

Factors Influencing the Choice of Degree Offering Institutes Among the Logistics Management Students in Sri Lanka

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Abstract

The importance of higher education can be judged from the way it benefit a person financially, emotionally, socially, and intellectually. Developing Sri Lanka as a knowledge hub in Asia is a key development strategy of the government. Capacity of the state university system is limited, thus, approximately only 20 percent of the students who qualify for university education, gain admission to state universities. The government has already commenced formulation of necessary legislations to regulate private sector higher education institutes in Sri Lanka. In a commercialized economy, with the intention of attracting the highest number of incoming students, higher educational institutes must operate in a similar method as businesses and corporations. Knowing the preferences of campus-age students and the factors that influence their choice of a degree-offering institute has become increasingly crucial for institutions of higher education. Main objective of the study was to analyse the factors influencing the choice of degree-offering institutes among the logistics management students in Sri Lanka. The sample included 92 students from KDU and CINEC. Students from each institution were selected using a random number table. Qualitative and quantitative data were employed to realise the objective. A questionnaire consisting twenty-five closed questions and five open-ended questions was prepared and Descriptive statistical methods and a Binary Logit model were utilized to analyse the collected primary data. Hosmer–Lemeshow, McFadden R^2 (R^2McF), P , and Likelihood Ratio (LR) tests facilitated the testing of goodness of fit, statistical significance of the parameters, and testing the overall significance of the model. The Jarque-Bera (JB) test was applied to test Normality. The results revealed that the leading criteria for logistics management students to select a degree-offering institute were institutional discipline and advanced level stream.

Keywords: *Campus Choice, Undergraduate Studies, Binary Logit Model, University Marketing*

I. INTRODUCTION

University education is more than the next level in the learning process; it is a critical component of human development and provides high-level skills necessary for every labor market. Knowledge accumulation and application have become major factors in economic development. Hence, students' choice and decision making in higher education has gained greater importance because higher education has become competitive and market-oriented. Higher education enables individuals to expand their knowledge and skills, express their thoughts clearly, grasp abstract concepts and theories, and increase their understanding of the world and their community. University education helps economic development of the country, which has the potential of enhancing the productivity of the nation. Universities are the pivotal centers of engendering and disseminating of knowledge and the vital resources of social improvements (Tian et al., 2009). The importance of higher education can judge from the manner it benefit a person financially, emotionally, socially, and intellectually.

Developing Sri Lanka as a knowledge hub in Asia is a key development strategy of the government. Capacity of the state university system is limited and not more than 20 percent of the students who qualify for university education, gain admission to state universities. Hence, the government has already commenced formulation of necessary legislations to regulate private sector higher education institutes in Sri Lanka. In a commercialized economy, with the intention of attracting the highest number of incoming students, higher educational institutes must operate in a similar manner as businesses and corporations. It is not easy to

understand students' choice since many factors influence the students during making the final decision in selecting the degree-offering institution. Knowing the preferences of campus-age students and the factors affecting their choice of a degree-offering institute has become increasingly crucial for higher education institutions.

Main objective of the present study was to analyse factors influencing the choice of degree-offering institute among the logistics management students in Sri Lanka. An institution enriched with the knowledge of the factors influencing student application and enrolment decisions could help to fill the gap between students and institutions, thereby improving the quality of the education system.

II. LITERATURE REVIEW

The prime influential factor in selecting a university for higher education is word of mouth (Shahid et al., 2012). Shah et al. (2013) reviewed qualitative feedback received from students in five private higher education institutions to examine factors influencing the student choice to study at private higher education institutions, and student perceptions of such institutions. Main factors influencing student choice were grouped in six domains: student perception, access and opportunity, learning environments, quality of teachers, course design, and graduate success.

Factors influencing secondary school students' choice of higher education options in Spain was analysed by Sanchez (2012) and explored the implications and benefits of establishing provider-client relationships between universities and students. A quantitative approach helped to demonstrate the hypothesis and achieve objectives. A questionnaire via telemetric Lime Survey application was prepared consisting of twenty-four closed questions. Results depicted that the leading criteria for Spanish students interested in pursuing studies in communication sciences were the university reputation, and excellence and quality of its educational programs. In terms of sources of information related to universities and their degree programs, Spanish Communication Sciences students placed the highest value on direct and experiential sources. Spanish students interested in pursuing degrees in communication sciences, preferred public universities to private universities.

