Indian Journal of Multidisciplinary Research (IJOMR)
(Yearly, Blind Peer-Reviewed, Multidisciplinary Journal)
Home Page: https://ijomr.org

ISSN: 3048-8036 ***(Online)***
July, 2026 Vol. 3 Issue 1
Page No: 162-178

Does Private Coaching Improve Academic Performance? Econometric Evidence from Secondary and Higher Secondary Students in West Bengal

Dr. Shashi Bhusan Mishra[1] ***Shrayan Banerjee***[2]
[1]*Assistant Professor, Department of Economics, Aliah University*
[2]*Ph.D. Research Scholar, Department of Economics, Aliah University*

Received:
23.06.2026

Accepted:
04.07.2026

Published:
09.07.2026

Abstract

There has been a significant rise in the demand for private tuition in India, and the trend is no different in West Bengal. Many students undertake this supplementary coaching along with their mainstream schooling. Parents are putting a lot of money into this shadow education system with an expectation of improving their children's examination outcomes. However, in reality, the actual impact of private tuition on academic performance remains in question. This paper aims to capture the impact of private tuition on academic achievement, for which primary data were collected from 380 secondary and higher secondary students. The data were collected from three selected districts of West Bengal, namely Kolkata, Hooghly and North 24 Parganas. We conducted our analysis using a multi-stage stratified sampling method. We applied a binary logit model to find the determinants of coaching participation and then used Ordinary Least Squares regression to measure academic gains. Our findings confirm a high prevalence of private tuition, with nearly 78.68 per cent of the sampled students attending coaching. Participation is highest in Kolkata at 91.7 per cent. Household income and parental education significantly increase the chance of taking tuition, and proximity to coaching centres also boosts participation. The regression results show a positive effect on student test scores, with tutored students scoring 4.85 percentage points higher than non-tutored students. Additionally, more coaching hours per week lead to better marks. Crucially, the academic return on tuition is higher for wealthier households, with wealthy students gaining more marks from coaching than poorer students do. Private coaching improves performance but widens pre-existing educational inequalities; thus, policymakers must regulate fee structures and improve teaching quality in mainstream public schools.

Keywords: *Private Coaching, Shadow Education, Academic Achievement, Educational Inequality, Human Capital, West Bengal*

Introduction

In developed and developing nations, there are at least two main types of popular education: formal education in schools and an enormous backdoor network of school education or 'shadow education'. This education is paid for by various individuals, their families, and private institutions (Dang & Rogers, 2008; Das, 2021; Bray, 2022). Private coaching, which addresses remedial as well as advanced pedagogical issues, takes place off school premises and plays a supplementary role to official schooling, besides providing help to pupils for the competitive entrance exams, and

ISSN: 3048-8036 ***(Online)***
July, 2026 Vol. 3 Issue 1
Page No: 162-178

to improve their academic profile to prepare them for professional life. In India, it has grown to such a degree that it has become a definitive and integral part of the regular student training experience, rather than an option (Bhorkar & Bray, 2018). In response to concerns raised in the Ministry of Education's (2020) National Education Policy and the National Council of Educational Research and Training's (2023) National Curriculum Framework regarding the severe financial, academic, and psychological toll of unregulated tutoring, the Ministry of Education (2025) issued formal guidelines in 2024 to oversee the coaching sector.

This situation is deeply manifested in the eastern state of West Bengal, where parents increasingly view private tuition as an essential condition of their children's education (Das, 2021). However, the actual value of this booming industry remains ambiguous. Although a few regional studies, including Dandekar and Karne (2022) in Mumbai, and other studies by Aslam and Atherton (2012), Dongre and Tewary (2015), and Alcott and Rose (2015) suggest that tutoring is positively correlated with test scores, the literature is littered with a huge selection bias (Ashok & Jangir, 2024). In reality, these children are usually from better-off and more educated homes, and may have originally been more intrinsically motivated to learn. Hence, it is important to avoid comparing raw examination scores between the tutored and the non-tutored students because it may be a mere duplication of the skill of the additional tutor by the socioeconomic privilege of the family member.

Against this backdrop, an important question remains unanswered: Controlling for family wealth, parental education, and geographic location, does private coaching really help students' performance? This study directly provides the answers to this question in the context of secondary and higher secondary education in West Bengal. Based on fresh primary data collected from 380 students in three different socio-geographic districts (Kolkata, Hooghly, and North 24 Parganas), this paper aims at isolating the genuine incentives that might influence participation in coaching and assess if shadow education acts as a meritocratic tool that works to uplift the struggling learners or rather a financial mechanism that exacerbates the pre-existing social inequalities among them.

Review of Related Literature

Shadow education, or private supplementary tutoring, is consistently described in the research as a household investment in human capital driven by future earnings (Becker, 1962; Deming, 2022). However, this investment is rarely purely voluntary, mainly due to perceived inefficiencies in mainstream schooling (Hanushek, 2020), rising income inequality (Li, 2026), and parental education levels (Chen, 2020; Du, 2024). Moreover, peer effects are also important in determining the decision of participation. When the proportion of students taking tuition in a class is large, the probability of an individual student participating in tuition, household tuition spending, and time spent on tuition during weekends are all significantly higher (Pan et al., 2022; Luo & Chan, 2022; Liu & Wang, 2024; Yu & Zhang, 2022).

