

Comparative Analysis of Rural Consumers' Preferences for Mobile Service Providers

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Due to cut throat competition in mobile service providers, customers are on a receiving end. Rural Customers too have become smarter and they also consider different factors for choosing mobile service providers. Considering the heterogeneity of rural market and that too in mobile services industry, it becomes extremely important for marketers to understand and analyze the taste and preferences of rural customers. This paper tries to identify the major factors that rural customers of western & eastern Uttar Pradesh consider while choosing a mobile service provider. The Research design for present study is exploratory cum descriptive. Primary data are collected through a structured, non-disguised questionnaire, based on Likert type scale. Exploratory factor analysis is used to find out the important factors for mobile service subscription decision. Data are collected from 200 Rural consumers (100 from each circle) using non-probability convenience sampling. Responses were asked on agreement continuum scale ranging from Most Important to Least Important. Statistical techniques like exploratory factor analysis & 't' test were used to analyze the data. It was found that service charges & tariff plans and network quality are most important factors for choosing a mobile service provider. The better understanding of rural consumers' psyche can help in devising relevant targeted marketing strategies and also ensure greater level of satisfaction for the rural consumers. The results may not be generalized due to limited sample size and sample not being the true representative of the population due to convenience sampling. It was found that operating cost and tariff offered by the service providers is a prime consideration for selecting a mobile operator. Simultaneously, rural consumers also give high weight to the quality of network because each and every rural area is being dominated by specific service provider. The paper provides insights into rural consumers' preferences for mobile service providers in Uttar Pradesh (East & West circle) and an attempt to analyze the reasons for the differences in both markets.

Keywords: Mobile Service Providers, Bottom of Pyramid (BOP), Rural customers, Network Quality, Tariff Plan

Introduction

Indian mobile market is second largest market in the world in terms of mobile connections. According to a research by global telecom body "GSM Association" there are around 906 million mobile connections in India which corresponds to about 71 percent of total population. But in India on an average people have 2.2 SIMs per person and in terms of unique number of subscribers, there are about 380 million actual users comprising 26 percent of total population. India has seen rapid increase in the number of mobile service providers which caused the tariff rates to hit an all-time low. This allowed the players to target the low income population thereby increasing the market share. In the last ten years, the mobile revolution has truly changed the socio-economic landscape of India and played a pivotal role in the growth and development of the economy. According to Cellular Operator Association of India (COAI), India ranks between the top ten telecom network in the world

and the second largest in Asia. India is also one of the fastest growing markets in mobile communications. Growth in India's mobile telephone sector has been nothing short of spectacular in the past few years, aided by higher subscriber volumes, lower tariffs and falling handset prices. India is home to a number of global mobile operators working with local companies and mobile market has consistently experienced very high annual growth rates with the continuous decline in tariff. India is adding over seven million mobile subscribers per month. Though mobile phones have become indispensable in the developed world, they are even more useful in the developing world, where the availability of other forms of communication—roads, postal systems or fixed-line phonesis often limited. With this, marketing of telecom services, particularly mobile services, has been a major challenge to the service providers. The environment has become very competitive in the presence of many service providers especially in the context of introduction of mobile number portability. In the last decade or so, the mobile penetration has been unparalleled in the country due to untapped rural India being the 'fortune at the bottom of the pyramid'. Traditionally, targeting to the BOP was not very profitable proposition especially for large organization, that's

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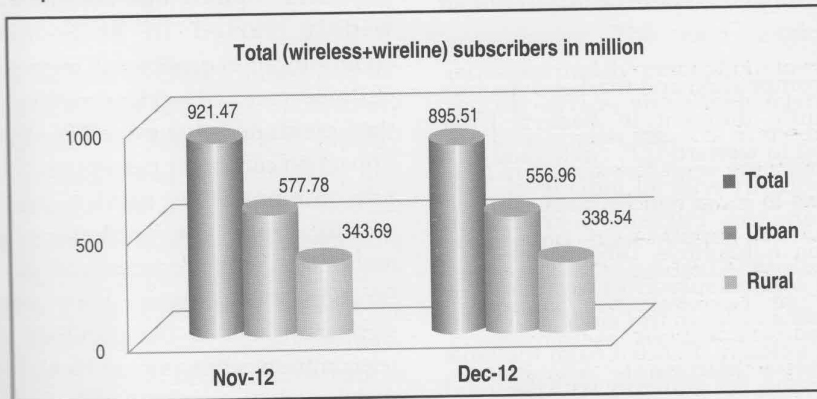
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why this market was being serviced by unorganized sector with low quality goods and services, and many a times at unreasonable prices. Similar kind of practice was followed by the financial service providers by charging usurious rate of interest and offering highly deficient services to the rural masses. However, there is paradigm shift in the behavior of rural consumers. Now, they are ready to spend both time and money to make them acquainted with changing environment. Recent studies have indicated that if the content has direct relevance and will result in commercial gains, people in rural areas are willing to pay for information services. Today's rural children and youth will grow up in an environment where they have 'information access' to education opportunities, exam results, career counseling, job opportunities, government schemes and services, health and legal advice services, worldwide news and information, land records, mandi prices, weather forecasts, bank loans, livelihood options etc.

