
Service Quality Model: Correlations Analysis Of Ordinal Scale Data

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ABSTRACT

The Correlations Analysis is a significant tool for defining and assessing the relationships among the variables. It is used to estimate the structure of theoretical model under research. In service marketing, the measurement of service quality and its relationships with perceived value, customer satisfaction and post purchase intentions is in evolving stage. The researcher, in the context of mobile phone services and developing country settings, reassesses the relationships among Service Quality, Perceived Value, Customer Satisfaction and Post Purchase Intentions. The Likert scale (ordinal scale) data are obtained through using SERVQUAL and SERVPERF framework. The sample size is 1921 which is large enough to bring representation in data.

Key Words: Correlations Analysis, Telecom Industry, Service Quality, SERVPERF, SERVQUAL

1. Introduction

The telecom industry in India has witnessed tremendous growth and attention in last decade. Starting from privatization of the telecom sector to the implementation of mobile number portability in recent months, there has been bubbling eruptions of various technologies 1G, 2G, CDMA, WLL, 3G and recently 4G on the launch etc., all targeted to enrich customer experience and prompt the customer to buy more services, recommend to others etc.

The focal point of all service quality dimensions or attributes are to generate good perceived value that leads to customer satisfaction and inducing post purchase intentions. Telecom services' quality is dependent on many dimensions like call connectivity, network coverage, call center performance and appearance, availability of value added services, relevance and access of

value added services, speed and easy linking of downloads, promptness is overcoming critical failures, performance of SMS services at regular days and festive seasons etc.

The researcher undertakes the reassessment of theoretical modeling of four latent variables namely service quality (SQ), perceived value (PV), customer satisfaction (CS) and post purchase intentions (PPI). Each latent variable is further analyzed in perspectives of selected and related manifest variables. Service quality variables is represented by 13 manifest variables, perceived value is represented by 3 manifest variables, customer satisfaction is represented by 2 manifest variables and post purchase intentions is represented by 3 manifest variables.

1.1 Service Quality Measurement

Service quality measurement has been the bone of intentions due to basic nature of services which are contrasting with simple product quality. There are two sections of researchers/academicians. One section of researchers led by Parasuraman, Zeithaml and Berry (PZB, 1985) advocates that measurement of service quality should be based upon gap between the performance and expectation dimensions of service quality. Due to non consensus on universally acceptable definition of expectation, the gap paradigm of PZB was criticized by researchers. Expectations can be relatively defined as expectations from excellent company, better than previous experience, expectations of being delighted with service experience etc. The researcher uses notion of "Expectations from Excellent Company" and lays down thirteen 7 point Likert scales to measure the expectations from excellent telecom services company. And thirteen 7 point scale for measuring performance service quality dimensions. The corresponding gap between performance and expectation for each dimensions is obtained which is called P-E gap is short. P-E gap is used to assess the service quality. This setting of P-E gap is called SERVQUAL scale.

Another section of researchers/academicians advocates that only the performance measurement of service quality should be the criteria to understand the service quality. The better the performance, the better the service quality. The maximum score attainment on the scale should be the objective of the telecom services company. The performance score is the only criteria hence it is called SERVPERF (Cronin & Taylor, 1992).

Researcher uses both the scales for measuring service quality and then gauges the relationships among service quality, perceived value, customer satisfaction and post purchase intentions. Each latent variable can have direct and indirect effects on other latent variables of the model.

2. Literature Review

The researcher bases the research objectives after reviewing various related literatures. The Likert Scale development has been framed on the basis of Parasuraman, Zeithaml, Berry (PZB) for SERVQUAL scale and Cronin, Taylor (1992) for SERVPERF scale.

The researcher also assesses the various powers of SERVQUAL scale and SERVPERF scale in the context of large sample size, different industry and developing country setting. Previously, By Garima and Sanjay K Jain (2004) applied the framework in assessing powers of the scales on fast food industry with sample size of less than 200. The researcher undertakes to iron out the problem of small sample size and tries to revalidate the powers of scales on larger sample size of 1920 and different industry setting i.e. telecom services.

