

**The Determinants of Personal Telecommunication Expenditure of
Rural Youth**
(with Special Reference to Balangoda Divisional Secretariat)

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Introduction

Telecommunication has now become an essential component of human life and has also become a key component in every section of the modern world. Telecommunication-related activities among youth have rapidly increased over the past few years in both developed and less developed countries around the world. Although the term telecommunication refers to a broader level of technological usage, there are two main media widely accessed by the youth: the internet and telephone services (World Bank Group, 2006). For this study, the term telecommunications includes fixed and mobile telephone services and internet, as in Ureta (2005), which evaluates the importance of telecommunications expenditure in relation to total household expenditures in four developing countries.

It is commonly said that access to telecommunications is important for economic growth especially in developing countries. For example, Waverman et al. (2005) expressed that in a classic developing country, an increase of 10 mobile telephones per 100 people could increase GDP growth by 0.6 percentage points. Among all markets, youth are considered the prominent segment of society which has been active in transforming the application and use of digital technologies in unprecedented ways (Selian, 2004). The youth market segment comprises both teenagers and young adults between ages of 12–29 who are more comfortable with using the internet, building web sites, communicating via mobile phones and playing with digital equipment than any previous generation (Selian, 2004).

Worldwide, a study carried out by UCLA finds that Internet usage is highest among people aged 35 and under, with especially high use among people aged 18 and under. Usage among those aged 16 to 18 was 97 per cent in 2002 (Fillion, 2003). Nearly 81 per cent of teens aged 12 to 17 use the internet for email according to a survey by AOL; while 70 per cent use it for instant messaging, which was expected to overtake e-mail as the most popular form of internet communication by the end of 2005 (Carpenter, 2003). A recent study has revealed that almost two thirds of

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Americans aged 16 to 29 years of age would choose a mobile phone ahead of a landline phone (Derick, 2004).

Research Problem

Telecommunication refers to the communication at a distance by technological and electronic means. Nowadays, telecommunication expenditure has become one of the main expenditure categories among youth worldwide. Sri Lanka as with its rapidly developing infrastructure, social structure and business level improvements, is experiencing a boom in telecommunication infrastructure and services. The African Youth Charter defines 'youth', as those persons between the ages of 15 and 35 years of age. Considering the market share for the Sri Lankan telecommunication industry which is covered by 8 major telecommunication service providers, Sri Lanka is still far behind expectations in fulfilling the requirements of consumers. Especially, the youth is the prominent factor in modern day telecommunication services. Therefore the requirements and expectations of youth should be considered by the relevant authorities. In order to do so, it is essential to identify the determinants of youth telecommunication expenditure and their behavioral patterns. In Sri Lankan context, there may be various factors affecting the telecommunication expenditure of the youth which may vary according to sector. Therefore the research problem is, what are the determinants of personal telecommunication expenditure of youth in rural sector?

Objectives of the Study

Main Objective

- To identify the determinants of personal telecommunication expenditure of rural youth.

The Specific Objectives of the Study

- To investigate how much rural youth consumers spend on mobile telecommunication services.
- To examine the factors that rural youth consumers take into consideration in their choice of mobile network provider.

Literature Review

Generally, demand for telecom service can be categorised into two types, namely, demand for access and demand for usage. Demand for access is the demand for connection or subscription to telecom services while usage demand is the demand to make and receive calls once subscription has been made. Taylor (1994) interpreted that telecom demand is distinct from demand for most goods and services because

telecommunication services are not consumed in isolation: a network is involved. He also presented that for telecom services a distinction is made between access cost (i.e. cost of a handset) and usage cost. They said that access telecom service provides utility to consumers in terms of the ability to make and receive calls. Verkasalo (2008) argued that usually before the end-user considers using a service she probably evaluates how the service matches her individual needs. According to him, needs are born in the individual and they tend to direct all behaviour. One way of fulfilling these needs is to purchase a good or service, thereby becoming a consumer and in the case of mobile telecommunication services becoming a subscriber or user of the services.

Gerpolt, Ram and Schnidler (2001) argued that the following four individual features are critical factors that affect customers' value of mobile telecom services:

- The network quality, which is reflected in excellent indoor and outdoor coverage and the clarity of voice production without any connection breakdowns;
- The price paid for obtaining access to and using the network;
- Customer care which is seen in the quality of the exchange of information between customer and operators in response to customer's telephone enquiries in the course of interactive activities initiated by the network operator; and
- The personal benefits they obtain from the range of mobile telecommunication services.

According to Loebbecke (1995), cost of using mobile services and service quality are critical factors that influence the use of mobile service. Costs of using mobile service include cost of acquiring the line, the phone and the usage per minute. Cost of mobile usage can also be viewed in terms of the price for calls within the same network and calls to other networks. A significant phenomenon prevailing in the mobile market is that charges for calls within the same network are relatively cheaper than calls to other networks because of connectivity fees (Laffront, Rey & Tirole, 1997). Loebbecke (1995) indicated that the quality of mobile service is important in sustaining demand over time. Service quality is affected by network coverage and quality of mobile telecom network. Expanded coverage improves network quality which in turn enhances service quality for consumers. Network expansion drives demand for mobile telecom service because services are made available to previously uncovered people.

