The Antecedents of Customer's Perceptions of the Quality of Mobile Phone Recharge Bundles in Tanzania

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Abstract

One of the strategies that telecommunication companies employ in order to attract customers and survive is through the quality of their services. This study explores the extent to which customers evaluate price, duration or a size of mobile phone network recharge bundles in order to establish the antecedents of customers' perception of the quality of the bundle. A cross-sectional approach was necessary in order to get the required information from customers in Tanzania who are users of the bundle services. The causal effects of price, duration and size on the customers' perception of the bundles were established through correlation and multiple regression analysis. It plainly shows that price, duration and size of the recharge bundles predict customers' perception of the quality of bundles in Tanzania, albeit the duration has a greatest impact. This study, therefore, adds value to the current knowledge and is useful for mobile phone service providers in their marketing programs.

Key words: Antecedents, Customers' Perception, Service Quality, Recharge Bundles

Introduction

Companies in the telecommunication sector employ various strategies in order to survive, compete with rival companies and attract customers. The bundling strategy for mobile phone recharge bundles has become one of the most popular and useful strategies in the telecommunication sector. It seems almost intuitive that the more the quality of the bundled products the more attractive it is to the customers. In order to understand customers' perception of the quality of bundled products; researchers have explored various companies' strategies (Krämer, 2009), mobile payment systems (Wilson & Mbamba, 2017; Matola, 2019) and significantly customers' perception of bundles (Ünera, *et al.*, 2015; Klein & Jakopin, 2014; Liang *et al.*, 2013,). Further to that, some studies have examined customers in terms of their behaviour to switch from one mobile phone network provider to another (Liang, *et al.*, 2013) while other scholars have basically examined customer loyalty (Ünera *et al*., 2015). It is not surprising that several studies have also looked into customers' perception and marketer's strategies to increase revenues, improve service quality as well as customers' value and satisfaction (Liang, *et al*., 2013; Wilson & Mbamba, 2017). However, the extant literature has not sufficiently explored the determinants of customers' perceptions of the quality of the recharge bundles amidst the constant introduction of new mobile phone networks' recharge bundle offers. What is known is that these new *bundles* come with different prices, different sizes and different durations depending on different telecommunication companies.

The presence of various competing companies in the telecommunication sector makes it necessary for the mobile phone network services market structures to be mostly of monopoly in nature. Scholars have argued that competition in the telecommunication industry increases due to the innovative marketing strategy that goes hand in hand with rapid changes technology (Avenali *et*

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al., 2013; Klein & Jakopin, 2014; Sim, 2013). It is the same improvements in technology that has enabled companies to move from using traditional ways of providing service to more advanced ones. No one may want to disagree with Pereira and Vareda (2013), for example that telecommunication companies strategically moved from selling airtime and data to bundling, whereby duration, size and price of mobile phone network recharge were embedded. By this bundling strategy, companies have been using such price strategies as introduction of flat rates, time duration strategies as introducing limits for the usage of bundle as well size strategies as in the case of various introduced discounts to the purchased airtime and data (Klein & Jakopin, 2014). The more the popular bundling has become, the more companies appear to employ different combinations of price, duration and size in order to improve the quality of their services. It is obvious that the aim of these companies is to increase sales. In order to achieve this aim, however, they must heavily invest with hopes of acquiring new customers and retain them. Studies have shown that, when the customers leave, the operators not only lose the future revenue from the customers but also resources spent to acquire that customer (Crowd ANALYTIX, 2016). It is not surprising, therefore, that the composition of the elements of mobile phone recharging bundle that customer may perceive to be of the desired quality and eventually use to design models that marketers will use to retain their customers is yet to be found.

It was stated earlier that studies on customers' perception of the quality of telecommunication products including airtime and data are not entirely new. Liang *et al.* (2013), for example, studied the influence customers' loyalty and customers' behaviour to switch from one mobile phone network service provider to another in China in order to understand the determinants of customers' perceived quality. Their study identified seven critical factors, namely core service failure, high price, ethical problems, competition, inconvenience, service encounter failure, and influence from family/friends/group. User's customers' willingness to pay was used to understand the perception of the utility of mobile network service bundle packages that contain free calling minutes and unlimited text messaging. What becomes clear from their study is that price is an important aspect for customers' evaluation of the quality of the mobile phone bundle compared to the size and duration of the product (see also Klein & Jakopin, 2014).

It is evident that extant literature has not paid much attention on the antecedents of customers' perception of the quality of mobile phone network recharge bundles. It is also worth noting that, although studies on mobile phone bundled products has been taken in developed countries as well as emerging economies countries, such studies are scarce in Tanzania where the mobile network recharge bundles are booming and significantly pushing the telecommunication market significantly toward bundling directions as compared to the direction of the use of the normal airtime (Rumanyika & Mashenene, 2014). The few studies conducted in the telecommunication sector in Tanzania seem to emphasize on other issues altogether. Wilson and Mbamba (2017), for example, evaluated the influence of ease of use; perceived usefulness; service quality; and information systems qualities of payment systems in the adoption and use of mobile phone payment system. Similarly, Elinaza (2018) appeared to emphasize on the need to assess the growth in the stock share pattern, albeit only in one of the operators - Vodacom Tanzania Limited.

