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Determinant of Customer Churn in the Nepalese Mobile Telephony Market

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ABSTRACT

This study aims to trace the primary reason for discontinuing the service or switching to other telecom operators by the customers. This study examines the customer churn determinant in the Nepalese mobile telephony market. The study used descriptive statistics and causal research design, i.e., a multiple linear regression model with 400 samples collected through a structured questionnaire. The study found that pricing and tariff, network quality, customer service and support, and new product and services are major determinants of customer churn in the Nepalese mobile telephone market. The current study is useful for developing predictive modeling by telecom operators to tap the possible churner beforehand by taking necessary marketing initiatives. Further, the study outcome could be useful for regulation in terms of devising the policy related to product offering by Nepalese telecom, pricing of the service, and the need to monitor the service quality by the telecom operators.

1. INTRODUCTION

Acquisition and retention of customers are major concerns of any business. While recipient companies focus on new customer intake, mature ones concentrate on retaining the existing subscriber (Jahromi, 2009). Customer satisfaction is essential for business success, where customers have more options (Abdullah, Prabhu & Othman, 2019). This phenomenon is applicable to trading and manufacturing and equally relevant to the service industry, and the mobile telecommunication industry could be outlined as one of the best examples.

In the modern era of communication, the telecommunication industry possesses one of the highest growth indicators among sectors. And even in telecommunication, mobile telecommunication is rapidly growing, overtaking fixed phones (Fasanghari & Keramati, 2011). The exponential growth in mobile telephony can be attributed to the development of

wireless technologies, increased competition among mobile operators, and liberal regulation relative to the fixed telephony market (Kim & Yoon, 2004). With the increase in competition, it is natural that customers start switching to other operators from their existing service provider, and churn is a widely recognized issue nowadays among mobile telecom service providers (Pathak & Rastogi, 2007).

Customer churn management has posed a more significant concern to telecommunication service providers, with growth in mobile telephony and the telecommunication market tending to mature (Ahn, Han, & Lee, 2006). It has been found that the annual churn rate for telecommunication averages 30 -35%, and it costs 5 – 10 times more to acquire new customers than to retain existing ones (Lu, 2002). Hence, churn is becoming an essential issue in the competitive landscape of mobile telecommunication that must be taken care of before it becomes a cost to the service provider. To manage customer churn, service providers need to identify the factors responsible for customer churn to take appropriate action on time.

Identification of customer churn determinants is the first step in customer churn management. Several previous studies have attempted to identify the factors of customer churning. Customer dissatisfaction, customer complaint, switching cost, price fairness, customer service and support, and competitor's new offerings are some of the factors identified to affect customer churn and customer loyalty (Ahn et al., 2006; Chadha & Bhandari, 2014; Hossain & Suchy, 2013; Kim et al., 2004).

Although the Nepalese mobile telecom market is a relatively late adopter, the exponential growth in mobile telecom service penetration resulted in high telecom density within a short period, as depicted by the fact that mobile service penetration increased from 23.22% in 2010 (Nepal Telecommunication Authority [NTA], 2010) to 115.2% in August 2016 (NTA, 2016) and reached 138.62% in October 2022 (NTA, 2022). Tele density of more than 100% shows that telecom penetration among Nepalese people is more Nepals' overall population and implies an individual has telecom services from more than a single telecom service provider. The Nepalese mobile telecom market is primarily served by two major players, namely Nepal Telecom (NT) and Ncell, and other operators being the small player as shown by market share of 50.88%, 43.11%, and 6.0% as of October 2022, respectively (NTA, 2022). However, with the increased mobile penetration, the market is getting competitive even with the two major players, and churn will eventually become inevitable. The operators need to know the factors for customer churn to take preventative measures soon. The current study tried to find the factor for customer churning in the Nepalese mobile telecom market context.

Customer churn is becoming one of the focal concerns of the Nepalese telecom industry. Nepalese telecom operators have also started to experience an increasing churn of customers. This study aims to trace the major reason for discontinuing the service or switching to other telecom operators by the customers.

