DETERMINANTS OF HOUSEHOLD'S DEMAND FOR ELECTRICITY: (A STUDY CONDUCTED IN MIHINTALE; 577 THULANA)

A.M.P. Adikari
Department of Social Sciences, Faculty of Social Sciences and Humanities, Rajarata University,Mihintale.

Sri Lanka is facing a continuously increasing electricity demand due to various socio-economic factors. Electricity is a critical element of infrastructure on which the socio-economic development of a country depends. In today's context, electricity is a necessary input in the production process and daily activities of the people. Electricity is purchased for end-use services it provides for customers. As a result, a variety of factors change the pattern of electricity demand. Variations in demand in tropical countries such as Sri Lanka are largely influenced by Socio-economic factors. Therefore it is important to identify the factors influencing demand for electricity at present and in the future. Electricity is mostly used for domestic purposes in Sri Lanka despite its high per unit price. Household's demand for electricity is growing by the day.

The general objective of this study is to examine the role of economic and non economic factors in the determination of household's demand for electricity and their relationship. Data were collected from a sample of 40 household who consume electricity from Mihintale (577 *Thulana*) located in Mihintale Divisional Secretariat Area of North Central province in Sri Lanka.

Both primary and secondary sources of data were collected and used for this study. The primary sources of data were detailed Household survey and focussed group discussion. Before the survey was conducted, individual discussions were held with key informants in the electricity board. This discussion helped to make some of the questions in the questionnaire.
Surveying of the Households was conducted during the period October-November, 2012. using structured questionnaire which included questions on demographic features, electricity consumption behavior, and awareness of tariff structure of electricity billing.
Secondary data were obtained from the documentary sources such as the internet and statistical abstract of Ceylon Electricity Board. The results were analysed by using statistical package SPSS.

The model used to find out the determinants of household demand for electricity is presented in equation;

$HEC = \beta o + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots + U_i$

MEC = Household monthly electricity consumption in Rupees
x_1 = Household income per month in Rupees
x_2 = Monthly unit consumed
x_3 = Household size
x_4 = Number of rooms in home
U_i = error term

To measure the determinants of household demand for electricity, monthly electricity consumption (HEC) in Rupees (monthly bill) was considered as dependent variable. Multiple regression model was applied to estimate the effect of explanatory variable on Household's monthly electricity consumption.

Table 1: Estimated parameter on household's demand for electricity

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std.Error	Beta	t	Sig.
(Constant)	.455	.519		.875	.388
household income	.051	.014	.472	3.268	.002
Unit consumed	.424	.130	.478	3.570	.001
house hold size	.043	.070	.082	.620	.539
Number of rooms	-.204	.113	-.273	-1.808	.079

Estimated Regression model is: $Y=0.455+0.424X_1+0.051X_2+0.043X_3-0.204X_4$

The coefficient of the household income is 0.051 and it means that one unit increase in household income can expect a 0.051 increase in the demand for electricity consumption. Rest of the coefficient could be interpreted the same way. Results indicated that household income, number of unit consumption, household size have significantly influenced the household electricity demand. Although more rooms in a house may show their high income level, it did not effect to increase their electricity demand. The results revealed that the number of rooms has non-significantly influenced the household's electricity demand. According to R^2 value, 0.508, means 51 percent variation demand for electricity was explained by the household income, number of unit consumption, household size and the number of rooms. Adjusted R^2 value of 0.45 means 40 observations and all variables were 45 percent adjusted in that model.

This study investigated the determinants of household electricity demand and their relationships. The results revealed that household demand for electricity is mostly affected by income, unit consumption, number of rooms and the household size. However, it is suggested that a provincial level study will be more beneficial to get clear estimates of household demand for electricity and it will be helpful for government in understanding the trend and pattern of household's demand for electricity for policy formulation. This study also opens up further research opportunities on relationships between electricity demand and socio economic factors in Sri Lanka.

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