the chosen school is private.

Voice does not seem to matter or appears to have the opposite effect, so that the existence of functional PTAs in the chosen school makes it less likely that it is private. A possible explanation is the inefficacy of the PTAs, so that parents do not value it as a vehicle for voice and hence do not regard it as an indicator of desirable quality. One possible interpretation of the negative sign is that voice matters for other attributes of schools, which when controlled for represents a cost to parents.

All of these coefficients need to be interpreted with caution. At the same time, there seems to be enough evidence that the higher the quality of available government schools the lower the likelihood that the chosen school is private. This conforms to the insights available in several existing qualitative studies that the large variation in school quality both within government and private schools implies that the parents perhaps sort over particular characteristics rather than opt for labels or management types. The former exerts an important influence, perhaps overshadowing typologies of private and government.

Boys and children higher up the birth order are more likely to be in private school. The more educated the mother and the higher the education level of the most educated male member, the greater the likelihood that the chosen school is privately managed. Scheduled castes are less likely to go to private school given other things, conditional on being enrolled, children from Muslim and Scheduled Tribe households are less likely to be in government school.[23] Casual workers in the non-agricultural sector were also less likely to send their children to private school. The ecology of schooling in the village matter as well. The presence of private primary schools in the village and the number of private schools matter of course as does the presence of non-formal education centers, which raises the probability that a child attends private primary school.

[23]Nine children were enrolled in *madrasas* and were excluded from the analysis.

Table 6: Logit Model for School Choice with characteristics of schools not selected

Explanatory Variables	Odds ratio	S.E.	Z-statistic		AME
Sex (1=male)	2.476	1.045	2.150	**	0.028
Age (years)	1.111	0.132	0.880		0.003
Birth order	0.733	0.162	-1.410		-0.010
Number of girl children	0.978	0.215	-0.100		-0.001
Number of all children	0.888	0.191	-0.550		-0.004
Land owned (acres)	1.037	0.040	0.960		0.001
Father's age (years)	1.007	0.033	0.200		0.000
Mother's age (years)	0.970	0.043	-0.690		-0.001
Father's education (years)	1.114	0.091	1.320		0.003
Mother's education (years)	1.105	0.069	1.600		0.003
Highest class of most educated male member	1.137	0.091	1.600		0.004
Highest class of most educated male member	1.094	0.089	1.110		0.003
Scheduled Caste	0.186	0.155	-2.020	**	-0.052
Scheduled Tribe	17.732	23.085	2.210	**	0.097
Muslim	8.281	8.401	2.080	**	0.070
Bihar	0.043	0.067	-2.020		-0.081
Himachal Pradesh	0.025	0.079	-1.150		-0.092
Jharkhand	0.028	0.042	-2.400	**	-0.098
Madhya Pradesh	0.544	0.804	-0.410		-0.019
Rajathan	14.047	30.131	1.230		0.085
Uttarakhand	1.304	2.163	0.160		0.008
Farming	0.883	0.745	-0.150		-0.004
Casual worker (agriculture)	1.170	1.184	0.160		0.005
Casual worker (non-agriculture)	0.061	0.056	-3.080	***	-0.079
Regular wage employment (non-permanent)	0.766	0.849	-0.240		-0.008
Regular wage employment (permanent)	5.982	8.190	1.310		0.060
Self-employment	1.004	0.830	0.010		0.000
Population of village	1.000	0.000	1.410		0.000
Proportion of Scheduled Castes in the village	1.011	0.021	0.520		0.000
Scheduled Tribes in the village	1.003	0.005	0.570		0.000
Proportion of Other Backward Castes in the village	1.007	0.023	0.300		0.000
Proportion of Muslims	0.996	0.045	-0.090		0.000
Distance from the nearest paved road (kms.)	0.781	0.142	-1.360		-0.008
Distance from the nearest bus station (kms.)	1.158	0.082	2.080	**	0.005
Distance from the nearest railway station (kms.)	0.986	0.019	-0.740		0.000
Distance from the District headquarters (kms.)	0.986	0.017	-0.810		0.000
Nearest government health centre (kms)	0.996	0.099	-0.040		0.000
Availability of electricity	4.012	4.096	1.360		0.042
Availability of Safe Drinking water	13.111	17.335	1.950	*	0.075
Mahila mandal	4.754	5.077	1.460		0.050
Sakhi	3.353	3.189	1.270		0.038
Post office is in the village	0.420	0.426	-0.860		-0.026
Number of primary health centres	0.424	0.662	-0.550		-0.027