Shadow education has become a mainstream necessity in India, especially in eastern states such as West Bengal, rather than an optional supplement (Kumar, 2025; Majumdar, 2017; Kumar & Chowdhury, 2021). The sector now operates in a fragile balance with the formal school system, largely due to academic credentialism (Ghosh & Bray, 2018), occasionally coexisting with low-fee private schools (Sharma, 2025) and at other times actively displacing household investment in

Indian Journal of Multidisciplinary Research (IJOMR)
(Yearly, Blind Peer-Reviewed, Multidisciplinary Journal)
Home Page: https://ijomr.org
ISSN: 3048-8036 ***(Online)***
July, 2026 Vol. 3 Issue 1
Page No: 162-178

private schooling (Gooptu & Mukherjee, 2023). While tutoring fosters the development of competitive and entrepreneurial student identities (Gupta, 2025), scholars have cautioned against it, characterizing it as a serious 'toxic by-product' (Jha, 2023) of mainstream education and the exploitation of public-school failures through 'privatisation-by-default' (Ghosh & Bray, 2020; Bray, 1999, 2022, 2023). Econometric estimations based on large data sets, such as the Annual Status of Education Report (ASER) of 2022 and 2023, confirm the large and statistically significant effects of private tutoring on academic outcomes, particularly in terms of student performance in mathematics and language (French & Kingdon, 2010; Dongre & Tewary, 2015, 2015; Sharma, 2019). But a major research gap still exists.

While earlier studies consistently document the widespread growth of private supplementary tutoring, they predominantly rely on secondary macro-level datasets and aggregate financial expenditures. This focus leaves two critical dimensions under-explored: the actual intensity of tutoring (measured by weekly coaching hours) and the heterogeneity of academic returns across different socioeconomic classes (Choudhury et al., 2023; Maiti et al., 2026). To address these empirical lacunas, the present study utilises primary survey data collected from secondary and higher secondary students across West Bengal. Specifically, we evaluate how tutoring intensity influences examination performance and assess whether the academic gains from shadow education disproportionately favour higher-income households, thereby exacerbating existing educational inequalities. This idea has been captured by Figure 1 below, which shows the conceptual framework of the paper.

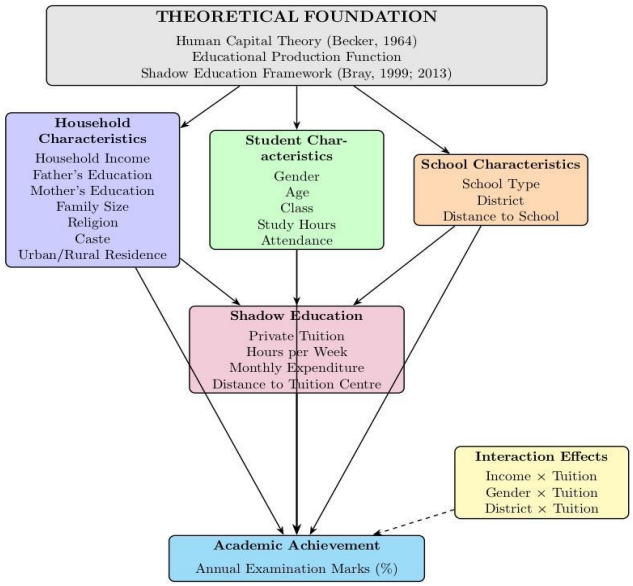


Figure 1: Conceptual framework linking household, student and school characteristics, shadow education and academic achievement.

Source: Author's Understanding

Indian Journal of Multidisciplinary Research (IJOMR)
(Yearly, Blind Peer-Reviewed, Multidisciplinary Journal)
Home Page: https://ijomr.org
ISSN: 3048-8036 ***(Online)***
July, 2026 Vol. 3 Issue 1
Page No: 162-178

Objective and Hypothesis of the Study

Drawing on the literature review, this study establishes the following specific objectives to examine the effect of private coaching on students' academic performance. The specific objectives are hereby categorised as follows:

O_1: To identify socioeconomic determinants of private coaching participation.
O_2: To estimate household expenditure on coaching.
O_3: To examine the relationship between coaching intensity and academic performance.
O_4: To analyse whether coaching benefits differ across socioeconomic groups.

Based on the above objectives we aim to statistically and econometrically try to test the following hypotheses:

H1: Participation in private tuition has a **positive** impact on the academic achievement **of** students.
H2: There exists a positive and significant impact of the household income on the student's participation in private tuition.
H3: Higher parental education increases the likelihood of children receiving private coaching.
H4: Furthermore, the academic benefits of private tuition increase with household income.
H5: Those students who reside in urban areas are more likely to participate in private tuition than their rural counterparts.
H6: **Greater** distance to coaching centres reduces the probability of tuition participation.

Data and Methodology

Data Source and Study Area

The analysis presented in this paper relies on primary data collected from secondary and higher secondary school students in three districts of West Bengal: Kolkata, Hooghly, and North 24 Parganas. These districts were selected intentionally in order to capture differences in the educational infrastructure along with levels of urbanisation, and availability of private tutoring services. As Kolkata is the capital of West Bengal, it is highly urbanised. Along with this urbanisation, the district features a highly concentrated educational infrastructure. This also led to a strong concentration of private coaching centres. Hooghly District lies in proximity to Kolkata. It has both urban as well as rural characteristics. This offers a wide variety of educational environments. North 24 Parganas district is important as it has strong urban and semi-urban settings. Further, North 24 Parganas has a very high population density and is the largest district of West Bengal. The present study focuses on students enrolled in Classes IX to XII, as these stages represent critical periods in educational decision-making and participation in supplementary education.