Mobile phone network providers work hard to ensure they satisfy their customers. In order to do so, they must improve the quality of their recharge bundles through what Cibangu, Hepworth and Champion (2017) described as competing prices, longer airtime and size. The 2008 study by Overa

conducted in Nigeria, for example, found out that there were different mobile phone network operators with different packages of recharge bundles in which every operator aimed at achieving competitive prices for their bundles. Similar trends can be noted in Tanzania where there has been rapid increase of mobile phone subscribers (see TCRA, 2019). It appears that the number of mobile phones subscribers in 2019 in the world was more than 4.5 billion which is close to 60% of the world's total population (O'Dea, 2020). In China alone, while the number of mobile phones subscribers was projected to reach about 0.78 billion by 2020, as of September 2019, the mobile phone subscriptions had already doubled the projections to about 1.6 billion (Wong, 2020). The statistics in the 2020 study by Diwanji show the number of mobile phones subscribers in India in 2018 was almost 400 million, with estimations that that by 2023, there would be over 500 million mobile phone internet users in the south Asian country. In European countries such as France, Spain and Portugal, the recharge bundles had taken off with force much earlier, where market penetration had already exceeded 50% in 2010 (Veith, 2010). Due to the flexibility and convenience that consumers receive from using these bundles, these bundles have been increasingly reputable.

The reputation for the recharge bundles surely has some impact on the consumers' preferences and desire to use mobile phones for communication. In Tanzania, there has been a tremendous growth of mobile phone users registered to different mobile various telecommunication operators. As it is the case with the world trend, there is a rapid increase of mobile phones subscribers who are increasingly posing a threat to replace fixed network (land lines), which were dominant in the near past. Table 1 shows the trend of the growth of mobile phone subscribers against fixed phone subscribers from 2015 to 2019.

Table 1: Subscriptions to Mobile and Fixed Network

Network	2015	2016	2017	2018	2019
Mobile Network	39,665,600	40,044,186	39,953,860	43,497,261	47,685,232
TTCL	138,754	127,112	127,009	124,220	76,288
Zantel	4,065	2,485	85	18	0
Fixed Network	142,819	129,597	127,094	124,238	76,288
Total	**39,808,419**	**40,173,783**	**40,080,954**	**43,621,499**	**47,761,520**

Source: TCRA quarterly communication statistics reports of December of 2015 up to 2019

There are several mobile phone network services run and offered by various operators the most dominant and competitive being Airtel, Halotel, Smile, Tigo, TTCL, Vodacom and Zantel. These operators are all in constant wars in their struggles to provide best services, to retain customers, to avoid customer churns and increase the market share. Table 2 below shows that Vodacom, Airtel and Tigo are the leading operators in terms of market share in Tanzania with Vodacom dominating with 15,672,390 customers, followed by Airtel with 12,722,224 customers and Tigo with 12,572,826 customers (see also TCRA, 2019).

Table 2: Telecom Subscriptions and market shares from 2015-2019

Operator	2015	2016	2017	2018	2019
Airtel	11,047,505	10,456,117	10,855,955	10,954,621	12,722,224
Smart	1,560,343	803,251	131,501	132,292	-
Halotel	1,226,678	3,438,509	3,799,691	3,942,237	4,641,701
Tigo	11,115,991	11,677,344	11,062,852	12,583,640	12,572,826
TTCL	304,214	293,495	429,753	711,411	981,072
Vodacom	12,714,297	12,419,425	12,866,059	14,143,657	15,672,390
Zantel	1,839,391	1,085,642	935,161	1,153,641	1,170,085
Smile	-	-	-	-	1,222
Total	**39,808,419**	**40,173,783**	**40,080,954**	**43,621,499**	**47,761,520**

Source: TCRA quarterly communication statistics reports of December of 2015 up to 2019

The operators in the table above have been offering voice, text messages or data through mobile recharge services over the last decade, when mobile recharge bundles were introduced in Tanzania. Essentially recharge bundles aimed at lowering tariffs and giving a customer a freedom of either using bundled services by choosing a single service, whether voice, text messages or data. Nonetheless, while the bundled recharges combine the use of price, size and duration of services, the duration of normal recharge is not limited to time. The operator, therefore, apparently use price, size and duration to compose their recharge bundles as their company's strategy to attract and retain more customers than its competitor. The mobile phone recharge bundles are each operator's unique products, albeit price, time and duration may not significantly vary. Being unique to each operator, brand names are also uniquely assigned to these recharge bundles. For example, there exist such brand names as *Cheka* by Vodacom, the *Extreme* by Tigo, *Yatosha* by Airtel and *Smatika* by Smart.

