DETERMINANTS OF CUSTOMER LOYALTY AMONG SUBSCRIBERS OF GLOBAL SYSTEM FOR MOBILE (GSM) COMMUNICATION IN NORTH-WESTERN NIGERIA

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Abstract

Mobile telecommunications has transformed the way in which people communicate and disseminate information and ideas, especially in developing countries. In Nigeria, there was full deregulation of the telecommunications industry in Nigeria which paved way for private sector participation leading to the licensing of Global System for Mobile (GSM) Communications operations in 2001. Due to the upsurge and the speed in the growth rate of the telecommunication industry in Nigeria, the GSM market has thrown up intense rivalry among the operators. Therefore, the GSM providers in Nigeria are faced with the challenges of demonstrating customer-focused and continuous service improvement, as a way to ensuring customer satisfaction, and customer loyalty. The objective of this study is identify the determinants of customer loyalty among subscribers of GSM in Northwestern Nigeria. This study adopt survey research approach, and using logistic regression model, there is evidence to suggest that perceived price fairness does not affect customer loyalty in northwestern Nigeria. In addition, this study found out that the major factors influencing whether a GSM subscriber will reports brand loyalty are; perceived service quality, perceived brand image, and perceived customer satisfaction. This study suggest that the GSM service providers should continue to ensure the provision of a high service quality in the Northwestern Nigeria and by extension in the whole Nigeria in order to maintain customer loyalty.

Keywords: *Customer loyalty, Customer satisfaction, GSM service providers, GSM subscribers, GSM market*

1. Intoduction

Mobile telecommunications has transformed the way in which people communicate and disseminate information and ideas, especially in developing countries. As fixed lines often remain undeveloped and unavailable to the majority of the population in developing countries, mobile communication services have become the universal providers of communications services to unserved/underserved population. According to the International Telecommunication Union (ITU) (2013) the penetration rate of mobile phone subscribers is 96.2 per 100 inhabitants globally and the report also suggests that there are now more mobile phone users in the developing world than in the developed world.

According to Juwah (2011), there are usually two key factors that drive the development of telecommunications all over the world. These are; technological advancement, and deliberate government policy on liberalization. In Nigeria, these two factors are at play, with the establishment of the Nigeria Communications Commission (NCC) in 1992 but commenced full market liberalization and sector reform in 2000, and the National Telecommunications Policy which came into force in the year 2000.

In realization of the changes in global economy, there was full deregulation of the telecommunications industry in Nigeria which paved way for private sector participation leading to the licensing of Global System for Mobile (GSM) Communications operations in 2001. According to Adeleke and Aminu (2012), the GSM revolution started in Nigeria in August 2001, with the licensing of three mobile operators, Econet (now Airtel), Mtel, and MTN by NCC, Globacom and Etisalat were later licensed to operate and since then the face of information and communications technology in Nigeria has been transformed.

As a result of the revolution in the Nigerian Telecommunication industry, there is an exponential growth in recent years, going from active subscriber lines of 400,000 and teledensity of 0.04% to active subscriber lines of over 90 million and teledensity of 64.88% as of July 2011. The Nigerian telecom market has been described as one of the fastest growing telecommunication markets in the world (Juwah, 2011). Furthermore, as at end December, 2013 the total moblie telephony in Nigeria is over 124 million subscibers (NCC, 2013).

Due to the upsurge and the speed in the growth rate of the telecommunication industry in Nigeria, the GSM market has thrown up intense rivalry among the operators and necessitated the need to engage in relationship marketing activities that would enable them to retain a large number of their customers as well as make them loyal. This is more evident as the market is approaching saturation with little opportunity to attract new customers. Obviously, this may spell devising new marketing strategies such as; attractive tariff regime, introduction of new and innovative products, sales promotion, among others. All of these are aimed at both attracting new customers and retaining the existing customers.
The importance of customer loyalty is well recognised by service organisations and they are continuously striving to maintain their base of loyal customers. Loyal customers are profitable customers and generate revenue by purchasing more, more often, a wider range and by recommending new customers and as such deserve special consideration from the firms (Salgaonkar, 2004).

Despite attempts by the GSM operators to woo customers in Northwestern Nigeria, problems lingers such as; complicated tariffs, lower customer satisfaction, inefficient service delivery, interconnectivity problem, deceptive promotions, unsolicited promotions, unsolicited short messages (SMS), call drops, and unfairly and unjustifiable billings. Therefore, the GSM providers in Nigeria are faced with the challenges of demonstrating customer-focused and continuous service improvement, as a way to ensuring customer satisfaction, brand supremacy and ultimately customer loyalty.

The objective of this study is identify the determinants of customer loyalty among subscribers of GSM in Northwestern Nigeria, this because an understanding of what determines the loyalty of a customer to the service providers would be quite beneficial to the service providers as they will be better equipped to target these very core determinants of loyalty to build much stronger loyal customers. This paper is divided into five sections inclding this introduction. Section two reviews literature relevant to this study, section three provides the methodology, section four presents and discusses the results of the study, and section five provides conclusions and recommendations.

