The Measurement of Service Quality Perception in Banking Sector

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Introduction

The conceptualization and measurement of service quality (Servqual) continues to play a paramount role in services marketing for both academics and practitioners on equal footing. Berry (1983) in his pioneering study on relationship marketing indicated that the development and maintenance of relationship with customers represent a significant strategy for long-term success especially in services sector. The Servqual scale was developed in an attempt to measure how consumers perceive the quality of service (Parasuraman et al, 1985, 1988, 1991,1994a,b). Subsequently that scale has undergone several revisions, extensions and modifications to suit the needs of different sectors. Recent studies have tested the validity of the Servqual scale in different industries including health care (Dean 1999) gas and utilities (Babacus and Boller 1992) and retail banking (Lam 1995). Using the Servqual as base, Alfred (2001) has developed a more comprehensive scale to measure service quality in banking sector. However the studies pertinent to banking sector in Indian context are scarce. Over the past decade, wide spread bank deregulation and increased competitive pressures have created dramatic changes in financial services industry in India (Sathya Debasish, 2002). This, in turn, has led the banking industry in India to adopt the universal norm 'relationship banking' through providing better services in terms of increased service quality attributes. Taking a sample of four banks, two from public sector, namely, State Bank of India and Canara Bank, and two from private sector namely HDFC and ICICI, the perceptual map is drawn through a sophisticated multivariate non-parametric technique called Correspondence Analysis.

Review of Literature

Interest in the measurement of service quality has been understandably high as it holds the key for the service providers to strategically position themselves more effectively in the market place (Brown and Swartz 1989; Rudie and Wansley 1985; Thompson, De Souza and Gale 1985). Several models have been built over the years to evaluate the service quality offered by providers. The first model by Christian Gronroos in 1984 clearly outlines that the principal components of Service Quality are technical quality, functional quality and corporate image

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which in turn together determine the service quality of an organisation. Though legitimacy of the Gronroos model on service quality has never been questioned, a multi-dimensioned structure developed by Parasuraman, Berry and Zeithaml in 1985 been used as the base concept for service quality (Parasuraman, Berry and Zeithaml – PBZ 1988). Subsequently the numerous suggestions regarding reappraisal and restructuring (Robinson 1999) of service quality measurement has fed the researchers to delve further into the mainstream research on service quality perception and evolve different models of evaluation on various parameters (e.g. Furrer et al. 2000, Lee et al 2000; Wirtz and Bateson 1999).

Recent literature holds that (e.g. Ravald and Gronroos 1996; Parasuraman and Grewal 2000; Woodruff 1997) service quality primarily determines the customer value. Customer value is perceived as one of the principal drivers of customer satisfaction, which, in turn (Jones and Sasser 1995) acts as a key determinant of repurchase and ultimately of customer retention and loyalty. Increasing numbers of researchers are attempting to understand various other underlying factors, which would ultimately contribute to customer loyalty (e.g., Bansal and Taylor 1999 b; Bhattacharya 1998; Bolton, Kannan and Bramlett 2000; Jones et al 2000; Keaveney 1995; Sharma and Patterson 2000). However, as Dube and Shoemaker (2000) pointed out, research on this topic is still in its infancy. The most commonly studied drivers of service provider switching and customer retention and loyalty include satisfaction, switching

costs and more recently, alternative attractiveness and social influences (e.g., Bansal and Taylor 1999 a, 1999 b; Jones et al 2000; Ping 1993; Sharma and Patterson 2000). These studies obviously bring out missing aspects of 'relationship' between service providers and customers (Dube and Shoemaker 2000). Allred (2001) did a notable work incorporating this vital aspect through his study on service quality at Banks. The present study considers the work of Allred as a valuable contribution to service quality literature and utilises the instrument developed by him as a base for conducting the survey.

Measuring Service Quality

The key focus of this study is "How to measure the service quality in a banking sector?" To find an answer to this question, a survey was conducted based on the prominent work of three outstanding authorities of services marketing - Berry, Parasuraman and Zeithaml (1994). Through focus group interviews and later empirical investigation, Parasuraman et al, (1985, 1988, 1994) found that customers used ten determinants to evaluate the service quality of any organization. In hierarchical order the list includes:

1. Reliability
2. Responsiveness
3. Competence
4. Accessibility
5. Courtesy
6. Communication
7. Credibility
8. Security
9. Understanding
10. Tangibility.

