

Determinants of Prepaid Mobile Service Providers: Evidence from Agartala

Rajat Deb*, Moumita Naha**

ABSTRACT

The study has taken twin objectives– to find the determinants of service providers and to report the problems the respondents are exposed to in accessing the prepaid mobile services in Agartala. Based on a pre-tested interview-schedule, a sample size of 183 respondents, the empirical results have indicated that the principal influencing factors in choosing a service provider include customer care & facility, network coverage, tariff plan & recharge facilities. A significant relationship has been established between the gender of the respondents and their choice of service provider. The decision for subscription is further significantly influenced by their experiences of unsatisfactory services. Policy implications are derived from the study and it acknowledges few limitations.

Keyword: Prepaid Plan, Survey, Service Providers, One Sample T-Test, Regression Analysis

INTRODUCTION

Although since the launch of the first cellular mobile service in August 1995, the Indian cellular industry has not looked back (Chandiran, 2005), the mobile service, one of the fastest proliferating telecommunication segments, is now facing major challenges in customer retention, mainly in the prepaid segment (Rajeswari & Ravilochanan, 2014). Information and communication technologies (ICTs) are transforming society, especially mobile phones are revolutionising access to computational resources and to the Internet in developing countries (Fleischmann & Srikantaiah, 2011). Prepaid mobiles are more attractive for low-income users (Anderson, 2006) with low telecommunications expenditures, despite higher per-minute rates (Hodge, 2005). The spread of mobile phones across the developing world is one of the most remarkable technology stories of the past decade. Telecommunication is one of the prime support services needed for the rapid growth of any economy (Naidu & Ponduri, 2015). The 1994 Telecom Policy of Government of India was introduced to liberalise the telecom sector

by allowing private sector participation for both basic and value added services. After the emergence of private telecom players, customers have multiple options to get the best service from the best service provider. Companies find it difficult to attract and retain the customers and are concentrating more on service quality in contrast to attract the new customers as tapping new customers is much more costly than serving the existing one (Reichheld, 1996). According to the statistical report of Telecom Regulatory Authority of India (TRAI) 2014, total prepaid subscription has been found to 886 million, with an average monthly prepaid churn of 14 percent. The telecom players in today's environment are required to design and deploy customer-centric strategies not only to grab a share in the market, but also to sustain growth in the long run, as the beneficiaries of the severe competition are consumers. The players have realised the importance of constant service-quality delivery to the customers for long run sustainability (Naidu & Ponduri, 2015).

Prepaid mobile plans provide most of the services offered by a mobile phone operator. The big difference is that with prepaid plans, payment for service is made before

* Assistant Professor, Department of Commerce, Tripura Central University, Suryamaninagar, West Tripura, Tripura, India.
Email: debrajat3@gmail.com

** M.Com., Department of Commerce, Tripura Central University, Suryamaninagar, West Tripura, Tripura, India.

use. As calls and texts are made, and as data are used, deductions are made against the prepaid balance amount until there are no funds remaining (at which time service is no longer available). A user may avoid such a break in service by making payment to increase to the remaining balance. Buoyed by prepay cards and inexpensive handsets, hundreds of millions of first-time telephone owners have made voice calls and text messages part of their daily lives (Donner & Tellez, 2008). The purchased credit is used to pay for mobile phone services at the point the service is accessed or consumed. A prepaid plan may have a lower cost (often for low usage patterns e.g. telephones for emergency call use) and make it easier to control spending by limiting debt and controlling use. They often have fewer contractual obligations - no early termination fee, freedom to change provider, plans, able to be used by those unable to take out a contact (that is under age of majority). Depending on the local laws, they may be available to those who do not have payment address, phone number or credit card. This makes them popular amongst student away from their home towns and travellers. Scott (1998) reported that prepaid plans had taken off as an alternative to expensive airtime contracts with long terms.

The review of prior studies proved beneficial in identifying research gaps, which are mainly the edifices on which the objectives of the present study is based. The literature indicated that a number of studies have been carried out on different dimensions of mobile service marketing especially push and pull marketing strategies (e.g. Kapil & Kapil, 2010; Mallikarjuna, Krishnamohan & Kumar, 2011), technical aspects and coverage (e.g., Mahan, 2003; Wu & Wang, 2004; Revathi & Padmavathy, 2005; Chowdary, 2006; Kuo & Yen, 2009; Khan, Aditi, Sreeram, & Iu, 2010; Amulya & Anand, 2011) and few on customers satisfactions (e.g. Ganguli & Roy, 2010; Gabbott & Hogg, 1994; Selvaraj & Malathi, 2005); but exclusively not on the determinants of service providers in the prepaid mobile service segment especially in India in general and in Agartala in particular. Here lies a gap in the existing body of knowledge and this paper is an attempt to bridge that gap by contributing in the literature. The scope of the study is confined to the randomly selected prepaid plan subscribers of Agartala due to parsimony and time constraint.

The study has twin objectives– to find the determinants of prepaid mobile service providers and to report the problems they are exposed to in accessing the services in Agartala.