2. Literature review

2.1 Conceptual clarification

Customers are an essential ingredient of an organisation that values loyalty and its success depends on how long the customers stay with the organisation. Major efforts of an organisation should be directed towards delivering good quality service thereby ensuring total satisfaction of the customers. It is known that customer satisfaction leads to customer loyalty (retention, repeat business and referral) which in turn leads to revenue growth and profitability of the firm (Heskett, Jones, Loveman, Sasser, and Schlesinger,1994).

Various definitions for loyalty are found in the literature, which address loyalty in a different manner. Newman and Werbel (1973) defined loyal customers as those who rebought a brand, considered only that brand, and did no brand-related information seeking. Similarly, brand loyalty is defined as a positively biased emotive, evaluative and/or behavioral response tendency toward a branded, labelled or graded alternative or choice by an individual in his capacity as the user, the choice maker, and/or the purchasing agent (Sheth and Park, 1974). Furhter, loyalty is conceptualized as the relationship between the relative attitude toward an entity (brand/service/store/vendor) and repeat patronage (Dick and Basu 1994). In another attempt, customer loyalty is defined as the feeling of attachment to or affection for a company's people, products, or services (Jones and Sasser, 1995).

In addition, Lovelock (1996), describe customer loyalty as the willingness of a customer to continue patronizing a firm’s goods and services over a long period of time and on a repeated and preferably exclusive basis, and voluntarily recommending the firm’s products to friends and associates. Oliver (1999) defined loyalty as a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior. Lastly, Anderson and Jacobsen (2000), defined customer loyalty as the benefit created by an organization for customers so that they will maintain and increasingly repeat business with the organization. It should be noted that in all the definitions offered by the various scholars, despite other discrepancies in the various submissions one issue that features frequently is repeat purchase. In terms of repeat purchase, Tellis (1988) defined loyalty as repeat purchasing frequency or relative volume of same-brand purchasing.

Therefore, as may be observed from the above, measuring future intentions of the customer is a better measure of loyalty. As such for this study, the operationalisation and definition of the loyalty construct is conceptualized in terms of repeat patronage, switching behavior, word-of-mouth recommendations, and complaints. A loyal customer is one who will repatronize a service, will recommend the provider to others, will not switch to another provider, and will not complain.

Researchers have idenfied the benefits for developing customer loyalty, especially in service firms such as GSM providers. Developing and increasing loyalty is important for companies' growth and performance (Lee and Cunningham, 2001). The significance of customer loyalty is that it is closely related to the company's continued survival and to strong future growth. Hence, for a company to maintain a stable profit level when subscription level has reached saturation point, the market is mature and competition is fierce, a defensive strategy which strives to retain existing customers is more important than an aggressive one (Fornell, 1992).

According to Heskett, Jones, Loveman, Sasser, and Schlesinger (1994), customers may be classified into four categories based upon their loyalty to the service provider, as follows:

i. ***Hard core loyals;*** these are the best customers a service provider has under its umbrella. They are 100% loyal to the service provider and are most profitable. These most loyal customers(the top 20% of total customers) not only provide all the profit but also cover losses incurred in dealing with less loyal customers (Salgaonkar, 2004).

ii. ***Pseudo loyals;*** these are 100% loyal customers but loyalty is thrust upon them. They are forced to be loyal by the virtue of limited choice they have of service providers. These types of customers are seen more in a monopolistic type of service markets. Given a choice, these type of customers may switch over within no time.

iii. ***Split loyals/polygamous loyals;*** the loyalty of these customers is usually split between 2 to 5 brands/organisations/service providers. They are loyal to all providers in respect of specific service or at a specific time.

iv. ***Switchers;*** they are not loyal to any particular brand/organisation/provider but keep changing from one provider to another for varied reasons. These are the costliest customers to serve and usually result in losses to the service provider.

The most important customers to any organization are the hard-core loyal customers and the service providers need to constantly strive to maintain their loyalty and gain more of such customers (Salgaonkar, 2004). It is also important to understand how loyalty develops to the service provider. Except under some rare circumstances, customer loyalty doesn't develop automatically but loyalty develops in stages (Griffin, 1999). People grow into loyal customers over a period of time and in stages, which requires plenty of nurturing and attention at each stage of growth.

Oliver (1999) argues that consumers can become loyal at each attitudinal phase relating to different elements of the attitude development structure and theorizes that consumers become loyal in the cognitive sense first (cognitive loyalty), then later in affective sense (affective loyalty), still later in a conative manner (conative loyalty) and finally in a behavioral manner, which is described as action loyalty. Knowing the types of customers and their loyalty is certainly beneficial to the service provider, so also understanding in which stage a customer lies is very useful, as it helps to tackle these different type of customers and at various stages by formulating different marketing strategies (Salgaonkar, 2004).

When it comes to measures of loyalty, traditionally loyalty research has used various behavioral measures and viewed loyalty based on purchase (Dick and Basu, 1994). Some of these behavioral measures include repeat purchases, proportion of purchases (Cunningham, 1966), purchase sequence **(**Khan, Kalwani, and Morrison, 1986**)**, probability of purchase (Massey, Montgomery, and Morrison, 1970) and repeat purchasing frequency (Tellis, 1988). However, Jacoby and Chestnut (1978) criticised these behavioral measures as lacking a conceptual basis and capturing only the static outcome of a dynamic process. Further, the behavioural measures simply estimate frequencies with no examination of the reasons for purchases or the factors that may influence choices (Dick and Basu, 1994).