Alfred (2001) after umpteen number of empirical investigation on these ten determinants has come out with 15 attributes, which the customers consider for evaluating any service quality. As, these attributes are found to be suitable for Indian banking sector in the current scenario; the same instrument is used for the present study and are listed below:

1. Reliable (consistently do what they say)
2. Responsive (cheerfully do what they)
3. Competent (has knowledge and expertise)
4. Accessible (is available to talk to)
5. Courteous (treat with respect)
6. Communication (listens carefully and explains expectations)
7. Credible (honest and trustworthy)
8. Security (information kept private and confidential)
9. Empathy (understands views and shows genuine concern)
10. Tangible (maintains clean office and dresses up appropriately)
11. Surveys needs (asks and understands needs and expectations)
12. Need fulfillment (needs and expectations are identified and met)
13. Fairness (fair treatment)
14. Mistakes (mistakes are promptly corrected)
15. Treatment (treat the way the customers should be)

Correspondence Analysis Approach

Also called correspondence analysis, perceptual mapping, and social space analysis, this technique aims at explaining the inertia (variance) in a cross-tabulation with 'n' number of categories and columns. While one may argue that chi-square analysis can be performed in such a situation, it should be emphasized here that, chi-square is not effective for a large number of categories and columns with different frequencies in the cells. Further, even though one can establish the association between the row and column variables, it is hard to locate which categories of row and column variable are associated together. Moreover, it is an utopian task to locate on a graphical map those categories that are related on several variables, say, two or more category of row variable and similar category column variable - a multiple correspondence analysis does perform this job well.

Correspondence analysis output provides key statistics for the attributes and objects being studied. Among these are absolute and relative contribution to the inertia of each attribute and each object. It is useful in determining the relative association or positions of attributes and objects in the same two-dimensional map. The input to correspondence analysis can be simple binary data such as 'Yes'/No' responses, which can be aggregated over respondents to form a correspondence table of frequencies as displayed in the present study in Table 1. Since we obtain the graphical map, the results of correspondence analysis are easy to interpret. Behavioural scientists consider this technique as analogous to factor analysis of rows and columns in the contingency table. The correspondence analysis is usually performed through advanced statistical packages like SPSS,

SYSTAT and SAS. For the present study it was performed through SPSS 11.0 version. The output to correspondence analysis performed through statistical packages like SPSS, SYSTAT and SAS bring out the following among others:

a) **Correspondence Table** It is nothing but the cross - tabulation of two nominal variables with number of categories in it. It is given along with marginals (nothing but totals). Whether asked or not, correspondence analysis output does bring this table out first.

b) **Points** The values of categories of the variables and are known as 'profile points'. For example, 'married' is a point for nominal variable 'Marital status'.

c) **Point Distance** Indeed correspondence analysis uses chi-squared distance between two points rather than Euclidean distance. Therefore the chi-squared distance matrix serves as input to principal component analysis that yields factors (dimensions) which correspondence analysis uses to map points.

d) **Contribution of Points to Dimensions** The contribution of points to dimensions indicate the percentage of inertia (variance) of particular dimension which is explained by a point. Contribution of points to dimensions will equal to '1' across the categories of any one variable. Then, the summation of contribution of points to dimension across all points will be '1'. The SPSS output indicates this as 'contribution of row points to the inertia of each dimension'. By looking at the magnitude of points in a dimension one can derive meaning of the dimension. For example, if variables such a colour, fragrance, appearance etc are highly loaded on a dimension, we can interpret the dimension as 'aesthetic'.

e) **Contribution of Dimension to Points** It is also known as 'squared correlation' and is the per cent of variance in a point explained by a given dimension (just opposite to contribution of points to dimension). Naturally, one will expect a high contribution of dimension to the point value. The sum of contribution of dimension to a point will add to '1' in a full solution where all the possible dimensions are considered. Generally, if a point that explains a lot of variance in a dimension, then that dimension will also describe the point very well.

f) **Eigen Values** Each dimension will have one 'eigen value'. It is also known as the inertia of a dimension and represents the relative importance of the dimension. Usually, the first

dimension will have a high inertia and therefore has the largest eigen value, the second dimension, the next largest eigen value and so on. The sum of the eigen values is the total inertia which reflects the spread of points around the centroid. It should however be remembered that only the first two dimensions are used in correspondence map and an effective correspondence model will explain the high percent of inertia in first two dimensions itself. The significance of total inertia is tested through a chi-squared value.

g) **Proportion of inertia accounted by a given dimension** It is nothing but the value obtained by deciding the given eigen value of the dimension by total inertia. For example, if the proportion of inertia accounted for by dimension one is 0.632, then dimension 1 explains 63.2 per cent of variance of the total inertia in the original correspondence table. Therefore, if total inertia is 0.271, which means all the dimensions explained 27.1 per cent (and not 63.2 per cent) of the variance in the original table which is often misinterpreted.

h) **Singular Value** It is nothing but the square root of eigen value and is interpreted as the maximum correlation between categories of variables in the analysis for a given dimension.

i) **Row and column profile** As described earlier, profile elements are simply the entries in row and column. Generally, row variable is dependent and column variable is independent.

j) **Centroid** In correspondence analysis, it is the mean of row and column profiles and is the origin in a correspondence map.

k) **Masses** Nothing but the marginal (total) proportions of a variable and is used to weight the point profile when computing the point distance.