Experience shows that every operator seeks to design the brand name in order to attract more customers while at the same time either increasing duration and/or size of the bundle with the same or less price. Occasionally, varying prices for the same size of bundles can be noted among different operators. It seems plain that customers would always strive to go for the operators whose combination of recharge bundle is perceivably of the quality customers affordably prefer. It is common to see some customers in Tanzania subscribing to more than one operator in order to simultaneously enjoy multiple offers from different operators. However, the combination of the elements of the recharge bundle that makes customers to judge the quality of their bundled offers may not be obvious for operators. Operators, it seems, require creativity and public reaction to understand customers' perceptions. What comes out plainly is that, for all the different bundles offered by different operators, the use a combination of price, duration and size of the recharge bundle – especially of airtime and data – matters to the companies. It is not clear, however, whether customers perceive the quality of the recharge bundles using the same strategies. The present study explores the extent to which customers assess the combination of price, duration and size of the recharge bundle in order to establish the antecedents of the perception of the quality of the mobile phone recharge bundles. A bundled product is considered as the one in which a firm offers several products separately and gives discount to those consumers purchasing the product as a single combined product (Mariñoso et al., 2008). In Tanzania, the telecommunication companies, for example, Vodacom, Tigo, Airtel, TTCL and Zantel, offer the mobile phone recharge services in the form of airtime, short messages (sms) and internet data in two main ways. The first is in

form of separate and unbundled phone recharges and the second is separate and bundled recharges. Among these products, that which customers precisely perceive as the elements that increase their perceived quality is not clear-cut. It is therefore evident that the understanding and coherent conception of the antecedents for customer perceptions will be beneficial for service providers and customers. The same is also significant for service providers because they may employ the knowledge to provide services that satisfy their extant and prospective customers. With regard to customers, the present study comes as a guide for the selection of mobile phone network operators and services on view of customer's perceptions of the quality of the offer other than the operator's determination of the offers.

Literature Review and Theoretical Background

Customers' perception of Service Quality

There are several things that might influence customers' perception of service quality. On various views, Kiran (2017) for one, customers' perception of service quality is influenced by service modality and pattern in the respective business. In order to understand what service quality entails, scholars such as Parasuraman, Zeithaml and Berry (1988) and Coulter & Coulter (2002) have argued that it is a notion of quality that must be viewed as customers' overall assessment in connection to the business and/or services offered. Commonly, customers tend to assess the quality of services basing on the attributes that the customer attaches to the service (Wang *et al.*, 2004). It is useful to think, in line with Garvin (1988), therefore that, when defining service quality, there are several attributes that can be proposed, namely performance, conformance, features, reliability, serviceability, durability, aesthetics and even more obviously customer-perceived quality.

Of all the attributes in the above list, customer's perception is the most important and it is the one that is increasingly paid attention to for its contribution to the competitiveness of business. It is not surprising that service quality is often regarded as the difference between that which the consumer expects and what the perceptions of the consumer are. One of the popular measurements of such a quality is through the "SERVQUAL model" which is accredited to Parasuraman *et al.* (1988). The said model entails that the quality of service largely depends on the size and the direction of the gaps concerning the delivery of quality service on the organization's side. It makes sense, therefore, to agree with Parasuraman, Zeithaml and Berry (1985) that the model is not only universal but can also be applied to any service organization to assess the quality of services provided. The present study applies this model by looking at the customer's perception of the quality of price, duration and size.

Theoretical Review – The *SERVQUAL Model*

It was stated earlier that the SERVQUAL model describes service quality as the difference between customer expectations and perceptions of service. For this reason, the SERVQUAL model is theoretically determined by the customers' confirmation or disconfirmation of the service offered (see Parasuraman *et al.*, 1988, 1991). The perception of the customers on service quality is normally tested with actual experience that the respective customers have got from consuming the product or service. In measuring perceived quality, Parasuraman *et al.* (2005) developed several attributes including, competence, tangibles, communication, knowing customers as well as courtesy. It is plain that these attributes are important for an organization since they enhance the discovery of the customers' needs in the process of delivering high quality service. Through the process of confirmation and disconfirmation, the SERVQUAL model employs measurements that

compare consumer expectations (before service) and actual evaluation after consumer experiences service (Namin, 2017). Plainly, the SEVQUAL model uses the scale in which the differences between customer's expectations and actual experiences are regarded as the service gap that is to be addressed by the respective organization.