To overcome the limitations of behavioural definitions, many researchers have defined loyalty by including attitudinal measures. It is argued (Day, 1969; Lutz and Winn, 1974; Snyder, 1984) that loyalty must be measured as a combination of attitudinal and behavioural dimensions. Dick and Basu (1994) also propose that loyalty be determined by a combination of both attitudinal (relative attitude) and behavioural measures (repeat purchase levels).

Jones and Sasser (1995) suggest intent to repurchase, primary behaviour (measuring actual behaviour) and secondary behaviour (willingness to recommend) as measures of loyalty. Cronin and Taylor (1992) focus solely on repurchase intentions, whereas Hill and Alexander (2000) suggest measuring loyalty in terms of varying degrees of commitment. The levels of commitment include customer retention, share of wallet (probable future spending), willingness to recommend, and future intentions to switch.

2.2 Theoretical and Empirical Underpinnings

The desire to understand which factors work together to create customer satisfaction, and the manner in which such factors work together to do so, has been the primary motive for researchers' interest in examining the determinants of customer loyalty. Satisfaction is a customers' post-purchase evaluation and affective response to the overall product or service experience (Oliver, 1992). It is considered a strong predictor for behavioral variables such as repurchase intentions, word-of-mouth recommendations, or loyalty (Eggert and Ulaga, 2002). Customer loyalty, which may be seen as the continuously positive purchasing behaviour of a customer towards a certain company or brand, will, clearly be affected by customer satisfaction (Bei and Chiao, 2006).

Whether the buyer is satisfied after a purchase depends on the offer's performance in relationship to the buyer's expectations and whether the buyer interprets any deviations between the two (Tsiros, Mittal, and Ross, 2004). In general, satisfaction is a person's feelings of pleasure or disappointment that result from comparing a product's perceived performance (or outcome) to expectations. If the performance falls short of expectations, the customer is dissatisfied. If performance matches expectations, the customer is satisfied; if it exceeds expectations, the customer is highly satisfied or delighted (Kopalle and Lehmann, 2006).

Buyers form their expectations from past buying experience; friends' and associates' advice; and marketers' and competitors' information and promises. If marketers raise expectations too high, the buyer is likely to be disappointed. However, if the company sets expectations too low, it won't attract enough buyers (although it will satisfy those who do buy) (Boulding, Kalra, and Staelin, 1999). GSM providers need to raise customer expectations and deliver performance to match the customer expectations.

Similarly, customer loyalty comprises of both behaviour and positive attitude. However, customer satisfaction, which is the antecedent to loyalty, is also a positive attitude. Therefore, Bei and Chiao (2006), suggest that customer loyalty, should be measured purely in behavoiural terms as positive attitude is embedded within customer loyalty owing to the antecedent role played by customer satisfaction.

Price is another important issue in customer loyalty. Perceived price fairness plays an important role in customer satisfaction and retention (Varki and Colgate, 2001). Price is often used by customers as an extrinsic product-quality cue (Teas and Agarwal, 2000). Therefore, price is a subjective perception of trade-off between what a customer gives up (sacrifice) and what the consumer received (utility, quality, benefits). In the GSM market, there are two price factors subscribers consider before deciding to purchase a GSM product; these are: the initial purchase price (sim card purchase price), and usage or retaining charges (tariff).

Price has been observed as an important variable affecting the acceptance, usage, and even future patronage of GSM service (Ogwo and Igwe, 2012). Woodruff (1997), Kollman (2000); and Mohammed (2008) studies found that the lower the charges, the more customer consumed and the more customers will commit themselves to the telephone network. Furthermore, price (customer-perceived value) has been found to be a major contributor to purchase and behavioural usage of the customer (Chang and Wildt, 1994).

On the association between price and customer satisfaction, Anderson, Fornell, and Lehmann (1994) found that price is one of the determinants of customer satisfaction, because it is shown in their research that when customers were asked about the value of service rendered, they consistently considered the price charged for the service. In addition, when a customer pays a higher price than other customers, or when a customer receives a lesser product than anticipated (quatity or quality) perceived negative price inequity occurs. On the other hand, perceived positive price inequity occurs either from receiving a larger or better product than other customer who paid the same price, or paying a lower price but receiving the same product (Martins and Monroe, 1994 in Bei and Chiao, 2006). Varki and

Colgate (2001) suggest that price fairness should an influence on behavioural intentions, and on customer satisfaction suggested Parasuraman, Zeithaml, and Berry (1994).

Due to the nature of the contractual agreement to use a product in the future in the GSM market, customers are usually more intersted and conscious of the cost of keeping or using the network (tariff) and not necessarily the price of purchasing the sim card. Some of perceived cost includes monetary payments (cost of recharging) and non monetary payment (such as; sacrifices made by the customer, for example; time, and stress experienced by a customer).

