YANGON UNIVERSITY OF ECONOMICS

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FACTORS INFLUENCING CONSUMERS' CHOICE OF

MOBILE TELECOM SERVICE PROVIDERS

TUN AUNG NAING

MARCH, 2020

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ABSTRACT

This study investigated the factors influencing consumers' choice of mobile telecom service providers in Yangon city from demographic, social, economic and service factors. Three-stage sampling method was employed to collect the primary data. In the first phase, 13 out of 34 townships designated by the Yangon City Development Committee were randomly selected. As the second phase, 23 out of 40 large mobile phone selling shops were selected using simple random sampling method. The third phase was to use a systematic sampling method to survey 385 individual mobile telecom customers shopping at the selected shops in Yangon. Descriptive and multinomial logistic regression analysis were used in this study. The results were found out that most of the respondents used more than one mobile telecom service providers. MPT was regarded as the top applied telecom service provider followed by Telenor, then Ooredoo and the least one was Mytel. Most of the respondents who are aged from 25 to 34 years chose MPT and Ooredoo service providers. Moreover, it was found out that the users aged between 18 and 24 years chose Telenor and Mytel service providers. Multinomial logistics regression analysis was utilized to find out the factors influencing the choice of mobile telecom service providers. The results revealed that demographic factors such as respondent's age, social factors namely workmates and business associates, family and relatives, economic factors such as type of occupation, low data rate and service factors such as fast data services, wide geographical network coverage, providing more data and better data quality are statistically significant on the choice of mobile telecom service providers. This study also found that factors in which demographic, social and economic, service efficiency and effectiveness can significantly influence consumer choice of mobile telecom service providers in Yangon.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

CDMA	Code Division Multiple Access
CI	Confidence Interval
df	Degrees of Freedom
FDI	Foreign Direct Investment
GSM	Global System for Mobile communications
HH	Household
MAS	Master of Applied Statistics
MLR	Multinomial Logistic Regression
MMK	Myanmar Kyat Currency
MPT	Myanmar Post and Telecommunications
Mytel	Myanmar National Tele & Communications
OLS	Ordinary Least Square
RRR	Relative Risk Ratio
SIM	Subscriber Identification Module
SMS	Short Message Service
SPSS	Statistical Package for Social Sciences
WCDMA	Wideband Code Division Multiple Access

CHAPTER I
INTRODUCTION

1.1 Rationale of the Study

In recent day, cellular mobile is a very necessary product for daily communication. Consumers mainly purchase this product for instant communication and various services provided by the companies. Services mainly depend on some factors and consumers always try to buy that product which has many factors or attributes fulfilling their desire. Recently the concept of consumer satisfaction has received much attention.

In the cellular mobile market, consumers bring higher expectations for communication from its service providers and if companies are not able to meet these expectations, the consumers will take their business elsewhere. The consumers' wants and expectations are altering all the time, this directs to a condition where consumers create ever higher benchmarks. Applying consumer satisfaction approach means recognizing consumers, and then finding their wants and expectations, and to end with their perceptions. A company's most important success factor is the ability to deliver better consumer value than competitors do, and the objective of this strategy is to deliver value to the consumers in order to provide required returns to the shareholders and employees.

Service providers try to provide innovative service offerings in the hope that consumers perceive their services as superior and leading in the mobile telecommunication service sector. In order to attract new subscribers and as well to retain the current consumers, mobile telecom service providers need to understand the relationship between consumer services and satisfaction/loyalty so that steps can be undertaken to keep these consumers. Consumer-oriented marketing technique may help marketers to attain consumers, retain consumers, and maximize consumer profitability and at last, build the loyalty of consumers. The competition is getting sharper. In order to obtain a sustainable competitive advantage, telecommunication firms are forced to make innovation and do the best for consumer satisfaction. Due to this, consumer relationship marketing plays an important role in the telecommunication industry.

Previously, Myanmar Post and Telecommunication (MPT) had a monopoly in the country. MPT has been a state-owned company running for more than 100 years in the country. A decade ago, who would have thought in Myanmar that telephone network would change in Myanmar drastically, but thanks to the privatization of the mobile network after the country

opens its economy. A decade ago, a mobile connection would cost a fortune, and owning one was a status symbol because of its hefty price tag.

Mobile phone penetration practically depended on the cost of and availability of SIM cards. In the 1990s, a mobile phone license costs about US seven thousand dollars. Five years ago, the license was around US $2,000s to buy a postpaid SIM card. The price declined over the years, but it was still high. In the early 2000s, those requiring a mobile phone needed to apply for one in a lottery, and only a small number of users were selected. In 2012, MPT reduced the price of SIM cards from around US $500 to US $250. Three hundred and fifty thousand cards were distributed every month throughout Myanmar by MECTel (a company owned by Myanmar Economic Corporation and MPT). In April 2013, MPT was declared the new CDMA SIM cards and WCDMA SIM cards networks would be sold-out at a cost of only 1,500 kyats (US $2). They were distributed to the public through a lottery scheme at the township level.

Another barrier to mobile phone use has been the country's poor telecommunications infrastructure. In June 2013, the government issued the first foreign mobile operating licenses to Norwegian multinational telecommunication companies, Telenor, and Qatar owned international telecommunication company, Ooredoo. These two companies will develop the country's telecommunications infrastructure during 2014 and 2015 which will rapidly increase the number of people using mobile phones in the country. It was expected that there will be 80% mobile penetration by the end of 2015. In 2018, Vietnam's Mytel (Myanmar National Tele & Communications). Although Mytel last entered the Myanmar telecommunications market, it has grown rapidly at a lower price and in competition with other telecom operators, in addition because of the growth of the country's infrastructure. The Government has given license to 3 private companies Ooredoo, Telenor and Mytel.

Since Telenor and Ooredoo's entry in 2014, invested over the US $2000 million within the Myanmar mobile telecommunication market. Likewise, MPT has promised to invest the US $2000 million and collaborate with KDDI Corporation from Japan and Sumitomo Corporation throughout the time of 10 years to make sure outstanding telecommunication services. Mytel is a joint venture of a local consortium consists of 11 private firms and Vietnam's Viettel. Formation of Mytel Company, Viettel contributes 49 percent stake in the joint venture while the Myanmar consortium (comprising of 11 companies) has a 23 percent stake. The government-owned Start High Public Co., Ltd will hold a 28 percent stake in this joint venture.

The telecommunication sector has been booming since the liberalization in 2012-13 fiscal year and is likely to do so in the near future. As the telecommunication sector has attracted the second-largest amount of foreign direct investment (FDI) after oil and gas, the contribution of the telecommunication sector to GDP has increased rapidly year by year.

According to the Directorate of Telecommunications in 2017, the Myanmar Post and Telecommunications (MPT) has sold 23.18 million SIM cards, Telenor has sold 18.8 million and the Ooredoo has sold 8.11 million SIM cards. Therefore, the percent of mobile phone penetration becomes higher, but this number likely does not reflect the real penetration rate as many users own more than one SIM card, so the real penetration rate would be 79.5% in 2016-17 Fiscal Year. The 2018-19 National Planning Bill projects the Myanmar telecommunication industry to grow by 15 percent in the next fiscal year (October 1, 2018 to September 30, 2019).

Telecommunication market in Myanmar, the majority of mobile phones use a Global System for Mobile communications (GSM) type of SIM card, which is provided by two foreign operators Ooredoo and Telenor and local MPT. Local service providers (MPT and MEC Tel) also use the CDMA system. In fiscal year 2016-17, the leading operator was MPT, followed by Telenor, Ooredoo and MEC Tel.

After 2014, the cheaper cost of mobile SIM cards and the availability of mobile internet has triggered a dramatic increase of internet users. There are approximately 27.7 million internet users (including mobile users) in 2016-17 fiscal year in Myanmar. About 99% of internet subscribers use mobile internet services, and the rest is broad band internet service users. Yangon and Mandalay have the biggest market share of internet users. More than one-quarter of the population in Myanmar uses the internet every day. In 2013, the government allowed foreign investors to bid for two out of four mobile telecommunications licenses. After that, Norwegian multinational telecommunication company, Telenor, and Qatar owned international telecommunication company, Ooredoo, started operations in 2014. Internet connection bandwidth is a key factor for providing high-speed internet access to an increasing number of users, and it has dramatically increased in 6 years (from 2011 to 2017). It was increased from 3.92 Gbps to 200 Gbps. It was due to the technologies brought by new operators (Ooredoo and Telenor) and increasing competition in the internet services market.

Myanmar has reached an important point in its technological evolution, and data providers are desirous to invest in a sector that continues to rapidly expand. One of the most rapid growing market in the world is Myanmar telecommunication sector. While the cost for internet services, mobile data and phone bills are quite expensive, the arrival of new operators

like Mytel, and new internet service providers, Ananda and Myanmar Net is likely to trigger a new round of price cuts with efficient services. Hence, customers will benefit from better coverage and lower prices in the near future.

Nowadays, Myanmar telecommunication sector becomes a more competitive market. The choice of the mobile telecom service provider is influenced by various factors. It is very important that Myanmar mobile telecom service providers gain a better understanding of the relationship between demographic, socio-economic and service efficiency and effectiveness perceptions. Therefore, this study aims to investigate the factors influencing consumer's choice of mobile telecom service providers in Yangon city from demographic, social, economic and service factors.

1.2 Objectives of the Study

The objectives are:
- To survey the socioeconomic and demographic situation of mobile telecom service users in Yangon.
- To explore the influencing factors of the consumer's choice on mobile telecom service providers.

1.3 Method of Study

Demographic and socio-economic characteristics of mobile telecom service users in Yangon explored the data using descriptive statistics. Moreover, Multinomial Logistic Regression analysis was used to analyze the factors influencing consumers' choice of mobile telecom service provider.

1.4 Scope and Limitations of the Study

In this study, survey data is collected from the primary source. The required information is obtained from individual users of mobile telecom service providers of selected areas by conducting a sample survey. The study focused on mobile telecom service users permanently living in Yangon city which is one of the key business center of Myanmar and conjointly has the largest market share and population. Three-stage sampling method was used in this study. In the first phase, 13 out of 34 townships designated by the Yangon City Development Committee were randomly selected. As the second phase, 23 out of 40 large mobile phone

selling shops were selected using simple random sampling method. The sample survey for this study was conducted only on customers at the large mobile phone shops. Shop's size classification was based on monthly sales data. In doing so, shops whose monthly sales are kyats 300 lakhs and over are defined as large shops. In the third stage, the systematic sampling technique was used to choose the customers who are shopping in the selected shops.

1.5 Organization of the Study

There are five chapters in this study. Chapter I has introduced the study that consisted of the rationale, objectives, method, scope and limitations, and organization of the study. Chapter II represented overview of mobile telecom service relating to factors associated with mobile telecom service provider use and conceptual framework. The research methodology was shown in Chapter III. Chapter IV concerned with empirical analysis of the consumer's choice of mobile telecom service provider. Finally, Chapter V presented the study's conclusions.

CHAPTER II
OVERVIEW OF MOBILE TELECOM SERVICE

This chapter discussed the review of literature on consumer behavior in general and then specifically on the subject matter of this research. The chapter is split into sections in line with the analysis objectives and applies to all the variables known which has demographic factors, social factors, economic factors, and effects of service efficiency and effectiveness related factors and choice of mobile telecom service providers.

2.1 Overview of Consumer Choice Behavior

Understanding the consumers' behavior is the basic for marketing strategy formulation. Better insight into consumers' behave patterns associated with the choice of mobile telecommunication service providers is important to make sure victorious take-up within the market. Consumer purchasing behavior mentions the actions a person takes in purchasing and using products and services, and also for some actions which is related to the mental and social processes. Marketers realize it helpful to classify a consumer in respect of age, gender, education, occupation, or income that are a number of the descriptive analysis of a population or demographics. Alternative cases they would prefer to understand are something concerning interests, such as music, fashion, movie or the method a consumer spends time off or the psychographics features that refer to someone's personality and life-style. It is regarded that an organization considers it necessary to examine consumer behavior in order to create a way to satisfy consumers, therefore the need to analyze the what, where, when and how consumers buy. That is why, consumers' response to marketing strategies can better be predicted by the marketers and vice versa, consumers' reaction to this strategy determines the organization success or failure.

According to Clow and Baack (2004), consumers engage in information search before making choice. It is meant that consumer taking decision process is usually taken into consideration already made preferences for a distinct alternate. They also mentioned the five stages of the buying process; problem/need recognition, search for information, evaluation of alternatives, conversion, and post-purchase behavior. Understanding consumer characteristics do a particularly vital role in various marketing applying, for instance, specify the market for a product or defining the proper techniques to apply when focused on an assured group of consumers. Various factors affect consumers buying decision process. Schwartz 1981: 86 and

Staff 1997 said that individual factors such as lifestyle, attitudes, beliefs, values, learning, perception, personality, and motivation affect the process and social factors that support the process are personal impact, family impact and social stratum. For example, the consumers' buying behavior of the same social class are alike to each other due to they have similar lifestyles, their learning, perception and motivation are close to each other.

2.2 Demographic Factors of Consumers and Choice of Mobile Telecom Service Provider

Demographics defined by Wikipedia are statistics that measure the observable point of view of a population like rate of birth, age distribution, level of education, or income. The changes indicated in the studies of demographics are of splendid interest to policymakers and marketers, the data can be utilized to locate and forecast the market size for various products. By dividing the demographics, one can define the statistical characteristics which put the customers apart. The segment of demographic is important for all businesses to determine the target consumers based on its factors such as age, gender, level of education and occupation, income and marital status background. Different age groups have different needs and want. A better understanding of the ageing process of consumers will continue to be of a great importance to marketers as well as public policy decision makers. Demographic factors influence on the consumer decisions. Each person has personality characteristics that influence their buying behavior and they choose a mobile telecom service provider that reflect their personality and accommodate their beliefs (Ofwona, 2007). Therefore, the personality characteristics is required to understand in order to provide services that are relevant to the subscriber and also subscriber can identify with.

A consumer purchasing power is the most fundamental factor which determines whether to engage in any purchase of a product or service or not. The purchasing power is determined by the level of the occupation and income of an individual. The income of consumers is a fundamental determinant of their needs and wants. Therefore, it is required to understand the income and consumer spending patterns for the industry players. The service providers have lowered the voice calling rate and rolled out new products. It is crucial for the industry to establish whether these changes have any effect to the subscriber, especially new subscribers (Ofwona, 2007). It is believed that an educated person is able to easily change to new ways of doing things and can easily use new technology. There is a relationship between mobile phone usage and educational level.

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2.3 Social Related Factors and Choice of Mobile Telecom Service Provider

The behavior of consumers is influenced by social factors like social parts, social class, reference groups, and families. Kotler and Keller, 2006, reference groups of a person include all groups that have a direct and indirect impact on consumer's buying behavior. Marketers of products and services that influence group is powerful, should decide how to reach and affect leaders' opinions in these reference groups. In society, the family is the most critical consumer purchasing group. The family might have a lot of impact on the choice of telecom service provider because of calling habits and cost (Ofwona, 2007). Individual choice is heavily affected by the choices of others in the same household. There is some evidence that individual choice of operator is influenced by the total number of subscribers for each mobile telecom operator, but a much stronger effect is the operator's choice of other household members.

Purchase decisions have influenced by friends' opinions. People generally select a product providing a place or a service or buy a specific idea as a result of they like its impression, or they sense its personality in some way represents their own. Lifestyle may be a basic motivator that impacts needs and behavior and consequently decisions of purchases and uses. Hence lifestyle impacts in selecting a particular mobile telecom service provider. More product information, in addition to advice to use or evade specific brands, is collected in conversations with actual people, instead of by means of advertising messages. (Solomon et al., 2010).