The next section, Theoretical Framework, explains the conceptual perspective on which the research hypotheses are developed. The description of research methods adopted for this study is discussed in third section followed by the results in fourth section. Discussion of the results is offered in fifth section. The conclusions of the study are drawn in sixth section and the future research directions are enumerated in seventh section. The last section of the study offers the scope for implementations of the findings.

THEORETICAL FRAMEWORK & HYPOTHESES DEVELOPMENT

A number of studies have been conducted with different dimensions of mobile plans, services, technicalities worldwide and such studies were reviewed to construct the conceptual theoretical framework, based on which hypotheses and pertinent items of the schedules were developed.

Gender and use of Mobile Plans

Economides & Grouspoulo (2008) documented that Greek female students tended to receive more calls and send messages using prepaid plans than male students. Lee (n. d.) found that women students of University of Stanford shared emotional support and interesting topics using instant messaging service of prepaid plans. Ceccucci et al. (2013) concluded that some emotional differences did exist between genders (text messaging usage). Debarand & Johnson (2008) highlighted that women used instant messaging more when they wanted to communicate with someone who was geographically away from them. Igarahi, Takai & Yoshida (2010) stated that women tended to have larger social networks developed through face to face interactions as compared to their male counterparts. Min & Khoon (2013) reported that male and female customers' perceptions are different about the tangibility dimension of service quality. Thus we hypothesize that:

H₀₁: Gender has an influence in the choice of prepaid service provider.

Service Dimensions and use of Mobile Plans

In studies of the telecommunications sector, some of the quality dimensions identified by researchers include complaint handling, reliability, assurance, network quality, customer service, product performance, and billing (Wang & Lo, 2002; Athanassopoulos & Iliakopoulos, 2003; Aydin & Ozer, 2005). Murray (1991) noted that consumers have a higher perception of risk when purchasing services, which causes them to have distinctive information needs; and service providers need to understand the exact need of the customers (Velmurugan & Velmurugan, 2014); to know the switching behaviour (Raheem, Nawaz, Mujeeb, & Vishnu, 2014); and customers' perceptions in which benefits temporarily precede costs (Gourville & Soman, 1998). Assael (1992) listed several factors that may increase the customers' need to acquire more information; since customers tend to become more and more demanding (Chadha & Kapoor, 2009); and cellular companies have to use promotional tools determined by various marketing and consumer behaviour factors to retain them (Chinnadurai & Kalpana, 2006). Higher service quality leads to not only higher level of consumer satisfaction (Awan, Bukhari, & Iqbal, 2011), but also greater customer loyalty (Islam & Ali, 2011) and positive word of mouth (WOM) publicity (Jain, 2012), thus helping service firms attracting new customers as well as increasing their market share and enhancing profitability (Jain, 2008). Price sensitivity of the customer is one of the key factors that explain the behavioural consequences of customer satisfaction (Peng & Wang, 2006). Service quality has also been defined as the result of a comparison between the received service and the expected service (Gronroos, 1984). Hence we hypothesize that:

H₀₂: Service dimensions have an influence in the choice of prepaid service provider.

RESEARCH METHODS

Research methods refer to the overall approach to a problem which put into practice in a research process, from the theoretical underpinnings to the collection and analysis of data (Collis & Hussey, 2003). This section is framed in the following sub heads.

Research Design

Cross-Sectional Research Design is used in this present study to obtain insights into the different aspects to assess the perception of the respondents about the motivating factors for choosing prepaid mobile service providers and to report their problems in accessing the services. The study is cross-sectional (survey) as it is carried out at a particular point of time (during March-May, 2015). The survey approach is used as it is suitable when a researcher is trying to obtain a broad and representative overview of a situation (Fisher, 2007) and to produce quantitative descriptors of some aspects of the studied population (Pinsonneault & Kraemer, 1993; Groves et al. 2004). The choice of a suitable survey method depends on the context of the specific research and the advantages of the chosen method over the other options (Malhotra, 2010; McDaniel & Gates, 2010).

Schedule Development

Interview schedule was used as a tool for data collection since people were unwilling to give truthful answers to the questions that invade their privacy (that were confidential and sensitive in nature), for example, discussing the name of the service providers or the number of mobile sim cards they were accessing or even their personal finance (Churchill, 2001; Malhotra, 2005). The items in the schedule were developed in the following way:

Firstly, research studies from 1969 to 2015 on the areas such as perception of mobile services, tariff plans were reviewed to generate a 47-items inventory.

In the second stage, a protocol interview was conducted with 15 experts to carefully assess their understanding of the items and doubts were clarified as suggested by Diamantopoulos, Reynolds, & Schlegelmilch (1994). Experts voted on whether the items and underlying constructs used were (1) important, (2) measurable, and (3) feasible to accomplish. The mean score for accepting items was set as 10 on any item. In all, from the 47-items generated through survey of literature, 44-items were retained for the pilot study.

In the third stage, a pre-test was carried out using a sample size of 30 respondents by convenient sampling technique as suggested by Zikmund & Babin (2012) to

check for clarity of items, relevance and completeness. The outcome of pre-test reduced the number of items to 40, which was retained for the final survey. Results of the pilot survey also were given a good indication of how the model could emerge in the larger study. Further, a little modification to the schedule content, format and wording was made based on the outcomes of the pre-test.