In Nigeria, according to Adeleke and Aminu (2012) price is negatively correlated with customer satisfaction and loyalty in the Nigeria's GSM market. That is to say, some of GSM customers in Nigeria are not contented with the tariff they are made to pay on their networks. It could be that they do not consider what they pay as fair price. This finding contradicts some of the earlier research findings [Bolton and Drew (1991); Athanassopoulos(2000); and Varki and Colgate (2001)].

Another important contributor to the discussion of customer loyalty is service quality. It is well documented in the literature both theoretically and empirically the significant effects of perceived service quality on customer satisfaction. For example researchers such as; Anderson and Sullivan (1993); Anderson, Sullivan, and Lehman (1994); and Cronin, Brady, and Hult (2000) are of the view that service quality is one of the primary determinants of customer satisfaction. Researches have indicated that service quality affects customer loyalty only through customer satisfaction (Anderson and Sullivan, 1993; Petterson and Spreng, 1997). However, some studies suggest that service quality might also have a direct effect on customer loyalty (Bitner, 1990; Taylor and Baker, 1994; Varki and Colgate, 2001).

Cronin and Taylor (1992) hypothesise that perceived service quality affects customer behavioural intentions. Overwhelmingly, the empirical resuts of their study indicate that perceived service quality positively affects behavioural intention only through customer satisfaction. Similarly, Cronin, Brady, and Hult (2000) examined six different service industries and found that in four cases, the service quality directly and positively affect behavioural intention; while the indirect effect of service quality on customer loyalty through customer satisfaction was identified in each of the six cases. In addition, Varki and Colgate (2001) compared banking services in United States of America and New Zealand, and found both the direct and indirect effects of service quality on behavioural intention.

According to Adeleke and Aminu (2012), the correlation between customer service and customer satisfaction and loyalty in the Nigeria's GSM market is low. It has a low positive relationship with customer satisfaction and loyalty. This finding is worrisome because evidence abounds in literature that there is a significant relationship between customer service and customer satisfaction and loyalty in all sectors (Adeleke and Aminu, 2012).

The role of corporate image is important in determining customer loyalty. Keller (1993) defined corporate image as perceptions of an organization reflected in the associations held in customer memory. Smith and Taylor (2004) suggest tha images and perceptions are created through sight, sound, smell, touch, tastes and feelings experienced through product usage, customer service, and corporate communications. In addition, corporate image is viewed as a filter through which a company's operation is perceived, and reflects a company's overall reputation and prestige (Kim and Lee, 2011). Therefore, corporate image is concerned with the impression and perception an organization forms in customers' mind.

A positive and reinforcing corporate image is capable of generating customer satisfaction and loyalty in organizations. Corporate and brand image have also emerged as determinants of customer loyalty (Gronroos, 1988). There is a relationship between corporate image, customer satisfaction and loyalty. Corporate image is influenced both by service quality and customer satisfaction, which in turn influences customer loyalty (Kandampully, 2007). Liu (2008) found that corporate image has a significant impression on services quality, customer value, customer satisfaction and customer loyalty in the Chinese telecommunication market.

Corporate image is the most correlated construct with customer satisfaction and loyalty in the Nigeria's GSM market. The positive perception is aided mostly by promotion, which is a major element of the marketing mix marketers use to project and reinforce both brand and corporate image. The implication is that corporate image of GSM providers is an important determinant of customer loyalty in Nigeria (Adeleke and Aminu, 2012).

2.3 *Research Framework*

Based on the literature reviewed, this study construct a research framework to guide its investigation. The framework is based on the factors that influence customer satisfaction which played antecedent role in customer loyalty. Customer loyalty is the dependent variable, while the indepencent variables are; perceived service quality; perceived price fairness perceived brand image; and perceived customer satisfaction. From the research framework, this study hypothesised as follows:

H_{o1}: Perceived service quality does not affect customer loyalty through customer satisfaction in North-Western Nigeria

H_{o2}: Perceived price fairness does not affect customer loyalty through customer satisfaction in North-Western Nigeria

H_{o3}: Perceived brand image does not affect customer loyalty through customer satisfaction in North-Western Nigeria

2.4 *North-Western Nigeria*

Nigeria is the most populous country in Africa with a population of about 167 million people (National Population Commission [NPC], 2011). It constitutes about half of West Africa's population, 2% of world population and is expected to be among the five most populated countries in the world by 2025. Therefore, Nigeria has a reservoir of skills and a huge market to support economic expansion. Nigeria has a total of thirty-six states spread within the six geo-political zones of the country. The six geo-political zones are; north-west, north-east, north-central, south-west, south-east, and south-south. The north-western Nigeria comprises of seven states, which are; Jigawa, Kebbi, Kaduna, Kano, Katsina, Sokoto, and Zamfara States.

Most of the cities and towns in north-western Nigeria are predominantly occupied by the Hausa-Fulani people. Amongst these main cities are: Kano City, Zaria, Katsina , Birnin Kebbi, Dutse, Gusau, Kaduna, Sokoto, Birnin Kudu, Gwaram, Bichi, Zuru, Kafanchan, Dutsin Ma, and Daura. Trade was the key to the emergence of organized communities in the north-western portion of Nigeria which makes it attarctive to GSM providers. The north-western Nigeria has key prospect in the GSM market especially information and communication potential because of the commitment of north-western Governments in using ICT as a platform for rapid societal transformation. For example, Jigawa State has become an ICT pacesetter in the country through the establishment of a Broadband Access Network.

