Discriminant Analysis of Factors Affecting Telecoms Customer Churn

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Abstract

A major challenge facing telecoms business providers in Nigeria today is the continuous growing competition and customers' expectation of service quality and as such customers are able to choose among multiple service providers based on the level of satisfaction, affordability, and service quality of service providers. Customer demand and competition are forcing firms to cut loose from the traditional customer satisfaction paradigm, to adopt proactive strategies which will assist them to take the lead in the market-place. This study aims at identifying factors that discriminate among subscribers exhibiting willingness to drop their current service provider and those willing to stay. The study also examines the effect of socio-economic and demographic factors associated with the identified discriminants. The major factors identified are high call rate, poor service facilities, off-beam advertisement medium, availability of superior service provider and unattractive service plan.

Keywords: Telecommunication, Churn Rate, Discriminant, Service Provider, Customers Satisfaction

1. Introduction

The Nigerian telecommunication industry has experienced phenomenal growth in its subscribers' base making it a highly competitive sector. And in this strongly competitive and liberalized telecommunication industry, customers are able to choose among multiple service providers based on the level of satisfaction, affordability, and service quality of service providers. A major challenge facing telecoms business providers in Nigeria today is the continuous growing competition and customers' expectation of service quality. Customer demand and competition are forcing firms to cut loose from the traditional customer satisfaction paradigm, to adopt proactive strategies which will assist them to take the lead in the market-place. Though, the basis of service quality as a competitive edge in gaining market leadership through customers' satisfaction has been well recognized both in academic research and by leading service organizations (Kandampully, 1998; Kotler and Keller, 2006), however, it has become increasingly important for organizations to unearth ways, not only to reach the zenith, but to sustain that leadership in an ever increasing competitive market-place. Consequently, in protecting its long-term interest, service organizations are seeking ways to foster and maintain continuous relationship with their customers. Most telecommunications service providers are deploying retention strategies; harmonized in programs and processes to keep customers by providing them with tailored products and services. Subsequently, many companies have started to include churn reduction as one of their business goals. All service providers lose customers to some other competing companies due to various reasons but it should be clear that the survival of any business is dependent on its capability to maintain and retain customers. This is predominantly factual for the telecom service providers, hence the need for churn reduction.

However, two critical issues facing telecom service providers as the telecom market grows are market share and competitive advantage. Obviously, the prospects associated with market expansion will certainly result in a greater number of providers, thus, gaining or maintaining market share through a means that provides an unparalleled competitive advantage will strongly figure into a provider's business plan (see Chen and Ching, 2007). Though as noted by Chen and Ching (2007), technology can provide a competitive advantage for service provider, however this advantage is only provisional as it disappears once the technology becomes readily available to everyone. Therefore a better approach lies in adopting technology to leverage a customer-centric approach that focuses the business on retaining existing customer and seeking their loyalty (see Chen and Ching, 2007). Keeping in view the fact that cost of obtaining new customer is five times higher than maintaining an existing customer and that service providers spent huge amount on advertisement to gain a customer (Khan, Jamwal and Sepehri, 2010), service providers need not to lose their existing customers and hence must fight customer churn.

In particular, Khan et al (2010) identified two basic approaches to fight customer churn. The first is untargeted approach which relies basically on superior product and mass advertising to increase brand loyalty and customers' retention. The second which could either be reactive or proactive is targeted approach which relies on identifying customers who are likely to churn, and then either provide them with a direct incentive or customize service plan to make them stay. Adopting a reactive approach, a company waits until customers informs them of their intention to cancel their (service) relationship before offering the customer incentives, for example a rebate, to stay while in adopting a proactive approach, a company tries to identify customers who are likely to churn at some later date in advance. The company then targets these customers with special programmes or incentives to keep the customers from churning. Targeted proactive programs have potential advantages of having lower incentive costs and because customers are not trained to negotiate for better deals under the threat of churning. However these systems could be very wasteful if churn predictions are erroneous, because the companies would be wasting incentive money on customers who would have stayed anyway. That is why the customers churn prediction processes needed to be as accurate as possible (Burez and Van den Poel, 2006).

Hughes (2008) enumerated various measures of reducing customer churn. Some of which are offering better products, better delivery methods, lowering prices, building satisfactory customer relationships, better marketing and, above all, successful customer communications.