Sampling Design

We used a multi-stage stratified sampling design for the study. In the first stage, the three districts were selected, i.e Kolkata, Hooghly, and North 24 Parganas. In the second stage, schools were stratified according to management type. Four categories of schools were considered: Private Schools, Government Schools, Madrasah Schools, Other Missionary Schools. Finally, in the third stage, we selected the students through simple random sampling from the chosen institutions. A total sample of 380 students was surveyed. The distribution of respondents across school

ISSN: 3048-8036 ***(Online)***
July, 2026 Vol. 3 Issue 1
Page No: 162-178

categories was designed to reflect the dominance of private and government schools in the educational landscape of the selected districts. Before data collection, informed consent was obtained from all participating students and their guardians, ensuring compliance with ethical research guidelines. This ensured an unbiased representation of students across Classes IX to XII from the selected private, government, madrasah, and missionary schools

Survey Instrument

Data were collected using a structured questionnaire administered through face-to-face interviews. The questionnaire consisted of five sections. The first section dealt with student demographic characteristics, followed by the socio-economic profiling of the households in section two. Section three captured the educational characteristics of the students. Section four captured data on private tuition participation, and section five dealt with the academic performance of the students, which was measured by using the most recent annual examination scores of the students. The primary variables collected include age, gender, caste, religion, place of residence, parental education, parental occupation, household income, school characteristics, coaching participation, tuition expenditure, study habits, and academic achievement.

Variables Used in the Analysis

Dependent Variable: The primary outcome variable is Academic Achievement. Measured by the percentage marks obtained by students in their most recent annual examination. Alternative outcome indicators, such as subject-wise scores in Mathematics, English, and Science were also considered for robustness analysis.

Explanatory Variable: The principal explanatory variable is participation in private tuition. A binary indicator (Tuition) was constructed. The variable took the value 1 if the students took tuition and was given the value 0 otherwise. In order to capture the intensity of supplementary education, two additional variables were included, namely weekly hours spent in tuition and monthly expenditure on private coaching.

Socio-economic Control Variables: The analysis controls for a wide range of student and household characteristics. Student Characteristics such as gender, age, class enrolled, their class attendance and daily study hours are considered.

To capture household characteristics, we include data on monthly household income, father's education, mother's education, family size, religion, and social group (SC/ST/OBC/General). We also control for location of residence (urban or rural), distance to school, distance to the tuition centre, type of school management, and district dummy variables.

Empirical Strategy

The empirical analysis proceeds in three stages. First, descriptive statistics are used to examine the socio-economic characteristics of students and patterns of tuition participation. Second, a binary logit model is employed to identify factors influencing participation in private tuition.

Model 1, as shown by equation 1 below, shows the logit model and is defined as follows

$$\text{Tuition}_i = f(X_i) \quad \ldots\ldots (1)$$

where the $Tuition_i$ variable captures student participation in private coaching. It takes the value 1 if the individual participates in private tuition and 0 otherwise. X_i represents a vector of independent variables. This includes students, household, and location characteristics. Third,

Indian Journal of Multidisciplinary Research (IJOMR)
(Yearly, Blind Peer-Reviewed, Multidisciplinary Journal)
Home Page: https://ijomr.org
ISSN: 3048-8036 ***(Online)***
July, 2026 Vol. 3 Issue 1
Page No: 162-178

Ordinary Least Squares (OLS) regression is used to estimate the association between private tuition and academic achievement. The educational production function is specified by equation 2 (OLS Model):

$$Score_i = \beta_0 + \beta_1 Tuition_i + \beta_2 Income_i + \beta_3 Father\_Edu_i + \beta_4 Mother\_Edu_i + \beta_5 Gender_i + \beta_6 School\_Type_i + \beta_7 Distance_i + \varepsilon_i \quad \ldots\ldots (2)$$

Here the variable $Score_i$ denotes examination performance in the last examination for the i[th] student and ε_i represents the error term.

Interaction Effects

To examine whether the benefits of private tuition vary across socio-economic groups, we incorporate an interaction term into the regression framework—specifically between tuition participation and household income. The model is specified as follows

$$Score_i = \beta_0 + \beta_1 Tuition_i + \beta_2 Income_i + \beta_3 (Tuition_i \times Income_i) + \beta_4 X_i + \varepsilon_i \ldots\ldots (3)$$

If the interaction coefficient turns out to be positive and statistically significant this would indicate that higher-income students derive larger academic benefits from private tuition. Similarly, interaction terms between tuition participation and gender and district dummies, are estimated to understand the heterogeneity in the treatment effects.

We need to note that self-selection into private coaching may introduce endogeneity concerns. However, the main objective of this study is to estimate the association between private coaching participation and academic achievement after controlling for a comprehensive set of observed student, household, school, and locational characteristics. Given the cross-sectional nature of the data and the absence of valid instrumental variables, causal interpretations should be made with caution. The estimated coefficients therefore represent conditional associations rather than definitive causal effects.

Results and Discussion

Socio-economic and Demographic Characteristics of Students

Socio-economic and demographic data of the 380 students in the study sample are summarised below in Table 1. The population selected for the purpose was from the three districts of West Bengal, namely North 24 Parganas (36.84%), Hooghly (31.58%) and Kolkata (31.58%). The number of male students was 51.32%, and females were 48.68%. More than half of the respondents (57.37%) lived in urban areas, and this was due to the high density of educational institutions and private coaching centres in urban and peri-urban areas. As regards the social background, 32.11% of the students were found to be in the General category, 36.32% in Other Backwards Classes (OBC), 25.26% in Scheduled Castes (SC) and 6.32% in Scheduled Tribes (ST). Almost three-quarters of the sample consisted of Hindu students while about one-fifth comprised Muslim students. The proportion of those distributed in this way is broadly representative of the demographic make-up of the districts examined. As seen in the educational profile, the majority are in private schools (52.11%), followed by government schools (32.89%). Responding to the survey were the two categories of Madrasha and missionary schools, together accounting for some 15% of respondents. It was observed that 78.68% of the students reported to take private tuition, showing the extensive scenario of supplementary education within the study area. It appears from

ISSN: 3048-8036 *(Online)*
July, 2026 Vol. 3 Issue 1
Page No: 162-178

these results that supplementary education provided in the private sector has become a regular feature of the students' school years' experience on a country-wide basis, irrespective of type of school.

