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Revenue Segmentation of Nepal Telecom

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Abstract : *The paper attempts to evaluate revenue segmentation of Nepal Telecom using factor analysis technique. The study finds that there are two principal components in income of Nepal Telecom as major and minor sources of income. The major income sources includes domestic trunk and telephone, local telephone, international telephone and others while the minor sources of income includes international telegraph, domestic telegraph, international telex, lease circuit and telefax. Similarly, the regression analysis reports a high degree of significant effect of major sources of income, on the contrary minor sources of income exerts insignificant effect on the revenue of Nepal Telecom.*

I. INTRODUCTION

The telecommunications sector in Nepal has been witnessing a dramatic change in recent years. The changes are driven by a combination of market, business and technological forces. The globalization has largely encouraged a number of multinational companies to expand into new markets. These companies look for a single provider to meet all the telecoms needs. Telecom operators looking for new revenue streams are entering the international market place, value and low value customers. New technologies like wireless; digital subscriber line (DSL) and voice over internet protocol (VOIP) are enabling new service opportunities. The demand for bandwidth and high-speed access is growing, driving the development of new services such as wireless broadband and DSL. Customer awareness and knowledge is increasing and want services that satisfy their unique needs and demand reliable service delivery at competitive prices.

As telecommunication companies become more customer and service oriented, they are likely to start making a significant capital investment on their

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customers, i.e. shifting from being product-centric to the customer-centric. In many industries customer service has become a key element in the battle for both volume and margin. As companies shift from traditional service focus to the customer focus, customer relations management represents a fundamental change which affects virtually every aspect of an organization. In an effort to meet the customers' needs, companies may overlook whether or not they are actually making money from the business they do with. The profitability analysis of an enterprise influences the future decisions, which affects the future results of the firm. The accounting profitability of the clients represents that part of the accounting system which determine the difference between the total revenues from the selling's to a client/group of clients and generates costs in servicing that client/group of clients (Ward, 1992). Considering the competitive increase of the enterprise, the majority of the economic entities confronts with the need to make faithful and develop the clients portfolios. As profitability depends on customer, Nepal Telecom seems to be very successful in retaining its customers. The paper seeks to examine the impact of major and minor source of revenue.

In the following sections, Section II represents a brief review of related studies. Similarly Section III describes data and methodology. Section IV represents results and conclusion contain in Section V.

II. LITERATURE REVIEW

Most researchers and practitioners accept the notion that revenue segmentation is positively associated with desirable business outcomes. Research has found that customer satisfaction has a measurable impact on purchase intentions (Bolton and Drew, 1991) and on customer retention (Anderson and Sullivan, 1993). Several studies have supported a link between customer retention rates and profits across firms in a number of industries (Reichheld , 2000). A frequently quoted study reported in the Harvard Business Review states that improving retention rates by 5 percent resulted in profit increases for firms from 25 to 85 percent (Reichheld and Sasser, 1990).

Keiningham et al. (1995) examined the relationship between satisfaction and actual increased volume of purchases looking at the impact of different organizational buyer groups. Their findings showed that the relationship between satisfaction and increased volume of purchases varied considerably by buyer group, and the relationship was non-linear. (Keiningham et al.,2005) examined the relationship between attribute-level satisfaction, customer retention and actual increased volume of purchases for the fleet trucking and pharmaceutical industries. Their study found that the strength of the relationship between attribute satisfaction and retention did not differ significantly from the relationship between attribute satisfaction and increased volume of purchases. They noted, however, that this could be because of the high correlation between retention and increased volume of purchases.

III. RESEARCH METHODOLOGY

3.1 Sample and Data

At present, there are in total six telecom service industries. On the basis of age, revenue collection, network coverage, variety of telecom services and number of customers, Nepal telecom has been selected as a sample firm. Thus, the paper seeks to evaluate revenue segmentation of Nepal Telecom. This study is based on secondary data through published annual reports of Nepal telecom.

3.2 Method of Analysis

Factor Analysis

Factor analysis technique is employed to examine revenue segments of Nepal Telecom. Factor analysis is primarily used for data reduction or structure detection. The purpose of data reduction is to remove highly correlated variables from the data file, perhaps replacing the entire data file with a smaller number of uncorrelated variables. For data reduction, the principal components method of extraction begins by finding a linear combination of variables (a component) that accounts for as much variation in the original variables as possible. It finds another component that accounts for as much of the remaining variation as possible and is uncorrelated with the previous component, continuing in this way until there are as many components as original variables. Usually, a few components will account for most of the variation, and these components can be used to replace the original variables. This method is most often used to reduce the number of variables in the data file. With the view of reducing performance variables for analysis this data reduction technique has been applied. Nine different variables are used for factor solution.