Litten (1982) outlined a three-stage development model of college choice. This includes a first stage that begins with the intention of attending a college or university, culminating with the decision to attend. The second stage in this process includes the consideration of choices of institutions, and the third stage involves application for admission, acceptance, and student enrollment.

Sanders (1986) identified eight factors judged by students as most important when selecting a college. These factors were grouped into four categories for analysis: those pertaining to academic environment, the cost/value added environment, the living environment, and the peer/adult influence. This study was initiated due to threatened decreases in enrolment and the recognized need to gather data to assist in identifying the wants and needs of students. Role of parents in the college selection process is complex. Other individuals influence students but parents appear to be the most influential (Litten & Brodigan, 1982).

Higher education marketing is fundamentally, a relationship and experiential marketing (Helgesen, 2008). According to Grönroos (1994), relationship marketing is a process of identifying, establishing, maintaining, and enhancing relationships with customers and other stakeholders at a profit, to satisfy the objectives of all parties involved. This is achieved through a mutual exchange and fulfilment of promises. Trullas & Enache (2011) defined marketing for higher education as a process of investigations devoted to identifying social needs, and developing and implementing programs that fulfil them by means of commercial or non-commercial interchanges for the ultimate purpose of enhancing the wellbeing of the individuals and community involved. According to Christopher et al. (1991), the objective of relationship marketing is making new clients identify with an organization and transforming them into promoters of their brands and products. According to Soutra & Turner (2002), factors that influence students' choices include the academic reputation of the university, quality of its teaching, the distance between students' homes and the university campus, and the opinions of friends and family members.

Bajsh & Hoyt (2001) identified five main factors considered by students when selecting higher education institutions; i.e. quality and responsiveness of staff, research activities, social opportunities, economic considerations, and reputation of the institution. Espinoza et al. (2002) highlight campus safety and flexibility in course offering times as additional factors to those identified in previous literature. Arpan et al. (2003) mentioned main factors that influence students on selecting their degree offering institutions are academic rating and news coverage. The conceptual framework in Figure 1 was developed based on the literature review and the experience of researchers.

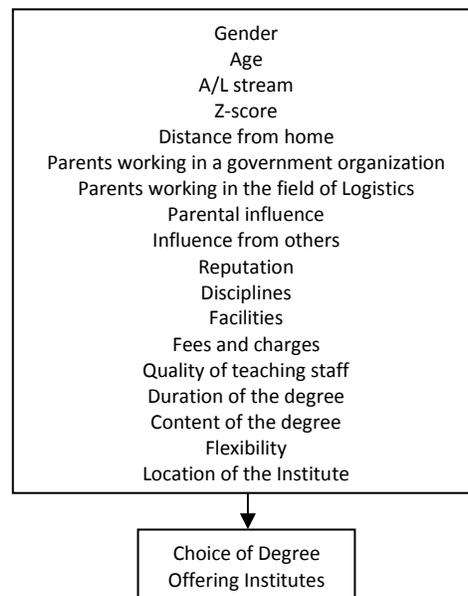


Figure 1: Conceptual framework of the research

Source: Constructed by the authors

Following hypotheses were constructed based on the above conceptual framework.

H₁: Student opinion on the reputation of the institute is a significant factor when selecting a degree-offering institute.

H₂: Parental influence is a significant factor when selecting a degree-offering institute.

H₃: Parents working in the field of Logistics is a significant factor when selecting a degree-offering institute.

H₄: Teaching staff is a significant factor when selecting a degree-offering institute.

III. RESEARCH METHODOLOGY

The sample included 92 students from Kotelawala Defence University (KDU) and Colombo International Nautical and Engineering College (CINEC). A random number table was used to select students from each institution. Quantitative and qualitative data were utilized to achieve the objective. The questionnaire consisted of twenty-five close-ended questions and five open-ended questions. Analyses based on a binary Logistic Model and Statistical Measurements. Data were analyzed using E-Views and SPSS applications. The following Logit model was utilized to analyse the selection of KDU and CINEC.

