

CHAPTER 3

SPECIFICATION AND ESTIMATION OF SERVICE QUALITY DIMENSIONS IN NON FUEL OFFERINGS IN PETRO RETAIL OUTLETS

3.1 RESEARCH FRAMEWORK

3.2 SURVEY DESIGN

3.3 DEMOGRAPHIC PROFILE OF THE RESPONDENTS

3.4 VEHICLE OWNERSHIP OF RESPONDENTS

3.5 NON FUEL OFFERINGS AT PETRO RETAIL OUTLETS SURVEYED

3.6 TOOLS AND TECHNIQUES EMPLOYED

3.7 EMPIRICAL RESULT ANALYSIS

3.7.1 Validity and Reliability

3.7.2 Data Reduction Summary of Service Quality Factors

3.7.3 Communalities

3.7.4 Correlation between statements and derived factors

3.8 SUMMARY OF RESULTS

CHAPTER 3

SPECIFICATION AND ESTIMATION OF SERVICE QUALITY DIMENSIONS IN NON FUEL OFFERINGS IN PETRO RETAIL OUTLETS

3.1 RESEARCH FRAMEWORK

To determine the customer expectations and perceptions of service quality as well as the relevant gaps in 13 cities of different retail format of IOC, HPC and BPC in different parts of the country, questionnaires were distributed and explained to the respondents. A self administered questionnaire was used to assess how the respondents evaluate the service quality for non-fuel offerings in petro retail outlets. A total of 22 service quality attributes were developed in the questionnaire to identify, analyze the service gaps between customer expectations and perceptions. This gap analysis could provide a good indication of the quality of services. Modified version of SERVQUAL was used in the study. The questionnaire was made up of three sections:

Section A - To identify whether the respondent had availed non-fuel offerings at petro retail outlet and expectations and perceptions of customers.

Section B - Respondent's Demographic Aspects

Section C - Details of petro retail outlets and non fuel offerings available at petro retail outlets surveyed

Section A was the most important format of the research to identify whether the respondent had availed non-fuel offerings at petro retail outlet

during last six months and to measure the respondent's expectations and perceptions regarding the non-fuel offerings at petro retail outlet. The objective of Section B was to identify the respondent's demographic aspects on close ended questionnaire. The objective of Section C was to identify details of the petro retail outlet and the different non-fuel offerings provided by the retail outlet based on dichotomous questionnaire.

3.2 SURVEY DESIGN

The customers who had visited the petro retail outlet, used non-fuel offerings during last 6 months and were willing to participate were identified by visiting the different petro retail outlets across the country. The period of data collection was done during June-July 2008. Convenience sampling was adopted for this study, through which a researcher selects sample members who can provide required information and are available to participate in this study.

Data from a total number of 826 respondents was collected from petro retail outlets located in 13 cities (Bhopal, Delhi, Kashipur, Moradabad, Gajraula, Rampur, Goa, Agra, Mathura, Lucknow, Navi Mumbai, Mumbai, & Faridabad) in India. A total of 32 questionnaires were filled incomplete and 38 questionnaires were wrongly filled. Finally 756 respondents from a total of 58 petro retail outlets have been used in the present study.

Out of 58 petro retail outlets surveyed (Table 3.1), 25 (43.1%) belonged to IOC, 22 (37.9 %) to HPC & 11 (19 %) to BPC. Out of a total 13 cities from which data was collected, 22.4% of retail outlets of Lucknow city, 20.7% of Agra, 17.2% of Moradabad, and 12.1% of Delhi constituted the largest respondents. The other 9 cities constituted a balance (40%) of retail outlets.

Table 3.2 explains about the total respondents surveyed from the 13 cities. Of the total no. of respondents 41.9% of IOC, 32.7% from HPC and 20.9% from BPC has been considered for their feedback in the present study. The maximum respondents were from Agra (24.1%), Moradabad (22.2%), Delhi (13.5%), and Lucknow (8.6%). The rest of 9 cities constituted the balance (30%) of the total respondents surveyed.

Chapter Three SPECIFICATION AND ESTIMATION OF SERVICE QUALITY DIMENSIONS IN NON FUEL OFFERINGS IN PETRO
RETAIL OUTLETS

Table 3.1: Petro Retail Outlets Surveyed Area wise and Company wise

Area of the Respondent	Oil Company			Total	% of Total Outlets
	IOC	HPC	BPC		
Bhopal	0 (0.0%)	2 (100.0%)	0 (0.0%)	2 (100.0%)	(3.4%)
Delhi	2 (28.6%)	4 (57.1%)	1 (14.3%)	7 (100.0%)	(12.1%)
Kashipur	0 (0.0%)	0 (0.0%)	1 (100.0%)	1 (100.0%)	(1.7%)
Moradabad	5 (50.0%)	4 (40.0%)	1 (10.0%)	10 (100.0%)	(17.2%)
Gajraula	1 (50.0%)	0 (0.0%)	1 (50.0%)	2 (100.0%)	(3.4%)
Rampur	0 (0.0%)	0 (0.0%)	1 (100.0%)	1 (100.0%)	(1.7%)
Goa	0 (0.0%)	1 (50.0%)	1 (50.0%)	2 (100.0%)	(3.4%)
Agra	7 (58.3%)	5 (41.7%)	0 (0.0%)	12 (100.0%)	(20.7%)
Mathura	1 (100%)	0 (0.0%)	0 (0.0%)	1 (100.0%)	(1.7%)
Lucknow	6 (46.1%)	5 (38.5%)	2 (15.4%)	13 (100.0%)	(22.4%)
Navi Mumbai	2 (100.0%)	0 (0.0%)	0 (0.0%)	2 (100.0%)	(3.4%)
Mumbai	0 (0.0%)	1 (33.3%)	2 (66.7%)	3 (100.0%)	(5.2%)
Farridabad	1 (50.0%)	0 (0.0%)	1 (50.0%)	2 (100.0%)	(3.4%)
Total	25 (43.1%)	22 (37.9%)	11 (19.0%)	58 (100.0%)	(100.0%)

