

## **Households' Preferences for Private Tuition Attributes in Jaffna Municipal Area, Sri Lanka**

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### **Abstract**

In Sri Lanka, there has been growing competition for university admission, and due to this, private tuition plays a vital role in many students' educational journeys. This study investigates households' preferences for private tuition attributes and analyzes the socio-economic and demographic factors that influence private tuition attributes in the Jaffna Municipal Area, Sri Lanka. This study considered attributes such as teachers' performance, teaching materials, exam methods, zoom classes, paper classes, and monthly payments to analyze the households' preferences. For this study, 300 Households of A/L students were randomly selected from the Jaffna Municipal Area, and data were collected using a structured questionnaire. A discrete choice experiment was employed, and a random parameter logit model was used to estimate the households' preferences for private tuition attributes. The findings of this study reveal that households are willing to pay more for paper classes (LKR 5397), followed by 75% improvements in teachers' performance (LKR 3894), teaching materials (LKR 2217), weekly exams (LKR 1383), and zoom classes (LKR 665). Also, a 50% improvement in teachers' performance and monthly exams are less preferred. Notably, respondents' education and age significantly influence their choice. The findings of this study would be helpful to policymakers in improving the Sri Lankan education system.

**Keywords:** *Discrete choice experiment, Government school, Private tuition, Random parameter logit model, Willingness to pay*

## **Introduction**

The education system plays a pivotal role in ensuring the development and strengthening of social, cultural, historical, and integral development (Alawattagam, 2020). The education system is also called the back born of the society. Sri Lanka is one of the few countries in the world offering free education from grade one to university (Pallegedara, 2011). There has been an increasing competition among students for university admissions. Because of this reason, currently, in Sri Lanka, private tuition is a vital component of the current education system, notably in critical exams like G.C.E. Advanced Level (A/L). Even though the government facilitates free education for everyone in Sri Lanka, households choose private tuition for their children to enhance their performance (Cole, 2017). The growing reliance on the private education system causes challenges for the public education system. Hence, it is vital to understand which attributes households prefer and value the most. In the Sri Lankan context, literature on households' preferences for various attributes of public and private education is scarce. Therefore, this study aims to investigate households' preferences for various attributes of private tuition and government schools and to analyze the influence of socioeconomic characteristics on their preferences. The findings of this study will provide valuable insights that can be used to improve the public education system.

## **Materials and Methodology**

### **Theoretical framework**

This study uses the choice experiment approach to elicit the households' preference for various attributes. The random utility theory (McFadden, 1973) and the characteristics theory of value (Lancaster, 1966) are the foundations of the choice experiment modelling framework. Therefore, the utility (Unit) for the alternative  $i$  can be written as:  $Unit = V_{nit} + nit$  (1)

According to RUM, the utility is modelled with two components such as deterministic component (observable component)  $V_{nit}$  and a random component ( $nit$ ) representing an error term.  $V_{nit} = 0ASC + mX_m$  (2)  
where 0 is the coefficient of ASC, and denotes the parameter of each attribute.

The marginal WTP for attribute  $k$  will be calculated by the following formula (Lusk, Roosen and Fox, 2003):  $WTP_k = 2k_{cost}$  (3)

### **Attributes and Levels**

The attributes and levels for this study were selected based on literature review and discussions with experts. We chose six attributes for this study: teacher performance, teaching materials, exam method, zoom class, paper class, and monthly payment. Table A1 (appendix) shows the attributes along with their corresponding levels. During the survey, the attributes and levels were clearly explained to respondents. To avoid the hypothetical bias in this choice experiment survey, we reminded respondents of the status quo option during the survey. An efficient design was utilized to generate the choice set. A pilot study with 30 respondents was conducted to estimate the prior values for developing the efficient design. A basic model (Multinomial logit model) was used to estimate the prior values. Ngen software was employed to develop the efficient design, and 8 different choice sets were employed in the final survey.

### **Study area and data collection**

Multi-stage sampling technique was adopted in this study. In the first stage, the Jaffna DS division and Nallur DS division were purposively selected as they comprise a major part of the Jaffna Municipal area comprised these two DS divisions. In the next stage, from the Jaffna and Nallur DS divisions, 28 GN divisions were randomly selected. A total of 300 samples were collected from 26 GN divisions randomly.