3. Methodology

This study used survey research approach to gather data. A sample of 400 respondents were drawn from a population of 17, 063, 846 GSM subscribers (Kolawole, 2013) in the north-western Nigeria. Respondents were randomly selected and interviewed using a structured questionnaire on a Likert’s scale. Section A of the research instrument sought to find the background information of the respondents such as GSM network(s) subscribed to, and number of years on the network. In section B of the research instrument, the respondents were provided with a four-point Likert’s scale ranging from strongly agree (4) to disagree (1). In addition, in section B, the respondents were interviewed based on their perception about GSM service quality, GSM price, brand image of the GSM providers, and their satisfaction with the GSM services. The data gathered from completed copies of the research instrument were analysed using inferential statistics (logistic regression model). The inferential statistics were performed using Statistical Package for Social Scientists (SPSS) computer software (version 16).

A logistic regression predicts the probability that an observation falls into one of two categories of a dichotomous dependent variable based on one or more independent variables that can be either continuous or categorical. Generally, logistic regression is well suited for describing and testing hypotheses about relationships between a categorical outcome variable and one or more categorical or continuous predictor variables. Logistic regression solves problems by applying the logit transformation to the dependent variable. In essence, the logistic model predicts the logit of Y from X. The logit is the natural logarithm (Ln) of odds of Y, and odds are ratios of probabilities (P_i) of Y happening to probabilities ($1-P_i$) of Y not happening (Peng, Lee, and Ingersoll, 2002).

The simple logistic model has the form:

$$\text{logit}\,(Y) = \textit{natural}\,\log(\textit{odds}) = L_i = (P_i \div 1 - P_i) = \alpha + \beta X \qquad \ldots\ldots\ldots 1$$

Taking the antilog of equation 1 on both sides, one derives an equation to predict the probability of the occurrence of the outcome of interest as follows:

$$P_i = \textit{Probability}\ (Y = \text{outcome of interest} \mid X = x, \textit{a specific value of } X) = L_i = P_i \div (1 - P_i) = 1 + e^{z}{}_{i} \div 1 - (1 + e^{z}{}_{i}) \qquad \ldots\ldots\ldots 2$$

Where:
P_i = is the probability of the outcome of interest or "event,"
α = the *Y* intercept,
β = the regression coefficient, and
e = 2.71828 is the base of the system of natural logarithms
Source: Peng, Lee, and Ingersoll (2002).

X can be categorical or continuous, but *Y* is always categorical. According to equation 1, the relationship between logit (*Y*) and *X* is linear. Yet, according to equation 2, the relationship between the probability of *Y* and *X* is nonlinear. The value of the coefficient β determines the direction of the relationship between *X* and the logit of *Y*. When β is greater than zero, larger (or smaller) *X* values are associated with larger (or smaller) logits of *Y*. Conversely, if β is less than zero, larger (or smaller) *X* values are associated with smaller (or larger) logits of *Y*. Within the framework of inferential statistics, the null hypothesis states that β equals zero, or there is no linear relationship in the population under study. Rejecting such a null hypothesis implies that a linear relationship exists between *X* and the logit of *Y* (Peng, Lee, and Ingersoll, 2002).

Extending the logic of the simple logistic regression to multiple predictors (say X_1 = perceived service quality, X_2 = perceived price fairness, X_3 = perceived brand image, and X_4 = perceived customer satisfaction), one can construct a complex logistic regression for *Y* (customer loyalty) as follows:

$L_i = P_i \div (1 - P_i) = 1 + e^{z}{}_i \div 1 - (1 + e^{z}{}_i)$ ……………………………………………………………3
So that:

$Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + U$ ……………………………………………………4

β_1, β_2, β_3 β_4 are the co-efficient of Xs

β_0 = intercept

U = disturbance term

Empirically: $L_i = e^{z}{}_i$ ……………………………………………………………………5

Where; $Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + U$ …………………………………………6

Therefore, $L_i = e\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + U$ ……………………………………7

Then $L_i = e\beta_0 + \beta_1 \mathrm{Ln}X_1 + \beta_2 \mathrm{Ln}X_2 + \beta_3 \mathrm{Ln}X_3 + \beta_4 \mathrm{Ln}X_4 + U$ ………………………………8

Now, $L_i = P_i \div (1 - P_i)$ …………………………………………………………………………9

Where:

L_i = logit model (customer loyalty)

e = exponential

Z_i = estimates

β_0 = intercept

β_1 = slope of perceived service quality

β_2 = slope of perceived price fairness

β_3 = slope of perceived brand image

β_4 = slope of customer satisfaction

U = error term

The null hypothesis underlying the overall model states that all βs equal zero. A rejection of this null hypothesis implies that at least one β does not equal zero in the population, which means that the logistic regression equation predicts the probability of the outcome better than the *mean* of the dependent variable *Y.* On a-priori, *Pi is < 1* and the expected pattern of the structural behaviours of the independent variables on the dependent variable is greater than zero.