Finally, the 40-item schedule developed from the pre-test was administered to a large sample. A cover letter containing attitudinal, behavioural, factual, demographical and closing instructions was used as suggested by Dillman (1978). Fixed alternative items were used as it was easier for the respondents to answer and it enabled comparability of answers, facilitated coding, tabulation and interpretation of data (McDaniel & Gates, 2010; Hair et al. 2010). In order to minimise the risk of non-comprehension and ambiguity problems, definitions of key concepts were made available to the respondents as suggested by Peytchev et al. (2010). An eye was kept on the well-known trade-off between the length of the schedule and the response rate (Dillman, 1978).

Sampling Design & Sample Size

To carry out the study, all the prepaid plan subscribers of Agartala were assumed as the study population of which we had approached randomly selected 200 such subscribers to participate voluntarily in the study of

which 183 respondents were agreed; hence the eventual sample size was reduced to 183 subscribers (93 men and 90 women). The samples were chosen from ten areas of Agartala with Roscoe's (1975) rule of thumb, which states that taking any sample between 30 and 500 is adequate; which was also recommended by Tabachnick & Fidell, (2013); MacCallum et al. (1999).

Secondary Data

Secondary data are collected from academic journals, books, theses, dissertations, monographs, research reports, conference proceedings, magazines, business newspapers, and websites.

Statistical Power and Confidence Level

To test the hypotheses, we have taken the confidence level ($\alpha=5\%$). The Statistical Power analysis was carried out using G*3 software and the results document that the power is 83.73 percent which is more than the conventional threshold limit of 80 percent as suggested by Cohen (1988).

Variables and Statistical Tests of the Study

Data Analysis Strategy

Name of Variables	Null Hypotheses	Statistical Tests Used		
		Name	Objectives	Rationality
Predictor Variables: 1. Gender	H01	Independent Sample t-test	To test whether two variables are different	1. Sampling distribution is normally distributed. 2. Interval data 3. Presence of homogeneity of variance in population 4. Scores are independent
2. Dimensions of prepaid plans	H02	Forced Entry Regression	To assess the strength of a relationship between predictors and one outcome variable	1. Presence of multiple variables. 2. Interval data 3. Outcome variable is quantifiable. 4. No perfect multicollinearity 5. Homoscedasticity
Outcome Variable: 1. Choice of prepaid mobile service providers	H01, H02	-	-	-
Confounding Variable: Influence of referral group members	Not Available	Not Required	Comment proposed to be made after the completion of study	Not Available

The data collected through schedule was further processed by using IBM SPSS-20. Research questions were addressed either through simple descriptive statistics (means and standard deviations) or through inferential statistics (Independent sample t-test, Forced entry Regression analysis). Several techniques were employed to confirm that the research instruments used show adequate properties such as internal consistency and construct validity.

Factor analysis was used to describe the variability among the indicators initially identified through literature review and refined from the outcome of protocol interview followed by Pilot Study and eventually tested using survey. It is a set of techniques which, by analysing correlations between variables, reduces their number into fewer factors which explains much of the original data, more economically (Nagundkar, 2010; Hair *et al.*, 2010). Between the two methods of Factor analysis, viz. Principal Component Analysis (PCA) and Common Factor Analysis (CFA), the former method was used as the primary objective was to identify theoretically meaningful underlying factors (Ho, 2006, Mitchelmore & Rowley, 2013); and it decomposes the original data into a set of linear variants (Dunteman, 1989) and it is conceptually less complex than CFA.

Procedure

For the purpose of data collection, interview-schedule along with a cover letter was used in which the purpose of the study was briefly explained, so as to get reliable responses from them. A close ended pre-coded schedule with a 5-point Likert scale was used for analysing the perception of the respondents. The 5-point scales ranging from strongly disagree (1) to strongly agree (5) was used. According to Cooper (2000), this type of scale is considered to be an interval scale. Fixed alternative items were used as it is easier for the respondents to answer and enables comparability of answers; it also facilitates coding, tabulation and interpretation of data (McDaniel & Gates, 2010; Hair *et al.*, 2010). The respondents were requested to read the items of the schedule carefully and the enumerator filled it up based on reply by the respondents. Doubts were clarified whenever requested and they were assured about maintaining anonymity (Jobber, 1985; Oppenheim, 1992). In order to minimize the risk of non-comprehension and ambiguity problems,

definitions of key concepts and jargons was made available to the respondents for their easy understanding; as suggested by Peytchev *et al.* (2010). After successful completion of the process they were thanked for their cooperation. To counter the internal validity threats, the respondents were selected randomly (selection threat), separately (diffusion treatment threat), judiciously (regression threat), controlled the variables (history threat) and created equality between the two groups of sample (compensatory rivalry threat). The external validity threats were controlled by restricting the results for its generalisation to those beyond study groups, settings and history (threats of selection, new settings treatment and history). The data was then further processed using IBM Statistical Package for Social Sciences (SPSS) -20.