Assumptions

The following are some of the assumptions of correspondence analysis.

i)   It is an exploratory and not a confirmatory technique.

ii)   Correspondence is the measure of chi-square distance between the points and can be treated as correlation among the variables.

iii)   Labeling of dimensions is subjective in nature.

iv)   Even though Correspondence Analysis can be used for handling 'N' way tables, it is efficient in handling maximum of three variables.

v) It is a non-parametric technique and makes no assumption of distribution.

vi) It is suitable for variables with many categories.

vii) The values in a particular cell can never be negative.

Method

Based on the review of service quality literature, the Servqual image measurement for the present study adopted the highly revised format of the questionnaire developed by Alfred (2001). The instrument (questionnaire) contained 15 attributes like reliability, responsiveness, competency, tangibility, treatment and the like. The specimen of the instrument used in the study is appended at the end of the article. It is mentioned here that even though these attributes were borrowed from Alfred (2001), the scale points used for measuring the customer perception on each of these service quality attributes were different. The respondents were simply asked to put a tick mark in any of the cells indicating the corresponding bank for the availability of such service attribute in those banks. This method is popularly known as 'pick any-tick any' method, whereby each respondent would have placed a tick mark against a corresponding bank for a particular service quality trait which he or she believes that the bank is good in providing such attribute. For example, for the trait of 'courteous behaviour of bank employees' if the respondent feels that

all the four banks provide this, then he will tick mark all those banks and like that. A total number of 400 respondents were contacted with the aim of obtaining an equal representation of 100 respondents from each of the selected banks. The survey lasted for 2 months period as it involved collection of responses from those customers who are either the customers of all banks or any of them or those who have encountered the banks for obtaining a home loan. The respondents who have encountered the banks during the home loan mela were excluded from being part of the sample. This was felt necessary as the servicescape and service encounter scenario will be totally different in those melas from the natural work environment in the actual location of bank itself. A snowball sampling method was adopted wherein the researchers first contacted the respondent who happened to have visited all these selected four banks and collected information through personal interview. The same respondent was then asked to direct the researchers to another respondent who have visited these four banks for the purpose of availing the loan. By fielding 10-second year MBA students who have opted services marketing as elective, the process of contacting the respondents was complete with data collected from a total sample of 363 respondents', thus yielding a response rate of 90.75% which is quite satisfactory. The students who volunteered to conduct the survey over a period of month were adequately rewarded by way of awarding marks for their term paper/mini project.

Correspondence Analysis of Data

The correspondence analysis was performed on the data collected from all the 363 sample customers drawn from the banks studied. Using the SPSS package (version 11.0), the results were obtained and are presented in Table 1. As shown here, the correspondence analysis (CA) revealed a total number of 3 dimensions accounting for 100 per

cent variance explained. However, since the objective of CA is to reduce the set of data into a two-dimensional map, it was proposed to find out the amount of variance explained by these two dimensions. As shown in Table 2, the cumulative percentage of variance explained amounts to 96.5 per cent for both the dimensions, leaving only 3.5 per cent for dimension 3 that was quite negligible and was therefore dropped from analysis.

Table 1 - Correspondence Table

| | ATTRIBUTES | BANK | | | | |
		SBI	Canara	ICICI	HDFC	Active Margin
1	Reliability	93	34	38	45	210
2	Responsiveness	45	32	15	96	188
3	Competency	23	36	89	47	195
4	Accessibility	45	31	45	88	209
5	Courteous	22	27	86	46	181
6	Communication	32	38	92	32	194
7	Credibility	82	41	52	31	206
8	Security	92	32	56	51	231
9	Empathy	37	27	87	46	197
10	Tangibility	56	31	51	92	230
11	Surveying Needs	36	36	53	46	171
12	Need fulfillment	48	47	61	89	245
13	Fairness	49	36	63	32	180
14	Mistakes	65	33	58	76	232
15	Treatment	23	32	92	56	203
	Active Margin	**748**	**513**	**938**	**873**	**3072**

The inertia explained for this third dimension is also found to be insignificant (a mere .004). Therefore, the two-dimensional reduced data set was used for making out the correspondence map. The total inertia explained by these two dimensions is 12.5 per cent and the chi-square value of 386.14 was found to be significant at .01 level (see Table 2).