2. LITERATURE REVIEW

Abdullah, Prabhu, and Othman (2019) studied the driving factors of customer satisfaction in the telecommunication industry. The study identified network quality, service quality, pricing, and customer service as the key drivers of customer satisfaction. The study used a quantitative research design with 230 samples collected using a convenient sampling method. The study used a multiple linear regression model to establish the driving factors of customer satisfaction in telecommunication companies. Ahn, Han, and Lee (2006) investigated the determinant of customer churn in the Korean mobile telecommunication service market. Their study put customer call drop rate, call failure rate, and number of

complaints under the customer dissatisfaction variable. The study found that the call drop rate and number of complaints positively relate to churn probability.

Similarly, the relationship between the number of complaints and churn probability is found to be partially mediated by the customer status variable. The study used a logistic regression model to assess the impact of independent variables, namely call drop rate, call failure rate, number of complaints, number of unpaid monthly bills, and customer status as mediating variables. Similarly, Chadha et al. (2014) conducted an exploratory study on the determinant of customer switching in the context of Indian mobile telecom. They identified six factors for customer switching, i.e., network and services, tariffs, technology, advertising, rewards program, and external factors. In addition, Hanif, Hafeez, and Riaz (2010) found that price fairness and customer service significantly affect customer satisfaction. Price fairness refers to the customer's perception of the seller's pricing of the product and services.

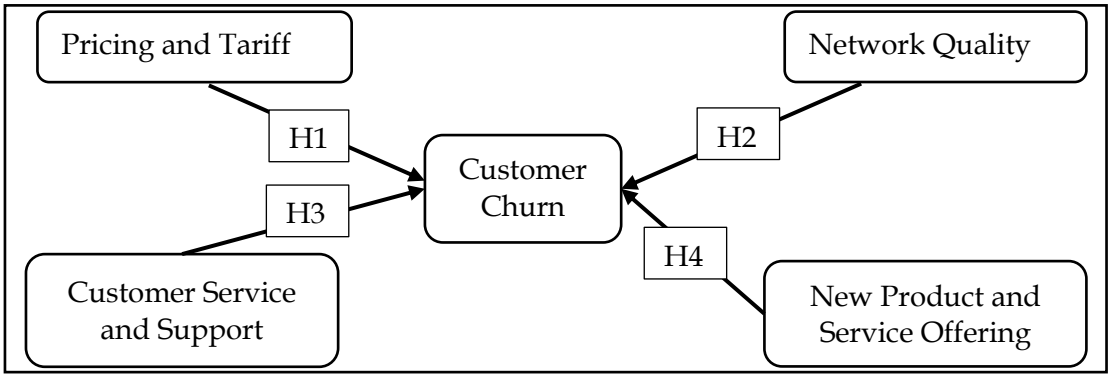
Further, Hossain et al. (2014) carried out descriptive research on the influence of customer satisfaction on loyalty in the telecom market of Bangladesh. They identified six factors, namely tariff structure (attractive call rate, internet browsing fees, price schedule variation, accuracy of call cost), communication (network coverage, signal quality, drop calls, international roaming), value-added services, convenience, sales promotion and customer care (ease of reporting a complaint, waiting time for service, complaint resolution time, personal care). The study found a positive correlation of customer loyalty with all factors except sale promotion. Likewise, Kim et al. (2004) investigated the determinant of subscription churn and customer loyalty in the Korean market. The study found that customer loyalty is affected by specific service attributes, which include call quality, handset type, and brand image. Oghojafor, Mesike, Omoera, and Bakare (2012) conducted a discriminant multivariate analysis on customer attrition in the Nigeria telecom sector. The result showed that the major five variables as determinants of churning. They are all expenses, service providers' advertisement medium, type of service plan, number of mobile connections, and service facility. Soomro and Al-Sehli (2020) conducted a study to identify the churn determinant of the Saudi telecom industry. The study found pricing structure, customer service, and network quality as the primary reasons customers leave telecom service operators. The study used the linear multiple regression model to test the impact variables.

Customer churn tendency is the variable of primary interest here, making it the dependent variable. It attempted to explain the variance in this dependent variable by four independent variables: pricing and tariff, network quality, customer service and support, and new product and service offerings. Pricing and tariff are expected to correlate with Customer churn. Pricing and tariff-related factors like call rate, internet browsing rate, optional plan with discount rate, false charging, and other pricing-related variable are expected to relate the customer churning. Network quality and its components, like call quality, call drops, call failure, and network coverage, are also expected to affect customer churn intention.