RESULTS

Descriptive Statistics

The study has revealed that majority of the respondents were Hindus (98.36 percent), General (50.8 percent), married (61.2 percent), in the age group of 26-35 years (32.8 percent), educated up to Madhyamik (36.1 percent), belonged to middle class families (89.4 percent), mostly were in the income group of less than INR 5000 per month (43.1 percent), influenced by family members and relatives to choose the service provider (51.91 percent), having double subscriber's identification module (sim) cards (59.01 percent), and were mostly using Vodafone sim cards (49.7 percent).

With respect to Customer Care & Facility factor, mean values indicate that respondents are conceptualize the customer care & facility while choosing the pre-paid service providers (Average Mean = 3.61, S.D. = 0.94). Mean score for items ranged from 3.29 to 4.08 excluding the reversed score item 'credit facility'. In the second factor Network Coverage, mean values document that respondents agreed about the coverage of networks (Average Mean = 4.03, S. D. = 0.61). Mean score for items ranged from 3.66 to 4.32. In the third factor Tariff Plans & Recharge, mean values suggest that respondents are agreed about tariff and recharge plans (Average Mean=4.20, S. D. =0.59). Mean score for items ranged from 4.20 to 4.38 excluding the reversed score item 'Roaming tariff plans'. The mean scores of fourth factor Subscription Decision indicates that respondents are agreed about that consider different factors while taking the subscription decision

(Average Mean=3.48, S. D. =0.91). Mean score for items ranged from 3.28 to 4.45; excluding the reversed score item 'Incurrence of conveyance for recharge'. The mean scores of fifth factor Unsatisfactory Services reports that respondents are agreed about the unsatisfied services they experienced (Average Mean=4.24, S. D. =0.92). Mean score for items ranged from 3.95 to 4.54.

Factor Analysis

A total of 183 respondents were asked questions on 25 key items related to their perceptions about the determinants of prepaid mobile service providers and to report the problems they were exposed to in accessing the service. The reliability is checked using Cronbach's alpha, which stands out as **0.793**. Cronbach's alpha is used in this study to assess the degree of consistency between multiple measurements of a variable (Hair, et al, 2005).

The Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy (MSA) is a statistic that indicates proportion of variance in variables that might be caused by underlying factors value is .793, exceeding the recommended value of 0.6 which indicates that the data is adequate for factor analysis (Kaiser, 1974). The overall significance of correlation metrics has tested with Bartlett Test of Sphericity (approx. Chi square=1389.327 and significance at .000) provided as well as support for validity of the Factor analysis of the data set. A small value less than .05 of significance level has been recommended suitable for the study (Kline, 1994). On the basis of the results it was implied that the dataset was fit for conducting Factor analysis.

Eigen values were used to determine the number of factors to be extracted. Since Eigen values of 1 or greater than 1 is considered to be significant (Ho, 2006), all other factors were discarded. The Eigen value or latent root is the sum of squared values of factor loadings relating to a factor (Krishna swami & Ranganatham, 2007). The communalities represent the amount of systematic variation for each variable that is, accounted for by the set off factors in the study and the value ranges from 0 to 1. Communality shows the total amount of variance, the original variable shares with all the other variables included in this analysis. It is the squared multiple correlation of the variable as predicted from the factors (Tabachnick & Fidell, 2013). According to Zilmer & Vuz (1995), communalities below 0.30 suggest that the few variables are associated and thus a suitable factor model may not emerge. High communality values (>.6) indicate that the variables are adequately accounted for by the factor solution. Single item factors are also excluded from the analysis from the standpoint of parsimony (Lawson-Body, Willoughby & Logossah, 2010).

From Table 1, we get the Eigen values which are the variances of the factors that have been extracted by using PCA method. Five factors have been extracted for this study whose Eigen value is greater than 1, as they explain nearly 77 percent about the total variance taken into account. This percentage of the variance is regarded as sufficient to represent the data (Pett, Lackey, & Sullivan, 2003). The rotation sums of squared loadings shown in the table represent the distribution of the variance after the Varimax rotation. Varimax rotation is an orthogonal rotation which is commonly used, as it tries to maximise

Table 1: Factors Extracted through PCA

<i>(Factors: Customer Care & Facility, Network Coverage, Tariff Plan & Recharge, Subscription Decision, Unsatisfactory Services)</i>									
<i>Component</i>	<i>Initial Eigen values</i>			<i>Extraction Sums of Squared Loadings</i>			<i>Rotation Sums of Squared Loadings</i>		
	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>
1	7.355	27.620	27.620	7.121	27.620	27.620	6.234	24.787	24.787
2	6.152	18.706	46.326	6.009	18.706	46.326	5.129	16.572	41.359
3	4.906	15.448	61.548	4.421	15.448	61.548	3.773	13.851	56.210
4	3.117	8.215	69.763	3.015	8.215	69.763	2.554	6.545	62.755
5	1.501	7.483	77.246	1.221	7.483	77.246	1.227	5.233	67.988

Extraction Method: Principal Component Analysis

the variance of each of the factors in such a way that the total amount of variance accounted for is distributed over the five extracted factors.