4. Results and Discussion

Table 1: Omnibus Test of Model Coefficients

	Chi-square	Df	**Sig.**
Step 1 Step	267.758	12	.000
Block	267.958	12	.000
Model	267.958	12	.000

Source: SPSS output from field survey data

Table 2: Hosmer and Lemeshow Test

Step	Chi-square	Df	**Sig.**
1	3.315	7	.854

Source: SPSS output from field survey data

Table 3: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	30.100a	.635	.942

Source: SPSS output from field survey data

Table 4: Variables in the Equation

	B	S.E.	**Wald**	df	Sig.	Exp (B)
Step 1a Perceived Service Quality	16.911	40192.771	.000	1	1.000	2.211E7
Perceived Price Fairness	1.610	1.645	.958	1	1.000	5.001
Perceived Brand Image	17.617	11822.913	.000	1	1.000	4.475E7
Perceived Customer Satisfaction	25.962	11061.131	.000	1	1.000	1.884E11
Constant	-21.203	40192.770	.000	1	1.000	.000

Source: SPSS output from field survey data

Table 1 above depicts the Omnibus Test of Model Coefficients, which give the overall indication of how well the model performs ('goodness of fit' test). For this set of results, the requirement is a highly significant value (the **Sig.**

value should be less than 0.05) (Pallant, 2007). In this study, the **Sig.** value is 0.000 (which really means $p<0.005$). Therefore, the set of variables in the analysis fits the model. Similarly, the chi-square value is 267.758 with 12 degrees of freedom. In addition, Table 2 shows Hosmer and Lemeshow Test. The results in Table 2 support the model of this study as being worthwhile. For the Hosmer-Lemeshow Goodness of Fit Test, poor fit is indicated by a significance value less than 0.05, so to show support for a model a value greater than 0.05 is required (Pallant, 2007). For this study the chi-square value is 3.315 with a significance level of 0.854. This value is larger than 0.05, therefore indicating a support for the model of this study.

Table 3 is the Model Summary and it contains the Cox and Snell R Square, and the Nagelkerke R Square values, which indicate the amount of variation in the dependent variable explained by the model (from a minimum value of 0 to a maximum value of approximately 1). These are described as pseudo R square statistics rather than true R square (Pallant, 2007). Therefore, the explained variation in the dependent variable based on the model of this study ranges from 63.5% to 94.2%, suggesting that between 63.5% and 94.2% of the variability in GSM subcribers' loyalty in Northwestern Nigeria was explained by the set variables (perceived service quality, perceived price fairness, perceived brand image, and perceived customer satisfaction).

Table 4 presents the Variables in the Equation which gives information about the contribution or importance of each of the predictor variables. The test that is used here is the **Wald** test, and the values in the **Sig.** column are used to indicate the significant contribution of each predictor variable in the model. The **Sig.** values of less than 0.05 are the variables that significantly contribute to the predictive ability of the model (Pallant, 2007). In the model of this study, there are three significant variables (perceived service quality, **Sig.** = 0.000; perceived brand image, **Sig.** = 0.000; and perceived customer satisfaction, **Sig.** = 0.000), that is to say the major factors influencing whether a GSM subscriber will reports brand loyalty are: perceived service quality, perceived brand image, and perceived customer satisfaction. Perceived price fairness did not contribute significantly to the model.

Therefore, based on the results of test of the hypotheses, two of the three null hypotheses are rejected. The two null hypotheses rejected are; H_{o1}: Perceived service quality does not affect customer loyalty through customer satisfaction in North-Western Nigeria, and H_{o3}: Perceived brand image does not affect customer loyalty through customer satisfaction in North-Western Nigeria, while there is no enough evidence to reject null hypothesis H_{o2}: Perceived price fairness does not affect customer loyalty through customer satisfaction in North-Western Nigeria.

5. Conclusions and Recommendations

From the results of the hypotheses tested for this study, the following conclusions can be drawn;

i. Perceived price fairness does not affect customer loyalty through customer satisfaction in North-Western Nigeria. This conclusion contradict findings reported by Bolton and Drew (1991); Athanassopoulos (2000); and Varki and Colgate (2001).
ii. Perceived service quality affect customer loyalty through customer satisfaction in North-Western Nigeria. This conclusion confirmed the findings reported by Cronin, Brady, and Hult (2000); and Varki and Colgate (2001). However, this finding contradict Adeleke and Aminu (2012).
iii. Perceived brand image affect customer loyalty through customer satisfaction in North-Western Nigeria. This conclusion confirmed the findings reported by Adeleke and Aminu (2012); Liu (2008); and Chen (2002).

Therefore, based on the above conclusions, this study suggest the following recommendations;

i. GSM service providers should continue to ensure the provision of a high service quality in the Northwestern Nigeria and by extension in the whole Nigeria. The GSM market is more or less about delivery of exciting high quality services, that will promote customer expectations and experiences.
ii. GSM service providers should continue to ensure that their corporate image gives the customer high impression and perception in order to that their organization forms in customers' mind.
iii. GSM service providers should ensure lower charges on their network, because the lower the charges, the more customer consumed and the more customers will commit themselves to the telephone network (Woodruff, 1997; Kollman, 2000; and Mohammed, 2008).