Studies have shown that good service quality leads to the retention of existing customers and the attraction of new ones (See Kotler and Keller, 2006), just as (Reichheld and Sasser, 1990; Cronin et al., 2000; Kang and James, 2004; Yoon and Suh, 2004) reiterated that reduction in costs, enhanced corporate image and positive word-of-mouth recommendation also enhance customer loyalty. Omotayo and Joachim (2008) in their study of relationship between customer service and customer retention in telecoms industry identified choices, conveniences, prices, and income as key factors to be considered if subscribers must be retained. They noted that customer service enhance customer retention. Khan, Jamwal and Sepehri (2010) agreed with previous studies of (Bitner and Hubbert, 1994; Cronin and Taylor, 1992; Zeithaml, Berry and Parasuraman, 1996; Lee and Murphy 2008) that Service quality, consumers' appraisal of overall quality or service excellence, may influence customers' decisions to remain with or churn current service providers. They emphasized that

favourable service quality would increase loyalty, retention and reduce churn. Al-Rousan, Ramzi and Mohamed (2010) in their study concluded that service quality significantly influenced customers' loyalty. For further studies on customers retention see Swan and Comb (1976), Zeithaml (1987), Gagliano, and Hathcote (1994), Fredericks and Salter (1995) , Zeithaml, Berry, and Parasuraman (1996), Yi and Alison(2001), Wong and Sohal (2003). This study attempts identifying factors that discriminate among subscribers exhibiting willingness to churn their current service provider and those willing to stay. The study also examines the effect of socio-economic and demographic factors associated with the identified discriminants.

2. Data and Methods

2.1 Data

We employed a sample survey in this study. The survey was targeted at major urban areas in Lagos State where the mainstream of the population are located. The survey which was conducted between January and April 2011 involved the collection of information from individual subscribers on their satisfaction of telecommunication network providers. The main instrument of the survey was a structured questionnaire.

A two stage sampling technique was used in the study, the first step is to select a sample of units, often called primary units, and the second is to select a sample of subunits from each chosen primary unit. It is uneconomical to measure all the units in a selected sample if subunits within the selected units give similar results. The major advantage of this sampling method is that it is more flexible than one-stage sampling as it accords us the possibility to take smaller units that produce high efficiency (Cochran, 1977).

2.2 Population Study and Sample Size

Lagos has the most heterogeneous concentrations of people in the country with many linguistic and cultural groups living together. A random sample of all the local government areas were selected for our study and 800 randomly selected consumers were examined for customer satisfaction on telecommunication network provider. For the purpose of this study, data were collected from individual subscribers. The questionnaire captured information on demographic, socio-economic data of the respondent such as the income of the respondents, their age, educational level and employment status in addition to effectiveness and willingness to change service provider. Our instruments also attempt to capture affordability, social networking, cultural effect and satisfaction of service network provider.

3. Methods

Descriptive statistics was used to explore the data before applying multivariate analysis. Multivariate analysis comprises a set of techniques dedicated to the analysis of data sets with more than one variable (Abdi, 2003). We applied discriminant analysis to examine the effect of socio-economic factors that discriminate between those that are willing to stay with a service provider and those willing to buy and to evaluate customer churn for telecom service provider. Discriminant analysis is used to assess the adequacy of classification, given the group memberships of the objects under study or to assign objects to one of a number of (known) groups of objects.

4. Results and Discussion

Table 1 provides the descriptive statistics of telecom subscribers' churn rate. The result shows the average annual churn rate of subscribers to be 26%. Though it could be low as 2% but could escalate as high as 48%.This implies that the rate at which customers churn their service providers is high and therefore service providers should develop proactive retentive strategy geared towards maintaining customers and reduced churn in their subscribers base.

Table 2 shows the characteristics of telecom subscribers, the result shows that the most preferred mode of advertising by subscribers is Radio with 31.5%, an average of 51.1% of telecom subscribers have two mobile connections, specifically, 71.2% of the subscribers prefer prepaid service. The result also showed that availability of network service, at 46.9%, is a major drive for subscribers staying with a service provider.

Table 3 presents the results of the discriminant analysis of telecoms subscribers. This analysis developed a set of discriminating functions which helps in predicting the willingness of subscribers to churn their current service provider. The value of the Wilk's lambda at 0.748 and the p-value (0.000) shows that the canonical discriminant function has a greater discriminatory ability of the function and was credible and effective. Using the maximum likelihood stepwise procedure, with 12 discriminant parameters, the results shows that type of service plan, service facilities, call expenses, number of mobile connections, and advertising medium were the most discriminant parameters for subscribers churning service providers, with correct assignations. Thus, the results suggested that these five discriminant parameters were needed to account for most of the expected churn variation for churning service providers by subscribers.

Table 4 shows the classification function coefficients of the five identified most discriminants which discriminate among subscribers exhibiting willingness to churn when put in order of importance, are call expenses, service facilities , advertising medium, number of mobile connection and type of service plan respectively.

Table 5 provides a cross tabulation of the discriminants with subscriber's willingness to churn service providers.The p-value shows a strong statistical significance of these identified discriminants on subscribers' willingness to churn service providers. This means that call expenses, advertising medium, the number of mobile Connections a subscribers has, type of service plan used and the service facilities available with a provider are germane to subscribers' decision to churn. Interestingly, of the subscribers whose call rate ranges between N5,000 and N20,000, about 98% are ready to churn service providers. This reveals that such high value subscribers should be targeted for proactive retention approach.