Similarly, Customer service and support can also affect the churn intention of the customer. Customer service and support include promptness in customer complaint handling, waiting time for service, customer treatment by customer service employees, complaint resolution time, and related variables. These factors could affect the customer experience with the service provider and hence customer churn intention. Similarly, new products and service offerings (from the operator and other operators) can also affect customer churn. This variable includes attractive and innovative products, value-for-money products by the operator and the competitors, and easy and understandable products. In summary, pricing, tariff, network quality, customer service and support, and new product and service offerings are the independent variables affecting customer churn. Based on the literature, the following hypotheses have been formulated to examine the churn determinant in Nepalese mobile telecommunication services.

Figure 1

Conceptual Framework and Hypotheses



3. RESEARCH METHODS

Research Design

The major objective of the study is to identify the relationship between independent variables – Pricing and tariff, network quality, customer service and support, and new product and service offering and the dependent variable – customer churn. Hence descriptive and causal research design has been used. A cross-sectional study has been pursued because of the time, effort, and cost of collecting data over several periods.

Sample Size Determination

The research assumed homogeneity in the characteristics of the sample. Hence, the sample size was determined by using the sample proportion formula of sample size determination taking a confidence interval of 95% and error of 0.05 as under:

$n = \left(\frac{Z_\alpha}{E}\right)^2 \times pq \cong 384$, where p = 0.5, q=0. 5, $Z_{0.05}1.96$ and E = 0.05

Sampling Method

The data was collected through an online questionnaire in google forms circulated over various social websites of researchers, namely Facebook, Instagram, and Twitter. Hence, purposive random sampling has been used. The questionnaire link was intentionally circulated on the researchers' social website, and they requested to distribute the questionnaire in their circle, making this purposive sampling. However, the end sample selection happens at random. The samples of 400 prepaid mobile subscribers from Ncell and NTC telecom service providers have been collected for the current study.

Instrumentation

The study had four independent and one dependent variable, which were abstract and needed to be operationalized. Adaptations to the established measure have been used to increase the validity and reliability of the variable. The pricing and tariff scale consist of seven items to measure pricing and tariff variable. Adaptation has been made to the sub-component of pricing and tariff used by Ahn et al. (2006), Chadha et al. (2014), and Hossain et al. (2014) to make them relevant to the Nepalese context. Similarly, the Network quality scale consists of six items to measure network quality variables. Adaptation has been made to the sub-component of network quality used by Ahn et al. (2006), Chadha et al. (2014), Hossain et al. (2014), and Kim et al. (2004) to make them relevant in the context of Nepal.

Further, the customer service and support scale consist of eight items to measure customer service and support variable. Adaptation has been made to the sub-component of customer service and support used by Chadha et al. (2014), Hanif et al. (2010), Hossain et al. (2014), and Kim et al. (2004) to make them relevant in the context on Nepal. In addition, New Product and Service Offering scale consists of five items to measure the new product and

service offering variable. Adaptation has been made to the sub-component of new product and service offerings used by Chadha et al. (2014). The dependent variable, customer churn, is measured with four items developed by Chadha et al. (2014), contextualized as per the Nepalese context. The study used a structured questionnaire with 36 items, where 30 are related to the study variable, and others are related to telecom usage and demographic variable.

Techniques of Data Analysis

The current study used regression and correlation analysis to determine the customer churn factors. Following is the regression model used:

$$Y_i = \beta_0 + \beta_1 \text{Price} + \beta_4 \text{Qual} + \beta_5 \text{Serv} + \beta_6 \text{Offer} + \varepsilon_i \text{----------(i)}$$

where Y_i= Churn Tendency, Price= Pricing and Tariff; Qual= Network Quality; Serv= Customer Service and Support and Offer= New Product and Service Offering