Buying behavior, consumption of products and services are different based on the different social classes that are seeming to reply differently, to a product style and options further as its marketing programs. In general, people with the same standard of living are roughly the same as regards their social status, and incomes. People work in the same workplace, and their attitudes toward products and services are roughly the same. The particular product and service sellers are usually meant to sure certain people recognize what consumers would like to be. Recommendations by relatives and friends assist consumers in the preliminary examination of obtainable products but not the real purchase (Gitari 2006). This study can observe whether or not friends and family truly build one to take with a particular mobile telecom service provider.

2.4 Economic Related Factors and Choice of Mobile Telecom Service Provider

The provider cost, competition and value to other consumer are the key factors for foundation underlying pricing strategy. The cost that a business must regain usually exploits a minimum (floor) price, for a certain service providing, and the perceived value of customer of the offering place a maximum (ceiling) price. For the same services, the price imposed by the competitors, in general, specifies where between the floor and ceiling, the price can be placed. The price intents are associated with profits, demand, and progress a base of users.

Price value is the source of every consumer purchase transaction. In economic terms, price equates to the level of consumer sacrifice. The amount of money consumer is prepared to sacrifice to get a particular service is directly related to their perception of the value of the service offers. Price or cost of a product is one of the three generic marketing strategies (the other two are differentiation strategy and focus strategy) advanced by Michael Porter. Under this generic strategy a firm can propose a product at a low price in order to stimulate demand and gain market share. It is usually used where the product has few or no competitive advantage or where economies of scale are accomplishable with higher production volumes. The three generic strategies provide direction for firms in designing incentive systems, control procedures, and organizational arrangements.

Consumers normally relate high prices with top-quality products, and also there are challenges related to low cost, so the challenge of low price is to satisfy consumers that they shouldn't equal price with quality rather than feeling they are getting good value. If a firm price is just too not up to the competition, it'll expertise a better customer base, which means it'll be needed to take a position a lot of in extension so as to not lose the good worth of customer who doesn't mind paying a lot of however obtaining quality service.

2.5 Efficiency Related Factors and Choice of Mobile Telecom Service Provider

Service quality is essential and important as there is relation to the customer satisfactions, loyalty and leads to future purchase. For a mobile telecom service provider in establishing and maintaining loyal and profitable customer. Access to services is an essential part of the sales process. There are three levels of distribution coverage which can influence individual choice of service provider. Quality of a product is another factor considered while comparing mobile telecom service provider's service efficiency and effectiveness. Quality is at the heart of what customer buys and therefore a bottom-line measure of the influence of

brand identity. Customer satisfactions on quality of service is one of the important factors for a company.

By expanding along the value-added services chain, Mobile telecom service providers can capture an increasing share of the industry value. In particular, Mobile telecom service providers must increasingly control the content supplied over their networks. If they can act as the gatekeepers to mobile customers, they can extract a substantial percentage of all content revenues. However, if Mobile telecom service providers ignore consumer preferences or fail to make use of partners' expertise in content development, they will not generate revenues but only create apathy for their services amongst consumers.

The challenge is on the mobile telecom service providers to balance between the cost of their service and the quality of the service offered. Voice revenue will remain as the main revenue earner. Data revenue for mobile services is anticipated to increasingly be from non-SMS or messaging orientation to web based applications such as entertainment (music and video download, video on demand, and games); consumer centric financial services such as mobile payments and mobile wallets; and e-Education. Some traditionally services, non-teleco-based services are facilitated to succeed in new business models. The accessibility of higher speed delivery; and increased storage capacities also have impact. Other developments impacting mobile telecommunication services worldwide are development on standards, security, devices or handsets, enhancement of the mobile network and convergence to provide their customer the mobile telecom services they are willing to pay for.

In previous studies it has indicated that service efficiency and effectiveness as being the second factor from price or cost of the mobile telecommunication services, that influences a consumer in choosing a mobile telecom service providers. Ofwona (2007), established that the cost of the service offered such as calls and SMS, the provider country network coverage, other people, (Family members, workmates and friends) choice of telecom service providers, clarity in communication and courtesy of the customer care personnel were the factors identified in that order of importance in choosing a mobile telecom service providers. This is collaborated by another investigation done in Finland on consumer behavior in mobile phone markets which found out that, price, connectivity and value-added packages were among the chosen criteria when it came to choosing the appropriate mobile telecom service providers. The influencing factor to their choice was based on family, friends (word of mouth) and self-search (Pakola et al, n.d).With the current price which has actually flattened - there is no price differentiation- the industry need to know whether customer behavior and preference has changed and may be service efficiency and effectiveness is now considered as the most important factor over price.

2.6 Conceptual Framework of the Study

　　　The conceptual framework of this study is presented in Figure (2.1). The independent variables considered for this study are; demographic, social, economic, service efficiency and effectiveness factors. The dependent variable analyzed in this study is named of the main mobile telecom service providers chosen by consumers.

Independent Variables

Demographic Factors
• Gender • Age

Social Factors
• Workmates and business associates • Family and relatives • Friends and social groups

Dependent Variable

Economic Factors
• Type of occupation • Low data rate • Low calling and SMS rate

• Mobile Telecom Service Providers

Service Efficiency and Effectiveness Factors
• Clear and uncongested network • Fast data services • No bill deduction error • Attractive promotion • Trusted company • Catchy advertisement • Better data quality • Discount and special offer price • Wide geographical network coverage • Provides more data

Figure 2.1: Figure: Conceptual framework of the study

Source: Adopted from Venkatesh et al. (2003)

CHAPTER III
RESEARCH METHODOLOGY

This chapter describes a detailed presentation of methodology and procedures which have been study the key factors for decision of choice on mobile telecom service providers.

3.1 Sampling Design

In this study, three-stage sampling design was used to analyse the factors influencing consumer's choice of mobile telecom service providers. Townships were classified as the first phase, shops were classified as the second phase and respondents were classified as the third phase. In the first phase, 13 out of 34 townships designated by the Yangon City Development Committee were randomly selected. As the second phase, 23 out of 40 large mobile phone selling shops (based on the mobile phone selling shop census information available from the ICE Services Co., Ltd.) were selected using simple random sampling method. When it comes to differentiating the mobile phone selling shop's size, it is depending on the monthly sale volume. In doing so, shops whose monthly sales are kyats 300 lakhs and over are defined as large shops. The third phase was to use a systematic sampling method to survey 385 individual mobile telecom customers shopping at the selected shops in Yangon. Thus, every fifth customer who visits in the selected shop between 10:00 AM and 5:00 PM was surveyed.

Sample Size Determination

Sample Size for Shops

The sample size for shops was calculated by using Taro Yamane (Yamane, 1973) formula. The population based on the information available from the ICE Services Co., Ltd. The calculation formula is presented:

$$n \geq \frac{N}{1 + N(e^2)}$$

where n= size of sample

N= size of population (Number of large mobile phone shops) = 40

e= acceptable error (15%)

Substitute numbers in formula:

$$n \geq \frac{40}{1 + 40(0.15^2)}$$

$$\geq 21.05$$

The required sample size is at least 22 shops. In this study, 23 shops were selected by simple random sampling.

Sample size for respondents

The required sample size for respondents was calculated using the following formula.

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

where,

n = sample size

$n_0 = \frac{z^2 pq}{e^2}$ = approximation of n

N = population size

z = 1.96 (95% confidence)

e = desired level of precision = 0.048

p = percentage of customers who visited the mobile specialist shop = maximum possible proportion = 0.5

q = 1-p

The resulting sample size is:

$$n_0 \geq \frac{(1.96)^2 (0.5)(0.5)}{(0.048)^2} = 416.84 \approx 417$$

The sample size $n \geq \dfrac{n_0}{1 + \dfrac{(n_0 - 1)}{N}}$

$$n \geq \frac{417}{1 + \frac{(417 - 1)}{4220}}$$

$$\geq 379.58 \approx 380$$

The required sample was at least 380 customers, but 385 customers were selected by systematic sampling method for this study. The sample shops and respondents in each township are presented in Table (3.1).

Table (3.1) Sample Size for Each Shop

Township	Large Shop	Average Monthly Customer	Sample customer
Kamaryut	4	905	83
Sanchaung	2	622	57
Latha	4	585	53
North Okkalapa	2	425	39
Mayangone	2	364	33
Kyauktada	2	320	29
Hlaing	1	215	20
Bahan	1	182	17
Insein	1	155	14
Kyeemyindaing	1	120	11
Botahtaung	1	112	10
Pabedan	1	110	10
Yankin	1	105	10
Total	**23**	**4220**	**385**

Source: ICE Services Co., Ltd.

This study chose the customers who are shopping in the selected shops by using the systematic sampling technique. Thus, every fifth customer who visits in the selected shop was surveyed. This study was approached customers who come into the shop between 10:00 AM and 5:00 PM.

Questionnaire Design

In this study, questionnaire is designed by three parts. The primary information about socio-economic characteristics and demographic characteristics of the respondents was presented in the first part of questionnaire. The second part consisted of some questions regarding the practices of usage and awareness of choice of mobile telecom service providers. The third part included questions concerned with mobile telecom service provider related factors of demographic factors, social factors, economic factors, service efficiency and effectiveness factors.

3.2 Data Analysis

The data accumulated the primary sources in this study. In order to analyze the collected data, SPSS version 22 and Microsoft Excel were used. These tools were used for the calculation of the data collected from the field. Data analysis was classified as Descriptive and Inferential analysis. The result from SPSS is copied to Excel Worksheet, where it is refined and made interpretable. Necessary charts, graphs, and tables have also been derived using Microsoft Excel.

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3.2.1 Multinomial Logistic Regression Model

The regression analysis was used when the number of dependent variable categories are two, multinomial logistic regression was employed when dependent variables involve three or more categories. The dependent variables of the multinomial logistic regression model are more than two and non-ordered categories that have nominal properties and exhibit the multinomial distribution is an expansion of the binomial logistic distribution for the category. A multinomial logistic regression with a dependent variable that has a category must have "J-1" logistic regression models. The probability of a dependent variable to be in the nth category in a multinomial logistic regression model is expressed as given in Equation (3-1).

$$\pi_j = \frac{\exp(\sum_{k=1}^{K} \beta_{jk} x_k)}{1 + \sum_{j=1}^{J-1} (\sum_{k=1}^{K} \beta_{jk} x_k)} \quad j = 1,2,..., J-1 \qquad (3 - 1)$$

It is possible to write this definition in Equation (3-2)

$$\pi_j = \frac{1}{1 + \sum_{j=1}^{J-1} \exp - (\sum_{k=1}^{K} \beta_{jk} x_k)} \qquad (3 - 2)$$

The subscript k in beta coefficient in Equation (3-2) denotes the dependent variable, the subscript j is used to denote the dependent variable category. The sum of probabilities of categories that possess the dependent variable should be "1" as in binary.

In models with dependent variables that have more than two categories, a baseline category should be determined in order to make comparisons or analyses. For example, the baseline category can be selected as 0 for a dependent variable that contains of 0, 1, 2, and 3 categories. Hence, in comparison, three different logistic models are obtained that comprises 0 and 1, 0 and 2, 0, and 3. Therefore, for a model, the dependent variable of which has four categories, three odds ratios are calculated, each category is compared with these ratios, and the model is linearized by taking the natural logarithms of those odds ratios to get logistic models. If J is selected as the baseline category, the probability of the dependent variable to lie within the baseline category is defined as given in Equation (3-3).

$$\pi_j = P(y = J) = \frac{1}{1 + \sum_{j=1}^{J-1} exp\left[(\sum_{k=1}^{K} \beta_{jk} x_k)\right]} \quad j = 1,2,…, J-1 \qquad (3 - 3)$$

Furthermore, the probability to lie within the baseline category can be computed with the help of other probabilities as given in Equation (3-4), if the other probabilities are known.

$$\pi_j = P(y = J) = 1 - [P(y = 1) + P(y = 2) + ... + P(y = J - 1)] \qquad (3 - 4)$$

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In a multinomial logistic regression model, the logit transformation is obtained by taking the logarithms of the odds ratios after selecting the baseline category. For the four category example, when 0 is selected as the baseline category, the logarithms of odds ratios can be obtained as given in Equation (3-5), Equation (3-6), and Equation (3-7).

$$\ln \left[\frac{P(y=1/x_1)}{P(y=0/x_1)}\right] = \beta_1 + \beta_{11} x_1 \qquad (3 - 5)$$

$$\ln \left[\frac{P(y=1/x_2)}{P(y=0/x_1)}\right] = \beta_2 + \beta_{21} x_1 \qquad (3 - 6)$$

$$\ln \left[\frac{P(y=1/x_3)}{P(y=0/x_1)}\right] = \beta_3 + \beta_{31} x_1 \qquad (3 - 7)$$

As it is seen, the baseline category is taken as "$y = 0$" in all three odds ratios. The notation of the model can be generalized as in Equation (3-8) with all these given.

$$\ln[\pi_j/\pi_J] = \ln \left[\frac{P(y=j)}{P(y=J)}\right] = \ln \left[exp(\sum_{k=1}^{K} \beta_{jk} x_k)\right]$$

$$\ln[\pi_j/\pi_J] = \ln \left[\frac{P(y=j)}{P(y=J)}\right] = (\sum_{k=1}^{K} \beta_{jk} x_k) \quad j = 1,\dots, J - 1 \qquad (3 - 8)$$

As Equation (3-8) indicates, multinomial logistic regression model can be transformed into binary logit model for $J = 2$.

3.2.2 Some Measures of Goodness-of-Fit

After selecting a preliminary model, there is a need to assess the significance of the variables with regards to predicting the response variable. Two tests can be used to check Pearson chi-square test for goodness-of-fit and likelihood ratio test. Both are chi-square methods, the Pearson statistic is based on traditional chi-square, and the likelihood ratio test statistic is based on the likelihood ratio chi-square. The likelihood ratio test is favored over the Pearson. Either test is most well-liked over classification tables when assessing model fit. Both tests usually yield the same substantive outcomes, Garson (2009).

Pearson Chi-Square Test

Karl Pearson developed the goodness-of-fit to determine whether observed distributions of frequency data fitted a theoretical distribution. By estimating the cell frequencies one would expect to observe under some theoretical distribution, one could compare the particular frequencies and calculate the difference. The smaller difference is the better the fit. Using the test statistic and degree of freedom, it can estimate the significant value. The assumptions underlying the test is the data which must be treated categorically. It must be

mutually exclusive, none of the expected values may be less than 1, and no more than 20% of expected values may be less than 5, each observation is independent of each alternative observation, Salkind (2007).

Wald Test

Wald test is used to test the statistical significance of each coefficient (i.e. β's) in the logit regression model. Wald statistic follows a chi-square distribution. However, many authors have identified problems with the use of the Wald statistic. Menard (1995) has warned that for large coefficients, standard error is inflated, lowering the Wald statistic (chi-square) value. Agresti (1996) has stated that the likelihood-ratio test is more reliable for smaller sample sizes than the Wald test.

The test statistic is

$$W = \left[\frac{\hat{\beta}_i}{S.E\ (\hat{\beta}_i)} \right]^2 \qquad\qquad (3 - 9)$$

The Likelihood Ratio Test

In order to confirm the appropriateness of the whole model created with the use of the Multinomial Logistic Regression method, the likelihood ratio chi-square test must be performed. Test statistics are based on the difference of logarithms of the likelihood function of the reduced model with intercept only (L_0) and the fitted final model (L_1), in which p = K. (J-1) parameters are considered:

$$LR = -2(\ln L_0 - \ln L_1) \sim \chi_P^2 \qquad\qquad (3 - 10)$$

3.2.3 Strength of Multinomial Logistic Regression Relationship

Once the relationship is significant, the next step is to establish the strength of multinomial logistic regression relationship, multinomial logistic regression does compute a correlation measure to estimate the strength of the relationship (pseudo R-square measures, such as Nagelkerke's R-Square). Cox and Snell R-Square and therefore the Nagelkerke R-Square value which provide an indication of the number of variation in the dependent variable.

