

Private Cost of Education and Academic Achievement of Students: An Analysis by School Types

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I. Introduction

In this era of privatization and resulting commercialization of education at all levels, it is of paramount importance to analyse the cost of education incurred to a student (or his/her parents) for his/her schooling. There is a public perception that higher one pays the amount of fees, better is likely to be his/her education and thereby, ultimately his/her academic achievement. This perception becomes more pronounced in case of self-financed schools as well as in case of private-aided schools when the Government wants to raise the fees. The present paper, thus attempts to analyse whether the academic achievement of students differs on the basis of school types, viz., private-unaided, private-aided and municipal schools in Greater Mumbai. In this attempt, it is also necessary to compute and compare the private cost of education per annum in private-unaided, private-aided and municipal schools. Cost analysis in education provides useful guide to education planners on the actual cost involved in producing a graduate at any level of education. It indeed, gives an insight into the pattern of educational expenditures. Cost analysis is often used to identify possible cost reduction. The need for cost reducing measures and more generally for policies towards cost effectiveness. This is necessary as the private cost of education is likely to be the lowest in municipal schools as the local government bears the entire cost of education and the highest in private-unaided schools. The next logical step is to ascertain whether the academic achievement of students differs on the basis of school types after adjusting for students' private cost of education per annum. This is essential so as to find out whether it is the private cost of education per annum incurred by the student or the characteristics of the school and the classroom processes matter and make the difference in the academic achievement of the students.

Statement of the Problem: Private Cost of Education and Academic Achievement of Students : An Analysis by School Types

II. Review of Related Literature

The origin of this paper lies in research on school effectiveness in general. However, it attempts to review broadly the literature on school type and cost of education. There is no consensus of opinion in the literature as regards the relationship between expenditure and students' academic achievement. Hanushek (1981) found that there is no significant relationship between school expenditure and students' academic achievement. A World Bank Report (1988) pointed out that one explanation for the low quality of education in Africa is that expenditure per student is very low by world standards. Ajayi (2008) and Adeyemi (2008) who at separate studies have reported abysmal poor performance of students in the state in public examinations. Adu and Olatundun (2007) reported that student academic performance and school's effectiveness is a function of teachers' efficiency and school tone. Carpenter (1985) studied the systems of schooling in Australia, Government, Catholic and other independent schools have for many years been regarded by some commentators as a manifestation of the wider social structure. It is suggested that, contrary to some Australian research evidence, when students' occupational origins, curriculum type and peer influences are taken into account, students at Government schools are more likely to achieve well than those at non- Government schools. It is further suggested that one factor involved in such a result is the relatively strong holding power of Government schools in this particular State compared to more populous States and the corresponding weakness of the independent school sector. Haddad, et.al. (1990) suggest that in both developed and developing countries, educational investment has been one of the most important factors contributing to economic growth; that expenditures on education contribute positively to labour productivity; that the economic payoff to spending on education – from both a private and public standpoint - is high, in absolute terms and compared to other investments; and that increased education of parents - especially mothers - has an important impact on child health and reduced fertility at all levels of economic development. Variation in school inputs, such as teacher experience, teacher motivation, the presence of textbooks, homework, and time spent in school during the year do contribute to varying pupil achievement, even when family background differences are accounted for.

Franklin and Crone (1992) also found that large schools benefit affluent students whereas small schools benefit economically deprived students. Newhouse & Beegle (2005) conducted a study using data from Indonesia, and evaluated the impact of school type on academic achievement of junior secondary school students (grades 7-9). Students that graduate from public junior secondary schools, controlling for a variety of other characteristics, score 0.15 to 0.3 standard deviations higher on the national exit exam than comparable privately-schooled peers. Students attending Muslim private schools, including Madrassahs, fare no worse on average than students attending secular private schools. Results provide indirect evidence that higher quality inputs at public junior secondary schools promote higher test scores. Kingdon and Teala (2006) used data from a school survey in India to find out whether payment of performance-related pay to teachers influences student achievement and school effectiveness. They found that after controlling for student ability, parental background and the resources available, private schools got significantly better academic results by relating pay to achievement. French and Kingdon (2010) summarised that teachers at private schools are different from those at state schools and face different recruitment and reward structures. As private schools in India often employ teachers that have somewhat lower academic qualifications and that typically do not hold a teaching certificate, superficially their teacher quality appears lower. However parameters such as effort and motivation of a teacher are much more difficult to measure, though most likely more pertinent to their level of effectiveness, and these less tangible measures of teacher quality may differ between the government and private schools because of private-public sector differences in reward, incentives and accountability structures. Extant Indian studies are consistent in suggesting that private schools in India are, on average, more internally efficient than government schools. They are more cost-efficient on average costing only about half as much per student as public schools. Private schools are also more technically efficient, producing higher achievement levels (after controlling for student intake) and making more efficient use of inputs, for example having more students per class and lower teacher absenteeism. (Govinda and Varghese, 1993, Kingdon, 1996, Bashir, 1997, Tooley and Dixon, 2005, Muralidharan and Kremer, 2006). However, the existing studies are often based on data from particular regions of India (rather than national data), or use Private methods that do not yield convincing estimates of the private school effect. Takayama (2008) studied academic achievement across school types in Hawai'i: Outcomes for Hawaiian and non-Hawaiian students in conventional public schools, western-focused charters and Hawaiian language and culture-based schools. Academic achievement tends to be measured in two primary ways: school grades and performance on standard tests. While grades and test scores are potential markers of student learning,