Independent Sample t-test

To test whether respondents' demographic variable (gender) has an influence on choosing prepaid service providers (H_{01}), Independent Sample t-test is carried out and the following procedure is adopted. Descriptive Statistics (Means and S. D.) of prepaid mobile service providers scores for the two sub-groups-men and women have been computed in Table 2. In addition, the standard error (S.D. of sampling distribution) of men is 1.271(12.26/ $\sqrt{93}$) and that of women is 1.27. From Table 3, t-test is used in order to test the hypothesis. If the p-value is less than or equal to α level, then the bottom row of the output (the row labelled 'Equal variance not assumed') is to be used. For this data the Levene's test is statistically non-significant as ($p = .389 > .05$) and we read the top row labelled Equal variances assumed. Here, two tailed value of p is .03 which is less than .05 and so we have to conclude that there is significant difference between men and women in their perceptions about choosing prepaid mobile service providers. Therefore, the null hypothesis H_{01} is rejected, i.e. it is unlikely to have come about

by random error when sampling from a population is defined by H_{01} . Testing probability of a pattern such as a relationship between gender and choosing prepaid service providers is occurring by chance alone.

Regression Analysis

Regression analysis is a statistical process which is used for estimating the relationships among variables in the study. In order to examine the extent to which the five extracted factors affect the choosing prepaid service providers, we have run Forced Entry method of regression since it is the appropriate method of theory testing (Studenmund & Cassidy, 1987). The data have further utilised regression for validation. All the five factors are found to be significant for choice of prepaid service providers and considered as predictors of the outcome variable.

The model summary in Table 4 depicts the value of R^2 which refers to the proportion of variance in the outcome variable that can be explained by the predictor variables. The explanatory power of a model increases with a higher value of R^2 . The value of R^2 is .794, which indicates that 79 percent of the variance in the dependent variable is explained by the predictor variables. The adjusted R^2 is an adjustment of R^2 that penalizes the addition of extraneous

Table 2: Group Statistics

	<i>Gender</i>	<i>n</i>	<i>Mean</i>	<i>S. D.</i>	<i>Std. Error of Mean</i>
Choosingpre-paid mobile service providers	Men	93	112.76	12.26	1.271
	Women	90	110.19	12.04	1.27

Table 3: Independent Sample t- Test

<i>Savings in SSA</i>	<i>Leven's test</i>		<i>t-test statistics</i>				<i>95% confidence interval of the difference</i>		
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>d. f.</i>	<i>Sig. (2-tailed)</i>	<i>Mean Diff.</i>	<i>S. E. Diff.</i>	<i>Lower</i>	<i>Upper</i>
Equal variances assumed	.718	.389	1.46	181	.03	3.14	6.144	-4.27	25.78
Equal variances not assumed	-	-	.905	180.62	.14	3.14	6.144	-4.64	26.69

Table 4: Model Summaries and ANOVA for Choice of Prepaid Service Providers

<i>Model</i>	<i>R</i>	<i>R²</i>	<i>Adjusted R²</i>	<i>Standard error of estimate</i>	<i>F</i>	<i>Sig.</i>
1	.806	.794	.783	.7178	81.5309	.000*

Notes: Predictors: (Constant);Customer Care & Facility,Network Coverage, Tariff Plan & Recharge, Subscription Decision, Unsatisfactory Services) * $p < .05$

Table 5: The Regression Coefficients Choice of Prepaid Service Providers

Model		Unstandardised Coefficients		Standardised Coefficients Beta			Collinearity Statistics	
		B	Std. error		t	Sig.	Tolerance	VIF
1	(Constant)	3.772	.039		82.653	.000		
1.	Customer Care & Facility	.161	.039	.156	5.159	.000	1.000	1.000
	Network Coverage	.769	.039	.418	26.348	.000	1.000	1.000
	Tariff Plan & Recharge	.273	.039	.306	3.327	.000	1.000	1.000
	Subscription Decision	.209	.039	.188	4.228	.000	1.000	1.000
	Unsatisfactory Services	.407	.039	.232	15.942	.000	1.000	1.000

Table 6: Summary Results of Factor Analysis

No.	Factors	No. of items	Cronbach's Alpha	Mean	S. D.
1	Customer Care & Facility	7	.807	3.61	.94
2	Network Coverage	4	.788	4.03	.61
3	Tariff Plan & Recharge	6	.741	4.20	.59
4	Subscription Decision	3	.711	3.48	.91
5	Unsatisfactory Services	5	.729	4.24	.92

predictors to the model and indicates the fitness of a model. In this model the value of adjusted R^2 is .783, which is close to the value of R^2 .794, thus indicating the fitness of the model. The standard error of the estimate is .7178 which signifies that the value is good enough to imply reliable prediction of the model. The value of F is 81.5309, with a significance level of ($p < 0.05$) which indicates that the model is statistically significant.