Pseudo R-Square

There are three pseudo R-square values can be calculated for logistic regression. When deciding which pseudo-R^2 to employ, the study must first decide for what purpose the pseudo-R^2 measure can be used. This study interested in explaining variance, the most common application of R^2 in linear regression, can be inclined to use one of the pseudo-R^2 measures proposed by McKelvery and Zavoina (1975), Aldrich and Nelson (1984), or Dhrymes (1986).

McKelvery and Zavoina proposed what is perhaps the most commonly employed pseudo-R^2. The estimated probit and logit coefficients can be used to calculate explained variance by computing the variance of the forecasted values for the latent dependent variable. This is denoted as var($\hat{y}_i$). The disturbances have unit variance. Total variance then reduces to explain variance plus one, and the McKelvery-Zavoina pseudo-R^2 (1975,111-12) then becomes

$$R^2 = \frac{\text{var}(\hat{y}_i)}{1 + \text{var}(\hat{y}_i)}$$

The Aldrich-Nelson (1984, 1986) and Dhrymes (1986) pseudo-R^2 employ log-likelihood ratios based on two passes through the data. The first pass generates the likelihood value for the null model (i.e., with and intercept only). The likelihood value of the null hypothesis is commonly denoted as L_0. The second pass generates the likelihood value for the full model, commonly denoted as L_1. Once the logarithms of the likelihood values are generated, the calculation of the two pseudo-R^2s is straightforward. The Aldrich-Nelson measure (1984, 55) employs the familiar χ^2 statistic, -2LLR, defined as -2ln (L_0L_1) with k, the number of independent variables estimated (excluding the constant), decrease of freedom. The χ^2 statistic is often included as part of the output for probit and logit packages, even if no pseudo-R^2 is reported. The Aldrich-Nelson pseudo-R^2 is defined as:

$$R^2 = \frac{-2\ln(L_0/L_1)}{N - 2\ln(L_0/L_1)} \quad = \quad \frac{-2LLR}{N - 2LLR}$$

The Dhrymes measure (1986, 1585) is a straightforward application of the same two log-likelihood values described above, and is defined as:

$$R^2 = 1 - \frac{lnL_1}{lnL_0}$$

Achen contends that pseudo-R^2 statistics of the form presented above suffer from one defect. They are not acceptable test statistics (1979, 8). Achen argues that they cannot be used successfully to determine whether all of the coefficients or a subset of the coefficients in a model except for the intercept are statistically different from zero (cf. Aldrich and Nelson 1984,

59, equation 3,13). This is not as serious a failing as Achen, since the χ^2 statistic is the analog to the F-test in regression analysis (Aldrich and Nelson 1984,55-56). Achen (1979, 6) provides a definition for a pseudo-R^2 that gives asymptotically the same test as the χ^2 statistic. Achen's measure also has the advantage that the definition of explained variance refers to the dichotomous variable (labeled y_i by Achen), presumably the variable that is substantively interesting (1979, 7). With a dichotomous dependent variable, var(y_i) is defined as $p_i q_i$, where p_i is the probability that $y_i = 1$, and $q_i = (1-p_i)$. Using the probit coefficient the properties of the standard normal distribution, the Achen pseudo-R^2 is defined as:

$$R^2 = \frac{\frac{1}{n}\sum_{i=1}^{n}\frac{(\hat{p}_i-\bar{y})^2}{\hat{p}_i\hat{q}_i}}{1+\frac{1}{n}\sum_{i=1}^{n}\frac{(\hat{p}_i-\bar{y})^2}{\hat{p}_i\hat{q}_i}}$$

Cox and Snell R-Square

Cox and Snell's R-square as a transformation of the statistics of $-2\ln\left[\frac{L\left(M_{Intercept}\right)}{L(M_{Full})}\right]$ is used to determine the convergence of a logistic regression. The ratio of the likelihoods reflects the improvement of the full over the intercept model (the smaller the ratio, the greater the improvement). The Cox and Snell R-Square is

$$R^2 = 1- \left[\frac{L(M_{Intercept})}{L(M_{Full})}\right]^{2/N}$$

L(M) is the conditional probability of the response variable given the explanatory variables. If there are N observations in the dataset, then L(M) is the proof N such probabilities. Thus, gaining the nth root of the product L(M) provides an estimate of the likelihood of each Y value. Cox and Snell's pseudo R-Square has a maximum value that is not 1. If the full model predicts the outcome perfectly and has a likelihood of, Cox and Snell's R-Square will be (1-L($M_{Intercept}$)$^{2/N}$), which is less than one.

Nagelkerke R-Square

It adjusts Cox and Snell's so that the range of possible values extends to 1. To achieve this, the Cox and Snell R-Square is divided by its maximum possible value, 1-L($M_{intercept}$)$^{2/N}$.

$$R^2 = \frac{\left[\frac{L(M_{Intercept})}{L(M_{Full})}\right]^{2/N}}{1-L\left(M_{Intercept}\right)^{2/N}}$$

Then, if the full model perfectly predicts the outcome and has a likelihood of 1, Nagelkerke R-Square will equal one.

CHAPTER IV

ANALYSIS OF FACTORS INFLUENCING CONSUMERS' CHOICE OF MOBILE TELECOM SERVICE PROVIDERS

This chapter presents the results of the data analysis that sought to investigate the factors influence consumers' choice of mobile telecom service providers.

4.1 Characteristics of Respondents

This section provides demographic and socioeconomic characteristics of respondents such as gender, age, level of education, occupation, level of position and monthly household expenditure.

4.1.1 Gender of Respondents

The respondents by gender are shown in Table (4.1) and Figure (4.1).

Table (4.1) Gender of Respondents

Gender	Number of Respondents	Percent
Female	223	57.9
Male	162	42.1
Total	385	100.0

Source: Survey Data, 2019

According to the Table (4.1), the majority of respondents are female with 57.9% and male are only 42.1% of the respondents.
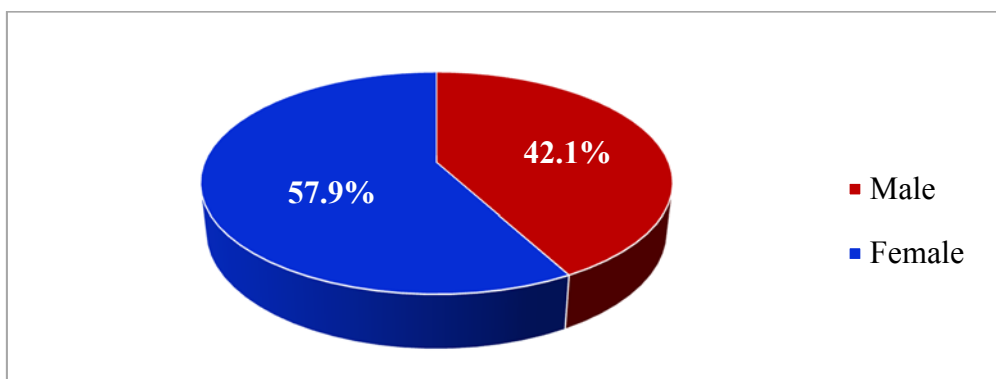
Figure (4.1) Gender of Respondents

Source: Table (4.1)

In Figure (4.1), it is found that percentage of female respondents are 16% more than male.

4.1.2 Age Group of Respondents

The respondents by age group are shown in Table (4.2) and Figure (4.2). The respondents are distributed into four groups.

Table (4.2) Age Group of Respondents

Age Group (Years)	Number of Respondents	Percent
18 - 24	109	28.3
25 - 34	140	36.4
35 - 44	94	24.4
45 and above	42	10.9
Total	385	100.0

Source: Survey Data, 2019

According to the Table (4.2), it is found that 64.7% of respondents are aged between 18 and 34 years, 24.4% of respondents are 35 to 44 years and only 10.9% of those who are 45 and above years.
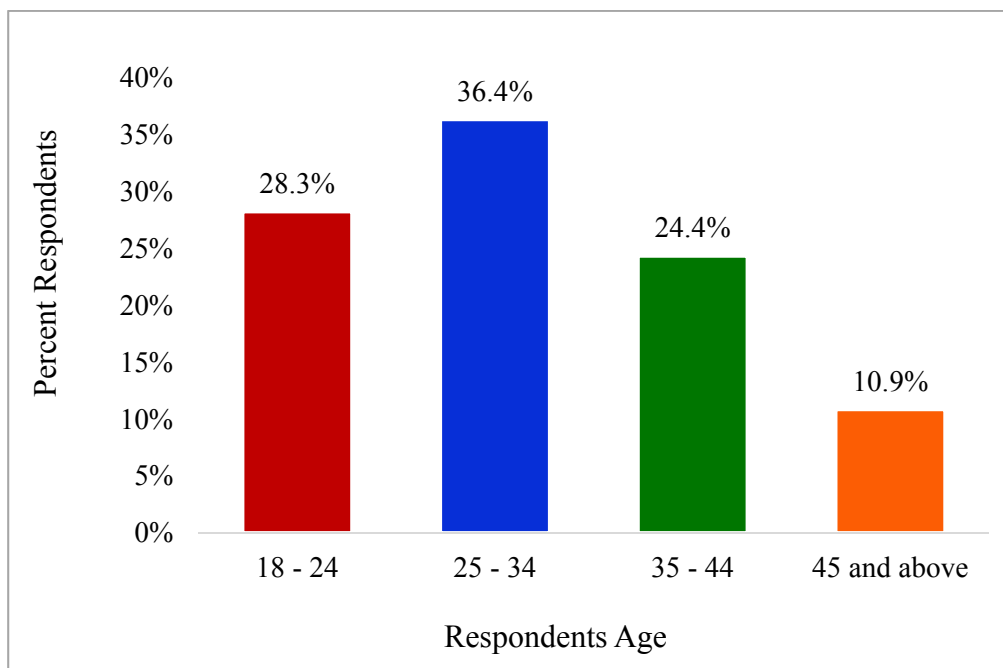
Figure (4.2) Age Group of Respondents

Source: Table (4.2)

In Figure (4.2), it has shown that the majority of the respondents are 25 to 34 years, the second largest of the respondents are 18 to 24 years whereas the smallest amount of respondents are 45 and above years.

4.1.3 Respondents by Education

The respondents by education level are shown in Table (4.3) and Figure (4.3).

Table (4.3) Respondents by Education

Education Level	Number of Respondents	Percent
Graduate	202	52.5
10 Standard Pass / University Student	68	17.7
High School	68	17.7
Post Graduate / Master / Ph.D	33	8.6
Secondary	14	3.6
Total	385	100.0

 Source: Survey Data, 2019

In Table (4.3), the graduate's level of respondents is exceeding half of the total respondents. The tenth standard passed/university student and high school level of respondents are the same percentage with 17.7%, only 3.6% of respondents have secondary level while 8.6% of those have post graduate/master /Ph.D.
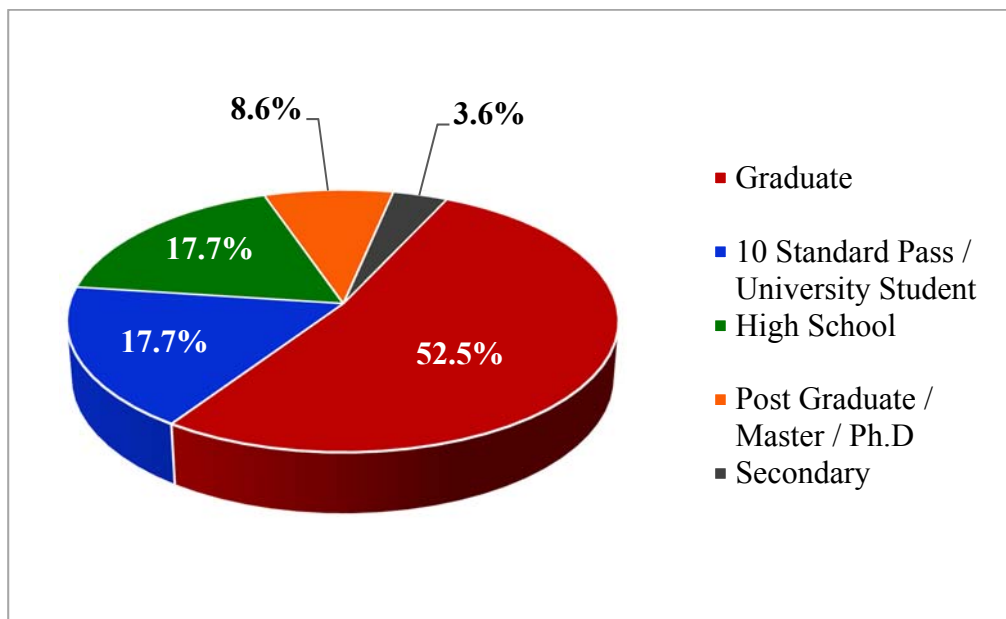
Figure (4.3) Respondents by Education

Source: Table (4.3)

The graduate-level of respondents is the largest portion as shown in Figure (4.3), the smallest respondents are post graduate/ Master/Ph.D. and secondary level of education.

4.1.4 Type of Occupation

Table (4.4) and Figure (4.4) show the type of occupation of respondents. The respondents are distributed into four groups that they are public sector, private sector, self-employed and unemployed.

Table (4.4) Type of Occupation

Type of Occupation	Number of Respondents	Percent
Private Sector	220	57.1
Self Employed	80	20.8
Unemployed	59	15.3
Public Sector	26	6.8
Total	385	100.0

Source: Survey Data, 2019

According to Table (4.4), the respondents of the private sector are over half (57.1%) of the total respondents, 20.8% of respondents are self-employed, 15.3% of respondents are unemployed and only 6.8% of respondents are public sector.
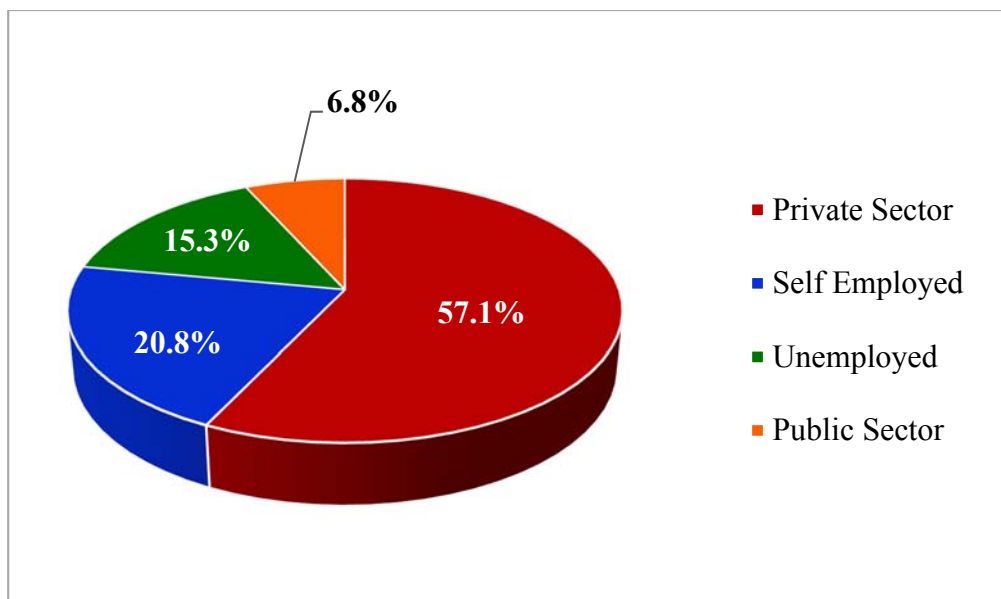
Figure (4.4) Type of Occupation

Source: Table (4.4)

Figure (4.4) shows that most respondents are employees of the private sector while the least respondents are employees of the public sector.