Need of the Study : Prior researches have investigated many variables that predict academic achievement. These variables can be categorized into three major groups: characteristics of the students, characteristics of the students' environment and demographic/background factors. It is crucial to note, however, that relationships exist across these variables as well. Characteristics of the student include ability and motivation. Characteristics of the student's environment that predict academic achievement include those of the home and school, such as parental involvement, quality of instruction and quantity of instruction. Demographic/background variables are often used as control variables or as independent variables with one or more intervening variables and explain the largest part of total variance for academic achievement. The present research attempts to control for private cost of education and then estimate the effect size of school type on academic achievement of students.

Research Questions :

1. Do the Mean academic achievement scores of students differ by school type?
2. What is the private cost of education of students? Does it differ by school type?
3. Do the Mean academic achievement scores of students differ by school type after adjusting for their private cost of education?
4. What is the effect size of school type on academic achievement of students before and after adjusting for their private cost of education?

Definition of the Terms

1. **Cost of Education :** It refers to the amount spent on education by the individual students' parents during the academic year.
2. **School Types :** It refers to the agency that establishes and administers the school. In the present study, it includes private-aided, private-unaided and municipal schools.
3. **Academic Achievement :** It refers to the total marks obtained by the student in all the subjects in standard X examination conducted by the MSBSHE (academic year 2008-2009) expressed in terms of percentage is taken as an indicator of the academic achievement of the students.

III. Methodology of the Study

The investigation was aimed at comparing academic achievement of existing secondary school students on the basis of school types. Hence, it has adopted the descriptive method of the causal-comparative type. It may be termed as synchronic in nature as data were collected at one point in time. The researcher has adopted the value added model in the methodology of the present study. The value added model was used to study the value added by the school by adjusting for the effect of the private cost of education on academic achievement of secondary school students.

Sample and Sampling Techniques: In order to select the sample of the study, the researchers adopted a four stage sampling procedure. At the first stage, schools affiliated to the Maharashtra State Board of Secondary and Higher Secondary Education (MSBSHE) and situated in Greater Mumbai were selected using stratified random sampling where the strata included the geographical location of the schools namely, South Mumbai, North Mumbai, and Central Mumbai. At the second stage, schools were selected using stratified sampling where the strata include the type of management of schools namely municipal, private-aided and private-unaided. At the third stage, individual classrooms from the selected schools were selected using simple random sampling (lottery method) technique. At the fourth stage, individual students were selected from the classroom using incidental sampling technique due to reasons beyond the researcher's control.

Initially, the data were collected from 1231 students of standard Xth. Of these, 22 forms were discarded as they were found to be incomplete. Thus, the final sample size of students was 1209. The wastage rate was 1.78% which is very low. The data were collected from 14 schools with English as the medium of instruction situated in Greater Mumbai and were affiliated to the MSBSHE. The study included 767 boys (63.4%) and 442 girls (36.6%). It consisted of 66 (5.46%), 820 (67.83%) and 323 (36.6%) students from municipal, private-aided and private-unaided schools respectively.

Instruments Used in the Study

- 1) **Cost of Education Inventory :** The Cost of Education Inventory was developed by Waikpainjan (2000) and it consists of three main categories of expenses as follows: daily expenditure, monthly expenses and yearly expenses. In order to establish the content validity, it was given to seven experts from the field of education and economics. As per the suggestion, the items of expenditure were added and the inventory was modified. Dry run was conducted by the researcher. Secondary school student were instructed to provide data pertaining the cost of education, which were incurred by them during the academic year. After administering the cost inventory, the daily, monthly expenditure was converted into yearly expenditure and the total cost was calculated.
- 2) **Personal Data Sheet for Students :** The tool was developed by the researcher to collect personal information regarding the respondent such as the name, age, gender, the class and division in which he/ she are studying, name and the type of the school.

Data Analysis :

1. **Research Question 1 :** Do the Mean academic achievement scores of students differ by school type?
Table 1 shows the Mean AAS and sample size of students from different school types.