Table 1. Socio-economic and Demographic Characteristics of the Sampled Students

Variables	Categories	Frequency	Percentage
District	North 24 Parganas	140	36.84
	Hooghly	120	31.58
	Kolkata	120	31.58
Gender	Male	195	51.32
	Female	185	48.68
Residence	Urban	218	57.37
	Rural	162	42.63
Religion	Hindu	284	74.74
	Muslim	82	21.58
	Christian/Others	14	3.68
Social Group	General	122	32.11
	SC	96	25.26
	ST	24	6.32
	OBC	138	36.32
School Type	Private	198	52.11
	Government	125	32.89
	Madrasha	30	7.89
	Missionary	27	7.11
Private Tuition	Yes	299	78.68
	No	81	21.32

Source: Primary Field Survey conducted by the authors

Descriptive statistics of households and education variables are given in Table 2. There was a good amount of variance in the income of the respondents, with the average monthly household income at about ₹34,850 per month. Parental education level was moderate, with fathers having an average of 11.82 years and mothers an average of 10.46 years of education. On average, students travelled 3.84 km to reach school, while the average was 1.42 km for those covering the distance to coaching centres. This indicates a high spatial density of coaching centres within residential neighbourhoods, making additional instructional support easily accessible. The average expenditure on private tuition in the households was ₹1,975 per month, which is a significant amount for many families. Students spent approximately 7.84 hours per week coaching and on average had an examination score of 71.42%. The figures show that the education investment of families is huge in non-school education, and it can be inferred that shadow education is a very important means of human investment development in this part of the country.

ISSN: 3048-8036 *(Online)*
July, 2026 Vol. 3 Issue 1
Page No: 162-178

Table 2: Household and Educational Characteristics of the Students

Variable	Mean	SD	Min	Max
Monthly Household Income (₹)	34,850	18,240	8,000	1,20,000
Father's Years of Schooling	11.82	4.61	0	18
Mother's Years of Schooling	10.46	4.88	0	18
Family Size	4.62	1.29	2	9
Distance to School (km)	3.84	2.71	0.3	15
Distance to Tuition Centre (km)	1.42	1.11	0.1	8
Study Hours per Day	3.91	1.64	1	9
Tuition Hours per Week	7.84	3.52	0	20
Monthly Tuition Expenditure (₹)	1,975	1,145	0	6,500
Annual Examination Marks (%)	71.42	10.74	42	96

Source: Primary Field Survey conducted by the authors

The results by district in private tuition participation are shown in Table 3 and Figure 2. Kolkata, with 91.7% of students attending coaching, had the highest share. It was followed by Hooghly (77.5%), and North 24 Parganas (70.3%), which had the lowest share of students taking up private coaching. The significant difference in prevalence in Kolkata may relate to the increased competition in education among schools, higher incomes and greater availability of private schools in the city. These differences are indeed statistically significant, as confirmed by the Chi-square test. The higher prevalence in Kolkata may be associated with increased educational competition, higher household incomes, and a denser market for private educational services. However, the higher rate in North 24 Paraganas could be due to the higher percentage of rural people in its population, coupled with a less-developed coaching infrastructure.

Table 3: Distribution of demand for tuitions across districts

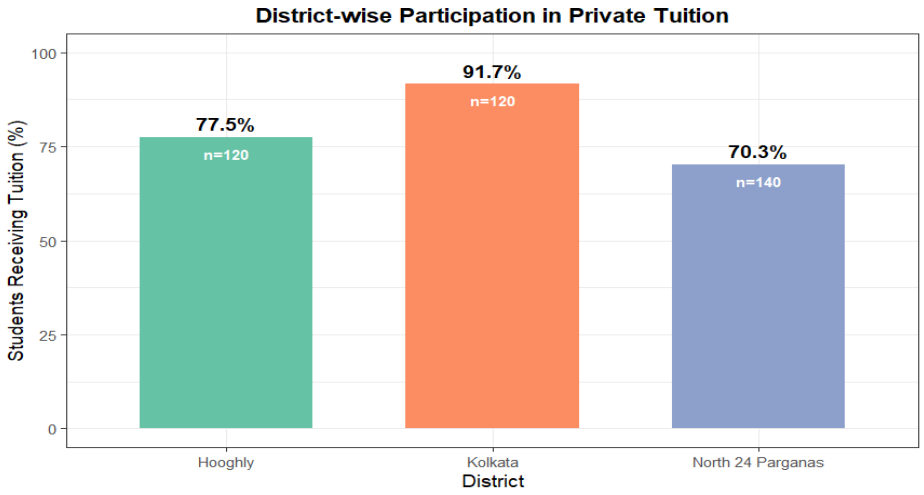
District	Tuition (%)	No Tuition (%)	Total
North 24 Parganas	**70.3**	**29.7**	**140**
Hooghly	**77.5**	**22.5**	**120**
Kolkata	**91.7**	**8.3**	**120**
Chi-square	**19.84***		
Note: *** p < 0.01, ** p<0.05, * p<0.10			

Source: Primary Field Survey conducted by the authors

Figure 2 visually highlights the concentration of private tuition participation in Kolkata, illustrating the geographical disparities within the shadow education sector in West Bengal.