The logistic regression model assumes that,

$$\text{Logit}(P(Y=1|X_1, \dots, X_p)) = \log(P(Y=1|X_1, \dots, X_p) / (1 - P(Y=1|X_1, \dots, X_p))) = \beta_0 + \beta_1 X_1 + \dots + \beta_p X_p$$

This implies that,

$$\pi = P(Y=1|X_1, \dots, X_p) = \exp(\beta_0 + \beta_1 X_1 + \dots + \beta_p X_p) / (1 + \exp(\beta_0 + \beta_1 X_1 + \dots + \beta_p X_p))$$

The unknown model parameters $\beta_0, \beta_1, \dots, \beta_p$ are ordinarily estimated by maximum likelihood.

$$INS = f(GEN, AGE, STR, ZCO, DST, GNI, LGI, INF, REP, DIS, FCI, FEE, PAI, TES, DUR, CNT, FLX, LOC)$$

Where,

INS = Institute

GEN = Gender

AGE = Age

STR = A/L stream

ZCO = Z score

DST = Distance from home

GNI = Parents working in a government organization

LGI = Parents working in the field of Logistics

INF = Influence from others

REP = Reputation

DIS = Disciplines

FCI = Facilities

FEE = Fees and charges

PAI = Parental influence

TES = Teaching staff

DUR = Duration of the degree

CNT = Content of the degree

FLX = Flexibility

LOC = Location of the Institute

Thus,

$$INS_i = L_i = [P_i / (1 - P_i)] = \alpha_1 + \beta_2 GEN_i + \beta_3 AGE_i + \beta_4 STR_i + \beta_5 ZCO_i + \beta_6 DST_i + \beta_7 GNI_i + \beta_8 LGI_i + \beta_9 INF_i + \beta_{10} REP_i + \beta_{11} DIS_i + \beta_{12} FCI_i + \beta_{13} FEE_i + \beta_{14} PAI_i + \beta_{15} TES_i + \beta_{16} DUR_i + \beta_{17} CNT_i + \beta_{18} FLX_i + \beta_{19} LOC_i + u_i$$

Hosmer–Lemeshow, McFadden R² (R²McF), P, and Likelihood Ratio (LR) tests were utilized to test the goodness of fit, statistical significance of the parameters, and the overall significance of the model. Normality was tested with the Jarque-Bera (JB) test.

IV. ANALYSIS OF DATA

Ninety-two Logistics Management students consisting of 60 males and 32 females participated in this research. The sample involved 43 students from KDU and 49 students from CINEC. Average Z-score of KDU and CINEC students were 0.917 and 0.827 respectively whereas average age of KDU and CINEC students were 21.14 and 21.67 years respectively. Distance from home of the students to their education institute was 46.80km for KDU students while it was 54.16km for CINEC students. Figure 2 depicts the number of students in different Advanced Level streams following Logistics Management at KDU and CINEC.

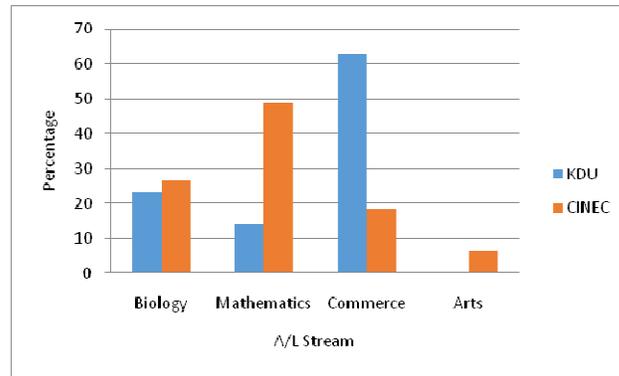


Figure 2: Advanced Level stream of Logistics Management students at KDU and CINEC

Source: Constructed by the authors

Majority (60.47%) of the parents of KDU students were government sector employees whereas only 42.86 percent of the parents of CINEC students work in the government sector. The survey indicated that a low percentage of parents (9.3% of KDU and 8.16% of CINEC) of students from both institutes were employed in Logistics related jobs.

Figure 3 highlights that the main influencing group of the KDU students is family members while it is the friends that influence more of CINEC students.

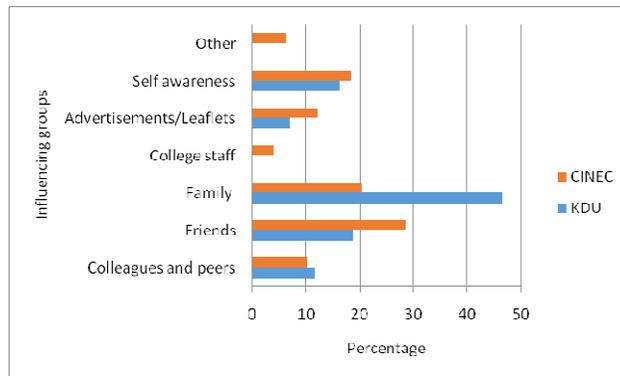


Figure 3: Influencing groups on choice of the institute

Source: Constructed by the authors

Opinion on the level of experience regarding the enrolment process of their institutes is presented in Figure 4. Five percent of the KDU students have mentioned that the enrolment process is very difficult. Opinion of fifty-nine percent of CINEC students on enrolment process was neutral.