4.1.5 Occupational Status

The respondents by occupational status are shown in Table (4.5) and Figure (4.5).

Table (4.5) Occupational Status

Occupational Status	Number of Respondents	Percent
Senior Staff	84	21.8
Self Employed	80	20.8
Supervisory	68	17.7
Unemployed	59	15.3
Managerial	57	14.8
Entry	37	9.6
Total	385	100.0

Source: Survey Data, 2019

According to the Table (4.5), 14.8% of the respondents are of the Managerial level, 17.7% of Supervisory level, 21.8% of Senior Staff, 9.6% of Entry level, 20.8% of Self-Employed and Unemployed were 15.3%.
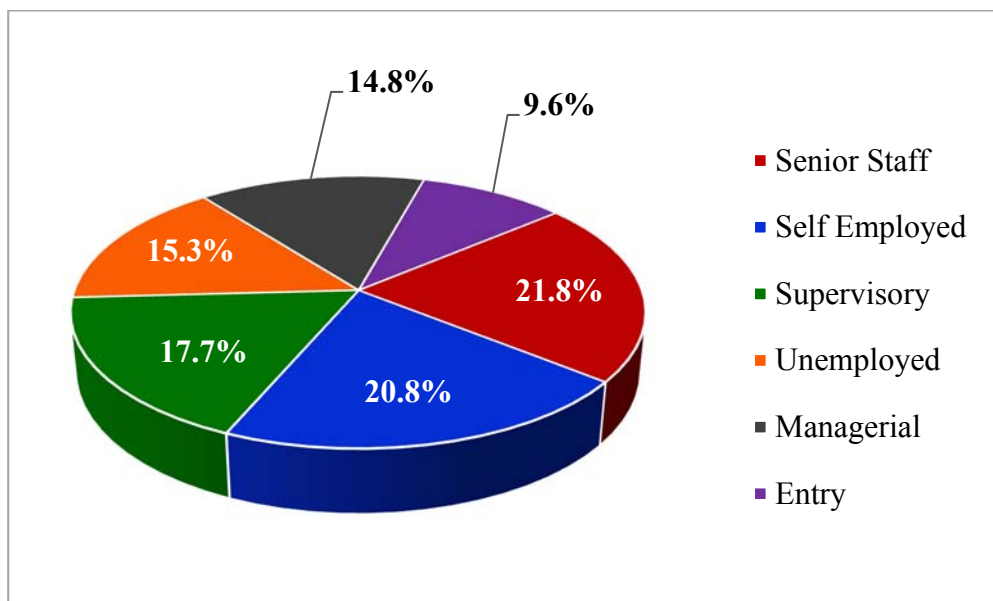
Figure 4.5: Occupational Status

Source: Table (4.5)

As shown in Figure (4.5), the majority of the respondents are senior level in the private and public sector, respondents with the self-employed owner as small and medium enterprises. Followed by still private and public sector in supervisory and managerial level. A few people with entry level in the private sector.

4.1.6 Monthly Household Expense Level of Respondents

The monthly household expense level of respondents are shown in Table (4.6) and Figure (4.6).

Table (4.6) Monthly Household Expense Level of Respondents

Household Expense (Kyats)	Number of Respondents	Percent
≤ 250,000	49	12.7
250,001 - 500,000	185	48.1
500,001 - 750,000	94	24.4
750,001 - 1,000,000	44	11.4
1,000,001 - 1,500,000	11	2.9
≥ 1,500,001	2	0.6
Total	385	100.0

Source: Survey Data, 2019

In Table (4.6), almost half of the respondents (48.1%) has monthly household expense between 250,001 and 500,000 kyats and followed by 24.4% of monthly household expense is between 500,001 and 750,000 kyats. Additionally, 3.5% of monthly household expense is above 1,000,000 kyats.
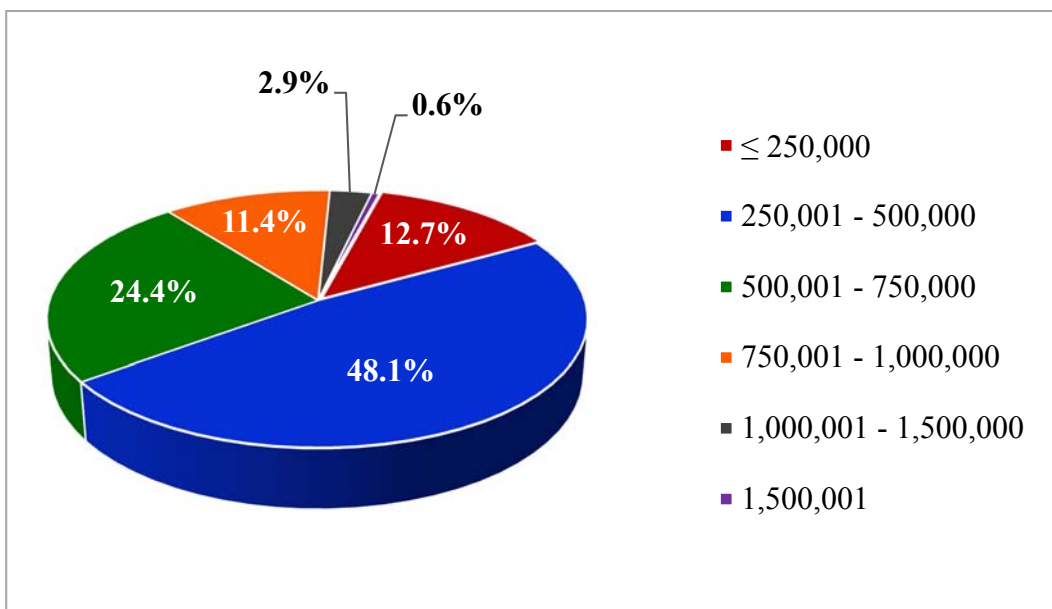
Figure (4.6) Monthly Household Expense Level of Respondents (in kyats)
Source: Table (4.6)

As shown in Figure (4.6), the majority of the respondents spend monthly household expenses kyats between 2.5 lakh and 5 lakh.

4.2 Mobile Telecom Service Providers Usage and Awareness

At the beginning of the survey, some general questions about usage and awareness of mobile telecom service providers are asked to gain insight to what kind of behavior the respondents indicated in terms of using of mobile telecom service provider.

4.2.1 Number of Mobile Telecom Service Providers Used

Table (4.7) and Figure (4.7) show the number of mobile telecom service providers used by respondent.

Table (4.7) Number of Mobile Telecom Service Providers Used

Telecom Service Providers	Number of Respondents	Percent
One	167	43.4
Two	206	53.5
Three	12	3.1
Total	385	100.0

Source: Survey Data, 2019

As shown in Table (4.7), the most of the respondents use two telecom service providers comprising 53.5% while 43.4% use one telecom service provider and 3.1% use three telecom service providers.
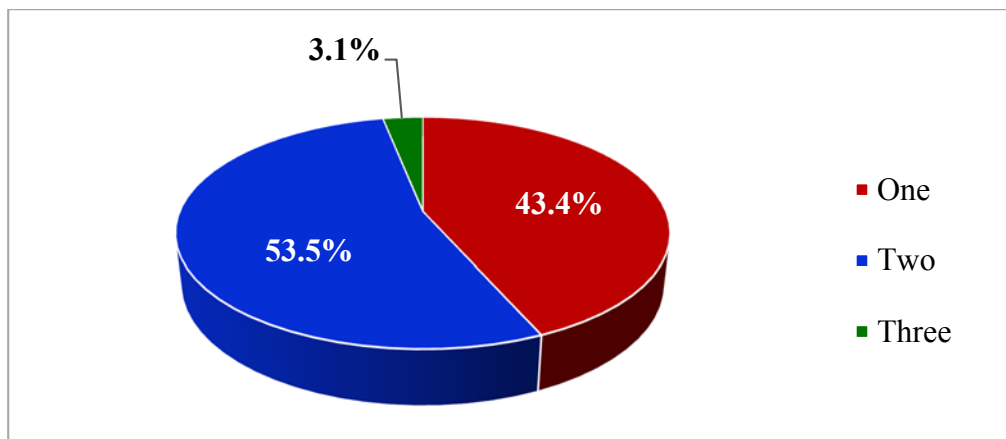
Figure (4.7) Number of Mobile Telecom Service Providers Used

Source: Table (4.7)

As illustrated in Figure (4.7), over half of the respondents used more than one mobile telecom service providers. The study further inquired why the respondents had more than one mobile telecom service providers. The respondents gave various reasons such as cheaper rates, network problems, reduced congestion, easier money transfer services, to reach friends, family, Workmates and business associates and due to internet access services.

4.2.2 Choice of the Mobile Telecom Service Providers Used

Table (4.8) and Figure (4.8) show choice of the mobile telecom service providers used.

Table (4.8) Choice of the Mobile Telecom Service Providers Used

Telecom Service Providers	Number of Respondents	Percent
MPT	224	58.2
Telenor	70	18.2
Ooredoo	61	15.8
Mytel	30	7.8
Total	385	100.0

Source: Survey Data, 2019

In Table (4.8), the majority of the respondents most chose MPT telecom service provider comprising 58.2% while 18.2% chose Telenor. On the other hand, 15.8% chose Ooredoo and 7.8% chose Mytel.
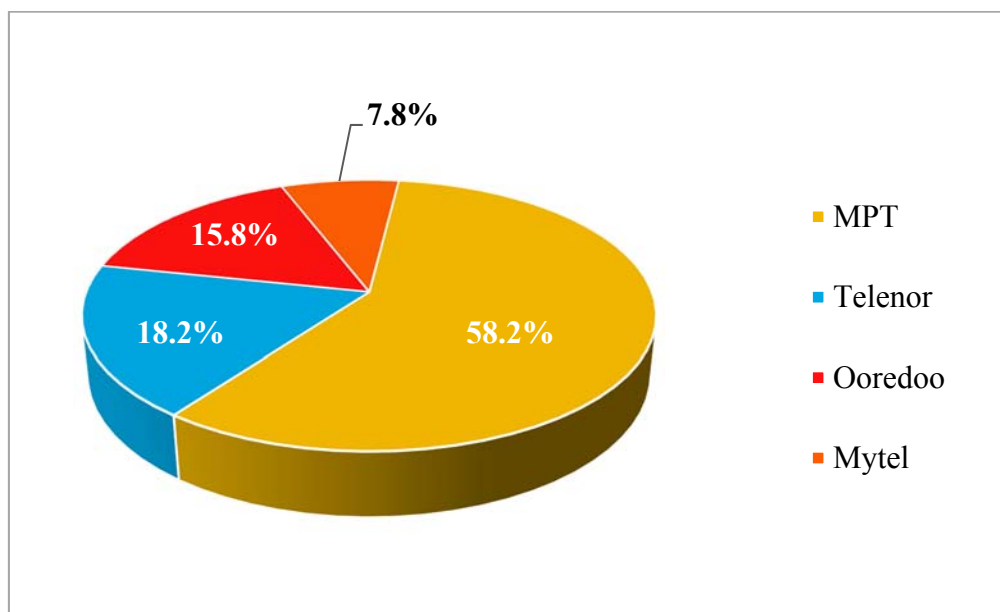
Figure (4.8) Choice of the Mobile Telecom Service Providers Used

Source: Table (4.8)

In Figure (4.8), it can be seen that 58.2% respondents were interested in with a mobile telecom service providers like MPT followed by Telenor which has 18.2% of the respondents. Hence, almost 60% of the mobile telecom users are MPT and 41.8% of users are other telecom service providers. MPT is the first telecommunication operator and the network has the most subscribers in the country and wide geographical network coverage.

4.2.3 Duration of Present Mobile Telecom Service Providers Usage

The respondents by the duration of present mobile telecom service providers' usage are shown in Table (4.9) and Figure (4.9).

Table (4.9) Duration of Present Mobile Telecom Service Providers Usage

Duration of Usage	Number of Respondents	Percent
< 1 year	50	13.0
1 - 2 years	65	16.9
2 - 3 years	51	13.2
3 - 4 years	52	13.5
4 - 5 years	43	11.2
≥ 5 years	124	32.2
Total	385	100.0

Source: Survey Data, 2019

According to the Table (4.9), more than two-thirds of the respondents using a mobile telecom service providers for 2 years and above, one-third of respondents using a mobile telecom service providers for less than 2 years.
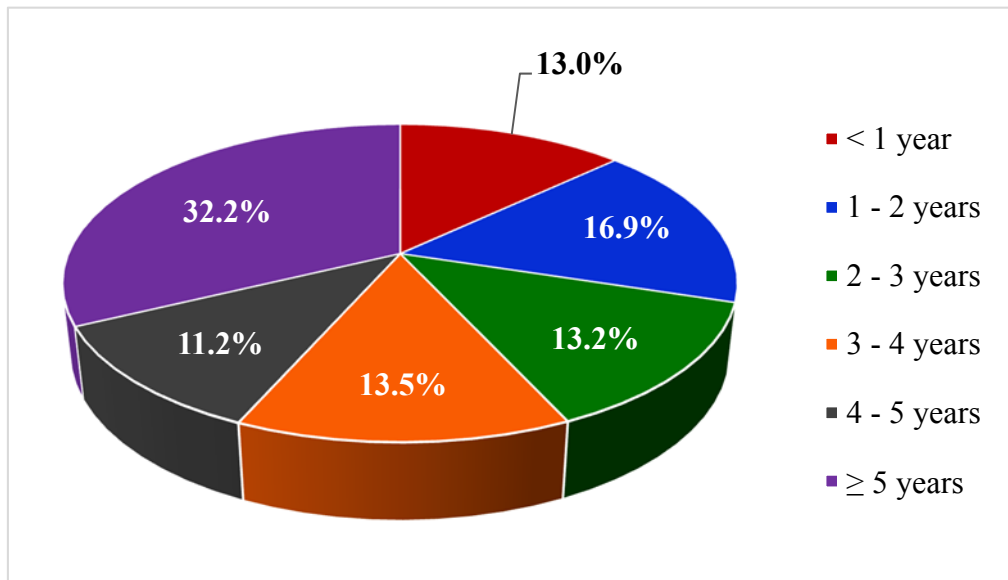
Figure (4.9) Duration of Present Mobile Telecom Service Providers Usage (Year)
Source: Table (4.9)

In Figure (4.9), it shows the duration of the present mobile telecom service providers' usage. Five years and above got the highest percentage. Most of the respondents used mobile phone for 2 years and above.

4.2.4 Mobile Telecom Service Providers' Information Sources

Table (4.10) and Figure (4.10) show the respondents by source of mobile telecom service providers' information.