References

Adeleke, A. and Aminu, S. A. (2012). The Determinants of Customer Loyalty in Nigeria GSM Market. *International Journal of Business and Social Science*, 3(14) (Special Issue): 209-222

Anderson, E. W., Fornell, C. and Lehmann, D. R. (1994) "Customer satisfaction, market share, and profitability: Findings from Sweden", *Journal of Marketing*, 58: 53-66.

Anderson, E. W. and Sullivan, M. W. (1993). The antecedents and consequences of consumer satisfaction for firms. *Marketing Science*, 12(1), 125-143.

Athanassopoulos, A. D. (2000) "Customer satisfaction cues to support market segmentation and explain switching behavior", *Journal of Business Research*, 47 (3): 191–207.

Bei, L. T. and Chiao, Y. C. (2006). Determinants of customer loyalty : analysis of intangible factors in three service industries. *International Journal of Commerce and Management*, 16 (3&4): 162-177.

Bitner, M. J. (1990). Evaluating service encounters: The effects of physical sorroundings and employee responses. *Journal of Marketing*, 54: 69-82.

Bolton, R. N. and Drew, J. H. (1991). A multistage model of customers' assessments of service quality and value. *Journal of Consumer Research*, 17: 375-384.

Boulding, W., Kalra, A., and Staelin, R. (1999). The Quality Double Whammy. *Marketing Service*, 18 (4), 463–484.

Cronin, J. J., Brady, M. K., and Hult, G. T. M. (2000). Assessing the effects of quality, value, and customer satisfaction in service environments. *Journal of Retailing*, 76(2): 193-218.

Cronin, J. J. and Taylor, A. S. (1992). Measuring Service Quality: A Reexamination and Extension. *Journal of Marketing*, 56: 55-68.

Cunningham, S. M. (1966). Perceived Risk in Information Communications', Risk Taking in Information Handling in Consumer Behavior. In: Salgaonkar, P. B. (2004). Determinants of loyalty: an exploratory empirical study in health care service, unpublished Thesis submitted to Goa University for the award of Degree of Doctor of Philosophy in Management

Day, G. S. (1969). A Two-Dimensional Concept of Brand Loyalty. *Journal of Advertising Research*, 9(3), 29-35.

Dick, A. S. and Basu, K. (1994). Customer loyalty: Toward an Integrated Conceptual Framework. *Journal of the Academy of Marketing Science*, Vol. 22 No.2, pp. 99-113.

Eggert, A. and Ulaga, W. (2002). Customer perceived value: a substitutefor satisfaction in business markets, *Journal of Business and Industrial Marketing* 17(2–3), pp. 107–118.

Fornell, C. (1992) "A national customer satisfaction barometer: The Swedish experience", *Journal of Marketing*, 56: 6-12.

Griffin, J. (1999). Customer Loyalty Development Evolves in Stages. *Austin Business Journal*. 1-3.

Gronroos, C. (1988) "Service quality: The six criteria of good perceived service quality", *Review of Business*, 9:10-13.

Heskett, J. L., Jones, T. O., Loveman, G. W., Sasser, W.E., and Schlesinger, L. A. (1994). Putting The Service-Profit Chain To Work. *Harvard Business Review*, (March — April), 164 —174.

Hill, N. and Alexander, J. (2000). *Handbook of Customer Satisfaction and Loyalty Measurement*. (2nd ed.). USA: Gower.

ITU World Communication. (2013). The World in 2013, ICT facts and figures. Retrieved from (http://www.itu.int/ITU)

Jacoby, J. and Chestnut, R.W. (1978). Brand Loyalty Measurement and Management, In: Salgaonkar, P. B. (2004). Determinants of loyalty: an exploratory empirical study in health care service, unpublished Thesis submitted to Goa University for the award of Degree of Doctor of Philosophy in Management

Jones T. O. and Sasser, W. E. (1995). Why Satisfied Customers Defect. *Harvard Business Review,* 73: 88-99.

Juwah, E. (2011). Speech delivered at the 8th Anniversary of Telecom Consumer Parliament & 10 Years of Telecom Revolution in Nigeria. Nigerian Communications Commission.

Kandampully, K. (2007). Do hoteliers need to manage image to retain loyal customers. *International Journal of Contemporary Hospitality Management*, 19: 435-443.

Keller, K. (1993). Conceptualizing, measuring, and managing customer based equity. *Journal of Marketing*, 57: 1-22.

Khan, B. E., Kalwani, M. U. and Morrison D. G. (1986). Measuring Variety Seeking and Reinforcement Behavior using Panel Data. *Journal of Marketing Research*, 23, 89-100 in: Salgaonkar, P. B. (2004). Determinants of loyalty: an exploratory empirical study in health care service, unpublished Thesis submitted to Goa University for the award of Degree of Doctor of Philosophy in Management

Kim, Y. and Lee, J. (2011). Relationship between corporate image and customer loyalty in mobile communications service markets. *African Journal of Business management*, 4 (18): 4035-4041.