The service quality dimensions and modeling of latent variables have been reassessed in perspective of the findings obtained by Ying-Feng Kuo, Chi-Ming Wu, Wei-Jaw Deng (2009) on Taiwanese VAS mobile phone services.

3. Understanding Correlations

Correlations between variables indicate the association. If it is positive, then the variables are assumed to be positively associated. If it is negative, then the variables are negatively associated. If it is found to be zero, then variables are not associated with each other. There are various techniques to calculate the associations/ correlations. Techniques are divided into two: Parametric Correlations and Non-Parametric Correlations.

Parametric correlations are used for interval and ratio scale data. It is more accurate to use parametric correlations when data distribution is approximately normal. For checking the normality of data, the Skewness and Kurtosis can be observed. For normal distribution of data, Skewness and Kurtosis measures should be near to 1.0.

If data is deviating from normality and there is use of nominal or ordinal scale data in research, then non-parametric correlations should be used to get more accurate results. Researcher uses

both the types of correlations in assessment of relationships among the latent variables of service quality model. Proposed service quality model contains four latent variables: namely Service Quality, Perceived Value, Customer Satisfaction and Post Purchase Intentions. Pearson Correlation is parametric correlations and it is represented by greek letter “rho” and reposted as “r” value. Spearman Correlation is non-parametric correlations. Kendell’s rank correlation coefficient is also used as non parametric correlations and represented by greek letter “tau b”.

4. Research Methodology

The researcher undertakes the hypothesis testing of relationships among the latent variables of service quality model. The relationships under the testing are relationships between service quality (SQ) and perceived value (PV), service quality and customer satisfaction (CS), service quality and post purchase intentions (PPI), perceived value (PV) and customer satisfaction (CS), perceived value (PV) and post purchase intentions (PPI) and lastly, customer satisfaction (CS) and post purchase intentions (PPI).

Sample data collected from 1921 respondents through structured closed ended questionnaire containing respondent details questions, 21 expectations questions, 21 performance questions and single question for subscription of telecom services. The questionnaire was mailed through emails on surveymonkey.com’s plate-form.

4. Reliability Of the Observed Data

The Cronbach’s Alpha estimates are calculated for SERVQUAL scale data and SERVPERF scale data. Data of both the scales are found to be highly reliable as Cronbach’s Alpha were much above the minimum acceptable standard of 0.60.

TABLE 1: Cronbach’s Alpha

SERVQUAL	0.954
SERVPERF	0.874

5. Correlations Analysis

Correlations analysis is done to find out relationships among P-E gap, Performance Score, Perceived Value (PV), Customer Satisfaction (CS) and Post Purchase Intentions (PPI). It is divided in to two sections i.e. parametric correlations and non-parametric correlations.

5.1 Parametric Correlations

Parametric correlations among P-E gap, P, PV, CS and PPI, and their significance values are obtained at 0.05 significance level. Statistically significant correlations are marked with double asterisks “**”.

TABLE 2: Parametric Correlations

		Correlations				
		P—E	P	PV	CS	PPI
P—E	Pearson Correlation	1	.517**	-.108**	-.097**	-.105**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	1921	1921	1921	1921	1921
P	Pearson Correlation	.517**	1	.005	-.017	-.010
	Sig. (2-tailed)	.000		.827	.458	.664
	N	1921	1921	1921	1921	1921
PV	Pearson Correlation	-.108**	.005	1	.795**	.798**
	Sig. (2-tailed)	.000	.827		.000	.000
	N	1921	1921	1921	1921	1921
CS	Pearson Correlation	-.097**	-.017	.795**	1	.879**

	Sig. (2-tailed)	.000	.458	.000	.000	.000
	N	1921	1921	1921	1921	1921
PPI	Pearson Correlation	-.105**	-.010	.798**	.879**	1
	Sig. (2-tailed)	.000	.664	.000	.000	
	N	1921	1921	1921	1921	1921

Those correlations which have significance values less than 0.05 are marked as significant and there is evidence of association between variables. By observing above table, the P-E gap is significantly correlated with P, PV, CS and PPI. P-E gap is positively associated with Performance Score of service quality. P-E has negative association with PV, CS and PPI but which have very little magnitude. While P score is having no significant relationships with PV, CS and PPI. PV is highly and positively associated with CS and PPI. Lastly, CS is highly and positively correlated with PPI.