The result further reveals that subscribers with more than three network connections have higher tendency to churn than those with lesser number of connections whereas of the subscribers attracted by providers' service facilities, readiness to churn are predominantly high with those in call rate and network availability.

Table 6 shows a cross-tabulation of some socio-economic and demographic characteristics with the identified discriminants. The result indicates a statistically significance relationship of these identified discriminants with the socio-economic and demographic characteristics. Though, while all the socio-economic and demographic characteristics considered are significant with the identified discriminant factors, it is interesting to note that number of mobile connection a subscriber has, type of service plan used and service facilities available are not significantly influenced by the gender of the subscribers. This means that service providers should direct their retention marketing strategy to subscribers irrespective of their gender. The above findings suggest that since the discriminant factors cut across various socio-economic and demographic characteristics, service providers must ensure that proactive measures are taken to make subscribers' retention feasible.

5. Conclusion

The phenomenal growth experienced in Nigeria's telecom industry brought to the fore the emergence of consumer-driven tactics and strategies by service providers to ensure that they attract new customers and retain the existing customers. In this study factors that discriminate among subscribers exhibiting willingness to churn their current service providers were identified using discriminant analysis. Unattractive service plan, poor service facilities, high call rates, availability of superior alternative service provider, and off-beam advertisement medium were identified as pivot factors which significantly discriminate among telecoms subscribers willing to churn and those exhibiting loyalty. In order of importance, high call rates more often than not tend to induce subscribers to churn followed by poor service facilities, advertising medium, number of mobile connection and alternative availability of superior provider respectively. The model in figure 2 depicts this assertion.

To remain successfully competitive in value and price-conscious environment, it is imperative for telecoms service providers to improve performance on each factor as a strategies with which churn reduction can be actualized.

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Table 1. Descriptive statistics of telecom subscribers' annual churn rate

	Annual Churn rate
Mean	26
Standard Error	0.05
Median	27
Standard Deviation	0.16
Sample Variance	0.03
Kurtosis	-1.17
Skewness	-0.03
Range	46
Minimum	2
Maximum	48

Source: NCC, 2011

Table 2. Characteristics of telecoms subscribers

Variable	Percentage
Which advertising media puts more impact on your buying decision?	
TV	16.4
Magazine	19.9
Radio	31.5
Internet	27.3
Newspaper	.5
Others	4.5
How many mobile connections do you have?	
One	24.4
Two	51.1
Three	8.7
More than three	15.7
Which service are you currently using?	
Prepaid	71.2
Post paid	28.8
Which facility attracts you the most?	
Coverage	10.5
Call charges	42.6
Availability	46.9
Would you like to change your current service provider in the future?	
Yes	31.3
No	68.7

Source: survey 2011

Table 3. Discriminant classification function coefficients

	Classification function coefficients
Gender	.024
Marital status	-.089
Age	-.039
Place of residence	.091
Occupation (category of respondent)	.047
Income	.056
Call Expenses	.910
Job status	.051
Educational level	-.102
Advertising medium	-.457
No of mobile connections	.415
Type of service plan	.292
Service facility	.770

p-value = 0.000, Wilks' Lambda = 0.748

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Table 4. Discriminant classification function coefficients

	Classification function coeffcients
Call Expenses	.884
Advertising medium	-.527
No of mobile connections	.391
Type of service plan	.378
Service facility	.842

p-value = 0.000, Wilks' Lambda = 0.17

Table 5. Effect of identified discriminants on customers churn

Factors	Willingness to Churn		X^2	P-Value
	Yes	No		
Call Expenses			587.168	0.000
Below 1000	25.3	74.7		
1000 – 5000	21.9	78.1		
5000 – 20000	49.0	51.1		
Advertising Medium			633.011	0.000
Television	46.2	53.8		
Magazine	80	20		
Radio	1.6	98.4		
Internet	24.5	75.5		
Others	94.2	5.8		
No of Mobile Connection			60.615	0.000
One	34.2	65.8		
Two	24.9	75.1		
Three	30.7	69.3		
More than three	47.6	52.4		
Type of Service Plan			30.825	0.000
Prepaid	27.4	72.6		
Postpaid	40.1	59.9		
Which facility attract you the most			103.512	0.000
Coverage	2.4	97.6		
Call charges	30.4	69.6		
Availability	38.3	61.7		

Source: survey 2011

Table 6. Effect socio-economic and demographic characteristics of subscribers on identified discriminants

	Discriminants				
Socio-economic and Demographic variables	Call Expenses	Advertising Medium	No of Mobile Connection	Type of Service Plan	Service facility
Marital Status	15.937**	69.025**	13.774**	1.320**	7.629*
Age	50.176**	2193.216**	98.725**	22.140**	21.013**
Occupational Status	640.397**	838.126**	404.079**	159.579**	294.937**
Income	293.681**	2332.092**	869.219**	161.164**	443.905**
Place of Residence	700.865**	1482.705**	792.682**	160.727**	325.182**
Employment Description	275.349**	950.946**	780.496**	182.377**	258.855**
Educational Level	1176.167**	2369.904**	1042.784**	194.121**	565.947**
Gender	15.178**	22.279**	3.042	2.293	2.500

* $P \leq 0.05$, ** $P \leq 0.01$.