### **Results and Discussions**

#### **Estimation results of the CLM and RPL models**

We present the empirical results of CLM and RPL in Table 1. CLM and RPL-1 models were estimated without socioeconomic and demographic characteristics, while the RPL-2 model was estimated with accounting for socioeconomic and demographic characteristics in the utility function. The CLM relies on the assumption of Independence of Irrelevant Alternative (IIA); therefore, we developed RPL models with and without considering

socioeconomic and demographic characteristics. The estimated standard deviations in RPL models for teachers' performance (75%), monthly exams, and Zoom classes were statistically significant, indicating the existence of preference heterogeneity.

### **Willingness-To-Pay estimates**

The marginal WTP estimates for different attribute levels are presented in Table 2. The estimates of marginal WTP indicate that households are willing to pay more for paper classes than other attributes. This finding implies that households in the Jaffna municipal area are willing to pay LKR 5397.33 more for private tuition that includes paper classes than government schools where they do not conduct paper classes. Following paper class attributes, households are willing to pay more of LKR 3894.04 for 75% higher teachers' performance compared to usual performance in government schools. At the same time, the findings reveal that households have a negative WTP for 50% higher teachers' performance. This implies that households are unwilling to pay for a 50% higher teacher performance improvement. The estimated WTP for teaching materials and weekly exams were LKR 2,217.06 and LKR 1,383.35, respectively. This shows that households are willing to pay more for teaching materials provided in private tuition.

Variable	CLM	RPL	
		RPL-1	RPL-2
Teacher performance (75%)	0.562*** (0.053)	0.593*** (0.057)	0.597*** (0.058)
Teacher performance (50%)	-0.359*** (0.050)	0.374*** (0.051)	-0.376*** (0.052)
Teaching materials	0.312*** (0.031)	0.339*** (0.034)	0.340*** (0.034)
Weekly exam	0.206*** (0.048)	0.210*** (0.050)	0.212*** (0.050)
Monthly exam	-0.076* (0.040)	-0.081* (0.044)	-0.082* (0.044)
Zoom classes	0.093*** (0.027)	0.101*** (0.030)	0.102*** (0.030)
Paper classes	0.767*** (0.040)	0.826*** (0.049)	0.827*** (0.050)
Monthly Payment	-0.0003*** (0.00002)	-0.0003*** (0.00002)	-0.0003*** (0.00002)
ASC	2.458*** (0.192)	2.450*** (0.195)	3.520*** (0.642)
<b>Standard deviation</b>			
Teacher Performance (75%)		0.192** (0.088)	0.185** (0.091)
Teacher Performance (50%)		0.004 (0.140)	0.018 (0.140)
Teaching Materials		0.014 (0.124)	0.010 (0.129)
Weekly Exam		0.045 (0.169)	0.093 (0.127)
Monthly Exam		0.290*** (0.071)	0.288*** (0.072)
Zoom Classes		0.151** (0.060)	0.152** (0.061)
Paper Classes		0.015 (0.107)	0.030 (0.100)
<b>Interaction term</b>			
ASC× Age		-0.798** (0.363)	
ASC× Gender		-0.365 (0.541)	
ASC× Education		-0.802* (0.462)	
ASC× Income		0.414 (0.376)	
ASC× Employment		-0.446 (0.393)	
Log likelihood	1503.03	-1499.36	-1493.68
AIC	3024.10	3030.70	3029.40
Pseudo R2	0.43	0.43	
Sample size	300	300	300

**Table 01:** Estimation Results of the Conditional Logit and Random Parameter Logit Models

\*\*\* denotes significance at 1%, \*\* at 5%, \* at 10% level. Standard errors are presented in parentheses.

Likewise, households are more willing to pay for weekly exams conducted in private tuition than for those in the government school system. Notably, households are not willing to pay for monthly exams in private tuitions. Finally, households are more willing to pay LKR 664.43 for Zoom classes conducted in private tuitions.