Indian Journal of Multidisciplinary Research (IJOMR)
(Yearly, Blind Peer-Reviewed, Multidisciplinary Journal)
Home Page: https://ijomr.org
ISSN: 3048-8036 *(Online)*
July, 2026 Vol. 3 Issue 1
Page No: 162-178

Figure 2: District-wise participation in Private Tuition



Source: Estimated from Primary Field Survey data using R version 4.3

Table 4: Academic Achievement by School Type

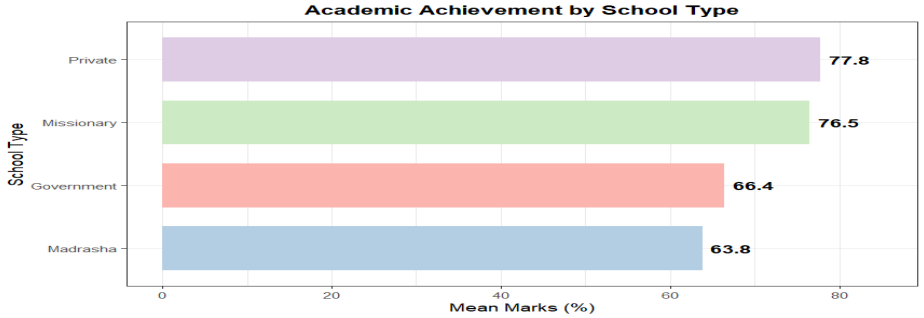
School Type	Mean Marks (%)	SD
Private	**77.8**	**8.2**
Missionary	**76.5**	**7.7**
Government	**66.4**	**9.6**
Madrasha	**63.8**	**10.4**
F-statistic	**18.72****	
Note : ** p <0.05		

Source: Estimated from Primary Field Survey data using R version 4.3

The analysis of academic achievement by school type indicates that there is a significant difference between the scores of students in private/mission schools and those in government and madarasas. The average score of government school students was less than that of students from private schools by more than 11 percentage points, with the private school group achieving an average score of 77.8%. These patterns are consistent with the results of previous studies which have shown that school resources, parents' SES and the quality of the educational environment have significant impact on student performance. School type appears to be associated with persistence of achievement gaps as shown in Figure 3.

Indian Journal of Multidisciplinary Research (IJOMR)
(Yearly, Blind Peer-Reviewed, Multidisciplinary Journal)
Home Page: https://ijomr.org
ISSN: 3048-8036 *(Online)*
July, 2026 Vol. 3 Issue 1
Page No: 162-178

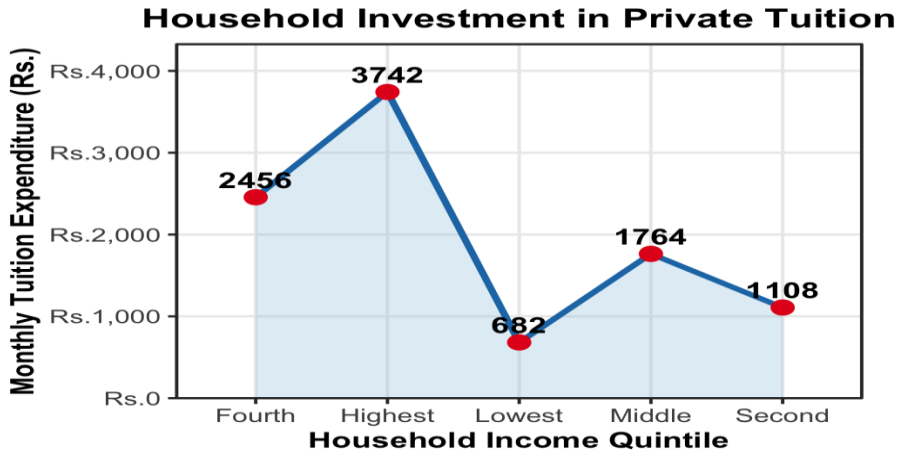
Figure 3: Academic achievement of students by school types



Source: Estimated from Primary Field Survey data using R version 4.3

The level of household expenditure on private tutoring for children is positively correlated with household income when looked at by means of income quintiles. Students in the Top 20% of total per capita income spent twice as much as those in the Bottom 20%. The relationship shown in Figure 4 is exemplified.

Figure 4: Household investment in private tuition by income quantile.



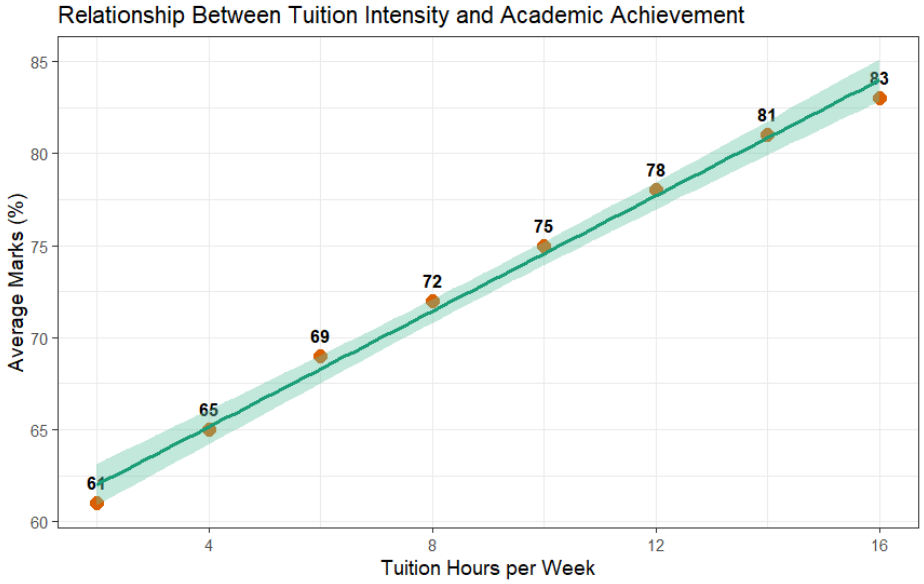
Source: Estimated from Primary Field Survey data using R version 4.3

In Figure 5, the graph is quite steep and slopes upward. This suggests that having access to additional education resources is significantly related to the economic situation of the household. The results are consistent with existing evidence on educational inequality that one would find, as those with the better resources are better able to use them to provide education benefits to their

Indian Journal of Multidisciplinary Research (IJOMR)
(Yearly, Blind Peer-Reviewed, Multidisciplinary Journal)
Home Page: https://ijomr.org
ISSN: 3048-8036 *(Online)*
July, 2026 Vol. 3 Issue 1
Page No: 162-178

children. The present analysis focuses on the private tutoring level–achievement relationship. As can be seen in Figure 5 there is a high level of correlation between hours of private coaching and examination results. The positive slope of the regression equation suggests that increased teaching effort is associated with improved academic performance. In particular, those students who were tutored for approximately two hours each week averaged around 61 percent and students who were tutored 16 hours per week averaged above 80 percent.