Table 1 : Descriptive data of AAS by school types

School Types	N	Mean
Private-Aided	820	63.88
Municipal	66	55.29
Private-Unaided	323	66.24
Total	1209	64.05
		SD =11.43

The mean AAS of students were compared on the basis of school type using the technique of one-way ANOVA. The AAS of students from private-aided schools, municipal schools and private-unaided schools were compared and the F-ratio was found to be 26.59 ($p < 0.0001$) and was found to be significant. It may be therefore concluded that there is a significant difference in the academic achievement of students from different school types. Further analysis of the data using t-test revealed that (i) the Mean AAS of students from private-aided and private-unaided schools do not differ significantly. (ii) The mean AAS of students from municipal schools is significantly less than those from private-aided and private-unaided schools.

2. **Research Question 2 :** What is the private cost of education of students? Does it differ by school type?
Table 2 shows the Mean COE of students from different school types.

Table 2 : Descriptive data of COE by school types

School Types	Mean
Private-Aided	Rs. 41129.13
Municipal	Rs. 5428.71
Private-Unaided	Rs. 73870.91
Total	Rs. 48035.94
	SD =61429.77

The average private cost of education was found to be Rs. 48035.94 per annum. However, the variability in this private cost is very high as indicated by SD which is very high.

The mean AAS of students were compared on the basis of school type using the technique of one-way ANOVA. The COE of students from private-aided schools, municipal schools and private-unaided schools were compared and the F-ratio was found to be 54.36 ($p < 0.0001$) and was significant. It may be therefore concluded that there is a significant difference in the private cost of education of students from different school types. Further analysis of the data using t-test revealed that (i) the Mean COE of students from private-unaided schools is the highest followed by private-aided and municipal schools in that order.

3. **Research Question 3 :** Do the Mean academic achievement scores of students differ by school type after adjusting for their private cost of education?

Table 3 shows the observed and adjusted Mean AAS of students from different school types.

Table 3 : Observed and Adjusted Mean AAS by school types

School Types	Observed Mean	Adjusted Mean
Private-Aided	63.88	64.08
Municipal	55.29	56.51
Private-Unaided	66.24	65.1
Total	64.05	64.05
	SD =11.43	SD =11.07

The Mean AAS of students by school type (after adjusting for their COE) were compared using the technique of ANCOVA. The Pearson's r between COE and AAS was found to be 0.15. The Mean AAS of students from private-aided schools, municipal schools and private-unaided schools were compared after adjusting for their private cost of education and the F-ratio was found to be 17.14 ($p < 0.0001$) and was significant. It may be therefore concluded that there is a significant difference in the academic achievement of students from different school types after adjusting for their private cost of education. Further analysis of the data using the t-test revealed that (i) the Mean AAS of students from private-aided and private-unaided schools do not differ significantly. (ii) The mean AAS of students from municipal schools is significantly less than those from private-aided and private-unaided schools.

4. **Research Question 4 :** What is the effect size of school type on academic achievement of students before and after adjusting for their private cost of education?

This research question was answered by estimating the effect size of school type on AAS using Cohen's d which was found to (a) 0.77 when AAS was compared by school type and (b) 0.78 when AAS was compared by school type after adjusting for students' private cost of education.

IV. Conclusions :

- The Mean AAS of students from municipal schools is significantly less than those from private-aided and private-unaided schools.
- The Mean AAS of students from private-aided and private-unaided schools do not differ significantly.
- This conclusion remains unaltered even after adjusting for students' private cost of education.
- Moreover, the effect size of school type on students' academic achievement is moderate and does not change after adjusting for students' private cost of education.
- The private cost of education is the highest in private-unaided schools followed by private-aided schools and municipal schools in that order.

V. Discussion :

The private cost of education has very little bearing on academic achievement of students. Though municipal school students' academic achievement is the lowest, it is not because their parents do not spend money on their education. This is clear due to the fact that in spite of the private cost of education in private-unaided schools is greater than that in the private-aided schools, the performance of students from these two school types in the examination does not differ significantly. This implies that the private cost of education does not have a major role in making schools effective. It is the public expenditure on education that matters

especially for municipal school students who already come from poorer socio-economic background. There could be many possible reasons for their lower performance as compared to students from private-unaided and private-aided schools. Some of these could be inadequate public expenditure on their education, poor infrastructure in the school including shabby buildings, teacher efficacy, ineffective school and classroom climate, poor teachers' additional involvement in jobs unrelated to teaching such as clerical duties, election duties, census duties and so on the poor facilities at home of such students, lack of parental guidance, lack of intrinsic motivation and poor attitude towards education. However, more qualitative research is needed in this area to identify the precise causes of this.

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