Variable	CLM	RPL	
		RPL-1	RPL-2
Teacher performance (75%)	3883.35*** [3107.70, 4659.00]	3879.38*** [3099.46, 4659.30]	3894.04*** [3123.20, 4664.89]
Teacher performance (50%)	-2480.78*** [-3173.96, -1787.61]	-2445.87*** [-3107.79, -1783.94]	-2449.99*** [-3126.65, -1773.32]
Teaching materials	2159.90*** [1703.42, 2616.39]	2220.63*** [1739.55, 2701.71]	2217.06*** [1763.51, 2670.62]
Weekly exam	1422.46*** [812.50, 2032.42]	1373.28*** [753.73, 1992.82]	1383.35*** [771.02, 1995.67]
Monthly exam	-525.41* [-1079.50, 28.68]	-532.38* [-1117.80, 53.03]	-534.38* [-1103.70, 34.94]
Zoom classes	643.51*** [263.73, 1023.28]	660.96*** [278.42, 1043.49]	664.43*** [294.10, 1034.80]
Paper classes	5307.43*** [4508.97, 6105.89]	5400.67*** [4591.87, 6209.46]	5397.33*** [4561.57, 6233.08]

**Table 2** Estimated willingness-to-pay (WTP) for the attribute levels  
 \*\*\* denotes significance at 1%, \*\* at 5%, \* at 10% level; 95% confidence intervals are given parentheses

## Conclusions and Recommendations

This study fills a gap in the literature in Sri Lanka regarding households' preferences for educational attributes by using the choice experiment approach. The findings of this study concluded that households prefer 75% higher teachers' performance in private tuition compared to usual teachers' performance in government schools, teaching materials provided in private tuition, and conducting weekly exams and paper classes in private tuition. At the same time, they are willing to pay for these attributes. In contrast, households are unwilling to pay for 50% higher teachers'

performance in private tuition than teachers' performance in government schools and monthly exams in private tuition. In addition, respondents' age and education level influence their choice of alternatives. This study provides useful information for policymakers to better understand the households' preferences and develop strategies to enhance the public education system.

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## Appendix

Attribute	Levels
Teacher performance	75% higher performance in private class (L1) 50% higher performance in private class (L2) Usual performance of government school (L3)
Teaching materials	Provided in private class (L1) Not provided in government school (L2)
Exam method	Weekly exam in private class (L1) Monthly exam in private class (L2) Once per term in government school (L3)
Zoom class	Zoom classes conducted in private class (L1) Zoom classes not conducted in government school (L2)
Paper class	Paper classes conducted in private class (L1) Paper classes not conducted in government school (L2)
Monthly Payment	LKR 0 LKR 1000 LKR 2000 LKR 3000 LKR 5000

**Table A1: Summary of the attributes and levels used in this study**

### Choice set sample

Attributes	Alternative A	Alternative B	Status quo
Teachers performance	75% higher performance	50% higher performance	Usual performance of government school
Teaching material	Not provided	Provided	Not provided
Exam method	Once for term	Weekly exam	Once for term
Zoom class	Conducted	Not conducted	Not conducted
Paper class	Not conducted	Not conducted	Not conducted
Payment	Rs 3000	Rs 1000	Rs 0
I choose			

FigureA1: Sample choice set



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Variable	Description
Age	1 if the respondents age is above 50 years, 0 otherwise.
Gender	1 if the respondent is male, 0 otherwise.
Education	1 if the respondent has educational qualification above A/L, 0 otherwise.
Income	1 if the respondent has income above 40,000, 0 otherwise.
Employment	1 if the respondent is government employee, 0 otherwise.

Table A2: Definition of variables used to explain preference heterogeneity

Attribute	Level	Coding
Teacher performance	L1	1=L2, 0=L2, -1=L3
	L2	0=L1, 1=L2, -1=L3
Teaching materials	L1	1=L2, -1=L2
Exam method	L1	1=L2, 0=L2, -1=L3
	L2	0=L1, 1=L2, -1=L3
Zoom class	L1	1=L2, -1=L2
Paper class	L1	1=L2, -1=L2

**Table A3:** Variable coding