The fact that the SEVQUAL model is widely applied has produced results does not entail that the model is immune to criticisms. In fact, some results from the model have received fatal criticisms from various authors. The results have been criticized because using the difference between customers actual perceptions and expectations can sometimes poorly correlate with disconfirmation. Thus, the model's use of gap scores, measurement of expectations, positively and negatively worded items, the generalizability of its dimensions, and the defining of a baseline standard for good quality are some of the widely criticized aspects (Ravichandran *et al.*, 2010). Moreover, scholars tend to agree that some restrictions occur when computing differences between scores for reliability, validity and variance using the SERVQUAL model (Wang, Lo & Yang, 2004). However, in order to address this problem, some authors combine expectations and perceptions into a single measure and found out that this significant move outperforms the SERVQUAL scale in terms of both reliability and validity (Ali & Raza, 2017; Babakus & Boller, 1992; Dabholkar, Shepherd & Thorpe, 2000; Ravichandran *et al*., 2010). Since the criticisms can be addressed, it is therefore useful that the present study adopts the SERVQUAL model even if the aim is only to measure customers' perception.

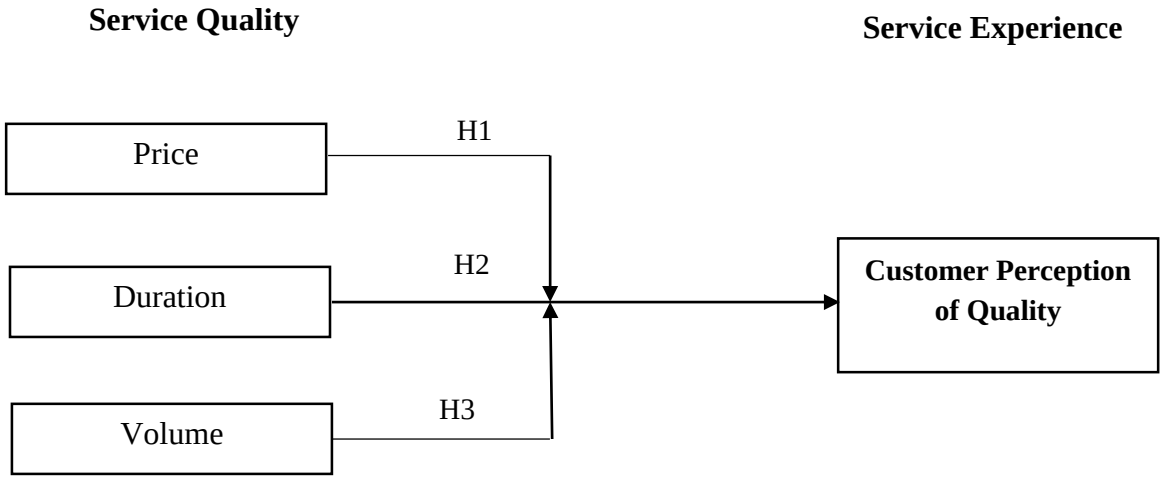
The antecedents of customer perceived service quality

It appears that the SERVQUAL model is closely related to the antecedents of customers' perceptions on the quality of the service provided. By the antecedents to customers' perceived service quality, reference is often made to such attributes as the reliability, responsiveness, tangibles, assurance and empathy (Parasuraman *et al.*, 1985, 1988; Dabholkar, Shepherd & Thorpe, 2000). These attributes are also known as criteria for evaluating customers' perception of service quality. The concept of "tangibles" refers to the appearance of physical facilities, equipment, personnel and communication materials. By "reliability", it is always meant the ability to perform the promised service dependably and accurately. Similarly, the concept of "responsiveness" refers to the willingness to help customers and provide prompt service while "assurance" is a combination of *competence* (possession of the required skills and knowledge to perform the service); *courtesy* (politeness, respect, consideration and friendliness of contact staff); *credibility* (trustworthiness, believability and honesty of staff); and *security* (freedom from danger, risk and doubt). The attribute of "empathy" is itself a combination of *access* (approachability and ease of contact); *communication* (keeping customers informed in a language they understand and listening to them); and *understanding* the customer's needs (making an effort to know the customers and their needs). It is therefore the case that Hirmukhe (2012) was right in arguing that service quality is an extent of discrepancy between customer's expectations or desires and their perceptions. It is clear that there are universal antecedents of the customer's perceived service quality. The present study applies these antecedents in predicting the antecedents of the customers' perceptions of mobile phone recharge bundles. In doing so, it is important to take the characteristics of the elements that operators in Tanzania use in designing and implementing their marketing programs.

Conceptual Framework

This research has three independent variables, which are the service quality attributes namely bundle price, bundle duration and bundle size (or volume). Customers' perceptions of service quality which were measured by customers' experiences of mobile phones networks recharge bundles played a role in the present study as the independent variable. In that case, the conceptual framework is well illustrated in the Figure 1.

Figure 1: The Conceptual Framework



Hypotheses

From the above given conceptual framework, there are three main hypotheses followed by the expansive analysis of the three hypotheses.

Hypothesis 1 (**H1**)

Ha: Price has influence on customers' perceptions of the quality of the recharge bundles.

Hypothesis 2 (**H2**)

Hb: Duration has influence on customers' perceptions of the quality of the recharge bundles.

Hypothesis 3 (**H3**)

Hc: Size (or volume) has influence on customers' perceptions of the quality of mobile phones networks recharge bundles.