Current Scenario of Telecommunication in India

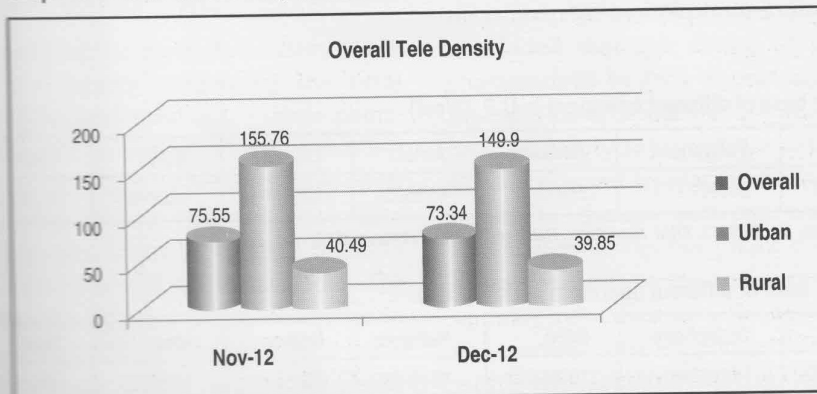
The number of telephone subscribers in India has decreased to 895.51 Million at the end of December, 2012 from 921.47 Million at the end of November 2012, thereby registering a monthly growth rate of -2.82%. The share of urban subscribers has declined to 62.20% from 62.70% whereas share of Rural Subscribers has increased to 37.80% in the month of December 2012. With this, the overall Tele density in India decreased to 73.34 at the end of December, 2012 from 75.55 of the previous month. This decline in subscription base is mainly due to cancellation of inactive SIMs by different service providers. Subscription in urban areas decreased from 577.78 million in November, 2012 to 556.96 million at the end of December, 2012. Subscription in rural areas decreased from 343.69 million to 338.54 million during the same period. The monthly growth rate of Urban and Rural Subscription is -3.60 % and -1.50 % respectively. The

Graph: 1 Total subscriber in India



Source: Press Release No. 08/2013, TRAI, New Delhi, Released on 7th February 2013

Graph 2: Overall Tele Density in India



Source: Press Release No. 08/2013, TRAI, New Delhi, Released on 7th February 2013

overall urban Tele density has decreased from 155.76 to 149.90 and rural Tele density decreased from 40.49 to 39.85.

Current Scenario of Telecommunication in U.P. (West Circle)

In Indian mobile market, the level of competition and market dynamics are different in Western Uttar Pradesh from all over India. This study tries to identify and analyze the factors responsible for rural consumers' preferences towards Mobile service providers in eastern & western Uttar Pradesh. Let's have a look on the current scenario of telecommunication in those circles. The study took into account 8 major players in Mobile services that are operating in that circle. Table 1 provides a glimpse about the wireless subscriber base of mobile players in western U.P. circle as on 31st December 2012. It's clearly inferred from the table below that, top 2 players have neck to neck competition and enjoys around 40% share of the pie though new entrant Uninoris growing at a faster pace.

Current Scenario of Telecommunication in U.P. (East Circle)

The level of competition and market dynamics is also significantly different in Eastern Uttar Pradesh compared to western U.P. circle though it has somewhat similarity with all India level. Let's have a look on the current scenario of telecommunication in this circle. Table 2 provides a glimpse about the wireless subscriber base of mobile players in decreasing order in this circle as on 31st December 2012. It's clearly depicted from the table that top 4 players show the similarity with the trend of all India market shares of service providers. These players comprise of almost 69 % market share and rest is being enjoyed by remaining players. Idea,

which is 'Numero Uno' in market share in western circle, stands at 6th position in eastern circle. One major reason for this difference is the late entry in eastern circle but its gaining momentum in growth in this circle also.