Table (4.10) Mobile Telecom Service Providers' Information Sources

Information Sources	Number of Respondents	Percent
Billboards	105	8.0
Friend, Family and Office mates	254	19.3
Internet	150	11.4
Mobile Phone Company and Shop	117	8.9
Newspaper / Journals / Magazines	85	6.5
Social Media	315	23.9
Television	243	18.5
Others	48	3.7

Source: Survey Data, 2019

As shown in Table (4.10), a total of 23.9% of respondents got the mobile telecom service providers information from Social Media, 19.3% of the respondents got information form Friend, Family, and Office mates, 18.5% from Television, 11.4% from the Internet, 8.9% from Mobile Phone shop, 8% from Billboards, 6.5% from Newspaper/ Journals/Magazines and 3.7% from Others, respectively.
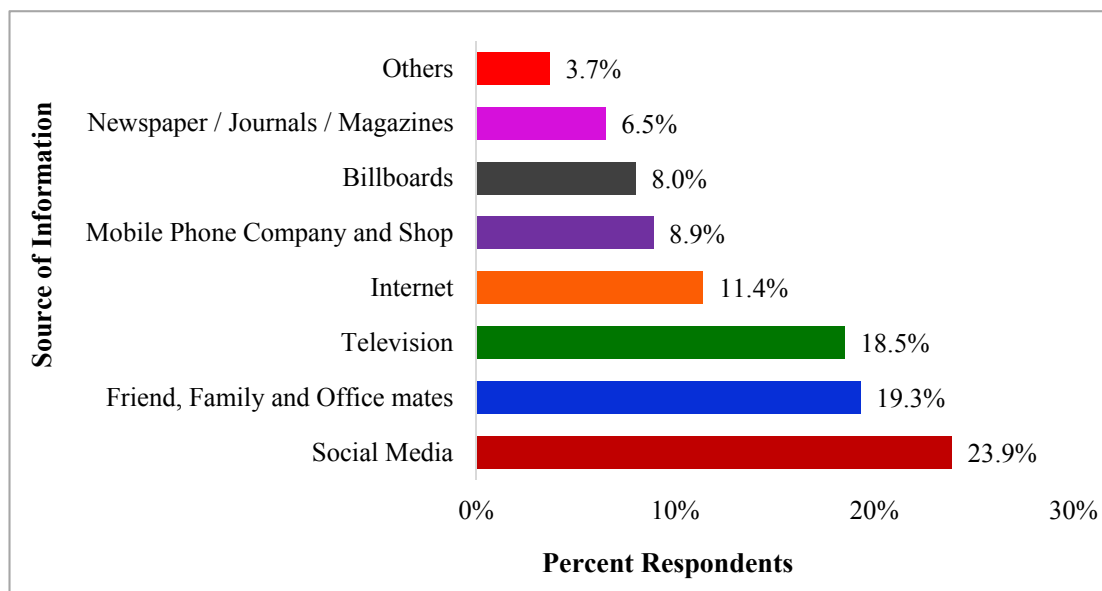
Figure 4.10: Mobile Telecom Service Providers' Information Sources

Source: Table (4.10)

As illustrated in Figure (4.10), the majority of the respondents got the information from Social Media, the second and third highest respondents got the information from Friends, Family, and workmates, and Television.

4.2.5 Monthly Expenditure of Mobile Phone Bill

Table (4.11) and Figure (4.11) show monthly expenditure of mobile phone bill.

Table (4.11) Monthly Expenditure of Mobile Phone Bill

Expenditure (Kyats)	Number of Respondents	Percent
≤ 10,000	68	17.7
10,001 - 20,000	187	48.6
20,001 - 30,000	92	23.9
30,001 - 40,000	25	6.5
40,001 - 50,000	12	3.1
≥ 50,001	1	0.3
Total	385	100.0

Source: Survey Data, 2019

As shown in Table (4.11), the monthly expenditure of mobile phone bill; 10,001 to 20,000 got the highest frequency of 187 with 48.6% and 50,001 and above got the lowest frequency of 1 with 0.3%.
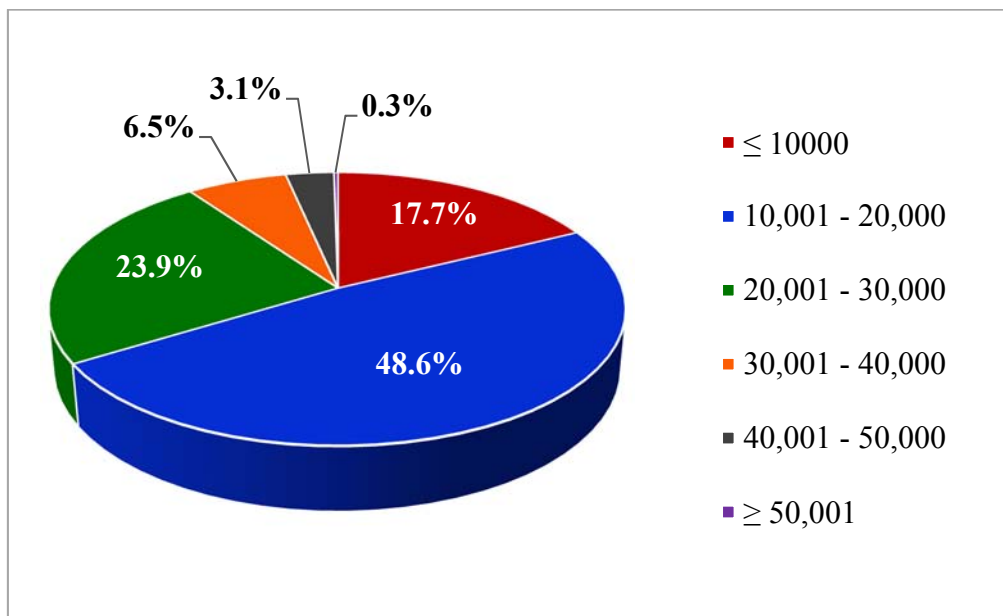
Figure (4.11) Monthly Expenditure of Mobile Phone Bill (in kyats)

Source: Table (4.11)

In Figure (4.11), it has been found that 48.6% of respondents which is the highest, have an expense mobile phone bill by monthly between Kyats 10,001 and 20,000 followed by between Kyats 20,001 and 30,000 with 23.9%. This result shows that the range of mobile phone bill by monthly between Kyats 10,001 and 30,000 that have high expenses in Yangon.

4.2.6 Reasons for Subscribing to the Mobile Telecom Service Providers

Table (4.12) shows the respondents by reasons for subscribing to the mobile telecom service providers.

Table (4.12) Reasons for Subscribing to the Mobile Telecom Service Providers

Reasons for Subscribing	Number of Respondents	Percent
Most of my friends were in it	59	15.3
My family and relatives were already in the network	93	24.2
It was a present and I did not have much choice	10	2.6
Most of my workmates of business associates	86	22.3
The network had most subscribers in the country	137	35.6
Total	385	100.0

Source: Survey Data, 2019

According to the Table (4.12), the majority of respondents subscribed to their mobile telecom service providers because the network had the most subscribers in the country at 35.6%, followed by family and relatives were already in the network at 24.2% and most of the workmates of business associates with 22.3% of total respondents. Most of friends were in it and it was a present and did not have much choice with 15.3% and 2.6% respectively.

4.3 The Study of Relationship between Mobile Telecom Service Providers and Consumers' Socioeconomic, Demographic Characteristics

In this part, cross-tabulation and Chi-square analysis are used to determine whether there is a significant relationship between mobile telecom service providers and characteristics of socioeconomic, demographic. The influencing factors on the choice of mobile telecom service providers is explored by multinomial logistic regression analysis.

4.3.1 The association between Mobile Telecom Service Providers and Age

The cross-tabulation and Chi-square test's results are presented in Table (4.13) and Table (4.14).

Table (4.13) Cross-tabulation of Mobile Telecom Service Providers and Age

Age	Mobile Telecom Service Providers				
	MPT	Telenor	Ooredoo	Mytel	Total
18 - 24	43 19.2%	29 41.4%	22 36.1%	15 50.0%	109 28.3%
25 - 34	75 33.5%	21 30.0%	33 54.1%	11 36.7%	140 36.4%
35 - 44	73 32.6%	15 21.4%	3 4.9%	3 10.0%	94 24.4%
45 and above	33 14.7%	5 7.1%	3 4.9%	1 3.3%	42 10.9%
Total	224 100%	70 100%	61 100%	30 100%	385 100.0%

Table (4.14) Chi-Square Tests of Mobile Telecom Service Providers and Age

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	49.608[a]	9	.000
Likelihood Ratio	54.032	9	.000
Linear-by-Linear Association	29.135	1	.000
N of Valid Cases	385		

According to the Table (4.13), more than half of the respondents 224 (58.2%) choose MPT. The respondents who are aged between 25 and 34 years have the highest percentage in MPT and Ooredoo telecom service providers compare to the other age groups. Most of the respondents who are aged between 18 and 24 years choose Telenor and Mytel compare to the other age group. In Table (4.14), the results of Chi-square analysis, age is significantly associated with mobile telecom service providers at 1% level.

4.3.2 Association between Mobile Telecom Service Providers and Education Level

The cross-tabulation and Chi-square test's results are presented in Table (4.15) and Table (4.16).

Table (4.15) Cross-tabulation of Mobile Telecom Service Providers and Education Level

Education Level	Mobile Telecom Service Providers				
	MPT	Telenor	Ooredoo	Mytel	Total
Graduate	119 53.1%	36 51.4%	35 57.4%	12 40.0%	202 52.5%
10 Standard Pass / University Student	43 19.2%	8 11.4%	11 18.0%	6 20.0%	68 17.7%
High School	39 17.4%	15 21.4%	9 14.8%	5 16.7%	68 17.7%
Post Graduate / Master / Ph.D	18 8.0%	7 10.0%	4 6.6%	4 13.3%	33 8.6%
Secondary	5 2.2%	4 5.7%	2 3.3%	3 10.0%	14 3.6%
Total	224 100%	70 100%	61 100%	30 100%	385 100.0%

Table (4.16) Chi-Square Tests of Mobile Telecom Service Providers and Education Level

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.749[a]	12	.551
Likelihood Ratio	9.898	12	.625
Linear-by-Linear Association	.931	1	.335
N of Valid Cases	385		

According to the Table (4.15), the graduate level of respondents have the largest proportion in all mobile The high school and tenth standard pass or university student levels of respondents account for almost the same percentage of MPT, Ooredoo and Mytel service providers. In Table (4.16), the results of Chi-square analysis, it assumed that there is no association between mobile telecom service providers and education level of respondents.

4.3.3 Association between Mobile Telecom Service Providers and Type of Occupation

The cross-tabulation and Chi-square test's results are presented in Table (4.17) and Table (4.18).

Table (4.17) Cross-tabulation of Mobile Telecom Service Providers and Type of Occupation

Type of Occupation	Mobile Telecom Service Providers				
	MPT	Telenor	Ooredoo	Mytel	Total
Private Sector	131 58.5%	41 58.6%	33 54.1%	15 50.0%	220 57.1%
Self Employed	56 25.0%	12 17.1%	7 11.5%	5 16.7%	80 20.8%
Unemployed	24 10.7%	14 20.0%	15 24.6%	6 20.0%	59 15.3%
Public Sector	13 5.8%	3 4.3%	6 9.8%	4 13.3%	26 6.8%
Total	224 100%	70 100%	61 100%	30 100%	385 100.0%

Table (4.18) Chi-Square Tests of Mobile Telecom Service Providers and Type of Occupation

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.276[a]	9	.045
Likelihood Ratio	16.996	9	.049
Linear-by-Linear Association	.725	1	.394
N of Valid Cases	385		

According to the Table (4.17), it has been found that the percentage of private sector is the highest in Telenor, while the lowest percentage is in public sector. In Table (4.18), the results of Chi-square analysis of type of occupation is significantly associated with mobile telecom service provider at 5% level.

4.3.4 Association between Mobile Telecom Service Providers and Household Expense

The cross-tabulation and Chi-square test's results are presented in Table (4.19) and Table (4.20).

Table (4.19) Cross-tabulation of Mobile Telecom Service Providers and Household Expense

Household Expense (Kyats)	Mobile Telecom Service Providers				
	MPT	Telenor	Ooredoo	Mytel	Total
≤ 250,000	25	7	12	5	49
	11.2%	10.0%	19.7%	16.7%	12.7%
250,001 - 500,000	109	36	29	11	185
	48.7%	51.4%	47.5%	36.7%	48.1%
500,001 - 750,000	48	17	17	12	94
	21.4%	24.3%	27.9%	40.0%	24.4%
750,001 - 1,000,000	33	7	3	1	44
	14.7%	10.0%	4.9%	3.3%	11.4%
1,000,0001 - 1,500,000	7	3	0	1	11
	3.1%	4.3%	0.0%	3.3%	2.9%
≥ 1,500,001	2	0	0	0	2
	0.8%	0.0%	0.0%	0.0%	0.6%
Total	224	70	61	30	385
	100%	100%	100%	100%	100.0%

Table (4.20) Chi-Square Tests of Mobile Telecom Service Providers and Household Expense

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.623[a]	18	.415
Likelihood Ratio	21.433	18	.258
Linear-by-Linear Association	.961	1	.327
N of Valid Cases	385		

According to the Table (4.19), the respondents who spend 250,001 to 500,000 kyats for the household have the highest percentage in MPT, Telenor and Ooredoo compare to the other household expense level. In Table (4.20), the results of Chi-square analysis, this means that there is no association between mobile telecom service providers and household expense of respondents.

4.4 Multinomial Logistic Regression Analysis

In this section, multinomial logistic regression (MLR) model was developed to find out the factors influencing consumers' choice of mobile telecom service providers.

4.4.1 Description of Variables

Dependent Variable

In this study, the choice of mobile telecom service providers as the dependent variable. According to survey data 2019, there are four mobile telecom service providers in this study. In this model, the dependent variables are as follows:

Y   = 1, if MPT (reference category)

   = 2, if Ooredoo

   = 3, if Telenor

   = 4, if Mytel

Independent Variables

Demographic, Social, Economic and service factors was considered as independent variables. There are eighteen independent variables in this study. These variables are as follow:

Demographic factors: demographic variables such as gender and age were used in this study. These variables are as follows:

X_{1i} = Gender

   = 1, if Male

   = 2, if Female (reference category)

X_{2i} = Age

   = 1, if 18-24

   = 2, if 25-34

   = 3, if 35-44

   = 4, if 45 and above (reference category)

Social factors: social variables such as workmates and business associates, family and relatives, friends and social groups were used in this study. These variables are as follows:

X_{3i} = Workmates and business associates

   = 1, if yes

   = 2, if no (reference category)

X_{4i} = Family and relatives

= 1, if yes

= 2, if no (reference category)

X_{5i} = Friends and social groups

= 1, if yes

= 2, if no (reference category)

Economic factors: economic variables such as type of occupation, low data rate, low calling and SMS rate were used in this study. These variables are as follows:

X_{6i} = Type of occupation

= 1, if public sector

= 2, if private sector

= 3, if self employed

= 4, if unemployed (reference category)

X_{7i} = Low data rate

= 1, if yes

= 2, if no (reference category)

X_{8i} = Low calling and SMS rate

= 1, if yes

= 2, if no (reference category)

Service Efficiency and Effectiveness factors: service efficiency and effectiveness factors such as clear and uncongested network, fast data services, no bill deduction error, attractive promotion, trusted company, better data quality, catchy advertisement, discount special offer price, wide geographical network coverage and provides more data were considered in this study. These variables are as follows:

X_{9i} = Clear and uncongested network

= 1, if yes

= 2, if no (reference category)

X_{10i} = Fast data services

= 1, if yes

= 2, if no (reference category)

X_{11i} = No bill deduction error

= 1, if yes

= 2, if no (reference category)

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X_{12i} = Attractive promotion

  = 1, if yes

  = 2, if no (reference category)

X_{13i} = Trusted company

  = 1, if yes

  = 2, if no (reference category)

X_{14i} = Better data quality

  = 1, if yes

  = 2, if no (reference category)

X_{15i} = Catchy advertisement

  = 1, if yes

  = 2, if no (reference category)

X_{16i} = Discount special offer price

  = 1, if yes

  = 2, if no (reference category)

X_{17i} = Wide geographical network coverage

  = 1, if yes

  = 2, if no (reference category)

X_{18i} = Provides more data

  = 1, if yes

  = 2, if no (reference category)

4.4.2 Results of Multinomial Logistic Regression Analysis

In this model, four mobile telecom service providers are chosen as the dependent variables. The demographic factor, social factor, economic factor and service efficiency and effectiveness factor are considered as independent variables. The results of the model analysis of Multinomial Logistic Regression (MLR) are presented in Table (4.21).