Figure 5: Academic score vis-à-vis tuition time



Source: Estimated from Primary Field Survey data using R version 4.3

5.2 Econometric Analysis

We consider a binary logit regression model to capture the impact of various socioeconomic variables on private tuition participation choice, the results of which are shown in Table 5 below.

Table 5. Determinants of Participation in Private Tuition (Logit Estimates)

Variables	Coefficient	Std. Error
Monthly Household Income (log)	0.421***	0.094
Father's Education	0.308***	0.083
Mother's Education	0.271***	0.076
Female	0.184*	0.109
Urban Residence	0.381**	0.157
Distance to Tuition Centre	-0.292***	0.087

ISSN: 3048-8036 *(Online)*
July, 2026 Vol. 3 Issue 1
Page No: 162-178

Distance to School	**0.058**	**0.042**
Muslim	**-0.113**	**0.125**
SC/ST	**-0.213***	**0.117**
Kolkata Dummy	**0.554*****	**0.172**
Hooghly Dummy	**0.173**	**0.154**
Constant	**-2.683*****	**0.724**
Pseudo R^2 = 0.284. N = 380		
Note: *- p<0.01, **- p<0.05 , *- p<0.10**		

Source: Estimated from Primary Field Survey data using R version 4.3

As can be seen from the results of the logit estimates reported in Table 5, some of the factors such as parental education, urban residence, proximity to coaching centres significantly increase the chance of taking private tuition. There is also a slight gender difference observed in female students' involvement in coaching. Distances, on the other hand, become a significant factor where the further one is from tuition centres, the less likely the participation. Pupils in historically disadvantaged social groups show lower participation rates, evidence of inequalities in use of supplementary teaching resources. The overall findings show that both the economic factors and the spatial factors have a significance in the decision-making of shadow education participation. To capture the effect of private tuition on achievement, we now regress academic achievement of the students on the last examination on the other variables in the model below using OLS. From the private tuition to academic achievement, the OLS estimates in Table 6 below indicate that private tuition has a positive and statistically significant effect on academic achievement. Students receiving tuition score, on average, about 4.85 percentage points higher than those who are not receiving tuition, when data on such factors as socioeconomic and demographic characteristics as well as related school factors are controlled for. The number of tuition hours per week also has a statistically significant positive impact on academic performance, revealing that coaching intensity is linked to academic success. The parental background (parental education, household income and private school attendance) is also correlated with better academic achievement. The results bear out the human capital argument–household educational investments can improve students' performance.

Table 6. OLS Estimates of Academic Achievement

Dependent Variable: Percentage Marks Obtained	Coefficient	Std. Error
Tuition Participation	**4.854*****	**1.206**
Tuition Hours/Week	**0.624*****	**0.174**
Monthly Household Income (log)	**0.114*****	**0.036**
Father's Education	**1.321*****	**0.288**
Mother's Education	**1.143*****	**0.276**
Female	**2.243****	**1.017**
Caste	**-1.671****	**0.582**
Urban Residence	**1.184**	**0.934**
Distance to School	**-0.437****	**0.211**

ISSN: 3048-8036 *(Online)*
July, 2026 Vol. 3 Issue 1
Page No: 162-178

Distance to Tuition Centre	**-0.569*** **	**0.196**
Private School	**4.258*** **	**1.251**
Madrasha	**-3.754** **	**1.682**
Missionary	**2.148**	**1.873**
Kolkata Dummy	**2.431** **	**1.173**
Hooghly Dummy	**1.024**	**1.091**
Constant	**39.527*** **	**5.824**
R^2 = 0.462; Adjusted R^2 = 0.447. N = 380		
Note: *- p<0.01, **- p<0.05 , *- p<0.10**		

Note:** Only variables that did not introduce multicollinearity were included.* ***The VIF of the final model was 3.42.

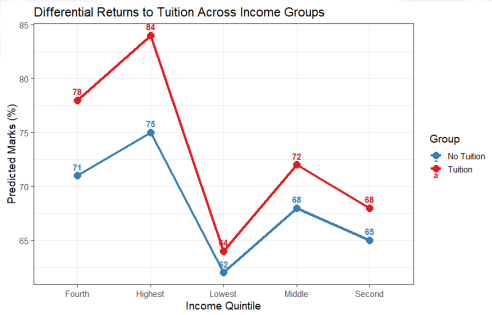
One of the most important findings of the paper is shown in Table 7 below. We use an interaction dummy in the model between household income and tuition participation. The positive and statistically significant interaction term implies that academic benefits of private tuition increase with household income.

Table 7: Interaction Effect: Tuition and Household Income

Dependent Variable: Academic Achievement	Coefficient	Std. Error
Tuition Participation	**3.112** **	**1.314**
Monthly Household Income (log)	**0.091*** **	**0.027**
Tuition × Household Income(log term)	**0.151*** **	**0.044**
Controls Included	**Yes**	
Constant	**42.116*** **	**6.427**
Note: *- p<0.01, **- p<0.05 , *- p<0.10**		

Figure 6 below captures this relationship. While participating in private tuition improves academic scores across all income groups, the impact is not the same for all. It generates significantly better outcomes for well-off families compared to economically disadvantaged households. We observe that the divergence between the two lines widens progressively across income quintiles.

