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Determinants of Household Electricity Consumption in Rural Domestic Sector (Case of Nattandiya Divisional Secretariat, Sri Lanka)

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Abstract

Any person has some prime necessities such as food, dwelling, clothing, health, etc. When considering usage of energy at present, it has become another important necessity. Therefore as an energy, electricity plays a main role and it has been an essential good in daily life of personsbecause it provides a base for other necessities, such as making food by using electrical appliances, sewing cloths by using electrical machine, etc. Electricity helps persons to do works quickly by appliances, equipment and machines. It is a major contributor towards improvement of the living standard of any individual, family and society. This study therefore aims at finding out the factors and their influence on determining cost of electricity consumption in rural household sector. The factors which influence the cost of electricity consumption of a rural household have been examined by using a questionnaire survey of 100 households using stratified random sampling method. Multiple regression models have been run to analyze the data. The results show that the number of rooms, units of electricity appliances, household income, awareness of saving electricity, education level of consumers are the most effective factors determining the cost of electricity.

Keywords:

Electricity
Consumption
Rural Household
Nattandiya

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1. Introduction

Electricity was introduced in Greek. William Gibert, an English physician, physicist and natural philosopher was the first to coin the term "electricity" derived from the Greek word for amber. In the modern economies, electricity plays a significant role and it is highly essential for growing economy. Today the production of all goods and the consumption of many are impossible without electric power (Munasinghe M. and Schramm G., 1983).

Utilizing many services like lighting, conditioning, freezing, cooking and much other services depend on electricity. Therefore with technological development, demand for electricity have been increased simultaneouslysince electricity is considered as an essential commodity.

Sri Lanka's first public electricity supply was made available in Colombo in 1895 by Messrs Boustead Bros. The business was soon taken over by the United Planters Co., who extended it and in 1899 built the Colombo electric tramways. In 1902 the Colombo electric tramways and Lighting Co. Ltd. was formed and provided electricity supply until 1927. When the Department of Government Electrical Undertaking (DGEU) was established to control the utility, it had by then been purchased by the government. DGEU was succeeded in 1969 when the Ceylon Electricity Board (CEB), a statutory corporation, was established on the 1st of November 1969 under the act of parliament No, 17 of 1969.

It was only in 1923, that the British colonial government undertook the development of hydro power in Ceylon, the Lakshapana Hydro power scheme. However it was commissioned as the first Hydro power plant of Sri Lankan history in December 1950. Between 1972.8-1985, under the master plan of Mahaweli development programme added seven hydro power stations to the national grid with the total installed capacity of 810 MW.This can be considered as a great leap forward for electricity generation in Sri Lanka (Dissanayaka, 1997).

Sri Lanka basically is a country that produces hydroelectricity and thermal power. Coal and petroleum which are considered the primary sources of energy are not available in Sri Lanka. Sri Lanka faces extreme limitations in the generation of thermal power locally. In this context the foremost commercial source of energy that can be viably produced in Sri Lankan is hydroelectricity.

When considering the electricity industry in Sri Lanka we ought to identify the locally available resources for the production of electricity. It is the water resource that is the most prominent resource available to us in the Sri Lankan context. Yet even this resource is not absolute. Sri Lanka a tropical country which is subjected to periods of droughts when often the water levels recede and rivers themselves run dry. Although Sri Lanka receives rain through two monsoons, (North-West monsoon and the South-East monsoon); 75% of the country comes under the dry zone. And the average rainfall of the country is between 25 - 75 inches. Under these circumstances the use of hydropower as a source of generating electricity does not seem feasible.

Sri Lanka has a total of 103 flowing rivers. Even so the more important rivers number only 36. Of them 27 rivers flow across the dry zone which exposes them to the threat of drying up. Perennial sources of water are available in the Mahaweli and the WalaveRivers both which are located in South-West region. Of the two the Mahaweli has a bigger catchments area because it is exposed to both monsoons. Mahaweli which is the longest river in Sri Lanka releases a volume of 45 lakhs of acre feet. In addition the other rivers of the country annually deposited a volume of two million seventy lakhs of acre feet of water into the sea (40.4 million m3), (NARESA, 1991). The hydroelectricity industry has been initiated in Sri Lanka utilizing this potential (CEB Wikipidea).