Regression analysis

Linear regression is used to examine the value of a dependent scale variable based on its linear relationship to one or more predictors. The linear regression model assumes that there is a linear, or "straight line," relationship between the dependent variable and each predictor. The regression model has dependent variable of operating income and independent variable of major sources of income and minor sources of income. The hypothetical statement of the model is the impact of major source of income and minor source of income on operating income of Nepal telecom. The theoretical statement may be framework as under:

The model

$I_t = a + b_1 M_{1t} + b_2 M_{2t} + e_t$

Where,

I_t = operating income in time't'

M_{1t} = major source of income in time't'

M_{2t} = minor source of income in time 't'

e_t = error term

IV. EMPIRICAL RESULTS

Factor analysis is a statistical technique for reducing the dimensionality of problem by summarizing a set of variables as a smaller set of inherent common factors. This analysis decomposes the variation in multivariate data set into a set of components such that the first component accounts for largest proportion of the variation in data, second component accounted for second largest proportion of the variation in data, and so on. In addition, each component is uncorrelated with others, which is useful property because it means that the components are presenting different dimensions in the data.

Table 1 : KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.601
Bartlett's Test of Sphericity	Approx. Chi-Square	93.508
	df	36
	Sig.	0.000

The table 1 preseents KMO and Bartlett's test result. The value under the Kaiser-Myer-Olkin (KMO) ranges between zero to one. For a good factor analysis, the minimum suggested value should be 0.6 (according to Tabackhnick and Fidell 1996). The Bartlett's test of sphercity should be significant at 5 percent level of significance. As far as present case is concerned, the KMO is above the minimum range (0.601). Thus, it can be suggested for further analysis. Here, P value under Bartlett's test is significant (0.000 < 0.05).

Table 2 : Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.712	74.580	74.580	6.712	74.580	74.580
2	1.231	13.676	88.256	1.231	13.676	88.256
3	0.431	4.788	93.044			
4	0.260	2.888	95.932			
5	0.184	2.044	97.976			
6	0.116	1.288	99.264			
7	0.057	0.633	99.897			
8	0.008	0.085	99.982			
9	0.002	0.018	100.000			

Extraction Method: Principal Component Analysis.

The first and second variables have eigenvalues more than 1, therefore there are two components and they explain around 88 per cent of total values (88.256). The Scree plot further depicts two principal components in figure 1.