5.2 Non-Parametric Correlations

As the researcher uses ordinal scale data and there is no clarity on whether data is normally distributed through t-statistics obtained (though the normality plot of each service quality dimension is along the normal diagonal), the non parametric correlations are also obtained:

TABLE 3: Non Parametric Correlations

Non Parametric Correlations					
	P--E	P	PV	CS	PPI

Kendall's tau_b	P-E	Correlation Coefficient	1.000	.330**	-.070**	-.063**	-.080**
		Sig. (2-tailed)	.	.000	.000	.000	.000
		N	1921	1921	1921	1921	1921
	P	Correlation Coefficient	.330**	1.000	.013	.008	.002
		Sig. (2-tailed)	.000	.	.510	.687	.902
		N	1921	1921	1921	1921	1921
	PV	Correlation Coefficient	-.070**	.013	1.000	.627**	.672**
		Sig. (2-tailed)	.000	.510	.	.000	.000
		N	1921	1921	1921	1921	1921
	CS	Correlation Coefficient	-.063**	.008	.627**	1.000	.762**
		Sig. (2-tailed)	.000	.687	.000	.	.000
		N	1921	1921	1921	1921	1921
	PPI	Correlation Coefficient	-.080**	.002	.672**	.762**	1.000
		Sig. (2-tailed)	.000	.902	.000	.000	.
		N	1921	1921	1921	1921	1921

Spearman's rho	P-E	Correlation Coefficient	1.000	.401**	-.089**	-.080**	-.101**
		Sig. (2-tailed)	.	.000	.000	.000	.000
		N	1921	1921	1921	1921	1921
	P	Correlation Coefficient	.401**	1.000	.015	.009	.003
		Sig. (2-tailed)	.000	.	.513	.687	.906
		N	1921	1921	1921	1921	1921
	PV	Correlation Coefficient	-.089**	.015	1.000	.680**	.721**
		Sig. (2-tailed)	.000	.513	.	.000	.000
	Spearman's rho	PV	N	1921	1921**	1921**	1921**
	CS	Correlation Coefficient	-.080	.009	.680	1.000	.809
		Sig. (2-tailed)	.000	.687	.000	.	.000
		N	1921**	1921	1921	1921	1921
	PPI	Correlation Coefficient	-.101	.003	.721	.809	1.000
		Sig. (2-tailed)	.000	.906	.000	.000	.
		N	1921**	1921	1921	1921**	1921**

The results of parametric correlations are replicated in non parametric correlations hence results of correlations are revalidated.

6. Findings and Conclusions

The relationships of service quality with other latent variables i.e. perceived value, customer satisfaction and post purchase intentions is poorly negatively correlated. Such associations of service quality might be due to some missing variable(s) in the service quality model.

Performance score is directly and positively correlated with P-E gap. Even performance score is found to be poorly negatively correlated with perceived value, customer satisfaction and post purchase intentions.

But, the correlations of perceived value with customer satisfaction and post purchase intentions; correlations of customer satisfaction with post purchase intentions are significant, strong and positively correlated. Perceived value have direct and indirect effects (through mediation of customer satisfaction) on post purchase intentions.

7. Conclusion

The service quality model is in evolving stage. In the context of telecom industry and developing country settings with larger sample size, the proposed service quality needs further exploration to find out missing latent variables which may mediate between the service quality scores and perceived value, customer satisfaction, post purchase intentions. Though, the other relationships among perceived value, customer satisfaction and post purchase intentions; reinforces the service quality model.

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