When pay attention on the current situation of electricity generation in Sri Lanka, total electrification level in Sri Lanka is 99.3 per cent and per capita electricity consumption is 603kWh. Total electricity generation in 2016 increased by 8.1 per cent to 14,149GWh in comparison to 13,090GWh recorded in 2015. Although hydro based power generation gradually improved during the second quarter of the year with increased rainfall received during May 2016, the drought conditions that prevailed during the first quarter and the latter part of the year caused a reduction in the share of hydropower in the total annual power generation in 2016. Accordingly, hydropower generation, excluding mini hydro generation, registered a decline of 29.0 per cent to 3,481GWh, while the fuel oil-based power generation witnessed an increase of 96.1 per cent to 4,461GWh in 2016 in comparison to the previous year. Meanwhile, total coal power generation increased by 13.6 per cent to 5,047GWh in 2016, relative to the previous year, despite breakdown in the Norochcholai coal power plant. The generation of electricity through Non-conventional renewable energy (NCRE) sources, excluding mini-hydro generation, decreased by 20.9 per cent to 1,160GWh in 2016 from 2015. Accordingly the share of hydro, fuel-oil, coal and NCRE in total power generation remained at 25 per cent, 32 per cent, 36 per cent and 8 per cent, respectively. Meanwhile, the contribution of the power plants owned by the CEB to the total power generation decreased to the 76.5 per cent in 2016 from 79.4 per cent in 2015. As in the previous years, the remainder of the total power generation in 2016 was purchased from Independent Power Producers (IPPs). Meanwhile the overall transmission and distribution loss as a percentage of total power generation reduced to 9.6 per cent in 2016, from the 10.0 per cent in the previous year due to measures taken to reduced transmission losses by improving transmission lines (CBSL, 2016).

The total sales of electricity in 2016 increased by the 8.5 per cent to 12,785GWh from 11,786GWh recorded in 2015. High growth in electricity sales in recent years can be mainly attributed to low tariff prevailing at present compare to 2014. Sales to the 'Industry' category that absorbed 32.6 per cent of the total electricity sales, increased by the 6.9 per cent in 2016 in comparison to an increase of 3.2 per cent in 2015. During 2016, sales to 'Hotel' and 'General Purposes' categories accounted for 2.4 per cent and 24.2 per cent of the total electricity sales, respectively. Meanwhile, in 2016 the electricity sales to 'Hotel' and 'General Purposes' categories recorded a growth of 18.0 per cent and 11.1 per cent, respectively, in comparison to the preceding year. In 2016, the electricity consumption by the 'Domestic' category, which absorbed 37.8 per cent of total electricity sales, grew by 8.3 per cent (CBSL, 2016).

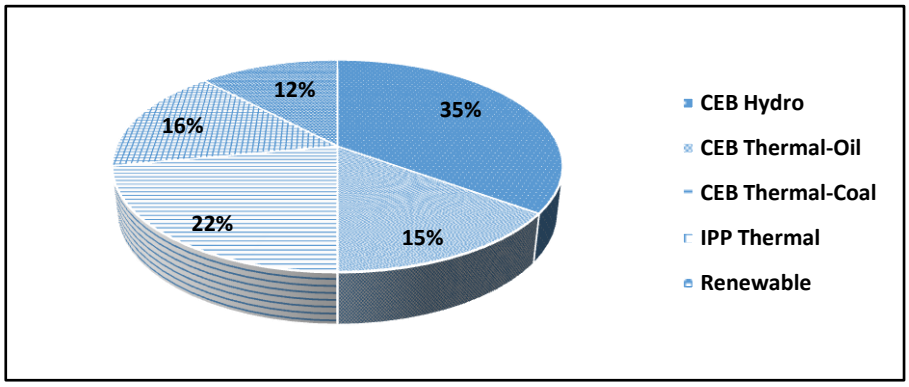
By the end of the year 2016, 239 grid connected power plants have been operated. 27 have been owned and operated by Ceylon Electricity Board (CEB) including 17 hydro plants, 9 thermal plants and 1 wind power plant. 5 thermal power plants have been owned and operated by Independent Power Producers (IPPs) and 207 renewable power plants have been operated by Small Power Producers (SPPs) including mini hydro plants, solar power plants, wind power plants and biomass power plants. Out of the above 25 renewable power plants have been commissioned during 2015. Due to the drought conditions prevailed in the country which resulted low hydro reservoir levels and also as a solution to certain transmission constraints that affected the supply quality in southern part of the grid, in April 2016, the Transmission Licensee, CEB entered in to one year Power Purchase Agreement (PPA) with ACE Power Embilipitiya Private Limited (retired in April 2015). Northern Power private power plant was not operated from January 2015 due to a court order(Generation performance in Sri Lanka, 2016).