Review of Literature

Satish M. (2011) in his study opined that factors influencing the switching behavior of customers of Mobile services in Chennai, were grouped into 4 categories namely customer service, service problems, usage cost and others. The results from the study reveal that call rates plays the most important role in switching the service provider followed by network coverage, value added service and customer care while advertisement consider to be least important. It is found that there is a relation between switching the service provider and above mentioned factors.

Rajkumar Paulrajan and Harish Rajkumar (2011) in their study, "To examine and understand the consumers' perception choice in selecting cellular mobile telecommunication service providers" opined that consumers' perception is widely varied in accordance with the communication quality, call service, facilities, price, customer care and service provider's quality. Hence, they concluded that price has significant positive impact on consumer perception choice in selecting telecommunication service provider. Product quality from the marketer's perspective is associated with communication, price, feature, function, or performance of a product. Price plays a significant role in the purchase decision of the telecommunications sector. However, study reveals that product quality and availability has a significant impact on consumer perception choice in selecting mobile telecommunication service provider.

Table 1: Subscriber base of different operators in U.P. (West)

Circle	Idea	Vodaphone	Reliance	Airtel	Uninor	BSNL	Tata	Aircel
U.P.(W)	10189727	8999073	6647314	6556052	5001245	4928465	4026419	1509375

Source: Press Release No. No. 08/2013, TRAI, New Delhi, Released on 7th February 2013

Table 2: Subscriber base of different operators in U.P. (East)

Circle	Airtel	Vodaphone	BSNL	Reliance	Uninor	Idea	Tata	Aircel
U.P.(E)	14940643	14526236	10295513	9648465	7045540	6978230	4141889	3589906

Source: Press Release No. No. 08/2013, TRAI, New Delhi, Released on 7th February 2013

Jayanta Banarjee (2011) conducted his study in rural areas of West Bengal found that mobiles are used by rural customers in numerous ways but preference wise most important use differs in different categories. Majority of rural customers view mobile as a device for keeping in touch with their family/ friends/ relatives. They also accept the importance of mobile for their business needs.

Sabbir Rahman et al. (2010) in their study undertaken to examine and understand the consumers' behavioral perception choice in selecting mobile telecommunication service providers in Malaysia, concluded that consumers' perception is widely varied in accordance with the service quality, price, availability of product, and promotion, etc. Network quality is one of the important factors of overall service quality. Product quality, availability and promotion are also significantly important factors to influence the consumers in vast mobile phone market. Corporate image was not found to be an important factor affecting customers' perception towards an operator because customers are more sensitive in brand image rather than corporate image.

U. S. Rao & Sai Sangeet C. (2007) opined that the bottom of pyramid market is a huge opportunity waiting to be tapped. The challenge is to identify and accept the uniqueness of these markets and develop strategies to suit their needs. Understanding these local markets and developing local insights is of utmost importance for succeeding in these markets. These consumers should be pushed higher up the value chain by a process of co-creation which would benefit both the company as well as the BOP community. One ultimate outcome to the conclusion is that any sound strategy should be devised only in tune with the "aspirations of the consumer".

Jain & Hundal (2007) in their explanatory study to investigate the factors influencing the rural consumer buying behavior towards mobile phone and making choice of service providers prevailing in mobile phone markets, concluded that rural people extremely desire the facilities and knowledge along with latest technology to make choice about mobile sets and service provider. The data have been collected from the rural regions of Punjab and include 1357 respondents who have adopted mobile phones. While making the choice regarding the service provider, they stressed

facilities provided, effectiveness, dexterity, relative advantage and influential person. The rural consumer perceived that service providers more capable which provide more quality facilities at low price. It must be taken into account that they wanted to make the optimum utilization of their hard-earned money.

Pakola et al. (2004) surveyed 397 Finnish consumer-purchasing motives on one hand and factors affecting operator choice on the other. The result indicates that while price and properties were the most influential factors affecting the purchase of a new mobile phone whereas price, audibility and friend's operators were regarded as the most important in the choice of the mobile phone operator.

Kesti and Ristola (2003) investigated consumer intentions to use different mobile services. To this end mobile services had been tested in a real, interactive situation by voluntary test users. This paper also considered the needs people see themselves having in the mobile commerce context in the future. The field trial's focus was on testing mobile services and technology in an actual end user environment. The main findings of the study indicated that the perceptions users got from testing mobile services affect their intention to use those kinds or similar services in the future. The results also indicated that there are significant differences while examining two kinds of groups; low-interest users and high-interest users. The test users regarded the guidance services as the most important one, followed by mobile ads and communication services. Furthermore, there were statistically significant differences between different types of users and their evaluation of the three services groups.