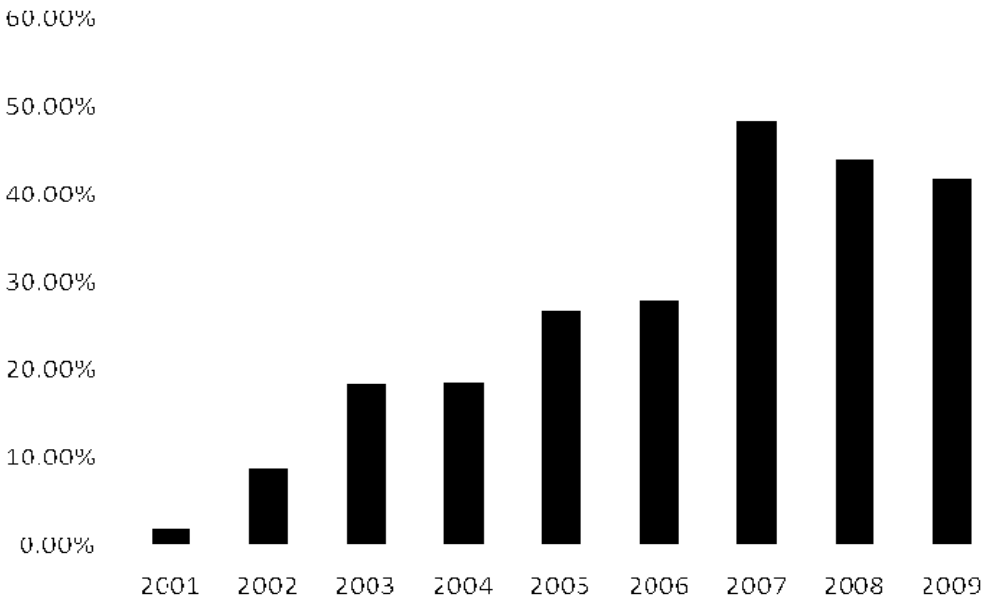

Figure 1. Annual churn rate of telecom subscribers in Nigeria (2001-2009)

Source: NCC 2011

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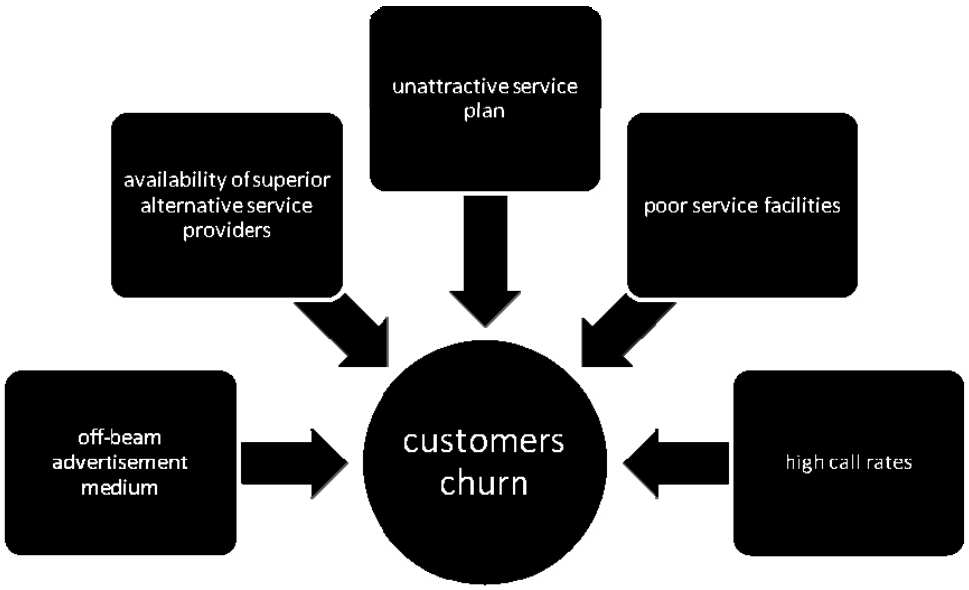

Figure 2. Customer Churn Model

Source: survey results, 2011