The size of the coefficient for each predictor variable gives the size of the effect that variable is having on the outcome variable and sign of the coefficient (positive or negative) gives the direction of the effect. The regression coefficient table (Table 5) illustrates a range of unstandardised and standardised coefficients. The unstandardised coefficients indicate that how much the outcome variable goes up one unit. Similarly, the standardised coefficients estimates resulting from an analysis carried out on predictor variables that have been standardised so that their variances are 1. So, standardised coefficients refer to how many standard deviations an outcome variable will change, per standard deviation increase in the predictor variables. In Table 6 the highest beta coefficient is network coverage (.769). The t-value for the significance of each of the five predictors indicates significance at 0.000 levels. In the collinearity statistical test both the tolerance and VIF level is equal to 1, which indicates that there is no

multicollinearity problem in this study (Myers, 1990; Menard, 1995). It is likely that the predictors extracted are significant indicators of outcome and provides support to reject H_{02} i.e. it unlikely to have come about by random error when sampling from a population is defined by H_{02} . Testing probability of a pattern such as the strength of relationship between outcome and predictors is occurring by chance alone.

DISCUSSION

Factor analysis has identified five underlying constructs which explain the different motivating factors of choosing prepaid mobile plan service providers in Agartala and to report the problems the subscribers are exposed to. High values for the factor loadings and the communalities indicate that the items extracted are statistically significant. Extraction of these internally consistent measures facilitates the calculating of composite variables that can be used in further analysis as suggested by Hair *et al.* (2010). PCA also facilitated data reduction for the study. Table 6 presents the summary of the factor analysis.

The hypotheses of the study are tested for and inferences are taken based on the outcome of those tests. The results of Independent sample t-test has shown evidence in favour to probably reject the first null hypothesis (H_{01}) that

gender of the respondents has an influence in choosing prepaid service providers and it has statistical significance (between sample mean and population mean). To assess the strength of a relationship between predictors and an outcome variable, the second hypothesis (H_{02}) of the study has been tested using Forced Regression method and the finding reports that the chances of obtaining the data we have collected assuming that the H_{02} is correct has been rejected.

CONCLUSION

The present research study has taken twin objectives – to find the motivating factors of the selected respondents of Agartala for choosing prepaid mobile service providers and to report the problems they are exposed to. Through interview-schedule opinion of 183 respondents are collected which subsequently processed using SPSS-20. The schedule is tested for validity by protocol interview and pre-test. The reliability test (Cronbach's Alpha) and sample adequacy test (KMO and Bartlett's Test of Sphericity) is also carried out. The data dimension test (Factor analysis) extracts five factors viz. Customer Care & Facility, Network Coverage, Tariff Plan & Recharge, Subscription Decision, and Unsatisfactory Services. The first null hypothesis is tested on the basis of gender using Independent Sample t-test. The result indicates that impact of gender towards the choice of prepaid service providers is statistically significant hence H_{01} is rejected. Forced Entry regression method is used to test the second hypothesis and the results document that the predictors extracted is significant indicator of outcome and provides support to reject H_{02} . The study documents a number of factors which act as motivating forces for choosing a service provider; it concludes a few factors related to the problems the respondents are suffering while accessing the prepaid services.

There are several issues related to the survey data that serve as a caveat to conclusions drawn in this research. Firstly, survey respondents (or self-selected volunteers) may not be representative of the entire prepaid plan users of Agartala and it excludes rural areas of Tripura. Secondly, the application of interview-schedule and hence the cause-effect of use of prepaid plans and satisfaction levels cannot be established. Thirdly, in the line of the objectives, determinants of choice of prepaid service providers has only been taken as the outcome variable for this study and other variables are excluded from

the scope of the study, which limits the generalisation of the findings. Fourthly, the sample size taken for this study is low due to parsimony and time constraint may again be the short comings of the study to generalize the findings. Finally, the survey has to rely on the integrity of respondents, whereby presumably survey responses have been accurately entered and the schedule is not mischievously completed.

FUTURE RESEARCH DIRECTION

The future studies could be attempted in a multiple dimensions viz. influence of demographic factors other than gender, speed and 3G network coverage, rates of roaming charges, promotional offers, expediting in redressing of subscribers' problems, in choosing a service provider. Further, comparative studies between prepaid and postpaid subscribers of urban and local areas based on the stated factors; between intra-city and inter-city subscribers as well as inter-district and inter-state subscribers may be carried out.

MANAGERIAL IMPLICATIONS

The results obtained from the study have practical implications for existing and potential prepaid plan subscribers of Agartala as well as from different parts of the world. The motivational forces may also attract the potential subscribers to choose service providers with a proper due diligence by considering the problems indicated from the outcome of the study. The service providers may also take note of the findings especially the problems highlighted by the respondents for their quick and permanent robust solution to increase their subscriber base. Further, the findings indicate a number of issues which need to be addressed to retain the customers; as tapping new customers is much more costly than serving the existing one (Reichheld, 1996). The management of the mobile companies should realize the fact that customer satisfaction is a key consequence of service quality and can determine the long term success as it is a service organisation (Parsuraman, Zeithaml, & Berry, 1994).

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APPENDIX: 1

Schedule

Note: The schedule has three sections, namely A, B and C. For each section the response style is mentioned at the beginning. You are requested to follow the response style and mark your response category accordingly.

SECTION – A

General Profile of the Respondent

(The purpose of this section is to collect general information about the respondent.)