Mobile Telecommunication

Mobile telecommunication refers to the exchange of information, ideas and thoughts through the medium of mobile phone, telephone or wireless network. A mobile telephone network is comprised of the physical components required to connect users. The basic physical components are the handset, base station and mobile service switching station (Gruber & Hornicke, 1999).

Network Effects and Mobile Subscription

Telecommunication theorists widely believe that telecommunications are characterised by network effects. There are two types of network effects as direct and indirect. Direct network effects refer to the case where users benefit directly from the fact that there are large numbers of other users of mobile telecom networks. In mobile telecommunication, Birke and Swann (2006) argued that direct network effect occurs when the user can contact a large number of people. This motivates other people to subscribe to mobile telecom networks. Indirect network effects, on the other hand, are created as a result of the availability of other services that complement voice telephony such as short messaging service (SMS), internet, and multimedia messaging service (MMS).

Factors Influencing the Choice of Mobile Telecom Network Provider

Birke and Swann (2006), Corrocher and Zirulia (2008) and Svigelj and Hrovatin (2008) identified several factors relating to the choice of mobile network. The factors include: prices of mobile telecom services (prices for calls within network and calls outside network); service quality (that is network quality); range of products; customer care; discount, promotion and special offers on calls, text messages and multimedia messages; advertisement; and network size. Perceived quality of services affects the choice of mobile network in the sense that when customers perceive that a particular mobile operator offers quality services that network is more likely to be chosen compared to another network which provides poor quality of service. Improvement in the quality of service means that the network would become attractive to customers and hence be adopted. According to Kim and Kwon (2003), consumers take into account network size when choosing mobile operators. They argued that larger mobile networks have an advantage over smaller networks in acquiring subscribers because of intra-network-call discounts and quality-signaling effect. This view is shared by Birke and Swann (2006). According to them, mobile networks with larger subscriber base attracts more subscribers because with rising number of users subscribing to a network it becomes more attractive to other people to subscribe to the same network. On their part, Corrocher and Zirulia (2008) maintained that the larger the customer base of

mobile network the greater the benefits from adoption. Birke and Swann (2006) indicated that individual social network (friends, family and partner) and income influence the choice of mobile operator. According to them, mobile subscribers try to avoid high mobile expenditure by coordinating/matching operator choice with their peers and family. This implies that the individual choice of mobile operator is influenced by the choice of their social networks. Moreover, Corrocher and Zirulia (2008) argued that network effects affect the choice of mobile operator. According to them, network effects are common in communication network where consumers primarily consider the pattern of adoption by agents in their social neighborhood. These agents include family, friends and other social groups. They argued that network effects are explained by social networks of people.

Methodology of the Study (Study Design)

Study Area

To identify the determinants of personal telecommunication expenditure of youth, the selected population was youth who live in urban, rural and estate sector in Balangoda Divisional Secretariat area. There are 53 Grama Niladari Divisions in this area. There are total of 91,094 persons in the Balangoda Divisional Secretariat area of which the urban population is 19,261, rural population is 62,451 and the estate sector population is 9382. Six Grama Niladari Divisions such as Balangoda town and Thumbagoda represent the urban sector, Rassagala and Kiridigala represent the rural sector, Pettigala and Kirimatitenna represent the estate sector.

Sampling

As it is practically difficult to collect data from entire population to fulfill the study objectives, several methods were used to choose sample from the population. In here the most important part of the sampling was determining the size of the sample. Therefore 40 youth consumers were selected as the sample which represents rural youth consumers.

Methods of Data Analysis

Multiple regression analysis

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \dots + \beta_nx_n$$

Chi – Square Test

$$X^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i}$$

Multiple Regression Method

Multiple Regression method was used to analysis the data. The independent variable in the regression equation was Personal Telecommunication Expenditure as a function of the following selected independent variables. Equation of Multiple Regression can be written as follows.

$$Y = B_0 + B_1X_1 + B_2X_2 + \dots + B_nX_n + \varepsilon$$

Y = Personal Telecommunication Expenditure

X₁ = Monthly Income

X₂ = Prices/Tariff rates of services

X₃ = Age of the respondent

X₄ = Gender of the respondent

X₅ = Educational level of the respondent

X₆ = Network coverage of the service providers

X₇ = Marital Status

X₈ = Number of communication devices possess by the respondent

X₉ = Amount of online/usage time

X₁₀ = Advertising

ε = Error Term of the Equation

Chi-Square Test

Following variables were tested using the chi-square method

- The type of mobile device possess by youth individuals
- The type of default mobile connectivity (prepaid/postpaid)
- Gender and Marital status
- Education and Employment status
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Data Collection Methods

Primary Data

This study was mainly based on primary data. Primary data is essential to collect the facts, views and thoughts of youth related to the telecommunication expenditure. Therefore data were collected using

questionnaires according to the sample of urban, rural and estate sector youth population in the Balangoda Divisional Secretariat

Secondary data

To collect secondary data following documents and methods were used.