Methodology

This study applies the positivism philosophy. Positivism is significant here because the present study attempts to explain the customers' behaviour in evaluating the quality of mobile phones networks' recharge bundles. It is positivism that enhances the establishment of the causal relationship (see e.g. Jennings, 2010) between service attributes and customers' perceptions. Positivism is useful since it is appropriate that the causal relationship between the various variables is established, albeit within the organized universal laws and truths. Positivism necessarily, therefore, requires the use of quantitative methodology in which the nature of truth will be

established by the step by step testing of the hypotheses. A structured questionnaire with a five level Likert scale was used in order to not only capture relevant answers from the respondents on the predetermined relationships between variables but also quantify the extent of this relationship statistically (Dawson, 2002; Kothari,1995; Kumar, 2005).

It was equally significant to use a cross-sectional analysis method in order to get the required information for the argument in the present study. The researcher's choice of cross-sectional survey method was useful since the method provides options that make it easier to collect quantitative data (Creswell, 2013). With regard to the population used for this study, only customers who are users and beneficiaries of mobile phone networks recharge bundle services in the Ubungo Municipality in Dar-Es-Salaam, Tanzania were targeted. For the reasons that it was difficult to obtain the sampling frame and to trace each of the service users targeted, the researcher randomly selected the respondents around University of Dar Es Salaam main campus, Mlimani City Mall, Survey and Mwenge areas. The targeted respondents for this study were 200 mobile phone networks subscribers to represent other subscribers in Ubungo Municipality. It makes sense that, being quantitative in nature, a larger sample was required in order to most accurately arrive to valid and reliable results.

This being the case, the results are well illustrated using multiple regression model which is best described in the manner which is as follows:

$CP = \beta o + \beta 1PP + \beta 2BD + \beta 3SB + e$
Whereby:
CP = Customer's Perception (of the recharge bundle).
βo = Constant Factor
β1DT = Price of the recharge bundle
β2BD= Duration of the recharge bundle
β3SB = Size of the recharge bundle
e = Random variable

The operationalization of the variables of this study replicates the SERVQUAL model by looking customer perception of the quality of recharge bundles through their experience of using these bundles. A five measure Likert scale was used to determine the customer's perceptions. Price is measured by if customer affords to pay for a bundle, if he compares to other competitors and if he/she feels the prices is reasonable. The duration is measured by if the customer see the time is enough for him/her to consume the bundle; the expiration alert of the bundle and the speed of network. The size is measured by if the customer sees the size of bundle satisfies his/her needs, if covers the value of money and also if bundle is used to all his/her apps.

Data Collection

Obviously, both primary and secondary data were employed. As mentioned earlier, the primary data were collected using interviewer-completed questionnaire, (Jennings, 2010) which was instant and face to face. Scholars have considered this tool as appropriate for the interviewee because the interviewer often makes unwanted interceptions at the cost of the interviewees time and activities and this tool avoids this challenge (see e.g. Frey 1989). So, the interviewer's tasks were to complete a questionnaire and motivate the interviewees to participate. An added advantage

to the tool is that it also allowed the interviewees and the interviewer to clarify questions and answers when required. This enabled the interviewer to probe the interviewees in order to extend responses such as asking for more explanation about their answers (or scale). For the effectiveness of the above methods, it was important that close-end questions be used in order that the researcher could avoid being biased. The secondary data were collected from various relevant published readings, which were in line with the study hypotheses. These readings included books, articles, official reports and documentary reviews. In short, secondary data was obtained by collecting information from a diverse source of documents including internet, government reports and operators' archives.

Reliability and validity

It is a common practice that the measurement of reliability is categorized at different levels. From 0.80 and above it is implied that there is an acceptable level of internal reliability, 0.70 denotes a satisfactory level, while 0.60 denote good level of reliability. Reliability of the present study was determined by using Cronbach`s alpha, whereas Table 3 shows the results.

Table 3: Cronbach Alpha Test

Variables	Cronbach Alpha	Number of Items
Price	0.809	4
Duration	0.768	4
Size	0.793	4
Customer Perception of the quality	0.747	4

The Table 3 above shows the reliability of the study after testing the variables which entails that the data collected were reliable and consistent. To determine validity of the findings, the researcher conducted pre-testing in which a sample of 10 people was used to answer the first draft of a questionnaire. The collected data were checked and compiled appropriately by the researcher. Then, the coding of the data and data entry, were done manually. Finally, the data analysis was done by using SPSS version 20 and the results that were presented in graphs, tables and some of the statistical techniques showing causal relationships, followed by discussions. In line with the positivist philosophy, the three independent and one dependent variables of the study were analyzed through the use of correlation and multiple regression analysis to establish the causal effect between variables.