Figure 1shows that generation capacity mix by the end of 2016 includesCEB Hydro1377 Mw (35%), CEBThermal- Oil 564 Mw (15%), CEB Thermal-Coal855 Mw (22%), IPP Thermal 613 Mw (16%) and Renewable 477 Mw (12%)(Generation performance in Sri

Lanka, 2016).CEB System Control records the daily peak power demand of the country. During year 2016, maximum recorded electricity demand in Sri Lanka was 2406.4 MW (excluding the contribution of Mini Hydro, Solar and Biomass power plants) which is 8.9% increase compared to the maximum demand of 2,210.4 MW in year 2015 (Generation performance in Sri Lanka, 2016).

Demand for electricity have been increasing day by day since electricity is considered as an essential commodity. In current world people use electricity in many ways. With the help of electricity many diseases are to-day cured by electric treatment. When consider the household sector, People keep refrigerators in their homes to keep their food in a fresh condition, and in the cuisine people use many electric appliances for cooking. And Electricity is mainly used in household level in order to light bulbs, fans, TV, computers, phone, washing machine air conditioner and other electrical assets. For over 30 years the World Bank and other organizations have studied the social benefits of electricity access and have noted that these benefits usually derive from the longer days that powered light bulbs offer to the household. Mainly children and women are highly benefited from this electricity, children used to study during day time and during night time they used to light candle or lamp in order to study. Thus we can say electricity is a vital tool which is responsible to lead economic growth of any economy. Electricity is highly essential in this modern day which provides both social and economic benefits to humans and nation. Indeed electricity serves as a faithful domestic servant in daily life. Therefore demand for electricity has been increasing over the time.

Figure 1
Generation Capacity Mix by the end of 2016



Source: Generation performance in Sri Lanka, 2016.

Domestic consumption of electricity varies in their sources as well as their levels. This is because household appliances are of varied nature. As such domestic consumption of electricity in Sri Lanka can be classified as follows.

1. Lighting
11. Cooking
111. Cleaning
V1. Working of implements
V. Entertainment
V1. Other

For the fulfillment of these functions different sources of electricity are used. Domestic consumption of electricity is also divided into two categories mainly rural and urban. There is distinct difference in electricity consumption in these two areas which should also be a matter of concern. In this study the researcher have focused on the topic ‘determinants of cost of electricity consumption in rural household sector’ which should also be a matter of concern.

The increase of cost of electricity consumption is not favorable for the welfare of society. This is clearly a challenge to countries like Sri Lanka which seek to reach their development goals depending on electricity consumption. This should lead us to pay close attention to the household consumption of electricity and how the cost of electricity determines the living standard and welfare of households.

The smallest unit of any economic system is the household. The development strategy of any nation pays primary attention to the increase of the living conditions of the household. This is universally accepted in any part of the world. Economic policies are designed and shaped to reach this goal. The internal balance between the income and expenditure of households is matter of utmost concern in this regard. When there is a balance in the income and expenditure of households in any given economy that economy is said to be in a harmonious balance.