Table (4.21) Model Fitting Information of Mobile Telecom Service Providers Use with Independent Variables

Model Fitting Criteria	χ^2 value	df	p-value
-2 Log Likelihood	150.718	69	.000
Cox & Snell R-Square	0.324		
Nagelkerke R-Square	0.363		
Overall Correct Prediction	61.3%		

Source: Survey Data, 2019

In Table (4.21), the Chi-Square statistics (150.718) and p-value (0.000) which is found the statistically significant at the 1% level. Hence, this model could have explained the association of the mobile telecom service providers and the independent variables such as gender, age, type of occupation, clear and uncongested network, fast data services, no bill deduction error, attractive promotion, low data rate, trusted company, low calling and SMS rate, better data quality, catchy advertisement, workmates and business associates, family and relatives, friends and social groups, discount special offer, wide geographical network coverage and provides more data. Cox & Snell R-Square, Nagelkerke R-Square values 32.4% and 36.3 % respectively. It is shown that the variation of independent variables used in this model can explain the variation of the choice of mobile telecom service providers. The overall percentage classification indicates that 61.3% of the choice of mobile telecom users are predicted correctly.

The parameter estimates of the demographic, socio-economic and service efficiency and effectiveness determinants of the choice of mobile telecom service providers are mentioned in Table (4.22).

Table (4.22) Multinomial Logistic Regression Model's Parameter Estimates for Mobile Telecom Service Providers with Independent Variables

Telecom Service Provider	Variables		B	Std. Error	Wald	Sig.	RRR	95%Confidence Interval	
								Lower	Upper
	Constant		-0.595	1.973	0.091	0.763			
	Gender	Male	0.035	0.367	0.009	0.924	1.036	0.504	2.127
		Female (Ref)							
	Age	18-24	1.853**	0.781	5.634	0.018	6.381	1.381	29.473
		25-34	1.946***	0.748	6.769	0.009	7.003	1.616	30.339
		35-44	-0.778	0.906	0.738	0.390	0.459	0.078	2.711
		45 and above(Ref)							
	Type of occupation	Private Sector	-1.219***	0.449	7.363	0.007	0.295	0.122	0.713
		Self Employed	-1.135*	0.604	3.536	0.060	0.321	0.098	1.049
		Public Sector	0.834	0.751	1.234	0.267	2.302	0.529	10.021
		Unemployed (Ref)							
	Clear and uncongested network	Yes	-0.366	0.840	0.189	0.664	0.694	0.134	3.602
		No (Ref)							
	Fast Data Services	Yes	2.041**	0.935	4.766	0.029	7.699	1.232	48.116
		No (Ref)							
	No bill deduction error	Yes	1.044	0.680	2.362	0.124	2.842	0.750	10.763
		No (Ref)							
	Attractive promotion	Yes	0.039	0.357	0.012	0.913	1.040	0.517	2.093
		No (Ref)							
Ooredoo	Low Data Rate	Yes	-0.956	1.029	0.863	0.353	0.384	0.051	2.890
		No (Ref)							
	Trusted Company	Yes	-0.889*	0.521	2.908	0.088	0.411	0.148	1.142
		No (Ref)							
	Low calling and SMS rate	Yes	0.148	0.587	0.063	0.801	1.159	0.367	3.665
		No (Ref)							
	Better data quality	Yes	-0.632	0.428	2.175	0.140	0.532	0.230	1.231
		No (Ref)							
	Catchy advertisement	Yes	-1.216	1.097	1.229	0.268	0.297	0.035	2.544
		No (Ref)							
	Workmates and Business Associates	Yes	0.134	1.169	0.013	0.909	1.143	0.116	11.301
		No (Ref)							
	Family and Relatives	Yes	-1.038**	0.484	4.595	0.032	0.354	0.137	0.915
		No (Ref)							
	Friends and social groups	Yes	-0.145	0.490	0.088	0.767	0.865	0.331	2.259
		No (Ref)							
	Discount special offer	Yes	-.0622	1.001	0.386	0.534	0.537	0.076	3.817
		No (Ref)							
	Wide Geo Network Cover	Yes	0.224	0.352	0.406	0.524	1.251	0.628	2.493
		No (Ref)							
	Provides more data	Yes	0.737*	0.387	3.618	0.057	2.089	0.978	4.461
		No (Ref)							

Table (4.22) Continued

Telecom Service Provider	Variables		B	Std. Error	Wald	Sig.	RRR	95%Confidence Interval	
								Lower	Upper
	Constant		-0.108	1.826	0.004	0.953	-0.108		
	Gender	Male	-0.144	0.322	0.201	0.654	0.866	0.460	1.627
		Female (Ref)							
	Age	18-24	1.376**	0.592	5.401	0.020	3.959	1.241	12.635
		25-34	0.380	0.588	0.418	0.518	1.462	0.462	4.628
		35-44	0.130	0.594	0.048	0.826	1.139	0.356	3.647
		45 and above(Ref)							
	Type of occupation	Private Sector	-0.609	0.417	2.127	0.145	0.544	0.240	1.233
		Self Employed	-0.907*	0.524	3.002	0.083	0.404	0.145	1.126
		Public Sector	-0.408	0.780	0.274	0.601	0.665	0.144	3.069
		Unemployed (Ref)							
	Clear and uncongested network	Yes	1.020	0.734	1.930	0.165	2.773	0.658	11.693
		No (Ref)							
	Fast Data Services	Yes	-0.791	0.582	1.848	0.174	0.454	0.145	1.418
		No (Ref)							
	No bill deduction error	Yes	-0.446	0.577	0.597	0.440	0.640	0.206	1.985
		No (Ref)							
	Attractive promotion	Yes	-0.130	0.312	0.175	0.676	0.878	0.476	1.618
		No (Ref)							
Telenor	Low Data Rate	Yes	0.121	1.005	0.015	0.904	1.129	0.158	8.090
		No (Ref)							
	Trusted Company	Yes	0.324	0.538	0.362	0.547	1.383	0.482	3.969
		No (Ref)							
	Low calling and SMS rate	Yes	-0.283	0.453	0.391	0.532	0.753	0.310	1.830
		No (Ref)							
	Better data quality	Yes	-0.750*	0.425	3.110	0.078	0.473	0.205	1.087
		No (Ref)							
	Catchy advertisement	Yes	1.215	1.433	0.718	0.397	3.370	0.203	55.952
		No (Ref)							
	Workmates and Business Associates	Yes	-0.485	0.729	0.442	0.506	0.616	0.147	2.571
		No (Ref)							
	Family and Relatives	Yes	-0.498	0.448	1.235	0.266	0.608	0.252	1.463
		No (Ref)							
	Friends and social groups	Yes	-0.279	0.447	0.392	0.531	0.756	0.315	1.814
		No (Ref)							
	Discount special offer	Yes	-1.304	0.969	1.813	0.178	0.271	0.041	1.812
		No (Ref)							
	Wide Geo Network Cover	Yes	0.605*	0.314	3.729	0.053	1.832	0.991	3.387
		No (Ref)							
	Provides more data	Yes	-0.655	0.419	2.441	0.118	0.519	0.228	1.181
		No (Ref)							

Table (4.22) Continued

Telecom Service Provider	Variables		B	Std. Error	Wald	Sig.	RRR	95%Confidence Interval	
								Lower	Upper
Mytel	Constant		1.221	2.187	0.312	0.577	1.221		
	Gender	Male	-0.834	0.520	2.576	0.108	0.434	0.157	1.203
		Female (Ref)							
	Age	18-24	3.213***	1.209	7.065	0.008	24.845	2.325	265.497
		25-34	1.790	1.185	2.284	0.131	5.990	.588	61.055
		35-44	-0.119	1.275	0.009	0.926	0.888	0.073	10.811
		45 and above(Ref)							
	Type of occupation	Private Sector	-0.911	0.614	2.204	0.138	0.402	0.121	1.339
		Self Employed	-0.366	0.795	0.212	0.645	0.693	0.146	3.293
		Public Sector	2.394**	0.953	6.306	0.012	10.959	1.691	71.008
		Unemployed (Ref)							
	Clear and uncongested network	Yes	0.924	1.175	0.619	0.431	2.520	0.252	25.194
		No (Ref)							
	Fast Data Services	Yes	2.216*	1.138	3.792	0.052	9.174	0.986	85.399
		No (Ref)							
	No bill deduction error	Yes	1.477	1.006	2.155	0.142	4.380	0.610	31.459
		No (Ref)							
	Attractive promotion	Yes	0.078	0.502	0.024	0.876	1.082	.404	2.892
		No (Ref)							
	Low Data Rate	Yes	-2.766**	1.303	4.503	0.034	0.063	0.005	0.810
		No (Ref)							
	Trusted Company	Yes	-1.153*	0.666	3.000	0.083	.316	0.086	1.164
		No (Ref)							
	Low calling and SMS rate	Yes	-0.285	0.703	0.165	0.685	0.752	0.190	2.981
		No (Ref)							
	Better data quality	Yes	-0.440	0.567	0.601	0.438	0.644	0.212	1.957
		No (Ref)							
	Catchy advertisement	Yes	-2.041	1.394	2.144	0.143	0.130	0.008	1.996
		No (Ref)							
	Workmates and Business Associates	Yes	-2.420***	.870	7.737	.005	.089	.016	.489
		No (Ref)							
	Family and Relatives	Yes	-1.532**	0.616	6.186	0.013	.216	0.065	0.723
		No (Ref)							
	Friends and social groups	Yes	0.035	.664	0.003	0.958	1.035	0.282	3.805
		No (Ref)							
	Discount special offer	Yes	-0.407	1.315	0.096	0.757	0.666	0.051	8.758
		No (Ref)							
	Wide Geo Network Cover	Yes	-1.502***	0.527	8.117	0.004	4.491	1.598	12.622
		No (Ref)							
	Provides more data	Yes	-0.354	0.589	0.361	0.548	0.702	0.221	2.227
		No (Ref)							

***, **, * denote 1%, 5% and 10% levels of significance respectively.

The reference category is: MPT

Source: Survey Data, 2019

According to Table (4.22), the reference category of the dependent variable is MPT. Ooredoo has been found that mobile telecom user's age, type of occupation, fast data services, trusted company, family and relatives, and provides more data which have significant effects on the choice of mobile telecom service providers. Telenor has been found that mobile telecom user's age, type of occupation, better data quality, and wide geographical network coverage data which have significant effects on the choice of mobile telecom service providers. Mytel has been found that mobile telecom user's age, type of occupation, fast data services, low data rate, trusted company, workmates and business associates, family and relatives, and wide geographical network coverage data which have significant effects on the choice of mobile telecom service providers.

Estimating response probabilities

Multinomial logistic regression model is expressed as following:

$$\pi_j = \frac{\exp(\sum_{k=1}^{K} \beta_{jk} x_k)}{1 + \sum_{j=1}^{J-1} (\sum_{k=1}^{K} \beta_{jk} x_k)}$$

Denote the probability of the MPT (baseline category) by π_0 and the estimate by $\hat{\pi}_0$. Ooredoo by π_1 and the estimate by $\hat{\pi}_1$, Telenor by π_2 and the estimate by $\hat{\pi}_2$, Mytel by π_3 and the estimate by $\hat{\pi}_3$. The response probability satisfying $\sum_{j=0}^{3} \pi_j = 1$, baseline category is (MPT=0), from Table (4.16) of parameter estimates can calculate these probabilities by two steps:

First, calculate $log\left(\frac{\hat{\pi}_1}{\hat{\pi}_0}\right), log\left(\frac{\hat{\pi}_2}{\hat{\pi}_0}\right), and\ log\left(\frac{\hat{\pi}_3}{\hat{\pi}_0}\right)$, as the response variable has four categories (J=4), which means that there are three equations as following:

Let $y_1 = log\left(\frac{\hat{\pi}_1}{\hat{\pi}_0}\right)$, and $y_2 = log\left(\frac{\hat{\pi}_2}{\hat{\pi}_0}\right)$, and $y_3 = log\left(\frac{\hat{\pi}_3}{\hat{\pi}_0}\right)$, so

$y_1 =$ 1.853(Age=1)+1.946(Age=2)-1.219(Occu=2)-1.135(Occu=3)+2.041(FDSev=1)-
0.889(Trus=1)-1.038(F&R)+0.737(ProData)

$y_2 =$ 1.376(Age=1)-0.907(Occu=3)-0.750(BDQua=1)+0.605(WideGeo=1)

$y_3 =$ 3.213(Age=1)+2.394(Occu=1)+2.216(FDSev=1)-2.766(LData=1)-1.153(Trus=1)-
2.420(Work=1)-1.532(F&R)-1.502(WideGeo)

Second, calculate $\hat{\pi}_1, \hat{\pi}_2, \hat{\pi}_3, \hat{\pi}_0$, as following:

$$\hat{\pi}_1 = \frac{\exp(y_1)}{1 + \exp(y_1) + \exp(y_2) + \exp(y_3)}$$

$$\hat{\pi}_2 = \frac{\exp(y_2)}{1 + \exp(y_1) + \exp(y_2) + \exp(y_3)}$$

$$\hat{\pi}_3 = \frac{\exp(y_3)}{1 + \exp(y_1) + \exp(y_2) + \exp(y_3)}$$

$$\hat{\pi}_0 = \frac{1}{1 + \exp(y_1) + \exp(y_2) + \exp(y_3)}$$

According to the Table (4.22), it has been found that gender, friends and social groups, low calling and SMS rate, clear and uncongested network, no bill deduction error, attractive promotion, catchy advertisement, discount special offer price have insignificant effect on the mobile telecom service providers. Thus, these eight insignificant variables that are omitted from the model and re-run with ten significant variables. Therefore, Model fitting information is shown in Table (4.23) and the results of parameter estimates of all significant effects for the mobile telecom user is presented in Appendix Table (B).

Table (4.23) Model Fitting Information of Mobile Telecom Service Providers Use with Independent Variables (Significant Variables)

Model Fitting Criteria	χ^2 value	df	p-value
-2 Log Likelihood	127.949	42	.000
Cox & Snell R-Square	0.283		
Nagelkerke R-Square	0.317		
Overall Correct Prediction	61.6%		

Source: Survey Data, 2019

In Table (4.23), the Chi-Square statistics (127.949) and p-value (0.000) which is found the statistically significant at the 1% level. Hence, this model could have explained the association of the choice of mobile telecom service providers and age, type of occupation, fast data services, low data rate, trusted company, better data quality, workmates and business associates, family and relatives, wide geographical network coverage and provides more data. Cox & Snell R-Square, Nagelkerke R-Square values 28.3% and 31.7% respectively. It is shown that the variation of independent variables used in this model can explain the variation of the

choice of mobile telecom service providers. The overall percentage classification indicates that 61.6% of the choice of mobile telecom users are predicted correctly.

The parameter estimates of the mobile telecom service providers with age extracted from Appendix Table (B) is presented in Table (4.24).

Table (4.24) Parameter Estimates of Mobile Telecom Service Providers and Age

Telecom Service Provider	Age	B	Std. Error	Wald	Sig.	RRR	95% CI Interval	
							Lower	Upper
Ooredoo	Intercept	-1.434	1.637	.767	1			
	[18-24]	1.716**	0.743	5.330	0.021	5.564	1.296	23.889
	[25-34]	1.846***	0.718	6.615	0.010	6.333	1.552	25.851
	[35-44]	-0.835	0.880	0.901	0.342	0.434	0.077	2.433
	[45 and above] (Ref)							
Telenor	Intercept	-.675	1.304	.268	.605			
	[18-24]	1.351**	0.568	5.652	0.017	3.861	1.268	11.760
	[25-34]	0.415	0.572	0.527	0.468	1.515	0.494	4.650
	[35-44]	0.116	0.581	0.040	0.841	1.123	0.360	3.509
	[45 and above] (Ref)							
Mytel	Intercept	-.542	1.754	.095	.757			
	[18-24]	2.917**	1.148	6.459	0.011	18.487	1.949	175.327
	[25-34]	1.788	1.140	2.460	0.117	5.975	0.640	55.773
	[35-44]	0.041	1.230	0.001	0.974	1.042	0.094	11.597
	[45 and above] (Ref)							

***, **, * denote 1%, 5% and 10% levels of significance respectively.
The reference category is: MPT
Source: Survey Data, 2019

According to the result of Table (4.24), by comparing telecom service provider Ooredoo with MPT. It can be found that respondent's aged 18-24 and 25-34 years are statistically significant at the 5% and 1% level, respectively and both of the coefficients are positively related to choose of Ooredoo. The relative risk ratios indicate that respondents aged between 18-24 and 25-34 years are 5.564 and 6.333 times more likely, respectively to choose Ooredoo over MPT than those aged 45 and above years if other factors are being controlled.