Table 2

Correspondence Analysis: Summary Table

Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative
1.	.274	.075			.598	.598
2.	.215	.046			.367	.965
3.	.066	.004			.035	1.000
Total		.125	386.14	.000	1.000	1.000

It is customary in CA to look for the loadings (contributions or correlations) of different points (points are simply the categories of column variable and row variable) to the variance of each dimension by comparing the contribution of points to the inertia of each dimension. The values of contribution of points to the inertia of each dimension for different points of attributes and banks are depicted in Table 3. The values of contribution made by attributes to each of the dimension indicate attributes such as competency; courteous behaviour, communication, empathy and treatment are heavily loaded on dimension 1. These values are printed in bold face. Similarly, attributes such as reliability, responsiveness, accessibility, credibility, security, tangibility, need fulfillment and fairness are loaded on dimension 2 exclusively and the same are printed in bold face.

Table 3

Contribution of Each Attribute to the Inertia of Dimension

Attributes		Contribution to	
		Dimension 1	**Dimension 2**
1.	Reliability	.118	**.151**
2.	Responsiveness	.157	**.201**
3.	Competency	**.121**	.004
4.	Accessibility	.027	**.099**
5.	Courteousness	**.119**	.006
6.	Communication	**.131**	.020
7.	Credibility	.025	**.208**
8.	Security	.053	**.115**
9.	Empathy	**.066**	.002
10.	Tangibility	.034	**.061**
11.	Surveying Needs	.002	.000
12.	Need fulfillment	.005	**.059**
13.	Fairness	.007	**.054**
14.	Mistakes Correction	**.021**	.002
15	Treatment	**.112**	.019

The contributions made by different columns for the variable 'bank' indicate that ICICI Bank is heavily attached to dimension 1 with the loading of .581 and HDFC Bank is heavily loaded on dimension 2 with a loading of .591 followed by SBI with the loading of .585. It is quite surprising that there is no place for Canara Bank in any of the dimension at all. Table 4 exhibits the details of contribution made by each bank to each of the dimensions.

Table 4

Contribution of Each Bank to the Inertia of Dimension

Banks	Contribution to	
	Dimension 1	Dimension 2
SBI	.315	**.585**
Canara	.002	.004
ICICI	**.589**	.020
HDFC	.095	**.591**

A comparison of contribution to dimensions by various points in tables 3 and 4 reveal that much of the service attributes identified under dimension 1 are related to ICICI while most of the attributes identified in dimension 2 are related to HDFC followed by SBI, with no clear picture emerging for Canara bank. The association of different service attributes to selected banks for both the dimensions taken together is better revealed through Correspondence Map which is shown in Figure 1. A perusal of the plots of various rows and column points clearly exhibit the pattern of association between them. It is clear that SBI is closely associated with reliability, credibility and security. The ICICI bank is closely attached to attributes such as competency, courteousness, communication, empathy and treatment of customers. It is interesting to note that HDFC bank is dominant for its rating on attributes such as accessibility, tangibility, need fulfilment and responsiveness. It is a mystery to observe why Canara bank has not been associated with any of the service attributes distinctly. The contribution of Canara bank is identified in the middle of the road milieu. Even though one may argue that attribute eleven, namely, 'surveying needs' is associated with Canara bank, its contribution to both the dimensions is turned to be zero (see table 3) – which is similar to zero values obtained for Canara bank in Table 4.