A household utilizes its income first and foremost to satisfy its necessities. According to Munasinghe(1983) energy consumption of a household has to be considered as one of its primary conditions alongside other necessities like food, clothing and shelter. Therefore the expenditure on electricity for lighting, cleaning, preparation of food, refrigeration etc. acquires a proportionally important percentage. The rise in cost of living is the logical outcome of the rising cost of electricity is a widely accepted opinion. This is why electricity is no longer a considered luxury and has to be considered among necessities in modern times. As the cost of electricity and usage of electricity appliances goes up the expenditure on electricity also rises. In order to save expenditure the householder would have to reduce his consumption of electricity. This is the result of household incomes not rising parallel. The result shows that the market brings down the welfare of the household.

Relative differences can be observed in the earning and expenditure of households in any country of the world. According to consumer theories the potential income of a household is an important indicator in determining the expenditure of each household. In this context the relationship between the cost of electricity consumption and the potential income of a household should be recognised.

It is therefore necessary to have a clear picture of household consumption of electricity, the factors that influence it and the problems related to this situation. In this manner we can arrive evaluation of household electricity consumption and household welfare of a given country. This awareness would be helpful in providing a solution to reduce the expenditure on electricity consumption of household sector. To implement this process, it is necessary to understand what strategies are used for implementation. When studying the nature of electricity consumption of household, it is needed to focus great attention on the household electricity consumption. Therefore the main question of research is: What are the factors of determining the cost of electricity consumption of the household sector?

2. Objectives

The key objective of this study is to investigate the factors that determine the cost of electricity consumption of the household sector. The other objectives are to identify the main determinants of cost of electricity consumption of the household sector and to identify the amount of effectiveness of the main factor on the cost of electricity consumption of the household sector.

3. Methodology

As the first step the study has collected primary data with regard to factors which determine the cost of electricity consumption of household. The study has selected a sample of 100 householdsin the Nattandiya administrative division of the Puttalam District of the North Western Province in Sri Lanka,.

Secondly, a questionnaire was developed to collect primary data. In addition, interviews with prominent people was conducted and missing facts gathered from the researcher's own observations. Secondary data was collected using reports, web pages as well as articles published.
Thirdly, data has been analyzed using quantitative modes of analysis. The tools of measurements of central tendency including means, standard deviations, graphs, and tables were used for data analyzing. The computer software such as Excel and SPSS were used to measure variables.

4. Review of Literature

Anumber of useful previous studies on electricity consumption in household sector will be reviewed in this section.
Petersen (2001) in his study of "electricity consumption in rural versus urban areas" explained that electricity using devices, climate and demographic characteristics' were the most important determinants of variations in household electricity consumption.
Amusa and Mabugu(2009) investigated the determinants of aggregate demand for electricity in South Africa by using bounds testing approach in an autoregressive distributed lag framework during the period 1960 to 2007. The results showed that in the long run, demand for electricity was greatly affected by changes in income. However, the study found that changes in price of electricity has an insignificant effect on the demand for electricity.

Houthakkarand Taylor (1970) has studied domestic demand for electricity in UK using cross sectional data on 42 provincial towns for a period from 1937-1938. He used OLS technique to estimate double log models which included variables like; average annual electricity consumption of each household with a decreasing two part tariff, average income, marginal price of electricity, marginal price of gas, and average holding of electricity consuming appliances per household.
Louwa et al(2008) conducted a study in two low income rural areas of Africa and concluded that income, wood fuel usage and appliances stock were the main factors influencing household electricity consumption in Africa.Carcedo and Otero (2005) checked the impact of weather on demand for electricity in Spain. The study used Smooth Transition, Threshold Regression and Switching Regressions models and concluded that weather played strong role in changing electricity demand in Spain.