By comparing telecom service provider Telenor with MPT. It can be found that respondent's aged between 18-24 years is statistically significant at the 5% level and the coefficient is positively related to choose of Telenor. The relative risk ratios indicate that

respondents aged between 18-24 years is 3.861 times more likely to choose Telenor over MPT than those aged 45 and above years if other factors are being controlled.

By comparing telecom service provider Mytel with MPT. It can be found that respondent's aged between 18-24 years is statistically significant at the 5% level and the coefficient is positively related to choose of Mytel. The relative risk ratios indicate that respondents aged between 18-24 years is 18.487 times more likely to choose Mytel over MPT than those aged 45 and above years if other factors are being controlled.

The parameter estimates of mobile telecom service providers with type of occupation extracted from Appendix Table (B) is presented in Table (4.25).

Table (4.25) Parameter Estimates of Mobile Telecom Service Providers and Type of Occupation

Telecom Service Provider	Type of Occupation	B	Std. Error	Wald	Sig.	RRR	95% CI Interval	
							Lower	Upper
Ooredoo	Intercept	-1.434	1.637	.767	1			
	[Private Sector]	-1.188***	0.438	7.336	0.007	0.305	0.129	0.720
	[Self Employed]	-1.242**	0.579	4.607	0.032	0.289	0.093	0.898
	[Public Sector]	0.819	0.729	1.262	0.261	2.267	0.543	9.462
	[Unemployed]							
Telenor	Intercept	-.675	1.304	.268	.605			
	[Private Sector]	-0.536	0.410	1.705	0.192	0.585	0.262	1.308
	[Self Employed]	-0.890*	0.502	3.136	0.077	0.411	0.153	1.100
	[Public Sector]	-0.448	0.773	0.335	0.563	0.639	0.140	2.908
	[Unemployed]							
Mytel	Intercept	-.542	1.754	.095	.757			
	[Private Sector]	-0.788	0.597	1.744	0.187	0.455	0.141	1.465
	[Self Employed]	-0.720	0.753	0.913	0.339	0.487	0.111	2.130
	[Public Sector]	1.870**	0.901	4.311	0.038	6.488	1.111	37.909
	[Unemployed]							

***, **, * denote 1%, 5% and 10% levels of significance respectively.
The reference category is: MPT
Source: Survey Data, 2019

According to the result of Table (4.25), by comparing telecom service provider Ooredoo with MPT. It can be found that respondent's private and self-employed sectors are statistically significant at the 1% and 5% level, respectively and both of the coefficients are negatively related to choose of Ooredoo. The relative risk of private and self-employed sectors

respondents are 0.305 and 0.289 times less likely, respectively to choose Ooredoo over MPT than those of unemployed if other factors are being controlled.

By comparing telecom service provider Telenor with MPT. It can be found that respondent's self-employed sector is statistically significant at the 10% level and the coefficient is negatively related to choose of Telenor. The relative risk of self-employed sector respondents is 0.411 times less likely to choose Telenor over MPT than respondents who had unemployed if other factors are being controlled.

By comparing telecom service provider Mytel with MPT. It can be found that respondent's public sector is statistically significant at the 5% level and the coefficient is positively related to choose of Mytel. The relative risk of public sector respondents is 6.488 times more likely to choose Mytel over MPT than respondents who had unemployed if other factors are being controlled.

The parameter estimates of the mobile telecom service providers with fast data services extracted from Appendix Table (B) is presented in Table (4.26).

Table (4.26) Parameter Estimates of Mobile Telecom Service Providers and Fast Data Services

Telecom Service Provider	Fast Data Services	B	Std. Error	Wald	Sig.	RRR	95% CI Interval	
							Lower	Upper
Ooredoo	Intercept	-1.434	1.637	.767	1			
	[Fast Data Services-Yes]	1.805**	0.803	5.057	0.025	6.083	1.261	29.343
	[Fast Data Services-No]							
Telenor	Intercept	-.675	1.304	.268	.605			
	[Fast Data Services-Yes]	-0.401	0.508	0.623	0.430	0.670	0.248	1.812
	[Fast Data Services-No]							
Mytel	Intercept	-.542	1.754	.095	.757			
	[Fast Data Services-Yes]	2.084**	0.994	4.400	0.036	8.039	1.147	56.365
	[Fast Data Services-No]							

***, **, * denote 1%, 5% and 10% levels of significance respectively.

The reference category is: MPT

Source: Survey Data, 2019

According to the result of Table (4.26), by comparing telecom service provider Ooredoo with MPT. It can be found that respondents who had fast data services is statistically significant at the 5% level and the coefficient is positively related to choose of Ooredoo. The relative risk of respondents who had fast data services is 6.083 times more likely to choose

Ooredoo over MPT than those who do not have fast data services if other factors are being controlled.

By comparing telecom service provider Mytel with MPT. It can be found that respondents who had fast data services is statistically significant at the 5% level and the coefficient is positively related to choose of Mytel. The relative risk of respondents who had fast data services is 8.039 times more likely to choose Mytel over MPT than those who do not have fast data services if other factors are being controlled.

The parameter estimates of the mobile telecom service providers with wide geographical network coverage extracted from Appendix Table (B) is presented in Table (4.27).

Table (4.27) Parameter Estimates of Mobile Telecom Service Providers and Wide Geographical Network Coverage

Telecom Service Provider	Wide Geographical Network Coverage	B	Std. Error	Wald	Sig.	RRR	95% CI Interval	
							Lower	Upper
Ooredoo	Intercept	-1.434	1.637	.767	1			
	[Wide geo network cover-Yes]	0.251	0.333	0.568	0.451	1.285	0.669	2.470
	[Wide geo network cover -No]							
Telenor	Intercept	-.675	1.304	.268	.605			
	[Wide geo network cover-Yes]	0.565*	0.303	3.480	0.062	1.759	.972	3.183
	[Wide geo network cover -No]							
Mytel	Intercept	-.542	1.754	.095	.757			
	[Wide geo network cover-Yes]	-1.265***	0.487	6.762	0.009	3.544	1.366	9.199
	[Wide geo network cover -No]							

***, **, * denote 1%, 5% and 10% levels of significance respectively.

The reference category is: MPT

Source: Survey Data, 2019

According to the result of Table (4.27), by comparing telecom service provider Telenor with MPT. It can be found that respondents who had wide geographical network coverage is statistically significant at the 10% level and the coefficient is positively related to choose of Telenor. The relative risk of respondents who had wide geographical network coverage is 1.759 times more likely to choose Telenor over MPT than those who do not have wide geographical network coverage if other factors are being controlled.

By comparing telecom service provider Mytel with MPT. It can be found that respondents who had wide geographical network coverage is statistically significant at the 1%

level and the coefficient is negatively related to choose of Mytel. The relative risk of respondents who had wide geographical network coverage is 3.544 times less likely to choose Mytel over MPT than those who do not have wide geographical network coverage if other factors are being controlled.

The parameter estimates of the mobile telecom service providers with provides more data extracted from Appendix Table (B) is presented in Table (4.28).

Table (4.28) Parameter Estimates of Mobile Telecom Service Providers and Provides More Data

Telecom Service Provider	Provides more data	B	Std. Error	Wald	Sig.	RRR	95% CI Interval	
							Lower	Upper
Ooredoo	Intercept	-1.434	1.637	.767	1			
	[Provides More Data-Yes]	0.771**	0.366	4.437	0.035	2.162	1.055	4.430
	[Provides More Data -No]							
Telenor	Intercept	-.675	1.304	.268	.605			
	[Provides More Data-Yes]	-0.627	0.410	2.345	0.126	0.534	0.239	1.192
	[Provides More Data -No]							
Mytel	Intercept	-.542	1.754	.095	.757			
	[Provides More Data-Yes]	-0.325	0.548	0.352	0.553	0.723	0.247	2.113
	[Provides More Data -No]							

***, **, * denote 1%, 5% and 10% levels of significance respectively.

The reference category is: MPT

Source: Survey Data, 2019

According to the result of Table (4.28), by comparing telecom service provider Ooredoo with MPT. It can be found that respondents who had provide more data is statistically significant at the 5% level and the coefficient is positively related to choose of Ooredoo. The relative risk of respondents who had provide more data is 2.162 times more likely to choose Ooredoo over MPT than those who do not provide more data if other factors are being controlled.

The parameter estimates of the mobile telecom service providers with family and relatives extracted from Appendix Table (B) is presented in Table (4.29).

Table (4.29) Parameter Estimates of Mobile Telecom Service Providers and Family and Relatives

Telecom Service Provider	Family and Relatives	B	Std. Error	Wald	Sig.	RRR	95% CI Interval	
							Lower	Upper
Ooredoo	Intercept	-1.434	1.637	.767	1			
	[Family and Relatives -Yes]	-1.049***	0.363	8.336	0.004	0.350	0.172	0.714
	[Family and Relatives -No]							
Telenor	Intercept	-.675	1.304	.268	.605			
	[Family and Relatives -Yes]	-0.669*	0.343	3.802	0.051	0.512	0.262	1.003
	[Family and Relatives -No]							
Mytel	Intercept	-.542	1.754	.095	.757			
	[Family and Relatives -Yes]	-1.248***	0.463	7.257	0.007	0.287	0.116	0.712
	[Family and Relatives -No]							

***, **, * denote 1%, 5% and 10% levels of significance respectively.

The reference category is: MPT

Source: Survey Data, 2019

According to the result of Table (4.29), by comparing telecom service provider Ooredoo with MPT. It can be found that respondents who used by family and relatives is statistically significant at the 1% level and the coefficient is negatively related to choose of Ooredoo. The relative risk of respondents who used by family and relatives is 0.350 times less likely to choose Ooredoo over MPT than those who do not used by family and relatives if other factors are being controlled.

By comparing telecom service provider Telenor with MPT. It can be found that respondents who used by family and relatives is statistically significant at the 10% level and the coefficient is negatively related to choose of Telenor. The relative risk of respondents who used by family and relatives is 0.512 times less likely to choose Telenor over MPT than those who do not used by family and relatives if other factors are being controlled.

By comparing telecom service provider Mytel with MPT. It can be found that respondents who used by family and relatives is statistically significant at the 1% level and the coefficient is negatively related to choose of Mytel. The relative risk of respondents who used by family and relatives is 0.287 times less likely to choose Mytel over MPT than those who do not used by family and relatives if other factors are being controlled.

The parameter estimates of the mobile telecom service providers with workmates and business associates extracted from Appendix Table (B) is presented in Table (4.30).

Table (4.30) Parameter Estimates of Mobile Telecom Service Providers and Workmates and Business Associates

Telecom Service Provider	Workmates and Business Associates	B	Std. Error	Wald	Sig.	RRR	95% CI Interval	
							Lower	Upper
Ooredoo	Intercept	-1.434	1.637	.767	1			
	[Workmates & Business Asso-Yes]	0.050	1.148	0.002	0.966	1.051	0.111	9.978
	[Workmates & Business Asso-No]							
Telenor	Intercept	-.675	1.304	.268	.605			
	[Workmates & Business Asso-Yes]	-0.433	0.708	0.373	0.541	0.649	0.162	2.600
	[Workmates & Business Asso-No]							
Mytel	Intercept	-.542	1.754	.095	.757			
	[Workmates & Business Asso-Yes]	-2.251***	0.824	7.470	0.006	0.105	0.021	0.529
	[Workmates & Business Asso-No]							

***, **, * denote 1%, 5% and 10% levels of significance respectively.

The reference category is: MPT

Source: Survey Data, 2019

According to the result of Table (4.30), by comparing telecom service provider Mytel with MPT. It can be found that respondents who used by workmates and business associates is statistically significant at the 1% level and the coefficient is negatively related to choose of Mytel. The relative risk of respondents who used by workmates and business associates is 0.105 times less likely to choose Mytel over MPT than those who do not used by workmates and business associates if other factors are being controlled.

The parameter estimates of the mobile telecom service providers with better data quality extracted from Appendix Table (B) is presented in Table (4.31).

Table (4.31) Parameter Estimates of Mobile Telecom Service Providers and Better Data Quality

Telecom Service Provider	Better Data Quality	B	Std. Error	Wald	Sig.	RRR	95% CI Interval	
							Lower	Upper
Ooredoo	Intercept	-1.434	1.637	.767	1			
	[Better Data Quality -Yes]	-0.734*	0.416	3.117	0.077	0.480	0.213	1.084
	[Better Data Quality -No]							
Telenor	Intercept	-.675	1.304	.268	.605			
	[Better Data Quality -Yes]	-.836**	0.417	4.022	0.045	0.433	0.191	0.981
	[Better Data Quality -No]							
Mytel	Intercept	-.542	1.754	.095	.757			
	[Better Data Quality -Yes]	-0.602	0.540	1.243	0.265	0.548	0.190	1.578
	[Better Data Quality -No]							

***, **, * denote 1%, 5% and 10% levels of significance respectively.

The reference category is: MPT

Source: Survey Data, 2019

According to the result of Table (4.31), by comparing telecom service provider Ooredoo with MPT. It can be found that respondents who had better data quality is statistically significant at the 10% level and the coefficient is negatively related to choose of Ooredoo. The relative risk of respondents who had better data quality is 0.480 times less likely to choose Ooredoo over MPT than those who had no better data quality if other factors are being controlled.

By comparing telecom service provider Telenor with MPT. It can be found that respondents who had better data quality is statistically significant at the 5% level and the coefficient is negatively related to choose of Telenor. The relative risk of respondents who had better data quality is 0.433 times less likely to choose Telenor over MPT than those who had no better data quality if other factors are being controlled.

The parameter estimates of the mobile telecom service providers with low data rate extracted from Appendix Table (B) is presented in Table (4.32).

Table (4.32) Parameter Estimates of Mobile Telecom Service Providers and Low Data Rate

Telecom Service Provider	Low Data Rate	B	Std. Error	Wald	Sig.	RRR	95% CI Interval	
							Lower	Upper
Ooredoo	Intercept	-1.434	1.637	.767	1			
	[Low Data Rate -Yes]	-1.030	0.912	1.276	0.259	0.357	0.060	2.132
	[Low Data Rate -No]							
Telenor	Intercept	-.675	1.304	.268	.605			
	[Low Data Rate -Yes]	0.721	0.902	0.638	0.424	2.056	0.351	12.055
	[Low Data Rate -No]							
Mytel	Intercept	-.542	1.754	.095	.757			
	[Low Data Rate -Yes]	-1.877*	0.995	3.562	0.059	0.153	0.022	1.075
	[Low Data Rate -No]							

***, **, * denote 1%, 5% and 10% levels of significance respectively.

The reference category is: MPT

Source: Survey Data, 2019

According to the result of Table (4.32), by comparing telecom service provider Mytel with MPT. It can be found that respondents who had low data rate is statistically significant at the 10% level and the coefficient is negatively related to choose of Mytel. The relative risk of respondents who had low data rate is 0.153 times less likely to choose Mytel over MPT than those who had no low data rate if other factors are being controlled.

CHAPTER V
CONCLUSION

This chapter presents the findings of the study. It also discusses the major implications and recommendations. The implication of findings and future directions for further research are put forward.