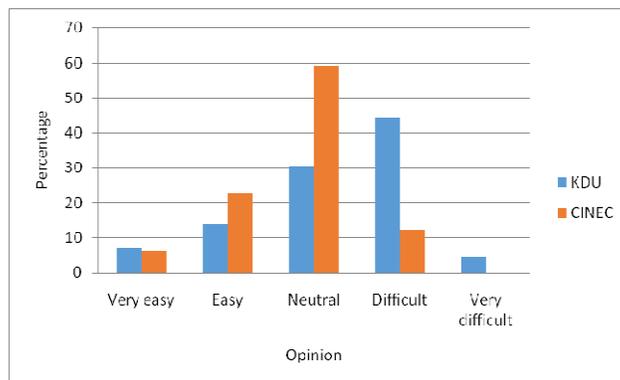


Figure 4: Opinion of the students on the enrolment process

Source: Constructed by the authors

Table 1: Output of the Binary Logit (Quadratic hill climbing) model

Variable	Coefficient	Std. Error	z-Statistic	Probability
GEN	-0.194128	0.764311	-0.253992	0.7995
AGE	-0.307684	0.266859	-1.152984	0.2489
STR	0.773621**	0.410710	1.883620	0.0596
ZCO	0.253375	0.770073	0.329027	0.7421
DST	-0.004290	0.007148	-0.600148	0.5484
GNI	0.630387	0.651766	0.967198	0.3334
LGI	-0.248340	1.243877	-0.199650	0.8418
INF	-0.091294	0.184918	-0.493698	0.6215
REP	-0.710767	0.471766	-1.506609	0.1319
DIS	-1.199810*	0.414179	-2.896842	0.0038
FCI	0.231641	0.427453	0.541911	0.5879
FEE	0.333673	0.341761	0.976334	0.3289
PAI	-0.238485	0.388191	-0.614351	0.5390
TES	-0.672616	0.493162	-1.363884	0.1726
DUR	0.328910	0.530288	0.620249	0.5351
CNT	0.472411	0.578230	0.816996	0.4139
FLX	0.440523	0.485270	0.907789	0.3640
LOC	-0.328781	0.350422	-0.938242	0.3481
C	7.032704	6.485583	1.084359	0.2782
McFadden R-squared	0.357112	Mean dependent var	0.467391	
S.D. dependent var	0.501669	S.E. of regression	0.421983	
Akaike info criterion	1.301539	Sum squared resid	12.99911	
Schwarz criterion	1.822343	Log likelihood	-40.87080	
Hannan-Quinn criter.	1.511740	Restr. log likelihood	-63.57375	
LR statistic	45.40590	Avg. log likelihood	-0.444248	
Prob(LR statistic)	0.000362			
Obs with Dep=0	49	Total obs	92	
Obs with Dep=1	43			

* Significant at 0.05 significance level ** Significant at 0.10 significance level

Source: Survey Data (2014)

Hosmer-Lemeshow test statistic asymptotically follows a Chi-Sq distribution with G–2 degrees of freedom. Hosmer & Lemeshow (2013) recommend partitioning the observations into 10 equal sized groups according to their predicted probabilities.

$$G_{HL}^2 = \sum_{j=1}^{10} \frac{(O_j - E_j)^2}{E_j(1 - \frac{E_j}{n_j})} \sim \chi_8^2$$

Where,

n_j = Number of observation in the j^{th} group

O_j = Observed number of cases n the j^{th} group

E_j = Expected number of cases n the j^{th} group

If the H-L goodness-of-fit test statistic is greater than .05, the model is well-fitted and fails to reject the null hypothesis that denotes no difference between observed and model-predicted values, implying that the model's estimates fit the data at an acceptable level.