- Department of Census and Statistics
- Other government authorities and institutions
- Resource Profile - Divisional Secretariat - Balangoda.
- News Papers, Magazines, Journals, Books, Publications etc.
- The Internet and Online Data Centers

Results & Discussion

Table 1: Significance of the Variables in Rural Sector

Predictors	P values
Monthly income or transfers receive	0.000
The type of mostly used mobile device	0.884
Number of devices possess with	0.021
Amount of sms/mms messages send per day	0.000
The type of the default mobile connectivity	0.606
Amount of family members	0.032

Source: Sample survey, 2015

The significance level was recorded as 0.05 for the analysis. Hence, if p value of predictors < 0.05 those variables are more suitable to explain the dependent variable. Considering p value of the selected variables, monthly income or transfers receive, amount of sms/mms messages send per day, number of devices possess by the individuals and amount of family members were significant at 95% confidence level and 5% significance level. According to the p value of other factors, those were not significant at 5% significance level.

The Regression Equation of Rural Sector

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

Y=Telecommunication Expenditure

X1= Monthly income or transfers received (β_1)

X2= Amount of sms/mms messages sent per day (β_2)

X3= Number of family members (β_3)

X4= Number of devices possessed by the individual (β_4)

Interpretation of the Regression Result of Rural Sector

The regression equation

$$Y = 323.171 + 0.046X_1 + 10.609X_2 + 101.484X_3 + 121.774X_4$$

The regression equation shows the relationship between telecommunication expenditure and selected variables in rural sector. Using this equation the effects of socio economic factors can be easily understood. Without affecting any other variables the constant value represents the effects of telecommunication expenditure when other variables were constant. It was recorded as 323.171 rupees.

- + 0.046X₁ (Individuals' monthly income or transfers received)

There was a positive relationship between telecommunication expenditure and individuals' monthly income or transfers received. When income increase by one unit (rupees) then the telecommunication expenditure was increased by 0.046 units (rupees) assuming other factors remaining constant.

- +10.609X₂ (Amount of sms/mms messages sent per day)

According to the results of the analysis, Amount of sms/mms messages sent per day by individuals was positively related to telecommunication expenditure. It means when amount of sms/mms messages send per day was increased by 1 unit (sms/mms) the monthly telecommunication expenditure was increased by 10.609 units (rupees) per month.

- +101.484X₃ (Number of family members)

There was positive relationship between number of family members and telecommunication expenditure. When family members increase by 1 then the telecommunication expenditure increased by 101.484 units (rupees) per month assuming other factors remain constant.

- +121.774X₄ (Number of devices possessed by the individual)

The number of devices possessed by individuals is also a very important factor to determine telecommunication expenditure. According to the regression coefficient value, there was a positive relationship between these two variables. When the number of devices possessed by the individuals increased by 1 unit, the

telecommunication expenditure was increased by 121.774 units (rupees) per month assuming other factors remaining constant.

Determinants of Personal Telecommunication Expenditure of Rural Youth

According to the rural sector regression, following factors affected rural sector telecommunication expenditure pattern to a greater extent than others.

- Monthly income or transfers receive
- Amount of sms/mms messages send per day
- Number of devices possess by youth individuals
- Amount of family members

Considering these factors the type of most-used mobile device and the type of the default mobile connectivity were not highly impactful on changing rural telecommunication expenditure pattern. Number of devices possessed by youth, amount of sms/mms messages sent per day and number of family members affected rural youth in changing their telecommunication expenditure.

Conclusion

The main objective of this study was to find out the determinants of personal telecommunication expenditure of rural youth.

- According to the results monthly income or transfers received is a significant factor in changing the telecommunication expenditure of youth in the sector.
- Mobile internet access and mobile communication were identified as leading methods of connectivity among rural youth.
- There was not much of a difference in expenditure patterns between pre- and postpaid subscribers.

Recommendations

Telecommunication expenditure of rural youth in Sri Lanka is somewhat satisfactory. Therefore the Government should pay attention to help rural youth to gain maximum benefit from spending. The main problem is the lack of Government policies related to rural youth behavior. Therefore implementation of Government policies related to rural youth telecommunication is essential for Sri Lanka. Most of the rural young lack knowledge about meaningful usage of the internet and affiliated services. They prefer mobile internet, mobile communication and mobile exchanges. Therefore, the government should implement programs to improve their knowledge and efficiency in mobile telecommunication.

There are some problems related to infrastructure and accessibility of telecommunication services as identified during this study. Considering the rural sector, most young individuals face some problems relating to the lack of high speed data access. Therefore, the Government has to implement proper telecommunication related infrastructure to facilitate high speed data access without any gap among urban, rural and estate sectors. Research and policy interventions are needed to address the problem of low levels of access and connectivity in rural sector and low income youth individuals. These could include education on quality internet services and improving young individuals' knowledge, and providing some kind of incentives for telecommunication related activities. It is very important for policymakers to understand the patterns of youth telecommunication expenditure before implementing such policies.

Keywords: Youth Telecommunication Expenditure; Determinants of Rural Youth Telecommunication; Telecommunication Expenses; Rural Youth Expenditure

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