Figure 1

Correspondence Map

Row and Column Points Symmertrical Normalization
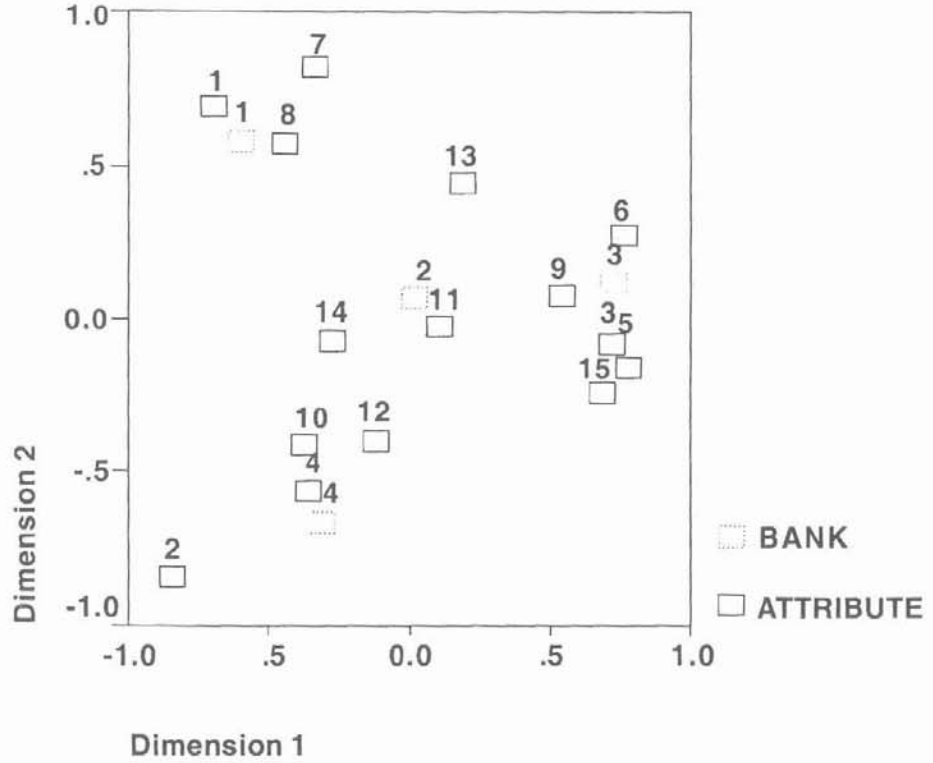
	Attributes		Banks
1	Reliability	1	SBI
2	Responsiveness	2	Canara
3	Competency	3	ICICI
4	Accessibility	4	HDFC
5	Courteous		
6	Communication		
7	Credibility		
8	Security		
9	Empathy		
10	Tangibility		
11	Surveying Needs		
12	Need fulfillment		
13	Fairness		
14	Mistakes		
15	Treatment		

Questionnaire
Service Quality Perception in Banking

Below are given some attributes that measure your Service Quality Perception. Please put a simple '◆' mark in the respective boxes given for each banks show. There is no restriction that you have to put only one '◆' mark for each attribute given. If you feel that all the four banks are superior in providing a particular attribute please put '◆' in all the four boxes shown against that attribute.

	SBI	CANARA	ICICI	HDFC
1. Reliability (consistency in doing)	☐	☐	☐	☐
2. Responsiveness (doing cheerfully)	☐	☐	☐	☐
3. Competency (knowledge expertise)	☐	☐	☐	☐
4. Accessibility (availability to talk to)	☐	☐	☐	☐
5. Courteous (treating with respect)	☐	☐	☐	☐
6. Communication (listening explaining)	☐	☐	☐	☐
7. Credibility (honesty & trust worthy)	☐	☐	☐	☐
8. Security (keeping information confidential)	☐	☐	☐	☐
9. Empathy (showing genuine concern)	☐	☐	☐	☐
10. Tangibility (clean office & neat dressing)	☐	☐	☐	☐
11. Surveying Needs (need assessment)	☐	☐	☐	☐
12. Need fulfillment (identifying & meeting needs)	☐	☐	☐	☐
13. Fairness (treating fair & just)	☐	☐	☐	☐
14. Mistakes (promptly correcting mistakes)	☐	☐	☐	☐
15. Treatment (treating the ways a customer should be)	☐	☐	☐	☐

Age: Gender:

Number of years having transaction with Bank:

Implications

. The findings of service quality attribute image survey of selected public and private sector banks reveal that much need to be done for public sector banks in improving their performance by revamping the service marketing strategies. While the public sector bank SBI is closely related to 'security', 'reliability' and 'credibility', still it needs to improve on aspects such as 'tangibility', 'fairness', 'and treatment' and more importantly on 'accessibility' and 'courteous behaviour' of employees towards the customers. At the same time, the Correspondence Analysis in the present study points out the need on the part of private sector banks for focusing on reliability, credibility and security aspects in delivering service to their customers. The findings also throw a challenge to Canara bank in calling immediately the resources for building up its positioning in the service quality image in the minds of customers. In conclusion, the study dissects the service attribute image enjoyed by the public sector and private sector banks through the application of modern multivariate analytical technique Correspondence Analysis. While this study is a maiden attempt in this aspect, future researchers can hopefully look for further avenues in exploring the area.

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