Kolawole, O. (2013). Nigeria GSM numbers database. Independence special offer. Lagos: TurningPoint Innovation.

Kollmann, T. (2000). The price/acceptance function: Perspectives of a pricing policy in European telecommunication markets. *European Journal of Innovation Management,* 3 (1): 7-14.

Kopalle, P.K. and Lehmann, D.R. (2006). Setting Quality Expectations When Entering a Market: What Should the Promise Be? *Marketing Science*, 25, 8–24.

Lee, M. and Cunningham, L. F. (2001) “A cost/benefit approach to understanding service loyalty”, *Journal of Service Marketing,* 15 (2): 113-130.

Liu, L. (2008). Study of the relationship between customer satisfaction and loyalty in telecom enterprise. *4th International Conference on Wireless Communications, Networking and Mobile Computing*, 1-7.

Lovelock, C. H. (1996). *Services marketing. (*3rd ed.). Englewood Cliffs, N.J.: Prentice Hall.

Lutz, R. J. and Winn P. R. (1974). Developing a Bayesian Measure of Brand Loyalty: A Preliminary Report. in: Salgaonkar, P. B. (2004). Determinants of loyalty: an exploratory empirical study in health care service, unpublished Thesis submitted to Goa University for the award of Degree of Doctor of Philosophy in Management

Massey, W. F., Montgomery, D. B. and Morrison, D. G. (1970). *Stochastic Models of Buyer Behavior*. Cambridge: MIT Press, in: Salgaonkar, P. B. (2004). Determinants of loyalty: an exploratory empirical study in health care service, unpublished Thesis submitted to Goa University for the award of Degree of Doctor of Philosophy in Management

Mohammed, I. S. (2008). *The Analysis of Customer Loyalty in Bangladeshi Mobile Phone Operator Industry.* Independent University, Bangladesh. Retrieved from http:/ /www.wbiconpro.com

National Population Commission (NPC). (2011). NPC annual report

National Communications Commission (NCC). (2013). Statistics quarterly summary 2013. National Communications Commission

Newman, J.W. and Werbel, R. A. (1973). Multivariate Analysis of Brand Loyalty for Major Household Appliances. *Journal of Marketing Research*, 10, 404-409.

Ogwo E. O. and Igwe, S. R. (2012). Some Key Factors Influencing Attitudes to Patronage of GSM Services: The Nigerian Experience. *International Journal of Business and Management*; Vol. 7, No. 18; pp: 82-91

Oliver, R. L. (1999). Whence consumer Loyalty? *Journal of Marketing*, Vol. 63 (Special Issue), 33-44.

Oliver, R. L. (1992). An investigation of the attribute basis of emotionand related affects in consumption: suggestions for a stagespecificsatisfaction framework, in: J. Sherry, B. Sternthal(Eds.), *Advance in Consumer Research* (19), Association for Consumer Research, Provo, UT, pp. 237–244.

Pallant, J. (2007). *Survival Manual: A step by step guide to data analysis using SPSS for Windows* (3rd ed.). New York: McGraw Hill.

Parasuraman, A., Zeithaml, V. A. and Berry, L. L. (1994). Moving Forward in Service Quality: Measuring Different Customer-Expectations Levels, Comparing Alternative Scales, and Examining the Performance-Behavioral Intentions Link. *Academy of Marketing Science*, Cambridge, MA.

Petterson, P. G. and Spreng, R. A. (1997). Modelling the relationship between perceived value, satisfaction and repurchase intentions in a business-to-business service context: an empirical examination. *International Journal of Service Industry Management* 8(5), 415-432

Salgaonkar, P. B. (2004). Determinants of loyalty: an exploratory empirical study in health care service, unpublished Thesis submitted to Goa University for the award of Degree of Doctor of Philosophy in Management

Sheth, J. N. and Park, C. W. (1974). A Theory of Multidimensional Brand Loyalty. *Advances in Consumer Research*, 1, 449-459.

Smith, P. R. and Taylor, J. (2004). *Marketing communications: An integrated approach*. (4th ed.). London: Kogan Page.

Teas, R. K. and Agarwal, S. (2000). The effects of Extrinsic Product cues on consumers' perception of quality, sacrifice and value. *Journal of the Academy of Marketing Science, 28*, 278-291.

Tellis, G.J. (1988). Advertising Exposure, Loyalty and Brand Purchase: A Two Stage Model of Choice. *Journal of Marketing Research*, 25(May), 134-144.

Tsiros, M., Mittal, V., and Ross, W.T. (2004). The Role of Attributions in Customer Satisfaction: A Reexamination, *Journal of Consumer Research*, 476–483.

Varki, S. and M. Colgate (2001). The role of price perceptions in an integrated model of behavioral intentions. *Journal of Services Research*, 3: 232–240.

Woodruff, R. B. (1997). Customer Value: The Next Source of Competitive Advantage. *Journal of Academy of Marketing Science, 25*(2), 139-153. http://dx.doi.org/10.1007/BF02894350