(Please put tick mark in the applicable box)

1. Name of the Respondent :
2. Date of Birth (DD/MM/YYYY) :
3. Contact No. :
4. E-Mail ID (If any) :
5. Gender : Male Female
6. Marital Status : Single Married Divorcee
7. Age Group : 18 – 25 years
26 – 35 years
36 – 45 years
46 – 65 years
66 and above
8. Educational Qualification : Under Matriculation
Higher Secondary
Graduate
Post-Graduate
9. Religion : Hinduism
Muslim
Christian

- Buddhism
- Other
10. Category : General SC ST OBC
11. Occupation : Student
- Business
- Service
- Other
12. Monthly Income : Less than INR 5,000
- INR 5,001 - 10,000
- INR 10,001 – 20,000
- INR 20,001 and above
13. Influencer to take a pre-paid mobile plan: Friends and Relatives
- Advertisement
- Salesman
14. Name of your service provider :
15. How many prepaid connection you have? 1
- 2
- 3

SECTION – B

Motivating Factors for Choosing a Prepaid Mobile Service Provider

Please read each of the statement carefully and indicate your level of agreement or disagreement that you think is the best describing your perception about the motivating factors for choosing pre-paid mobile service providers. Indicate your response in 5-point Likert Scale stated below and fill the box accordingly.

1= Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

<i>Statements</i>	<i>Score</i>
1. Service quality is a motivating factor for choosing a prepaid mobile service provider	
2. Tariff plans is a factor for choosing the service provider	
3. Network coverage is a considerable factor for choosing factor for the service provider	
4. Roaming facility is a vital factor for choosing the service provider	
5. GPRS coverage is a motivating factor for choosing a prepaid mobile service provider	
6. Accessibility of 3G network is an influencing factor for choosing the service provider	
7. Customer care quality is a motivating factor for selecting of company	
8. Offers provided by the company bias you to select a service provider	

9. Conveyance charges incurred for recharging is a vital point to choose a service provider	
10. Prompt and easy to get new connection is a factor to choose a company	
11. Validity period of different plans of the service providers are compared in selecting the company	
12. Credit facility provided by the company in the emergency situation is also a motivating factor for choosing the service provider.	
13. Personal satisfaction is a factor to choose a service provider	
14. Full talk time facility provided by the company at different prices influence you for choosing the service provider	
15. Reference group influence is a motivating factor for choosing a service provider	

SECTION – C

Perceptions About The Different Problems Faced by the Prepaid Mobile Subscribers

Please read each of the statements carefully and indicate your level of agreement or disagreement that you think is the best describing your perception about the different problems faced by the pre-paid mobile subscribers. Indicate your response in 5-point Likert Scale stated below and fill the box accordingly.

1= Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

<i>Statements</i>	<i>Score</i>
1. Service providers change their offers very often	
2. Unwanted messages and calls bother you	
3. Service providers activate unwanted services for which they deduct your balance	
4. Service providers frequently do not complete their promises	
5. Recharge cards are not regularly available in the local markets	
6. Many times you do not have access of information regarding different plans	
7. In emergency case, it is not possible to get instant recharge	
8. Poor network coverage and call drop rates frustrate you with the service provider (s)	
9. Excessive charge on roaming compels you to change the service provider	
10. The prepaid mobile subscriber will no longer be able to use the mobile service if they fail to register their personal information under a national Telecom Register circular	

Signature:

Date:

APPENDIX: 2

Statistical Measurements

Table A1: Reliability Statistics

<i>Cranach's Alpha</i>	<i>Cranach's Alpha Based on Standardised Items</i>	<i>No. of Items</i>
.820	0.729	25

Table A2: Sample Adequacy Statistics

<i>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</i>		<i>.761</i>
Bartlett's Test of Sphericity	Approx. Chi-Square	1471.439
	d. f.	248
	Sig.	.000

Demographic Statistics

Table A3: Marital Status

	<i>Single</i>	<i>Married</i>	<i>Divorcee</i>	<i>Total</i>
No. of Respondents	70	112	1	183
Percentage	38.3	61.2	0.5	100

Table A4: Age

	<i>18-25 years</i>	<i>26-35 years</i>	<i>36-45 years</i>	<i>46-60 years</i>	<i>Total</i>
No. of Respondents	60	60	38	25	183
Percentage	32.8	32.8	20.8	13.7	100

Table A5: Level of Education

	<i>Madhyamik</i>	<i>H. S. (+2 stage)</i>	<i>Graduation</i>	<i>Post-Graduation</i>	<i>Total</i>
No. of Respondents	66	60	53	4	183
Percentage	36.1	32.8	29	2.2	100

Table A6: Caste

	<i>General</i>	<i>Scheduled Caste</i>	<i>Scheduled Tribe</i>	<i>Other Backward Caste</i>	<i>Total</i>
No. of Respondents	93	38	5	47	183
Percentage	50.8	20.8	2.7	25.7	100

Table A7: Type of Family

	<i>Lower Class</i>	<i>Middle Class</i>	<i>Upper Class</i>	<i>Total</i>
No. of Respondents	13	168	2	183
Percentage	6.9	89.4	1.1	100