4. RESULTS

Descriptive Statistics

The study's respondents were predominantly male (220, 55%). The respondent mainly consists of the 16 -29 age group with 266 (67%) sample points, followed by the 30 -39 age group with 110 (28%) sample points. One hundred and fifty (37.5%) of respondents used NTC, followed by 35% using Ncell and 27.5% using both NTC and Ncell telecom sim operator. The study found that NTC has a predominantly higher customer base who used it as their major communication or their major/ primary operator. Accordingly, 42% of the overall sample group used Ncell as their primary sim/ operator, and 58% used NTC as their primary sim/ operator. This is one of the supporting variables to the target variable. The satisfaction spectrum measures customers' satisfaction with their current primary operator. This can be considered as the indicator of how the customer could go ahead with their current operator, and this is the supporting index to see whether the customer is likely to switch soon. A high concentration (254, 63.5%) of respondents are unsatisfied with their current primary operator. The satisfied and highly satisfied spectrum has distribution of (79, 19.8%) and (57, 14.3%) respectively. A high concentration (253, 62%) of respondents are willing to change their primary operator. Unwilling to change and strongly reluctant to change has the distribution of (78, 19.5%) and (59, 14.8%) respectively.

Table 1

Cross Tabulation between Satisfaction Spectrum and Churn Propensity

		Satisfaction Spectrum				Total
		Highly Unsatisfied	Unsatisfied	Satisfied	Highly Satisfied	
Likely to Switch/Churn	Strongly willing to Change	(10, 2.5%)	-	-	-	(10, 2.5%)
	Willing to change	-	(240, 60%)	(13, 3.3%)	-	(253, 63.3%)
	Unwilling to change	-	(14, 3.5%)	(63,15.8%)	(1, 0.3%)	(78,19.5%)
	Strongly unwilling to change	-	-	(3, 0.8%)	(56,14%)	(59,14.8%)
	Total	(10, 2.5%)	(254, 63.5%)	(79,19.8%)	(57,14.3%)	(400,100%)

Table 1 shows that (10, 2.5%) are highly unsatisfied and strongly willing to change the operator or tariff plan. Most sample points are concentrated in the unsatisfied (254, 63.5%) and willing to change (253,63.3%) categories. Unsatisfied with the current operator but still do not want to change are small in number, which amount to (14,3.5%). Similarly, (63,15.8%) of the sample point are satisfied with their current operator and are unwilling to change their current operator or tariff plan. And likewise, (56,14%) of sample points are highly satisfied with their existing operator and are strongly unwilling to change it.

Correlation and Reliability Analysis

Table 2 shows the correlation among the study variables and their significance. The finding reveals a significant positive correlation between customer churn tendency and pricing, poor network, customer service, and new products. Further, a significant correlation exists among pricing, poor network, poor customer service, and new products. The causal relationship and possible multicollinearity among independent variables are further evaluated based on regression in Table 3. Moreover, the reliabilities of the study variables were presented in Table 2 (values in the diagonal) and found to be a reliable construct.

Table 2

Correlation and Reliability Statistics

Variable	Churn Tendency	Pricing	Poor Network	Poor Customer Service	New Product
Churn Tendency	**(.824)**				
Pricing	0.4774*	**(.723)**			
Poor Network	0.4936*	0.2150*	**(.781)**		
Poor Customer Service	0.3967*	0.4020*	0.3996*	**(.853)**	
New Product	0.5267*	0.4219*	0.5206*	0.2629*	**(.706)**

Notes. The asterisk (*) sign indicates that the result is significant at a 1 percent level.

Regression Analysis

The regression among dependent variable customer churn tendency and independent variables pricing and tariff, network quality, customer service and support, and new product and service offering has been carried out.

Table 3

Regression Outputs

	Coefficients	SE	t-Stat	p-value	VIF	Hypothesis
Intercept	0.58	0.118	4.974	0.000	-	-
Price	0.243*	0.040	6.081	0.000	1.71	H_1 Accepted
Qual	0.263*	0.051	5.159	0.000	1.66	H_2 Accepted
Serv	0.116*	0.042	2.785	0.006	1.40	H_3 Accepted
Offer	0.278*	0.058	4.755	0.000	1.37	H_4 Accepted
$R^2 = 0.43$		F = 74.16		Sig(F) = 0.000		

Notes. The asterisk (*) sign indicates that the result is significant at a 1 percent level.