	Explanatory Variables (CONTINUED)	Odds ratio	S.E.	Z-statistic		AME
	Number of ration shops	3.096	1.133	3.090	***	0.035
	Number of private primary schools	29.97	59.5	1.710	*	0.105
	Number of government primary schools	0.552	0.499	-0.660		-0.018
	Number of private upper primary schools	0.530	1.379	-0.240		-0.019
	Number of government upper primary schools	0.304	0.323	-1.120		-0.037
	Does the village have a private school (1=yes)	492.96	1526.1	2.000	**	0.237
	Number of non formal education centers	4.572	3.106	2.240	**	0.047
	Number of anganwadis	0.575	0.392	-0.810		-0.017
	Age of the oldest school (years)	1.080	0.034	2.420	**	0.002
	Age of school (years)	0.823	0.053	-3.030	***	-0.006
	Facilities	0.918	0.240	-0.330		-0.003
	Benches	2.050	5.270	2.070	**	0.206
	Pupil teacher ratio	1.030	0.264	0.120		0.001
	Pupil teacher ratio (squared)	0.999	0.004	-0.320		0.000
	Proportion of teachers present	1.008	0.033	0.240		0.000
	Number of teachers per class	0.105	0.207	-1.150		-0.064
	Proportion of students present	1.031	0.045	0.690		0.001
	English medium instruction	0.856	4.019	-0.030		-0.005
	Teacher shortage	3.866	3.831	1.360		0.039
	Voice	0.005	0.012	-2.310	**	-0.219
(GO)	Age of school (years)	0.942	0.036	-1.570		-0.002
(GO)	Facilities	0.362	0.118	-3.120	***	-0.031
(GO)	Benches	0.018	0.035	-2.020	**	-0.125
(GO)	Pupil teacher ratio	0.914	0.075	-1.100		-0.003
(GO)	Pupil teacher ratio (squared)	1.001	0.001	1.240		0.000
(GO)	Proportion of teachers present	1.000	0.023	0.010		0.000
(GO)	Number of teachers per class	8.713	15.621	1.210		0.067
(GO)	Proportion of students present	1.018	0.023	0.780		0.001
(GO)	Teacher shortage	7.765	9.648	1.650	*	0.071
(GO)	Voice	3.234	4.224	0.900		0.039
(PO)	Age of school (years)	0.708	0.217	-1.130		-0.011
(PO)	Facilities	2.669	1.470	1.780	*	0.030
(PO)	Benches	1113	4426	2.920	***	0.360
(PO)	Pupil teacher ratio	1.104	0.232	0.470		0.003
(PO)	Pupil teacher ratio (squared)	1.001	0.004	0.160		0.000
(PO)	Proportion of teachers present	0.972	0.024	-1.170		-0.001
(PO)	Number of teachers per class	15.861	63.274	0.690		0.086
(PO)	Proportion of students present	0.801	0.037	-4.850	***	-0.007
(PO)	English medium instruction	17.526	26.435	1.900	*	0.103
(PO)	Teacher shortage	0.000	0.000	-2.620	**	-0.148
(PO)	Voice	0.117	0.162	-1.550		-0.063
(G)	Average fees	1.001	0.002	0.370		0.000
(P)	Average fees	0.998	0.002	-0.840		0.000

Number of Observations	
Proportion of observations correctly classified	96.67%
Log likelihood	-113.45
Wald statistic (chi-2, df 90)	245.40
Prob> chi-squared	0
Pseudo R2	0.80

PROBE Revisited Survey 2006; AME means Average Marginal Effects

7. Concluding Remarks

This study sought to examine school choice decisions of households between government and private schools using quantitative methods. In particular, the goal was to accord an explicit role to two issues that have attracted increasing attention but remain under-researched especially in quantitative studies on India. The first is the notion of effective choice in a context where private school presence in rural India is highly variable. Second, the analysis incorporates a set of characteristics of the chosen school but also that of the alternatives available, private and government in order to identify the drivers of school choice. In a limited way, this enables investigation of the possible role of `voice' and `exit', capturing the push and pull factors that constitute school choice. From a public policy perspective, the survey data analyzed in this study offers a few key insights. Private primary school presence continues to be highly selective in terms of geographies, implying that relying on private schools to provide quality education to redress the dysfunctionality of government schools is valid in only a small subset of villages. This makes a strong case for the continuing relevance and importance of the government school system. Even where alternatives are available, it appears that parents are discerning with regard to specific attributes associated with the school rather than simply choosing school management type. Noteworthy is the fact that the presence of associations representing parents does not seem to be valued in both government and private schools indicating that they are either notional or that their role is captured indirectly through the other variables representing school quality. If then, exit is the strategy available to parents, when it is feasible at all, and if parents are sensitive to individual school attributes in a way that a good government school attracts pupils away from private schools (or that students are kept in private schools because government schools offer little by way of quality education) there is still a case to be made for investing in the improving the functionality of government schools.