Table A8: Monthly Income (INR)

	<i>Less than 5,000</i>	<i>5,001-10,000</i>	<i>10,001-20,000</i>	<i>20,00 and above</i>	<i>Total</i>
No. of Respondents	81	66	29	7	183
Percentage	43.1	35.1	15.4	3.7	100

Table A9: Gender

	<i>Male</i>	<i>Female</i>	<i>Total</i>
No. of Respondents	94	89	183
Percentage	51.37	48.63	100

Table A10: Details of Service Providers

	<i>Vodafone</i>	<i>Airtel</i>	<i>Aircel</i>	<i>Idea</i>	<i>BSNL</i>	<i>Reliance</i>	<i>Total</i>
No. of Respondents	93	53	24	4	5	6	183
Percentage	49.7	29	13.1	2.2	2.7	3	100

Table A11: Influencer to choose Service Provider

	<i>Friends and Relatives</i>	<i>Advertisement</i>	<i>Salesmen</i>	<i>Total</i>
No. of Respondents	95	59	29	183
Percentage	51.91	32.24	15.85	100

Table A12: Number of SIM cards

	<i>1</i>	<i>2</i>	<i>3</i>	<i>Total</i>
No. of Respondents	69	108	6	183
Percentage	37.70	59.01	3.29	100

Factor Analyses

Factor 1: Customer Care & Facility

Factor 1: Customer Care & Facility Factor

<i>Statements</i>	<i>Mean</i>	<i>S. D.</i>	<i>Factor Loadings</i>	<i>Communalities</i>
Customer Care	3.29	.93	.826	.709
Service quality	4.08	.90	.794	.654
Announcement of offers	4.04	.87	.689	.578
Full talk time facility	3.59	.86	.683	.666
Validity period extension	3.83	.89	.630	.556
Prompt and easy connection	3.31	1.12	.621	.560
Credit facility	3.11*	1.01	.571	.533
Total	3.61	.94	-	-

*Reversed score items

Factor 1 is assigned the name of 'Customer Care & Facility' which explains 27.620 percent of the variables and includes seven items with statistically significant factor loadings ranging from .571 to .826 and Cronbach's alpha .807.

Factor 2: Network Coverage

Factor 2: Network Coverage Factor

<i>Statements</i>	<i>Mean</i>	<i>S. D.</i>	<i>Factor Loadings</i>	<i>Communalities</i>
Network coverage	4.21	.53	.786	.676
GPRS enabled network coverage	3.66	.60	.777	.705
Accessibility of 3G network	3.94	.78	.755	.684
Poor network coverage and call drop rate	4.32	.56	.682	.723
Total	4.03	.61	-	-

Factor 2 is assigned the name of 'Network Coverage' which explains 18.706percent of the variables and includes four items with statistically significant factor loadings ranging from .682to .786 and Cronbach's alpha .788.

Factor 3: Tariff Plans & Recharge**Factor 3: Tariff Plan & Recharge Factor**

<i>Statements</i>	<i>Mean</i>	<i>S. D.</i>	<i>Factor Loadings</i>	<i>Communalities</i>
Normal tariff plans	4.36	.45	.830	.744
Roaming tariff plans	3.71*	.70	.749	.690
Frequent changes in tariff plans	4.38	.55	.565	.616
Excessive roaming charges	4.20	.58	.540	.587
Lack of instant recharge	4.25	.63	.522	.561
Scarcity of recharge cards	4.34	.63	.498	.537
Total	4.20	.59	-	-

*Reversed score items

Factor 3 is assigned the name 'Tariff Plans & Recharge' which explains 15.448 percent of the variables and includes six items with statistically significant factor loadings ranging from .498 to .830 and Cronbach's alpha .741.

Factor 4: Subscription Decision**Factor 4: Subscription Decision Factor**

<i>Statements</i>	<i>Mean</i>	<i>S. D.</i>	<i>Factor Loadings</i>	<i>Communalities</i>
Personal satisfaction	3.28	1.14	.772	.668
Reference group influence	4.45	.56	.689	.629
Incurrence of conveyance for recharge	2.73*	1.04	.613	.552
Total	3.48	.91	-	-

*Reversed score items

Factor 4 is assigned the name of 'Subscription Decision' which explains 8.215percent of the variables and includes three items with statistically significant factor loadings ranging from .613 to .772 and Cronbach's alpha .711.

Factor 5: Unsatisfactory Services**Factor 5: Unsatisfactory Services Factor**

<i>Statements</i>	<i>Mean</i>	<i>S. D.</i>	<i>Factor Loadings</i>	<i>Communalities</i>
Activation of unwanted services	4.34	.87	.740	.692
Unwanted call & messages	4.54	.83	.688	.646
False lucrative promises	4.09	.93	.624	.623
Lack of information about different offers	4.32	.96	.578	.564
Disclosure of personal information	3.95	1.03	.542	.533
Total	4.24	.92	-	-

Factor 5 is assigned the name of 'Unsatisfactory Services' which explains 7.483 percent of the variables and includes five items with statistically significant factor loadings ranging from .542 to .740 and Cronbach's alpha .729.