Analysis and Interpretation of Findings

The first stage towards obtaining findings was to look into the description of the variables that could be combined to answer the research questions. Provided that it was important to understand the distribution of frequencies, the study measured the central tendency by using mean and standard deviation in order to describe the relationship between variables. The aim was to determine the variables which mostly influence dependent variable from those that have a minimal or no influence. By so doing, the minimum level of opinion among respondents was determined. Table 4 below demonstrates the results the results from this stage.

Table 4: Mean and Standard Deviation

Study Variables	Mean	Std Deviation	N
Customer Perception of quality of mobile phone recharge bundle	3.183	1.1362	146
Price of the mobile phone recharge bundle	3.528	1.5329	146
Duration of the mobile phone recharge bundle	3.602	1.6352	146
Size of the mobile phone recharge bundle	3.488	1.4626	146

The Mean results as per the above table show that the duration of mobile phone network recharge bundles as an independent variable does influence the dependent variable more than either price or size of the recharge bundle does. This happens since it has the highest mean value (3.602) if compared to other variables among the predicting ones. These results entail that customer perception of quality of recharge bundles in Tanzania is mostly influenced by duration than the price or size of the bundles. On the other hand, the standard deviation shows that variance between variables is not high which stipulates that respondents' views do not significantly differ.

Correlation and Multiple Regressions

It was equally important to conduct an inferential analysis in order to show the relationship between independent variables and dependent variable. The analysis is therefore preceded by the overall testing of all study predicting variables - prices, duration and size of the recharge bundles on customers' perceptions. Consider the following illustration:

Table 5: Model Summary

Model	R	R square	Adjusted R Square	Standard error of estimate
1	0.737	0.544	0.526	0.095

Table 5 above indicates the overall testing of all independent variables (i.e. duration, price and size) on customers' perception of the quality of recharge bundles as the dependent variable using the respective value of R^2. Plainly, customers' perception of the quality of the recharge bundles is positively influenced by price, duration and size of the recharge bundle by 54.4%. The implication of the above findings is that customers' perception of the quality of the recharge bundles in Tanzania is strongly influenced by all three independent variables.

Correlation Analysis

The correlation analysis is undertaken to show the variable which – among the predicting variables – influences the dependent variable more than others.

Table 6: Correlation Analysis

	Customer's Perception of Service Quality	Price	Duration	Size
Customer's Perception of Service Quality	1.000			
Price	.406	1.000		
Duration	.511**	.115**	1.000	
Size	.327	.060**	.115**	1.000

****p<0.001, ***p<0.05, *p<0.1

Table 6 above is an indication of results on correlation analysis. The highest correlation among all predicting variables in this study is between the duration of the bundles and the customers' perception of the quality of the recharge bundle. This implies that customers' perception of service quality with regard to recharge bundles is mostly influenced by the duration of the bundle than it is influenced by other independent variables in the given dataset. Nonetheless, although the correlation is positive, the coefficient is highly minimal. This entails that there is no multicollinearity. There is however a need to correct it using multiple regression analysis.

Assumption of regression analysis

Multi-colinearity test

Multi-colinearity is used to show if the independent variable has similarity with other independent variable in one model. Multi-collinearity can be observed from Variance Inflation Factor (VIF) and Tolerance (TOL). Based on multi-collinearity test table 7 we can see that VIF 2,588 and TOL 0,385 means each independent variable has VIF no more than 10 (VIF<10) and TOL > 0,1. Thus we can conclude that this regression multiple linear model is free of multi-colinearity assumption.

Table 7: Multicollinearity test

Model	Collinearity Statistics	
	Tolerance	VIF
(constant)		
Price	0.490	2.041
Duration	0.683	1.464
Size	0.584	1.713

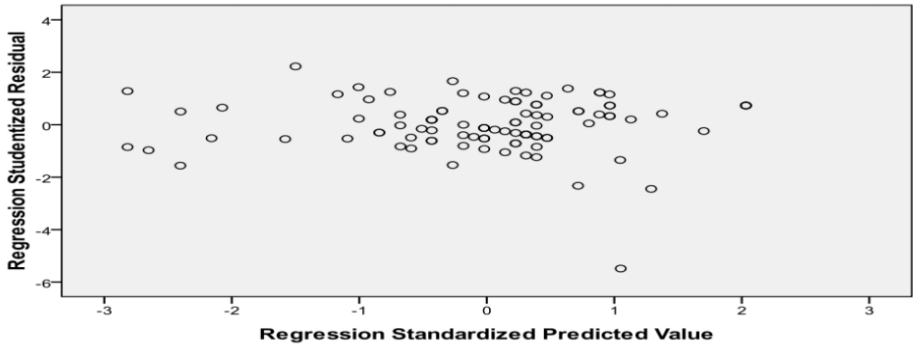
a. Dependent Variable: customers perception on service quality

Heteroskidastity Test

According to the scatter plot shown below, the following are the spreading of data dots:

1. Data dots spread above and below or around zero
2. Data dots do not concentrated above or below only
3. Data dots spreading should not form wavy pattern, wide then narrow then wide again
4. Data dots spreading would be better if it has no pattern

Scatterplot Chart Diagram



It can, therefore be concluded that the data is negative of Heteroskidastity

Multile Regression Analysis

The multiple regression analysis was performed in order to specifically show the contribution of each predicting variable on the dependent variable; as well as to correct multicollinearity error. It was stated earlier that the lack of multicollinearity needed correcting. Therefore, the findings of such corrections are as presented in Table 7 below.