Holtedahl and Joutz (2004) analysed the household demand for electricity in Taiwan. The main variables of the study were household income, population growth, electricity price and urbanisation and weather.
Jangraiz Khan (2010) the main purpose of this study is to explore the role of economic and noneconomic factors in the determination of household's demand for electricity. The study has used Multinomial logistic model to derive estimates. According to the study results showed that income, number of rooms, price of electricity, weather and education are important determinants of household demand for electricity.
Peterson (2001), in his study off household electricity demand in Denmark has highlighted most important factor which pertain to household electricity such as; the nature of job, nature of house and its location, number of people in the household, number of hours they spend at home, nature of utensils used, climatic condition and facility for storage

electricity. The variability of these factors have a decisive impact of the demand for household energy.

Zhou and Teng (2013) estimated income and price elasticity of residential electricity demand together with the effects of life style related variables in China. They found that dwelling size and holdings of electric appliances are important determinants of electricity demand. Family size and old age have positive effect on consumption.

The determinants of electricity consumption has direct impact on the cost of electricity consumption. The study on the consumption of electricity has lead the foundation for deciding upon the factors which influence the consumption of electricity and the demand for electricity. In addition to household income, the nature of household, the number of members in household, the appliances which need electricity, the educational level of the household head, would be necessary to be taken into consideration. The fact that house hold electricity consumption has an impact on house hold welfare levels (this is due to the behavior of variables which influence the consumption of electricity.) compelling us to take this factors into consideration in studying the cost of electricity consumption in rural household sector.

The present study attempts to estimate the factors that influence to determine the cost of electricity consumption of rural households. The factors which explain its consumption for a household are taken as household income (H_I), age of the household head (H_A), education background of the household head (H_E), number of household members (H_M), house size (H_S), number of rooms in house (H_R) and household awareness on saving electricity (A_W).

The consumption function for electricity is hence defined as follows:

$E = f(H_I, S_A, H_A, H_E, H_M, H_S, H_R, A_W)$

Where

E = Average monthly cost of electricity consumption (in Rs.)

S_A = Stock of electricity appliances

H_I = Household income (in Rs.)

H_R = Number of rooms in house

A_W = Household awareness on saving electricity

H_S = Surface of house (in Squared feed)

H_E = Education background of the household head

H_A = Age of the household head

H_M = Number of household members

If we assume this relations are linear, then we can build the multiple regression model as below.

$E = \beta_0 + \beta_1 S_A + \beta_2 H_I + \beta_3 H_R + \beta_4 A_W + \beta_5 H_S + \beta_6 H_E + \beta_7 H_A + \beta_8 H_M + Uij$

According to above multiple regression model, E is the dependent variable and H_I, S_A, H_A, H_E, H_M, H_S, H_R and A_W are the independent variables which are influence to determine the E, and β_1, β_2, β_3, β_4, β_5, β_6, β_7 and β_8 the partial regression coefficients respectively. The intercept term "β_0" in the model gives the average value of E when H_I, S_A, H_A, H_E, H_M, H_S, H_R and A_W variables are set equal to zero. U is the influence of error.

In order to capture thevariables which cause for variation in the cost of electricity consumption of the households, the above model is employed. The data is composed from a number of sources. The respondents, i.e., the households were selected on the basis of stratified random sampling technique. The data on electricity use habits of the households and various socio-demographic variables is collected in order to draw a valid database.

Both, the primary and secondary data are used for the present work. The data on dependent and independent variables is collected through primary survey. The software SPSS 21.0 is used to estimate the models, the results of which are reported below. To find the significant variables the model has been run by using 7 steps.

$E = \beta_0 + \beta_1 S_A + \beta_2 H_I + \beta_3 H_R + \beta_4 A_W + \beta_5 H_S + \beta_6 H_E + \beta_7 H_A + \beta_8 H_M + U_{ij}$

5. Results

In this section, the empirical results has been explained. First above model is run in order to test the influence of the factors which affect to determine the cost of electricity consumption in rural households. Then the variables of "age of household head", "surface of house" and "number of household members" are not significant.

Table 1: Regression of first step

Variable	sig
Number of household members	.744
Size of house (squared feed)	.086
Age of the household head	.427

Source: Cost of electricity consumption,Sample survey, November 2017.