Figure 6: Academic scores prediction by different income groups



This finding indicates that shadow education may improve academic achievement. But it also increases the already existing socioeconomic inequalities in West Bengal. It may generate better outcomes for well of families than those not that affluent.

Conclusion

This study attempts at an analysis of the role of private coaching in West Bengal through newly collected primary data from 380 students from three different districts. As can be seen from our analysis, private education is prevailing, as almost 80% of the learners receive private tuition. Rather than remaining a marginal practice, it has become an entrenched necessity in secondary and higher secondary schooling. We see that families' income affects demand for private coaching, and more highly educated parents are significantly more likely to coach their kids privately. Secondly, in terms of coaching usage, students from urban areas (particularly those from Kolkata) are more than their rural counterparts. Geographic distance plays an important role, as students prefer coaching centres located close to their homes. Furthermore, academic achievement significantly increases with coaching participation, with tutored students scoring, on average, 4.85 percentage points higher than non-tutored students. Furthermore, academic gains are significantly influenced by coaching intensity, with higher examination marks achieved by students who received more hours of tutoring per week. This academic benefit, however, is not uniform. Students from wealthier households derive significantly greater academic returns from tuition than poorer students do. A higher percentage of the children of wealthier students attain more from tuition than do poorer students. High income implies access to high-quality coaching and a higher number of hours of private coaching. This results in an unequal learning gap between rich and poor children, and thus exacerbates inequality and reinforces existing inequalities through private coaching, instead of reducing the gap. The results of the paper are welcome, and there is an urgent need to take policy considerations. There should be implementation of the 2024 coaching centre regulation by the government. To minimise reliance on private tutoring, policymakers must improve the quality of teaching in mainstream schools and provide free remedial courses for disadvantaged students within regular public institutions. Future research needs to focus on coaching returns of the subjects and student mental health. Private tutoring comes with benefits of improving test scores for individual students, and it comes with costs of reducing access and opportunity to a fair system of education for others.

While this study establishes a strong positive correlation between private coaching and academic performance, the OLS and Logit models utilised do not fully account for potential self-selection bias and endogeneity. Students who participate in coaching may possess unobserved characteristics, such as higher intrinsic motivation or unmeasured parental involvement, which could independently drive academic success. Future research should consider employing advanced econometric techniques, such as Instrumental Variables (IV) or Propensity Score Matching, to establish a more definitive causal relationship between shadow education and academic outcomes.

References

Alcott, B., & Rose, P. (2015). Schools and learning in rural India and Pakistan: Who goes where, and how much are they learning? *Prospects*, *45*(3), 345–363. https://doi.org/10.1007/s11125-015-9360-x

ASER Centre. (2023).*ASER 2022: National findings*. https://img.asercentre.org/docs/ASER%202022%20report%20pdfs/All%20India%20documents/aser2022nationalfindings.pdf

Ashok, D., & Jangir, R. K. (2024). Regulation structure of private coaching in India. *International Journal of Literacy and Education*, *4*(1), 182–189. https://doi.org/10.22271/27891607.2024.v4.i1c.184

Aslam, M., & Atherton, P. (2012). *The 'shadow' education sector in India and Pakistan: The determinants, benefits and equity effects of private tutoring* (Education Support Programme Working Paper Series No. 38). Open Society Foundations.

Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of Political Economy*, *70*(5, Part 2), 9–49. https://doi.org/10.1086/258724

Becker, G.S. (1964) Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. University of Chicago Press, Chicago.

Bhorkar, S., & Bray, M. (2018). The expansion and roles of private tutoring in India: From supplementation to supplantation. *International Journal of Educational Development*, *62*, 148–156. https://doi.org/10.1016/j.ijedudev.2018.03.003

Bray, M. (1999). *The shadow education system: Private tutoring and its implications for planners*. UNESCO International Institute for Educational Planning.

Bray, M. (2013). Shadow Education: Comparative Perspectives on the Expansion and Implications of Private Supplementary Tutoring.*Procedia - Social and Behavioral Sciences,*77, p.p 412-420, https://doi.org/10.1016/j.sbspro.2013.03.096.

Bray, M. (2022). *Shadow education in Asia and the Pacific: Features and implications of private supplementary tutoring*. East China Normal University. https://doi.org/10.1007/978-981-16-2327-1_10-1

Bray, M. (2023). Shadow education in Asia and the Pacific: Features and implications of private supplementary tutoring. In *International handbook on education development in the Asia-Pacific* (pp. 159–181). Springer Nature Singapore. https://doi.org/10.1007/978-981-19-6887-7_10

Chen, X. (2020,). Influence of parents' education level on household human capital investment. In *2020 International Conference on E-Commerce and Internet Technology (ECIT)* (pp. 97–104). IEEE. 10.1109/ECIT50008.2020.00030

Choudhury, P. K., Kumar, A., & Gill, A. S. (2023). Who all access private coaching in higher education and how much do they spend? Evidence from India.*Journal of the Asia Pacific Economy*, *28*(4), 1433–1455. https://doi.org/10.1080/13547860.2021.1954302

Dandekar, R., & Karne, M. (2022). Does private coaching results in better academic achievement? A study of secondary school students of Mumbai. *Xavierian Journal of Educational Practice*. https://www.sxie.info/xjep_ejournal/vol1_issue2/Rahul_Dandekar_and_Manisha_Karne.pdf

Dang, H. A., & Rogers, F. H. (2008). The growing phenomenon of private tutoring: Does it deepen human capital, widen inequalities, or waste resources? *The World Bank Research Observer*, *23*(2), 161–200. https://doi.org/10.1093/wbro/lkn004