Table 8: Multiple Regression Analysis

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.
	B	Std. error	Beta		
(constant)	-12.069	3.825		-1.148	.133
Price	2.527	.342	.511	12.402	.000
Duration	2.726	.367	.540	12.635	.000
Size	2.266	.321	.503	12.125	.000

The results in Table 8 show the contribution of all independent variables separately on customers' perception of quality of the recharge bundles as the dependent variable. In this case, it is noted that all the three independent variables (namely price, duration and size) have a statistically significant influence on customers' perception of quality of mobile phones networks recharge bundles in Tanzania. The table 8 on Price to Customer perception of service quality shows that the coefficient number of pricing is 0.511. It means that every effort of good pricing increase one unit will increase customer perception by 0.311 with assumption that other independent variable from regression model is constant

Table 8 on Duration to Customer perception of service quality shows that the coefficient number of duration is 0.540. It means that every one unit increment of duration will increase customer perception on service quality by 0.540 with assumption that all other independent variables in regression model is constant. Table 8 on size to Customer perception of service quality shows that the coefficient number of size is 0,503. It means that every one unit increment of size will increase customer perception on service quality by 0.503 with assumption that all other independent variables in regression model is constant.

Table 9: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10323.219	2	5161.609	229.854	.000[a]
	Residual	3772.619	167	22.456		
	Total	14095.838	169			

a. Predictors: (Constant), Price, Duration, size

b. Dependent Variable: Customer Perception

The ANOVA summary table, which indicates that our model's R^2 is significantly different from zero, $F(2, 167) = 229.854$, $p<0.000$.

Discussion of the Results

Price and customers' perception of quality of the recharge bundle

Primary data collection aimed at determining whether or not the independent variables have influence on the dependent variable. The results indicate that "price" not only has a positive influence but it also has a statistically significant influence on customers' perception of the quality of the recharge bundle at .000 level ($p<0.05$). It is entailed in this study that the perception of customers of service quality in form of recharge bundles in Tanzania is influenced by their prices. According to researchers' probes during administration of questionnaires the perception of customers in service quality interims of price can be seen in two categories. Category one is that of customers who perceive that the service quality of bundles is satisfactory when the price is low. This category of customers believe that the lower the price the easier for them to access the service. Category two is that of customers who perceive that service quality of bundles is satisfactory when the price is high. This category of customers believe that the higher the price the reliable the bundle or service. However, according to researcher's findings it is revealed that a large number of customers often to go for the operators who charge less compared to those that charge a higher price.

It is generally the case that the mobile phone networks companies operating in Tanzania have set the prices for the recharge bundles in a way that is as affordable as possible. The affordability of the recharge bundles is one of the effective strategies that foster service quality realization on bundle recharging among customers in the respective context. These findings are in line with Lancaster (2017) also suggests that mobile phone recharging bundles are highly essential in fostering service quality in Tanzania since they are highly affordable to carter almost for all segments in the society. It is therefore not surprising that most companies have issued almost uniform prices and packages in setting their recharge bundles.

Price (of quality) of the recharge bundles

The fact is that, with competition in place, the packages are often regulated by the service providers to win as many customers as possible. The basic focus of these companies is to ensure the generation of profit and market performance through the same prices of the recharge bundles The above fact is justified in that the competitive environment has enabled the prices of the recharge bundles to be affordable to many and diverse enough for all segments of the population in the extent market and the whole Tanzanian society at large. The price of the recharge bundles has been improved as well in international calls which is highly essential for easy communication pattern through mobile phone network services in Tanzania, with increasing numbers of Tanzanians living, working and studying away from the country.

Duration and customers' perception of quality of the recharge bundle

It was also significant to determine the influence of the duration of the bundles on the dependent variable. Similarly, the results revealed that duration has a positive and statistically significant influence on customer perception of the quality of mobile phone recharge bundle at .000 level ($p<0.05$). The implication is that customers' perception of service quality of the recharge bundles in Tanzania is strongly influenced by duration of the bundle. The above claim is also made by Mwakatumbula *et al*. (2016) who states that customers are highly enthusiastic and appreciating the recharge bundles offered by the operating mobile phone networks companies provided that the bundles are composed of attractive durations which correspond with value for money. For many

customers, an attractive duration includes those of seven days and thirty days because they can be able to finish all the purchased airtime or data. However, there are customers who prefer 24 hours duration because they get more airtime and data, so they take advantage in utilizing within the limits before expiry. It seems common for most students to prefer overnight bundles because they are less expensive. It is therefore the case that operators who are attractive to the customers are those whose recharge bundles suit almost all categories and segments in the society. Suiting all categories and segments signifies that people with varying levels of income are accommodated and have access to the bundles.