According to Table 1, the variables, "surface of house", "number of household members" and "Age of household head" are not significant. So these variables have not enough significant influence on the dependent variable in the model. Therefore those variables are removed from the model. Then the final model of factor of cost of electricity consumption of rural household sector can be presented as follows.

$E = \beta_0 + \beta_1 S_A + \beta_2 H_I + \beta_3 H_R + \beta_4 A_W + \beta_5 H_E + U_{ij}$

Table 2: Correlation between independent variables

Variables	Correlation
"Stock of electricity appliances" and "Household income"	.724
"Stock of electricity appliances" and "Number of rooms in house"	.595
"Stock of electricity appliances" and "Household awareness on saving electricity"	.295
"Stock of electricity appliances" and "Education background of the household head"	-0.319
"Household income" and "Number of rooms in house"	.651
"Household income" and "Household awareness on saving electricity"	.251
"Household income" and "Education background of the household head"	.365
"Number of rooms in house" and "Household awareness on saving electricity"	.208
"Number of rooms in house" and "Education background of the household head"	-0.409
"Household awareness on saving electricity" and "Education background of the household head"	-0.259

Source: Cost of electricity consumption,Sample survey, November 2017.

As shown in Table 2 correlation coefficients of each combinations of independent variables are less than 0.8, therefore all of those variables are significant for including to the model.

Then the multiple regression for the model can be implemented and the results are shown as follows.

Table 3: Coefficients

		Unstandardized Coefficients		Standardized t Coefficients		Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.729	.341		-5.075	.000
	Stock of appliances	.178	.024	.485	7.512	.000
	Awareness of saving electricity	.157	.063	.113	2.485	.015
	Number of rooms in the house	.193	.052	.219	3.686	.000
	Monthly average income	.176	.053	.226	3.335	.001
	Education background of the household head	-.072	.035	-.093	-1.932	.046

a. Dependent Variable: Monthly average cost of electricity consumption of household (Rs.)
Source: Cost of electricity consumption,Sample survey, November 2017.

According to details which are shownin Table 3, the model can be estimated as follows.

$E = -1.729 + .193H_R + .178S_A + .176H_I + .157A_W - .072H_E$

S.E (.1) (0.052) (0.024) (0.053) (0.063) (0.035)

According to the model β_0 = -1.729, means that when all the independent variables (Factors which influence to determine the cost of electricity consumption in rural household sector) remain constant the value of dependent variable (Cost of electricity consumption in rural household sector) is negative (-1.729). β_1 = .193, this value indicates that when "Number of rooms in the house" increases by one room cost of electricity consumption will increase by the amount of 0.193 (when other independent factors keep constant). β_2 = .178, it shows that when "Stock of electricity appliances" increases by one unit cost of electricity consumption will increase by the amount of 0.178 (when other independent factors keep constant). β_3 = .176, this value indicates that when "Household income" increases by one rupee, then cost of electricity consumption will increase by the amount of 0.176 (when other independent factors keep constant). β_4 = 157, it intimates that when "Household awareness on saving electricity" increases by one unit, then cost of electricity consumption will increase by the amount of 0.157 (when other independent factors keep constant). β_5 = .072, finally this value signify thatwhen "Education background of the household head" decreases by one unit, then cost of electricity consumption will increase by the amount of 0.072 (when other independent factors keep constant).

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.910[a]	.828	.819	.34963

Source: Cost of electricity consumption,Sample survey, November 2017.

R Square means that how much the variation of the dependent variable (Monthly average cost of electricity consumption of the household) represented by the regression model. Generally most socio-scientists accept that it is good to get more than 0.8, then in this study, as shown in above table, R Square is 0.828. Therefore it is a good condition for the

model which is used in this study. The model represent 82% of the total variation of the dependent variable (Monthly average cost of electricity consumption of the household).

Table 5: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.500	5	11.100	90.805	.000[b]
	Residual	11.490	94	.122		
	Total	66.990	99			

(Source: Cost of electricity consumption,Sample survey, November 2017.)

As shown in Table 5 significant value of the entire model is less than 0.05 (.000). Therefore total significance of the model is good for the study.