References

Alderman, H., King, E. M., 1998.Gender differences in parental investment in education. *Structural Change and Economic Dynamics* 9(4), 453-468.

Alderman, H., Orazem, P. F., Paterno, E. M., 2001. School quality, school cost, and the public/private school choices of low-income households in Pakistan. *The Journal of Human Resources*. 36(2), 304-326.

Behrman, J. R., 1999. Schooling in Asia: Selected microevidence on determinants, effects, and policy implications. *Journal of Asian Economics* 10(2), 147-194.

Behrman, J. R., King, E. M., 2001. Household schooling behaviors and decentralization. *Economics of Education Review* 20(4), 321-341.

Chudgar, A., 2012. Variation in private school performance. *Economic and Political Weekly*, 47(11).

De, A., Khera, R., Samson, M., Shiva Kumar, A. K., 2011. Probe Revisited: A Report on Elementary Education in India. Oxford University Press.

Dostie, B., Jayaraman, R., 2006. Determinants of school enrollment in Indian villages. *Economic Development and Cultural Change,* 54(2), 405-421.

Dreze, J., Kingdon, G. G., 2001. School participation in rural India*. Review of Development Economics* 5(1), 1-24.

Fennell, S., 2007.Tilting at windmills: Public private partnerships in Indian education today. *Education Dialogue* 4(2), 193-216.

Gertler, P., Glewwe, P., 1992. The willingness to pay for education for daughters in contrast to sons: Evidence from rural Peru. *The World Bank Economic Review* 6(1), 171-188.

Glick, P., Sahn, D. E., 2000. Schooling of girls and boys in a West African country: the effects of parental education, income, and household structure. *Educational Administration Abstracts* 35(3).

Glick, P., Sahn, D. E., 2006. The demand for primary schooling in Madagascar: Price, quality, and the choice between public and private providers*. Journal of Development Economics*, 79(1), 118-145.

Goyal, S., 2009. Inside the house of learning: the relative performance of public and private schools in Orissa. *Education Economics* 17(3), 315-327.

Harma, J., 2009. Can choice promote education for all? Evidence from growth in private primary schooling in India. *Compare: A Journal of Comparative and International Education,* 39(2), 151-165.

Harma, J., 2011. Low cost private schooling in India: Is it pro poor and equitable*? International Journal of Educational Development,* In Press, Corrected Proof.

Hill, E., Samson, M., Dasgupta, S., 2011.Expanding the school market in India: Parental choice and the reproduction of social inequality. *Economic & Political Weekly,* 46(35),99-105.

Hirschman, A. O., 1970. Exit, voice, and loyalty: Responses to decline in firms, organizations and states. Harvard University Press.

Jeffrey, C., Jeffery, P., Jeffery, R., 2005. Reproducing difference? Schooling, jobs, and empowerment in Uttar Pradesh, India.*World Development,* 33(12), 2085-2101.

Johnson, C., Bowles, M. T., 2010. Making the grade? Private education in northern India. *Journal of Development Studies*, 46(3), 485 - 505.

Kingdon, G. G., 2005. Private and public schooling: The Indian experience. Paper for the conference on Mobilizing the Private Sector for Public Education, Co-sponsored by theWorld Bank Kennedy School of Government, Harvard University.

Mehrotra, S.,2006. Reforming elementary education in India: A menu of options.*International Journal of Educational Development,* 26(3), 261-277.

Mehrotra, S., Panchamukhi, P. R., 2006. Private provision of elementary education in India: Findings of a survey in eight states. *Compare: A Journal of Comparative Education,* 36(4),421-442.

Munshi, K., Rosenzweig, M., 2006. Traditional institutions meet the modern world: Caste,gender, and schooling choice in a globalizing economy. *The American Economic Review*, 96(4), 1225-1252.

Muralidharan, K., Kremer, M., 2006.Public and private schools in rural India. Harvard University, Department of Economics, Cambridge, MA .

Pal, S., 2010. Public infrastructure, location of private schools and primary school attainment in an emerging economy. *Economics of Education Review,* 29(5), 783-794.

PROBE Team, 1999. PROBE: Public Report on Basic Education. Oxford University Press, New Delhi.

Sankar, D., 2008. What is the progress in elementary education participation in India during the last two decades? An analysis using NSS education rounds.World Bank Mimeo.

Srivastava, P., 2007. Neither voice nor loyalty.

Srivastava, P., 2009. School choice in India: disadvantaged groups and low-fee private schools. *Oxford Studies in Comparative Education*,19(2), 185-208.

Tilak, J., Sudarshan, R., 2001. Private schooling in rural India. National Council of Applied Economic Research.

Tooley, J., Dixon, P., 2007. Private schooling for low-income families: A census and comparative survey in east Delhi, India. *International Journal of Educational Development*, 27(2), 205-219.