Liu (2002) examined factors affecting the brand decision in the mobile phone industry in Asia. It was concluded that the choice of cellular phone is characterized by two distinct attitudes to brands: attitude towards the mobile phone brand on one hand and attitude towards the network on the other. While price and regularity of service were found to dominate choices between network providers, choices between mobile phone brands were affected by new features such as memory capacity and SMS-options, more than size. The trends will actually be not towards smaller phones but towards phones with better capability and large screens.

Riquelme (2001) conducted an experiment with 94 customers to identify the amount of self-knowledge consumers have while choosing mobile phone brand. The study was built upon six key attributes (telephone features, connection fee, access cost, mobile-to-mobile phone rates, call rates and free calls) related to mobile phone purchasing. The research shows that consumer with prior experience about a product can predict their choices relatively well but consumers tended to overestimate the importance of features, call rates and free calls and underestimate the importance of a monthly access fee, mobile-to mobile rates and connection fees.

Research Methodology

Objectives of the Study:

1. To find out the most important factors for selecting a Mobile Service Provider by rural customers in eastern & western Uttar Pradesh circle.
2. To analyze the differences in factors responsible for selection of a Mobile Service Provider by rural customers in eastern & western Uttar Pradesh circle.

Hypotheses

In order to attain the first and main objective of the study, a statistical approach 'exploratory factor analysis' was applied. In order to attain the second objective these null and alternative hypotheses were made and tested statistically.

H_0 : There are no significant differences in factors in both circles.

H_1 : There are significant differences in factors in both circles.

Area of the Study

The study has been carried out in selected villages of Moradabad & Sambhal districts from western U.P. and some villages of Varanasi & Chandauli districts from eastern U.P. The districts were selected on the basis of ease of collection of data as those districts are adjacent in their respective circles.

Research Design

The study is an exploratory as well as descriptive in nature. Both primary and secondary data were collected for the study. The secondary

data was collected from magazines, journals, books and internet. Primary data were collected through a structured questionnaire using survey method.

Sample Size

A total of 200 respondents (100 from each circle) of literate category among rural masses from different villages in aforesaid districts were chosen for the study using non-probabilistic convenience sampling method. The respondents being the adopters of mobile phones are selected by this technique as it is appropriate for this type of studies (Malhotra, 2008). In convenience sampling, respondents (who have possession of mobile phones) are selected because they happen to be in the right place at the right time and were ready to participate in the study. 12 out of 100 questionnaires were either not returned or found to be not usable for the study purpose from western Uttar Pradesh and 6 were not usable from eastern Uttar Pradesh, thus making the sample size 88 and 94 from the respective circles.

Data Collection:

The primary data were collected through questionnaire and partially through direct interviews. A structured questionnaire containing multiple choice and Likert type scale questions was designed for the purpose in English and then converted to Hindi so that rural customers can easily comprehend the above questionnaire and give genuine responses. Though literate respondents were chosen for the ease of data collection even then administrators of the schedule were well versed with regional languages and consumers psyche of respective areas.

Sample Profile

Sampling was done by non-probabilistic convenience sampling technique so the distribution of the respondents on demographic variables that came out by default in both regions is depicted in the table 3. This can be easily inferred from the table 3 that sample collected from the population has a good representation of all groups of society. The demographic characteristics of the respondents depict that the majority of users belong to 15-30 age group, followed by 31-45 age group. This reveals that the adopters of mobile services are relatively young. It is further revealed that students comprised the maximum proportion followed by service class (Govt. & Private job) and then farmers

and small businessmen. It also reveals that mobile phone is beneficial for all classes of the rural people. The Table 3 also shows that most of the respondents are graduates & post graduates, followed by higher secondary and metric respectively. This signifies that education level plays an important role in the adoption and expansion of mobile services in rural areas as college going youths are early adopters of new technologies. Though, more samples units are male and in the age group of 15- 30 years but this group of rural society has their dominance in purchase decisions and target audience for mostly Mobile Service Providers advertisements. Around 50% of the respondents fall in the income bracket of up to 5000 monthly this makes the sample a good representation of "Bottom of Pyramid".