Figure 1

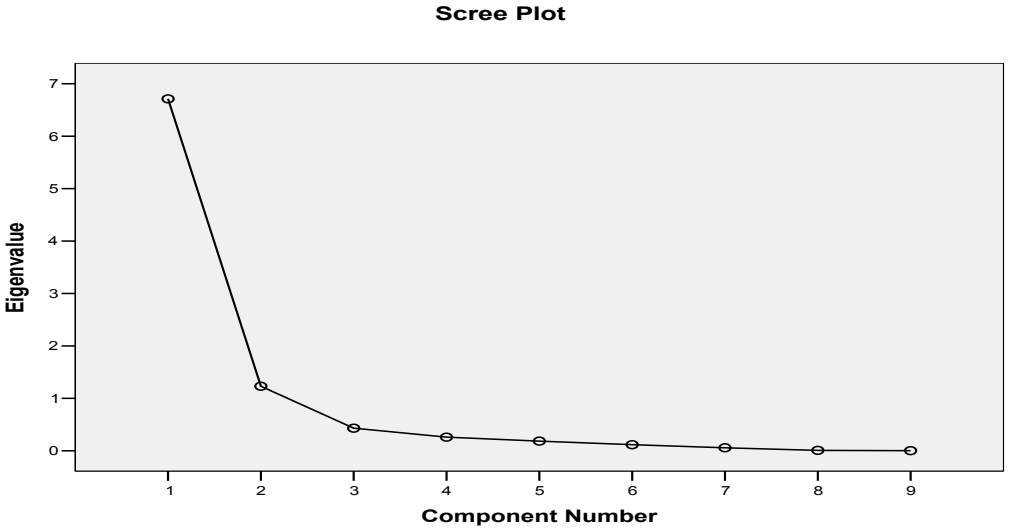


TABLE 3 : COMPONENTS EXTRACTED

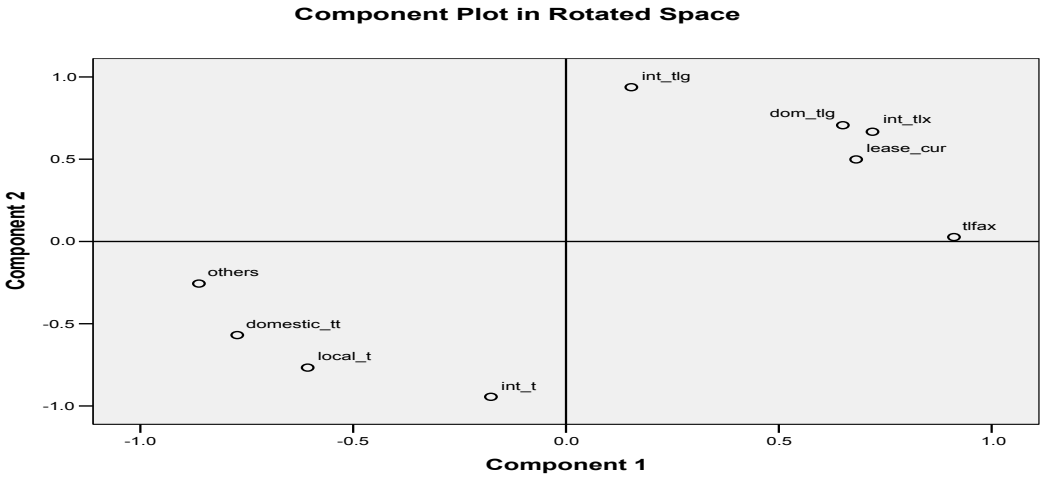
Segments	Components extracted
Local telephone	-0.971
Domestic trunk telephone	-0.949
International telephone	-0.789
Domestic telegraph	0.959
International telegraph	0.769
International telex	0.981
Lease circuits	0.835
Tele fax	0.667
Others	-0.793

Grey-minor source

White-major source

It has identified two principal components and they explain around 88 percent of the total variation in the given data. Two different compartments in component matrix table depict two different dimensions of major sources of income and minor source of income. The Table 3 shows the results of a principal factor analysis with an orthogonal varimax rotation for nine impact variables of operating income. The loading of greater than 0.50 were considered on factor grouping. An examination of eigenvalues suggests that including any more two factors only provides a marginal benefit in explaining variance. It intends to organize the responses to the nine impact variables into small number of meaningful groupings is to reduce the comprehensive information into general themes. Those loadings that fit into each factor are highlighted in gray and white.

Figure 2



The Figure 2 clearly shows that there are two major components among the nine variables. The two major components that can be interpreted are major sources of income and minor sources of income of Nepal telecom. The major income sources include domestic trunk and telephone, local telephone, international telephone and others while the minor sources of income includes international telegraph, domestic telegraph, international telex, lease circuit and tele - fax.

Regression Analysis

The hypothetical statement of the model is the impact of major source of income and minor source of income on operating income of Nepal telecom. The theoretical statement may be framework as under model :

$I_t = a + b_1 M_{1t} + b_2 M_{2t} + e_t$

Where,

I_t = operating income in time't'
M_{1t} = major source of income in time't'
M_{2t} = minor source of income in time't'
e_t = error term
a = Intercept
b_1 = coefficient of major sources
b_2 = coefficient of minor sources

The outcome depicts that relatively high major source of income and minor source of income impact weak on operating income of Nepal telecom. One rupee increases in major source of income leads to the 1.282 rupee increase in operating income of Nepal telecom. The figure seems that there is high effect of major source of income in operating income. The coefficient of major source of income is significant at 1 per cent level of significance. On the other hand, one rupee increase in minor source of income leads to 0.002 rupee increase in operating income. It was found that there is very low degree of relationship between minor source of income and operating income.

Table 4 : Regression of operating income on major source of income and minor source of income

(The model is : $I_t = a + b_1 M_{1t} + b_2 M_{2t} + e_t$

where, I_t, M_{1t}, and M_{2t}, represents operating income, major source of income and minor source of income respectively. The sign * and ** denote the significance of coefficient at 5 per cent and 1 per cent level of significance)

Sector (Sample size)	a	b_1	b_2	R^2	F
Total observation (n=10) 'p' value	-4.283 0.031*	1.282 0.000**	0.002 0.961	0.989	304.048 0.000**

Minor source of income coefficient is highly insignificant. Hence, major source of income has been strong impact than that of minor source of income on operating income. The important point to be noted here is that the F-statistics for the regression model is significant at one per cent level of significance indicating that the regression equation provides statitiscally significant explain of variation in the operating income.

As regard the regression model, $I_t = a + b_1 M_{1t} + b_2 M_{2t} + e_t$, coefficient of major source of income is high as compare to the coefficient of minor source of income.

V. DISCUSSION

Factor analysis technique is employed in this paper to examine revenue segments of Nepal telecom. It has been found that there are two principal components in income of Nepal telecom as major and minor sources of income. Major income sources includes domestic trunk and telephone, local telephone, international telephone and others while the minor sources of income includes international telegraph, domestic telegraph, international telex, lease circuit and tele-fax. The regression analysis shows that there is high degree of significant effect of major sources of income but there is insignificant effect of minor sources of income on operating income.

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