5.1 Findings

This study investigated the factors influencing consumers' choice of mobile telecom service providers in Yangon city from demographic, social, economic and service factors. An analysis was done using a sample of 385 current mobile telecom users. Descriptive analysis and multinomial logistic regression analysis are used in this study. Descriptive statistics was used to describe the status of demographic and socioeconomic of mobile telecom users in Yangon. Moreover, factors influencing the consumers' choice of mobile telecom service providers were analyzed by using Multinomial Logistic Regression analysis. As reported by descriptive analysis, female respondents were 16% more than the male respondents. The majority of the respondents are aged 25 to 34 years. Concerning their education, more than half of the respondents were graduates. Most of the respondents were employed comprising 84.7% while 15.3% were not in any form of employment. After answering from respondents, there are four types of occupation and most of the largest respondents were private sector, the second largest of the respondents were self-employed and the third largest respondents were unemployed. The smallest respondents were employed in the public sector. The study further inquired the employed respondents on the level of position and found that most of the respondents were senior staff level in private and public sector, respondents with self-employed owner as small and medium enterprise. Followed by still private and public sector in supervisory and managerial level. A few people with entry level in the private sector. And then, more than 60% of respondents who spend monthly household expense below 500,000 Ks and almost 40% of respondents are spending monthly household expense above 500,000 Ks.

Mobile telecommunication market in Myanmar, It was also found that most of the respondents used more than one mobile telecom service providers. The respondents gave various reasons such as cheaper rates, network problems, reduced congestion, easier money transfer services, to reach friends and family and due to internet access services. MPT was regarded as the top applied telecom service provider followed by Telenor, then Ooredoo and

the least one was Mytel. Hence, almost 60% of the mobile telecom users are MPT and 41.8% of users are other telecom service providers. MPT is the first telecommunication operator and the network had the most subscribers in the country and wide geographical network coverage. After that, more than two-third of the respondents had used mobile telecom service providers for a duration of 2 years and above, one-third of respondents had used it for a duration of less than 2 years. Most of the respondents knew about the mobile telecom service providers from social media. For Myanmar mobile telecommunication market, advertising on social media plays a key role. And then, more than 90% of respondents spend monthly mobile phone bill expense below 30,000 Ks. The majority of respondents subscribed to their mobile telecom service providers because family and relatives were already in the network, most of my workmates of business associates and that the network had the most subscribers in the country.

Multinomial logistic regression analysis revealed that demographic factors such as age is significant predictors of the choice of mobile telecom service providers. It can be found that respondents aged between 18-24 and 25-34 years are more likely to choose Ooredoo over MPT than those aged 45 and above years. Respondent's aged between 18-24 years is more likely to choose Telenor and Mytel over MPT than those aged 45 and above years. Most of the younger users are choosing Ooredoo, Telenor and Mytel. This is because different age groups have different needs and wants and a better understanding of the ageing process of consumers will continue to be of great importance to marketers as well as public policy decision makers.

Social factors such as workmates and business associates, family and relatives are significant predictors of the choice of mobile telecom service providers. It can be found that respondents who used by family and relatives are less likely to choose Ooredoo, Telenor and Mytel over MPT than those who do not used by family and relatives. The respondents who used by workmates and business associates are less likely to choose Mytel over MPT than those who do not used by workmates and business associates. The majority of respondents from four service providers will recommend for using their current primary service provider to anyone who seeks the advice. This is because social factors that play a part in the process are personal impact, reference group, family impact, social standing, and civilization. For example, the purchasing habit of consumers from the same civilization or social standing are identical to each other whereas consumers have similar lifestyles, learning, perception, and motivation are close to each other. So, loyal customers are more likely to spread positive word of mouth about favorite brands and also refer friends, family and relatives, workmates and business associates use.

Economic factors such as type of occupation and low data rate are significant predictors of the choice of mobile telecom service providers. It can be found that private sector respondents are less likely to choose Ooredoo over MPT than those of unemployed. Self-employed sector respondents are less likely to choose Ooredoo and Telenor over MPT than respondents who had unemployed. Public sector respondents are more likely to choose Mytel over MPT than respondents who had unemployed. This means that people of the same social standing are nearly equal with regard to their social status and incomes. They work in approximately the same occupations and tend to have the same tastes in services and products. Moreover, the respondents who had low data rate are less likely to choose Mytel over MPT than those who had no low data rate. This is because the price or cost of the mobile telecommunication services, that influences a consumer in choosing a mobile telecom service provider.

And also, service efficiency and effectiveness factors such as fast data service, better data quality, wide geographical network coverage and providing more data are significant effects on the choice of mobile telecom service providers in Yangon city. The results revealed that fast data service is a positive significant effect on the choice of mobile telecom service providers. The respondents who had fast data service are more likely to choose Ooredoo and Mytel over MPT than those who do not have fast data service. It has been observed that respondents who had wide geographical network coverage are more likely to choose Telenor over MPT and less likely to choose Mytel over MPT than those who do not have wide geographical network coverage. It can be found that provides more data is a positive significant effect on the choice of mobile telecom service providers. The respondents who had provides more data are more likely to choose Ooredoo over MPT than those who do not provide more data. It has been also found that better data quality is a negative significant effect on the choice of mobile telecom service providers. The respondents who had better data quality are less likely to choose Ooredoo and Telenor over MPT than those who had no better data quality.

This study also found that factors in which demographic, social, economic, service efficiency and effectiveness can significantly influence with consumer choice of mobile telecom service providers in Yangon. It is determined that if MPT, Ooredoo, Telenor and Mytel telecom service providers strive to improve these factors, the providers will get the benefit of attracting customer attention, and make a purchase decision. The results of this study will help mobile telecom service providers in making strategic decisions on marketing activities based on service quality perceptions, customer value, customer satisfaction and customer loyalty.

5.2 Recommendations

The study recommends that following:

i. To gain more customers and win the market, as the mobile service providers, it is required to invest more in mobile data service as a national level investment to provide better data quality.

ii. To create more effective customer service, the price (or) cost of the phone calls, SMS and data usage should be reduced and it oughts to create campaigns which can persuade customers' attention, such as providing more data usage, promotions and special package prices.

iii. To provide more careful service on collecting phone bills which is mostly wrong. Therefore, mobile service providers should provide a better customer service to gain customers' quality assurance on their service.

5.3 Needs for Further Study

The mobile telecommunication industry is so fluid and rapidly changing. Periodical research should be carried out in order to understand consumers' needs and wants as new products and services are rolled out. Although the model of study provides insight into factors influencing consumer's choice of mobile telecommunication market in Yangon city, the finished result is still in the early stage of this research and there still have some limitations which will be mentioned below that should be noted in order to guide further research of this phenomenon. If the number of respondents can be added more, estimated thousands of respondents, it will be better presenting and generalize the population in Yangon city in general. Thus, taking more respondents for one study should be taken into the consideration on the further studies. This study concentrated on the urban life where the mobile penetration rate is very high compared to the national mobile penetration rate. The entire country should be studied especially on the rural characteristics.

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APPENDICES

Introduction

This is University of Economics (Yangon), Department of Statistics (MAS Batch - I) and I am conducting a small research of factor influencing consumers' choice of mobile telecom service providers. The information provided will be kept confidential and will be used solely for academic research. Your response is highly appreciated. Thank you for your co-operation.

Personal Information			
Q1	What is your Gender? **[SA]**	Code	Route
	Male	1	
	Female	2	
Q2	What is your Age? ( ) **[SA]**	Code	Route
	Below 18	1	
	18 to 24	2	
	25 to 34	3	
	35 to 44	4	
	45 and above	5	
Q3	What is your education level? **[SA]**	Code	Route
	Illiteracy	1	
	Primary	2	
	Secondary	3	
	High School	4	
	10 Standard Pass / University Student	5	
	Graduate	6	
	Post Graduate / Master / Ph.D	7	
Q4	What is your occupation / industry? **[SA]**	Code	Route
	Public Sector	1	**Go to Q5**
	Private Sector	2	**Go to Q5**
	Self Employed	3	**Go to Q6**
	Unemployed	4	**Go to Q6**

Q5	What is your level of position? [SA]	Code	Route
	Managerial	1	
	Supervisory	2	
	Senior Staff	3	
	Entry	4	
Q6	How much is your monthly household expenditure? In Kyats… [SA]	Code	Route
	Less than or equal 250,000	1	
	250,001 to 500,000	2	
	500,001 to 750,000	3	
	750,001 to 1,000,000	4	
	1,000,001 to 1,500,000	5	
	1,500,001 to 2,000,000	6	
	2,000,001 and above	7	

Mobile Telecom Network Service Provider Usage and Awareness			
Q7	Which mobile telecom networks do you use? (Circle all the networks you use) [MA]	Code	Route
	MPT	1	
	Ooredoo	2	
	Telenor	3	
	Mytel	4	
Q8	Which mobile telecom network services do you use most often? [SA]	Code	Route
	MPT	1	
	Ooredoo	2	
	Telenor	3	
	Mytel	4	
Q9	How long have you been using this network? [SA]	Code	Route
	Less than 1 year	1	
	1 year to 2 years	2	
	2 years to 3 years	3	
	3 years to 4 years	4	
	4 years to 5 years	5	
	5 years and above	6	

Q10	Where do you get about mobile telecom network services information? **[MA]**	Code	Route
	Television	1	
	Radio	2	
	Billboards	3	
	Newspaper / Journals / Magazines	4	
	Social Media	5	
	Internet	6	
	Friend, Family and Workmates	7	
	Mobile Phone Company and Shop	8	
	Events / Promotion	9	
	Others (Specify) …………………………......……	10	
Q11	How much do you spend for your mobile phone bill monthly? In Kyats **[SA]**	Code	Route
	Less than or equal 10,000	1	
	10,001 to 20,000	2	
	20,001 to 30,000	3	
	30,001 to 40,000	4	
	40,001 to 50,000	5	
	500,001 and above	6	
Q12	You subscribed your mobile telecom service network provider because - **[SA]**	Code	Route
	Most of my friends were in it	1	
	My family and relatives were already in the network	2	
	It was a present and I did not have much choice	3	
	Most of my work mates of business associates	4	
	The network had most subscribers in the country	5	
Q13	For What purpose do you use your mobile telecom network services mostly? **(Rank on the scale of 5, highest 1 and lowest 5)**	Rank	Route
	Voice Call	( )	
	SMS (Short Messages services)	( )	
	Mobile commerce (e.g. M-banking, Money transfer, M-marketing, etc.)	( )	
	Internet (Messengers, Viber, Facebook, Email, etc.)	( )	
	Entertainment (e.g. TV, Music, etc.)	( )	

Factors that Influence Consumer Choice of Mobile Telecom Service Provider			
Q14	Statements	Yes	No
Social Factor			
1	Workmates and business associates	1	2
2	Family and relatives	1	2
3	Friends and social groups	1	2
Economic Factor			
1	Low Data rate	1	2
2	Low calling and SMS rate	1	2
Service Efficiency and Effectiveness Factor			
1	Clear and uncongested network	1	2
2	Fast data services	1	2
3	No bill deduction error	1	2
4	Attractive promotion	1	2
5	Trusted company	1	2
6	Better data quality	1	2
7	Catchy advertisement	1	2
8	Discount / special offer price	1	2
9	Wide geographical network coverage	1	2
10	Provides more data	1	2

Thank you for your co-operation in the survey

Appendix Table (B) Parameter Estimates for the Multinomial Logistic Regression Model for Mobile Telecom Service Provider with Significant Variables

Telecom Service Provider	Variables		B	Std. Error	Wald	Sig.	RRR	95%Confidence Interval	
								Lower	Upper
Ooredoo	Constant		-1.434	1.637	.767	1			
	Age	18-24	1.716	.743	5.330	.021	5.564	1.296	23.889
		25-34	1.846	.718	6.615	.010	6.333	1.552	25.851
		35-44	-.835	.880	.901	.342	.434	.077	2.433
		45 and above(Ref)							
	Occupation	Public Sector	.819	.729	1.262	.261	2.267	.543	9.462
		Private Sector	-1.188	.438	7.336	.007	.305	.129	.720
		Self Employed	-1.242	.579	4.607	.032	.289	.093	.898
		Unemployed (Ref)							
	Fast Data Services	Yes	1.805	.803	5.057	.025	6.083	1.261	29.343
		No (Ref)							
	Low Data Rate	Yes	-1.030	.912	1.276	.259	.357	.060	2.132
		No (Ref)							
	Trusted Company	Yes	-.468	.402	1.358	.244	.626	.285	1.376
		No (Ref)							
	Better data quality	Yes	-.734	.416	3.117	.077	.480	.213	1.084
		No (Ref)							
	Workmates and Business Associates	Yes	.050	1.148	.002	.966	1.051	.111	9.978
		No (Ref)							
	Family and Relatives	Yes	-1.049	.363	8.336	.004	.350	.172	.714
		No (Ref)							
	Wide Geo Network Cover	Yes	.251	.333	.568	.451	1.285	.669	2.470
		No (Ref)							
	Provides more data	Yes	.771	.366	4.437	.035	2.162	1.055	4.430
		No (Ref)							
Telenor	Constant		-.675	1.304	.268	.605			
	Age	18-24	1.351	.568	5.652	.017	3.861	1.268	11.760
		25-34	.415	.572	.527	.468	1.515	.494	4.650
		35-44	.116	.581	.040	.841	1.123	.360	3.509
		45 and above(Ref)							
	Occupation	Public Sector	-.448	.773	.335	.563	.639	.140	2.908
		Private Sector	-.536	.410	1.705	.192	.585	.262	1.308
		Self Employed	-.890	.502	3.136	.077	.411	.153	1.100
		Unemployed (Ref)							
	Fast Data Services	Yes	-.401	.508	.623	.430	.670	.248	1.812
		No (Ref)							
	Low Data Rate	Yes	.721	.902	.638	.424	2.056	.351	12.055
		No (Ref)							

			B	S.E.	Wald	Sig.	Exp(B)	Lower	Upper
	Trusted Company	Yes No (Ref)	.039	.409	.009	.924	1.040	.466	2.319
	Better data quality	Yes No (Ref)	-.836	.417	4.022	.045	.433	.191	.981
	Workmates and Business Associates	Yes No (Ref)	-.433	.708	.373	.541	.649	.162	2.600
	Family and Relatives	Yes No (Ref)	-.669	.343	3.802	.051	.512	.262	1.003
	Wide Geo Network Cover	Yes No (Ref)	.565	.303	3.480	.062	1.759	.972	3.183
	Provides more data	Yes No (Ref)	-.627	.410	2.345	.126	.534	.239	1.192
Mytel	Constant		-.542	1.754	.095	.757			
	Age	18-24	2.917	1.148	6.459	.011	18.487	1.949	175.327
		25-34	1.788	1.140	2.460	.117	5.975	.640	55.773
		35-44	.041	1.230	.001	.974	1.042	.094	11.597
		45 and above(Ref)							
	Occupation	Public Sector	1.870	.901	4.311	.038	6.488	1.111	37.909
		Private Sector	-.788	.597	1.744	.187	.455	.141	1.465
		Self Employed	-.720	.753	.913	.339	.487	.111	2.130
		Unemployed (Ref)							
	Fast Data Services	Yes No (Ref)	2.084	.994	4.400	.036	8.039	1.147	56.365
	Low Data Rate	Yes No (Ref)	-1.877	.995	3.562	.059	.153	.022	1.075
	Trusted Company	Yes No (Ref)	-.574	.539	1.137	.286	.563	.196	1.619
	Better data quality	Yes No (Ref)	-.602	.540	1.243	.265	.548	.190	1.578
	Workmates and Business Associates	Yes No (Ref)	-2.251	.824	7.470	.006	.105	.021	.529
	Family and Relatives	Yes No (Ref)	-1.248	.463	7.257	.007	.287	.116	.712
	Wide Geo Network Cover	Yes No (Ref)	-1.265	.487	6.762	.009	3.544	1.366	9.199
	Provides more data	Yes No (Ref)	-.325	.548	.352	.553	.723	.247	2.113