Data Analysis & Interpretation

Factor Analysis

The data collected through questionnaires were recorded and analyzed by SPSS 18.0. Exploratory factor analysis is used in order to identify underlying constructs and investigate relationships among key survey interval-scaled questions regarding the factors affecting the choice of mobile phone and mobile service provider from 182 (88 & 94 respectively for both circles) rural respondents. To test the suitability of the data for factor analysis, the following steps have been taken:

- i. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) for individual variables is studied from the diagonal of partial

Table 3: Demographic Profile of Respondents

Variables		Number (West)	Number (East)
Age	15-30 Years	67	58
	31-45 Years	10	21
	46-60 Years	11	15
	Total	88	94
Gender	Male	55	63
	Female	33	31
	Total	88	94
Educational Qualification	Up to 10th standard	13	26
	Intermediate	14	31
	Graduate	30	23
	Post Graduate	31	17
	Total	88	94
Marital Status	Married	32	43
	Single	56	51
	Total	88	94
Monthly Income	Up to 5000	44	52
	5001-10000	22	19
	10001-15000	10	14
	15000 & above	12	09
	Total	88	94
Occupation	Farming	7	17
	Business	11	08
	Govt. Job	4	16
	Pvt. Job	14	12
	Student	38	32
	Housewife	14	09
	Total	88	94

correlation matrix. It is found to be sufficiently high for all the variables. (Hair et al.2007).

- ii. To test the sampling adequacy, Kaiser-Meyer-Olkin Measure of sampling adequacy is computed which is found to be 0.615 in western circle and 0.616 in eastern circle for choice of mobile service provider. Both are greater than 0.5 and it is indicated that the sample is good enough for factor analysis (Hair et al.2007).
- iii. The overall significance of correlation matrices is tested with Bartlett Test of Sphericity for choice of mobile service provider (approximately chi-square = 185.014 significant at 0.000 for western circle and approximately chi-square = 207.772 significant at 0.000 for eastern circle). These figures provided support

for the validity of the factor analysis of the data set.

Principal Component Analysis

The total variance explained by Principal Component Analysis (PCA) is shown in table 4 & table 5 for western and eastern circle respectively. It shows that there was significant drop in the Eigen values from the 5th component onwards. Hence, the first four components were considered, which together explain 67.437% & 68.313% of the total variance for western and eastern circle respectively. Components were selected on the basis of latent roots and minimum components and maximum information about variance rule was also taken into account.

Table 4: Total Variance Explained (Western Circle)

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.734	27.343	27.343	2.734	27.343	27.343
2	1.713	17.128	44.471	1.713	17.128	44.471
3	1.289	12.892	57.362	1.289	12.892	57.362
4	1.007	10.074	67.437	1.007	10.074	67.437
5	.823	8.235	75.671			
6	.638	6.384	82.055			
7	.583	5.829	87.884			
8	.492	4.921	92.805			
9	.472	4.719	97.525			
10	.248	2.475	100.000			

Extraction Method: Principal Component Analysis

Table 5: Total Variance Explained (Eastern Circle)

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.964	29.636	29.636	2.964	29.636	29.636
2	1.559	15.585	45.221	1.559	15.585	45.221
3	1.187	11.865	57.086	1.187	11.865	57.086
4	1.124	11.227	68.313	1.124	11.227	68.313
5	0.880	8.799	77.112			
6	0.656	6.564	83.676			
7	0.592	5.915	89.591			
8	0.482	4.818	94.409			
9	0.326	3.259	97.668			
10	0.233	2.332	100.000			

Extraction Method: Principal Component Analysis

After extracting the Eigen values, varimax rotation was applied for the selected variables. The factor loading of the 10 variables was then observed, and the variables were clubbed into 4 factors (Table 6 & Table 7). In interpreting factors, a decision must be made regarding which factor loadings are worth considering. A factor loading represents the correlation between an original variable and its factor. Variables with higher loadings are considered more important and have greater influence on the name or label selected to represent a factor. The label is intuitively developed by the factor analyst based on its appropriateness for representing the underlying dimension to a particular factor (Hair2007).