Das U. (2021). Rural employment guarantee programme in India and its impact on household educational decisions: A focus on private coaching. *Journal of International Development* 2021; 33: 1005–1025. https://doi.org/10.1002/jid.3546

Deming, D. J. (2022). Four facts about human capital. *Journal of Economic Perspectives*, *36*(3), 75–102. https://doi.org/10.1257/jep.36.3.75

Dongre, A. (2014). Do private tuitions improve learning outcomes?*Annual Status of Education Report*. https://img.asercentre.org/docs/Publications/ASER%20Reports/ASER%202014/Articles/ambrishdongre.pdf

Dongre, A., & Tewary, V. (2015). Impact of private tutoring on learning levels. *Economic and Political Weekly*, *50*(1), 72–80. https://www.epw.in/journal/2015/41/special-articles/impact-private-tutoring-learning-levels.html

Du, S. (2024). Shadow education in shadow: Parental education and children's shadow education participation before and during COVID-19. *British Journal of Sociology of Education*, *45*(3), 420–439. https://doi.org/10.1080/01425692.2024.2328133

French, R., & Kingdon, G. (2010). *The relative effectiveness of private and government schools in rural India: Evidence from ASER data*. DoQSS Working Papers 10-03, Quantitative Social Science - UCL Social Research Institute, University College London.

Ghosh, P., & Bray, M. (2018). Credentialism and demand for private supplementary tutoring: A comparative study of students following two examination boards in India. *International Journal of Comparative Education and Development*, *20*(1), 33–50. https://doi.org/10.1108/IJCED-10-2017-0029

Ghosh, P., & Bray, M. (2020). School systems as breeding grounds for shadow education: Factors contributing to private supplementary tutoring in West Bengal, India. *European Journal of Education*, *55*(3), 342–360. https://doi.org/10.1111/ejed.12412

Gooptu, S., & Mukherjee, V. (2023). Does private tuition crowd out private schooling? Evidence from India. *International Journal of Educational Development*, *103*, Article 102885. https://doi.org/10.1016/j.ijedudev.2023.102885

Gupta, A. (2025). Coached habitus: Mapping the role of shadow education in shaping students' educational trajectories. *British Educational Research Journal*, *51*(2), 514–532. https://doi.org/10.1002/berj.4085

Hanushek, E. A. (2020). Education Production Functions. In S. Bradley, & C. Green (Eds.), The Economics of Education (2nd ed., 161-170). Academic Press. https://doi.org/10.1016/B978-0-12-815391-8.00013-6

Jha, S. K. (2023). The three E's of private tuition in India: Expansion, expenditure, and effect. *Journal of Education*, *203*(2), 423–432. https://doi.org/10.1177/00220574211032345

Liu, J., & Wang, W. (2024). A bibliometric analysis of the evolving mechanisms of shadow education research. *European Journal of Education*, *59*(3), Article e12646. https://doi.org/10.1111/ejed.12646

Field Code Changed

Kumar, I. (2025). From decline to re-emergence: State-level dynamics of private tutoring in India.*International Research Journal of Economics and Management Studies*, *4*(9). http://doi.org/10.56472/25835238/IRJEMS-V4I9P119

Kumar, I., & Chowdhury, I. R. (2021). Shadow education in India: Participation and socioeconomic determinants. *Journal of South Asian Development*, *16*(2), 244–272. https://doi.org/10.1177/097317412110324

Li, S. (2026). Education investment "rat race" in China: How income inequality shapes family investment in shadow education. *Asia Pacific Education Review*, *27*(1), 75–88.

Luo, J., & Chan, C. K. Y. (2022). Influences of shadow education on the ecology of education–A review of the literature. *Educational Research Review*, *36*, Article 100450. https://doi.org/10.1016/j.edurev.2022.100450

Maiti, A., Midya, S., & Paul, P. K. (2026). *Private coaching across institutions in India: Do management types make a difference?* International Journal of Social Science and Education Research 2026; 8(1): 120-127 https://doi.org/10.33545/26649845.2026.v8.i1b.497

Majumdar, M. (2017). Access, success, and excess: Debating shadow education in India. In *Routledge handbook of education in India* (pp. 273–284). Routledge India. https://doi.org/10.4324/9781315107929

Ministry of Education, Government of India. (2025, March 19). *Rajya Sabha Unstarred Question No. 2089: Regulation of private coaching centres*. Parliament of India. https://sansad.in/getFile/annex/267/AU2089_Z2YsrB.pdf?source=pqars

Ministry of Human Resource Development. (2020). *National education policy 2020*. Government of India. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

National Council of Educational Research and Training. (2023). *National curriculum framework for school education 2023*. Ministry of Education, Government of India. https://ncert.nic.in/pdf/NCFSE-2023.pdf

Pan, Z., Lien, D., & Wang, H. (2022). Peer effects and shadow education. *Economic Modelling*, *111*, Article 105822. https://doi.org/10.1016/j.econmod.2022.105822

Sharma, H. (2019). The perception on need and impact of private supplementary tutoring at higher secondary level in Delhi region of India: An exploratory study. *The Eurasia Proceedings of Educational and Social Sciences*, *13*, 5–16. https://epess.net/index.php/epess/article/view/502

Sharma, P. (2025). The ecosystem of low-fee private schools and shadow education: An ethnography of India's local education market. *Ethnography and Education*, *20*(4), 400–416. https://doi.org/10.1080/17457823.2025.2520810

Yu, J., & Zhang, R. (2022). A review of shadow education. *Science Insights Education Frontiers*, *11*(2), 1579–1593. https://files.eric.ed.gov/fulltext/EJ1344368.pdf