Table 2 presents the observed and expected numbers of cases and controls within each group, and the final test statistics. The chi-square statistic of 0.6309 suggests that the model is correctly specified. Likelihood ratio (LR) statistics with 18 degrees of freedom is 45.40590 and probability (LR stat) is 0.000362. Null hypothesis related to the overall significant is H_0 : all the coefficients are simultaneously equal to zero, and the alternative hypothesis is H_1 : not all the coefficients are simultaneously equal to zero. Together, all regressors have a significant impact on the dependent variable, as the LR statistics is approximately 45.41, whose p value is about zero and reject null hypothesis, where all coefficients are simultaneously equal to zero. The R^2_{McF} value in the model is 0.36. In the binary regression model, the goodness-of-fit is of secondary importance.

Table 2: Hosmer-Lemeshow Goodness-of-Fit Evaluation for Binary Specification

	Quantile of Risk		Dep=0		Dep=1		Total Obs	H-L Value
	Low	High	Actual	Expect	Actual	Expect		
1	0.0110	0.0737	9	8.67315	0	0.32685	9	0.33916
2	0.0743	0.1102	8	8.17666	1	0.82334	9	0.04172
3	0.1104	0.1825	7	7.82652	2	1.17348	9	0.66944
4	0.1871	0.2896	8	6.87769	1	2.12231	9	0.77664
5	0.3341	0.4484	5	6.30666	5	3.69334	10	0.73301
6	0.4530	0.5814	6	4.29027	3	4.70973	9	1.30201
7	0.5861	0.6729	4	3.45268	5	5.54732	9	0.14076
8	0.7208	0.8679	1	1.82914	8	7.17086	9	0.47171
9	0.8710	0.9037	0	1.05172	9	7.94828	9	1.19089
10	0.9055	0.9851	1	0.51550	9	9.48450	10	0.48011
	Total		49	49.0000	43	43.0000	92	6.14545
H-L Statistic			6.1455		Prob. Chi-Sq(8)		0.6309	

Source: Survey Data, 2014

However, a significant number of coefficients are not statistically significant as the p values are greater than the common alpha level of 0.05 (Table 1). Each slope coefficient in the estimated regression model is a *partial slope* coefficient and measures the change in the estimated logit for a unit change in the value of the given regressor, holding other regressors constant. The antilog of the gender (GEN) coefficient of -0.194128 is 0.82. This suggests that male students are more than 0.82 times likely to register with KDU than female students, while other factors remain same. The coefficient value of AGE depicts a negative relationship between age and selection of KDU. One-year increase in age (AGE) decreases the odds of selecting KDU by a factor of 0.307684, adjusting for other explanatory variables. Students with parents working in the government sector are more than 1.878337 times likely to be registered with KDU, than the students whose parents working in other sectors. Students whose parents are working in the Logistics field are less likely to register with KDU than the students whose parents are working in other sectors. The Z-score (ZCO) coefficient of 0.253375 means, with other variables remains constant and if ZCO increases by a unit, on average, the estimated logit will increase by about 0.253375 units. This suggests a positive relationship between the Z-score and selection of KDU.

A negative relationship exists between KDU selection and opinion on the degree of importance of the distance. For one unit increase in the degree of opinion on distance, the odds of KDU selection is lowered by 70 percent, adjusting for other explanatory variables. For one unit increase in the degree of opinion on parental influence (PAI), the odds of KDU selection is lowered by 21 percent, adjusting for other explanatory variables. The coefficient for content of the degree (CNT) indicates that, holding other variables at a fixed value, 60% increase in the odds of being registered to KDU for one unit increase in the degree of opinion on content of the degree. For one unit increase in the degree of opinion on the location of the institute (LOC), the odds of KDU selection is lowered by 28 percent, adjusting for other explanatory variables.

V. CONCLUSION

The results reveal that the leading criteria for Logistics Management students to select a degree-offering institute were institutional discipline and advanced level stream. Table 3 summarizes results of the hypotheses testing.

Table 3: Summary of the hypothesis tests

Hypothesis	Decision
H ₁ : Opinion of the students on reputation of the institute is a significant factor when selecting a degree-offering institute	Reject
H ₂ : Parental influence is a significant factor when selecting a degree-offering institute.	Reject
H ₃ : Parents working in the field of Logistics is a significant factor when selecting a degree-offering institute.	Reject
H ₄ : Teaching staff is a significant factor when selecting a degree-offering institute.	Reject

Source: Constructed by the authors

Findings of this research have important implications for higher education institutions currently offering logistics management studies and higher education institutions that plan to offer such services in near future.

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