Table 6: Rotated Component Matrix (Western Circle)

Attributes	Component			
	1	2	3	4
Tariff (charge/call or charge/ min or sec)	.846	.021	-.048	.046
Initial Subscription Cost	-.538	.451	.400	.087
Connectivity/Coverage	.434	.513	.368	-.052
Voice Clarity	.200	.774	.262	-.172
Value Added Services	.236	.085	-.571	-.057
Monthly charges for Services	.801	.078	.103	.050
Response to customer's complaint/ Suggestion	.091	.079	-.528	.164
Availability of plans as per requirements	.618	-.065	.181	.493
Advertisements	.457	.092	.231	-.521
Corporate reputation	.007	.105	.108	-.552

Rotation Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 Rotation converged in 7 iterations

Table 7: Rotated Component Matrix (Eastern Circle)

Attributes	Component			
	1	2	3	4
Tariff (charge/call or charge/ min or sec)	.754	.309	-.212	.161
Initial Subscription Cost	.641	.122	.271	.360
Connectivity/Coverage	.373	.711	.058	.208
Voice Clarity	.028	.779	.165	-.043
Value Added Services	.041	.029	.768	.047
Monthly charges for Services	.691	.084	.245	-.343
Response to customer's complaint/ Suggestion	.057	.034	.621	.496
Availability of plans as per requirements	.747	-.171	-.036	.222
Advertisements	.114	-.013	.109	.874
Corporate reputation	-.139	-.299	.095	.839

Rotation Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 Rotation converged in 7 iterations

Table 8: Factor affecting Rural Customers decision for Mobile Service Provider (for both circles)

Factor	Variables
Factor 1 (Service charge & plan)	Tariff (charge/call or charge/ min or sec)
	Initial Subscription Cost
	Monthly charges for Services
	Availability of plans as per requirements
Factor 2 (Network quality)	Connectivity/Coverage
	Voice Clarity
Factor 3 (Service quality)	Value Added Services
	Response to customer's complaint/Suggestion
Factor 4 (Brand image)	Advertisements
	Corporate reputation

Hence, all the underlined variables were examined for a particular factor and placed greater emphasis on those variables with higher loadings to assign a name or label to a factor that accurately reflected the variables loading on that factor. All the factors have been given appropriate names on the basis of variables represented in each case. The names of factors, the statement, the label and factor loading have been summarized in Tables 6 & 7. Though same factors were found important for both regions but factors loadings of components on each factor were different. These factors were named as per their constituents of attributes. The four factors, those were deduced from the factor analysis of the data, in their order of importance are service charge and plan, network quality, service quality and brand image. Customers in rural are setting too are brand conscious but not as much as they seek value for money.

In order to test the null hypothesis made for second objective, independent sample t-test was applied on factors extracted for both the circles. It's clearly shown by the table above that since all significance values are more than .05 we don't have enough statistical evidence to reject the null hypothesis. It means there are no significant differences in factors responsible for both the regions.

Findings

The study using factor analysis to identify the important factors for choosing a particular mobile

Table 9: Independent sample t-test for differences in factors in both circles

	Factors	Levene's test		t-test for equality of means		
		F	Sig.	t	df	Sig. (2-tailed)
Factor 1	Equal variances assumed	.016	.900	.001	180	.999
	Equal variances not assumed			.001	178.894	.999
Factor 2	Equal variances assumed	.000	.995	.038	180	.970
	Equal variances not assumed			.038	179.134	.970
Factor 3	Equal variances assumed	.011	.916	-.024	180	.981
	Equal variances not assumed			-.024	179.375	.981
Factor 4	Equal variances assumed	.013	.909	.107	180	.915
	Equal variances not assumed			.107	179.328	.915

service provider among rural customers revealed the following facts:

- It was found that rural customers give maximum importance to service charge & plans. This goes with the notion that they seek value for money.
- Network quality emerged as the second most important factor for choosing a service provider. There is lack of infrastructure required for better connectivity in rural areas.
- The service quality and brand image were also important for rural customers but not to extent as aforesaid two factors viz. Service Charge & Plan, Network Quality.
- Finally, the study clearly depicts that there are no significant differences in factors responsible for both the regions.

Conclusion

India is facing a major turn-around in the rural market as the markets are now exposed to all the business opportunities whether it is consumer durables, education or any other services of which Telecom constitutes the most significant part. This service has not only shortened the geographical landscape but also has played a major role in connecting the rural population with the Urban. The Mobile Service Providers have to seek various measures in the form of lucrative services to capture the opportunities in the hinterlands. It can be clearly concluded from the study that operating cost and tariff offered by the service providers is a prime consideration for selecting a mobile operator. Simultaneously, rural consumers also give high weightage to the quality of network because each

and every rural area is being dominated by specific service provider. Though, the selection of service provider is mainly either by the recommendations of family & friends or matching the services with a family member working in the urban area.

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