Table 3 shows a regression analysis of churn tendency. The multiple regression model has an R square of 0.43. This means that 43% of the variation in the dependent variable churn tendency can be explained by variables pricing and tariff (Price), network quality (Qual), customer service and support (Serv), and new product and service offering (Offer). The model's fitness is stated by an F-value of 74.16, significant (0.00) at a 1 percent significance level. This implies that the research model is a good fit for explaining the churn determinants. Individually, all the factors considered are significant at a 1% significance level, i.e., all the research hypotheses are accepted. Hence, pricing and tariff (Price), network quality (Qual), customer service and support (Serv), and new product and service offering (Offer) are the churn determinant of Nepalese mobile telephony. The VIF as a diagnostic tool to out rule the possibility of issues from multicollinearity among independent variables has been examined. Since the value of VIF is less than 4, the variables do not have multicollinearity issue in the model.

The pricing and tariff of the telecom service affect customer satisfaction. The customer is satisfied only when the price is fair enough for the service consumption. In the Nepalese mobile industry, fair price perceptions by the customer are found to be absent. This means the operators' pricing is relatively high and is one of the leading factors for customer churn and

switching. Similarly, network quality affects customer satisfaction. Network quality is the main factor that significantly impacts the customer experience. Customers are becoming more conscious of service experience in Nepal as well. Hence, the customer is switching from one operator to another for better network quality and service experience without interruption and pitfalls.

Nepalese mobile customers are equally becoming sensitive toward the customer experience. The customer care and support center are the touch point where the customer gets connected to the operators. Customer care and support create a service experience that is both positive and negative for the customer. A few years back, the customer was not concerned about the service experience since they didn't have many alternatives for service consumption. Now that the customer can get telecom service quickly from anywhere, the focus of the customer has shifted from getting service to getting better service. This has a bearing on customer churn. Customers are easily prone to churn because of the customer care and support provided by the operators.

Customers are equally sensitive toward the new service offered by the operators. The customer is prone to switch from one operator to another, provided the new service offers value for the money paid. At times, operators cannibalize their products with new products and services. When the operator comes with a new service plan offering that provides value to the customer or has increased value addition to the existing one, the customer is prone to leave the current service consumption and move to a new service plan. These are the internal churner for the customers.

Table 4

Regression output of Churn Tendency (with Robust for Heteroscedasticity)

	Coefficients	Se	t Stat	P-Value	Hypothesis
Intercept	0.58	0.12	4.88	0.000	-
Price	0.243*	0.034	7.01	0.000	H_1 Accepted
Qual	0.263*	0.057	4.63	0.000	H_2 Accepted
Serv	0.116*	0.031	3.68	0.00	H_3 Accepted
Offer	0.278*	0.056	4.94	0.000	H_4 Accepted
$R^2 = 0.43$		F = 114.18		Sig(F) = 0.000	

Table 4 reports the regression outcome addressing the possible problem related to the heteroscedasticity issue. The robust model corrects the possible heteroscedasticity in the variance term. Hence, the heteroscedasticity corrected regression is presented to ensure the regression result is reliable, and the result shows the significance of independent variables has not changed with the change in the standard error term. Hence, the p-value and conclusion have not differed from the basic model of regression presented in Table 3.

5. CONCLUSION

The current study assessed the churn determinant in the Nepalese mobile telecom market context. The present study found that pricing and tariff, network quality, customer service and support, and new product and service offering significantly impact customer tendency to switch.

The research found that the pricing for the telecom service affects customer satisfaction which has a bearing on the customer's tendency to switch. Similarly, the network quality affects the customer experience on service usage, ultimately triggering or holding customer switching behavior. Customers are becoming more aware and conscious of customer support and service in need. Hence, better customer service helps lower the customer's tendency to switch. Finally, telecom operator needs to bring new product offerings or update existing product services to retain customers. Offer-sensitive customers can have a higher tendency to leave the operators.

6. IMPLICATIONS

The current study and its finding help develop predictive modeling by telecom operators to tap the possible churner beforehand by taking necessary marketing initiatives. The variable identified is the crucial parameter, along customer related demographic and service usage information that can be used to form the model. So, in this respect, the current study could be one of the importance finding for telecom operators. Moreover, the study helps attract new and old customers toward the organization and, in turn, customer loyalty. Further, the study outcome could be helpful for regulation in devising the policy related to product offering by Nepalese telecom, pricing of the service, and the need to monitor the service quality by the telecom operators.

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