The TCRA may sometimes intrude into the affairs of the mobile phone network companies operating in Tanzania in order to ensure that the prices and duration of the bundles are fair given the nature of the population. The TCRA (2017) report suggests that indeed mobile phone network companies operating in Tanzania have been able to comply with the regulation pattern to assure that large number of the general public both in urban and rural settings have access to mobile phone recharge bundles, not only in terms of affordability but also in terms of value for money. Evidently the highly attractive packages are those that offer sufficient airtime or data at extremely affordable and sometimes low costs. Examples are explicit among those bundles with short durations such as 1-2 hours in some operators in Tanzania.

Duration (of quality) of the recharge bundles

A similar argument can be made about the duration of the recharge bundle. It seems that tremendous improvements have been made on the duration of the bundles as a result of the competition in the market. This is because bundles have been increased and made attractive by all service providers to the extent that they have been attracting value for money and efficiency on customers. On top of that, the duration of the recharge bundle has also extended beyond local borders that it is easy even to make international calls with bundles containing sufficient duration. This is an assurance to the fact that both operators and customers enjoy brand loyalty.

Size and customers' perception of quality of the recharge bundle

The size or rather volume of the bundles too must have some effect on the dependent variable. results of the present study show that "size" has a positive and statistically significant influence on customers' perception of the quality of the recharge bundles at .000 level ($p<0.05$). The implication here is that customers' perception of service quality of the recharge bundles in Tanzania is in its own unique way strongly influenced by the size of the bundle. These findings are important for the reason that the recharge bundles may not always be static. It is therefore the case that, as time goes on, there have been improvements and massive offers on recharge bundles. It appears that there are bundles with massive and attractive sizes, something that captures the attention of many customers. This has attracted many customers to act in a way that appears to be in favour of the recharge bundles. Plainly, some operators are still making improvements and continuing to be innovative. It may be odd if other mobile phone network companies do not follow suit by coping the progress that other companies have made with regard to the recharge bundles and market entices for customers.

Customers' perception of the recharge bundles has been a useful strategy that affects mobile phone network companies when it comes to the whole pattern of service delivery. This effect is caused by the fact that all predicting variables that were identified and subjected to test, namely price,

duration and the size of the recharge bundle, are all positively and statistically significant in influencing customers' perception of the recharge bundles. It is necessary to note these key positive outcomes as far as business is concerned on the side of the mobile phone network companies. However, these companies have been less creative in the market since they have been coping each other in the bundles they offer, with slight changes in the brand names. To that end, it has been difficult to attain customers' loyalty to companies since the companies are often perceived as uniform entities in the market.

Size (of quality) of the recharge bundle

It is the case that the volume of the recharge bundles has been highly improving in the sense that various offers and packages have been increasing in the market. The reason is obvious that the operators' draft of the size of the bundles have been highly essential in assuring that customers are motivated to purchase services. The evidence is plain with the new recharge bundles. There exist innovations behind these bundles – as for example "*Halichachi*", "*Haliishi*", and several others from various operators, most being either affordable or cheap. It should be noted that, while the bundles may come with the provisions of internet services or airtime for example, some bundles include the combination of both airtime and internet services and sometimes other added offers like SMS.

Theoretical Implication

What becomes plain about the present study is that service quality is the key driver towards mobile phone network recharge bundles. This has had such a huge impact that the concern on the service providers in practice congregate with the service quality model whereas companies tend to seek to attain reliability of the services and bundles provided, empathy pattern, assurance pattern, tangibility and responsiveness. The impact is noteworthy because the focus of the operators is to make sure that the recharge bundles are not only attractive but also highly servicing the needs and wants of the costumers.

Recommendations

It has been plain that entities tend to copy from each other in a manner that mobile phone network companies have been perceived as uniform entities. On the side of performance this tendency to copy from each other makes it difficult to establish brand loyalty. It makes sense for the present study to recommend therefore that entities should strive to have copyrights on the brands they introduce in the market. Plausibly, copyrights can independently create uniqueness and identification, which are necessary for brand loyalty. Copyright is significant in solving the issue of mobile phone network companies coping from each other's bundling strategies. It must be noted that too much similarities in recharge bundles offered by various entities has been a notable issue of concern and significantly affects companies' identifications.

Clearly, mobile phone network companies seem to have performed progressively well so far with regard to the recharge bundles. These bundles are useful when it comes to attracting customers and creating brand loyalty. However, it seems that operators in Tanzania are not loyal to the bundles they introduce. The present study recommends therefore that the operators remain loyal to the offers and privileges they offer. Unless it is the case that the operators have decided to do away with the bundle, for a strategic change, it is recommended that the offers associated with the service should not be reduced and/or removed.

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