Number of rooms in the household (H_R); this variable is the most effective variable in determining the "cost of electricity consumption in rural household sector". The correlation between "Number of rooms in the household" and "cost of average monthly electricity consumption"is found to be 0.717. Therefore we can see a neutral relationship between above two variables.

Stock of electricity appliances (S_A); this is the secondly most effective variable in determining the "cost of electricity consumption in rural household sector". The correlation between "Stock of electricity appliances" and "cost of average monthly electricity consumption"is found to be 0.843. Therefore we can see a good relationship between these two variables.

Average Monthly Household Income (H_I); Income, in general, acts as a determinant of demand for allthe commodities which are consumed by that household. The same applies to household electricity consumption. The correlation between "cost of average monthly electricity consumption" and "Average Monthly Household Income"is found to be 0.783. Therefore we can see a somewhat good relationship between above two variables.

Household awareness on saving electricity (A_W); this is the fourthly most effective variable in determining the "cost of electricity consumption in rural household sector". The correlation between "Household awareness on saving electricity" and "cost of average monthly electricity consumption"is found to be 0.383. Therefore we can see a low relationship between these two variables.

Education background of the household head (H_E); According to the model this is the finally most effective variable in determining the "cost of electricity consumption in rural household sector". The correlation between "Education background of the household head" and "cost of average monthly electricity consumption"is found to be -0.449. Therefore we can see a negative relationship between these two variables.

Summery and Conclusions

According to the survey data, the study shows that the main determinants of the cost of electricity consumption in rural household sector are household income (H_I), education background of the household head (H_E), Stock of electricity appliances (S_A), number of rooms in the house (H_R) and household awareness on saving electricity (A_W).

According to the data which are collected by the sample survey reveals that the most effective factors which influence to determine the cost of electricity consumption in rural household sector are "number of rooms in the house (H_R)", "Stock of electricity appliances

(S_A)", "household income (H_I)" and "household awareness on saving electricity (A_W)", "Education background of the household head (H_E) respectively.
According to the results which are shown in the regression model the effectiveness of most effective factors on "cost of electricity consumption in rural household sector" as follows.
Number of rooms in the house (H_R) = .19
Stock of electricity appliances (S_A) = .18
Household income (H_I) = 0.17
Household awareness on saving electricity (A_W) = 0.16
Education background of the household head (H_E) = -0.072

The current study examined the factors and their influence on determining cost of electricity consumption in rural household sector. The sample was 100 participants. Eightindependent variables and one dependent variablewere used in this study. According to results of multiple regression analysis the study had to remove three independent variables from the model (Surface of house 'H_S' (in Squared feed), Age of the household head (H_A), Number of household members (H_M)). Because they were not significant. Finally the model was built using five independent variables which were significant for the model. According to the survey data the research find out most affective factors which determine thecost of electricity consumption in rural household sector. And could find out the amount of their effectiveness. Then the results reveal that "number of rooms in the house (H_R)", "Stock of electricity appliances (S_A)", "household income (H_I)" and "household awareness on saving electricity (A_W)" are the main factors in determining cost of electricity consumption in rural household sector respectively. But could find that the variable "Education background of the household head (H_E)" has negative impact on determining cost of electricity consumption in rural household sector (It is -0.072). However it is worth to say that these all findings and conclusions are relevant to the special reference area where the sample data have collected (NDS).

6. Recommendations

Based on the finding of the research would recommend the followings to the rural households.
Households should keep more concern on "number of rooms in the house" when use electricity for their needs and wants. Limit the number of rooms which use for their electricity wants.
Households should pay attention when using electricity appliances for their electricity wants, and should choose appliances which get low electricity for working. Reduce the stock of appliances by reducing the use of appliances for unnecessary works.
Households should follow and maintain the method of saving electricity cost such as use of CFL bulb, switch off instantly after your work, use to use alternative method for heating, do not open the door of the fridge often.
Households should try to use their income for beneficial or productive investment and limit buying electrical appliances without buying essential electrical appliances.

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