(Source: Estimated through primary data, June-July 2008) (Parenthesis: %)

Table 3.2 Respondents surveyed Area wise and Company wise

Area of the Respondent	Oil Company			Total	% of Total Respondents
	IOC	HPC	BPC		
Bhopal	0 (0.0%)	30 (100.0%)	0 (0.0%)	30 (100.0%)	(4.0%)
Delhi	29 (28.4%)	58 (56.9%)	15 (14.7%)	102 (100.0%)	(13.5%)
Kashipur	0 (0.0%)	0 (0.0%)	14 (100.0%)	14 (100.0%)	(1.9%)
Moradabad	75 (44.6%)	62 (36.9%)	31 (18.5%)	168 (100.0%)	(22.2%)
Gajraula	16 (51.6%)	0 (0.0%)	15 (48.4)	31 (100.0%)	(4.1%)
Rampur	0 (0.0%)	0 (0.0%)	15 (100.0%)	15 (100.0%)	(2.0%)
Goa	0 (0.0%)	15 (51.7)	14 (48.3)	29 (100.0%)	(3.8%)
Agra	107 (58.8%)	75 (41.2%)	0 (0.0%)	182 (100.0%)	(24.1%)
Mathura	15 (100.0%)	0 (0.0%)	0 (0.0%)	15 (100.0%)	(2.0%)
Lucknow	30 (46.2%)	25 (38.5%)	10 (15.4%)	65 (100.0%)	(8.6%)
Navi Mumbai	30 100.0%	0 (0.0%)	0 (0.0%)	30 (100.0%)	(4.0%)
Mumbai	0 (0.0%)	16 (35.6%)	29 (64.4%)	45 (100.0%)	(6.0%)
Faridabad	15 (50.0%)	0 (0.0%)	15 (50.0%)	30 (100.0%)	(4.0%)
Total	317 (41.9%)	281 (37.2%)	158 (20.9%)	756 (100.0%)	(100.0%)

(Source: Estimated through primary data, June-July 2008) (Parenthesis: %)

3.3 DEMOGRAPHIC PROFILE OF THE RESPONDENTS

Demographic characteristics are shown in Table 3.3, Table 3.4, & Table 3.5. The gender-wise profile is given in Table 3.3. Of the total respondents 87% of male and 13% female respondents have been interviewed. Majority of the male respondents were from IOC (42.9%). Similarly 53.1% of the female respondents were from HPC.

Respondent data, on the basis of different age groups is illustrated in Table 3.4. Most of the respondents were between 25-35 years (38.8%) and 18-25 years (25.3%). While 4.1 % of respondents were from the age group 55-65, the age group of 65-75 constituted only 0.8%.

Responses based on income group are given in Table 3.5. Majority of the surveyed respondents had monthly income between Rs.15, 000 to Rs.20, 000 (24.7%) followed by Rs.25, 000 to Rs.30, 000 (13.2%). Only 2.6% the least % of the respondents were from the income group above Rs.50, 000 & above.

3.4 VEHICLE OWNERSHIP OF RESPONDENTS

Analysis based on vehicle ownership is given in Table 3.6. Multiple ownerships were taken into consideration. The highest owned vehicle by respondents was car (53.8%), followed by jeeps (43.1%) and motorcycle (41.1%). The least owned vehicle was truck (0.7%) followed by tractor (0.8%).

3.5 NON-FUEL OFFERING AT PETRO RETAIL OUTLETS SURVEYED

Non-fuel offerings at various petro retail outlets are summarized in Table 3.7. Of the total petro retail outlets surveyed pollution under control check & fleet card constituted the highest non-fuel offerings (63.8%). The next was car wash (62.1%) followed by vehicle servicing (44.8%). It is worthwhile to note that, even for non-fuel offerings like convenience stores and food outlets, requiring the company to invest heavily, comprised at least 20% of the total petro retail outlets surveyed. This shows that the NOC are focusing seriously on non-fuel offerings.

Table 3.3: Summary of Respondents on the basis of Company and Sex

	Oil Company			Total	% of Total Respondents
	IOC	HPC	BPC		
Sex					
Male	282 (42.9%)	229 (34.8%)	147 (22.3%)	658 (100.0%)	(87.0%)
Female	35 (35.7%)	52 (53.1%)	11 (11.2%)	98 (100%)	(13.0%)
Total	317 (41.9%)	281 (37.2%)	158 (20.9%)	756 (100.0)	

(Source: Estimated through primary data, June-July 2008) (Parenthesis: %)

Table 3.4: Summary of Respondents on the basis of Company and Age

Age	Oil Company			Total	% of Total Respondents
	IOC	HPC	BPC		
18-25	66 (34.6%)	83 (43.5%)	42 (22.0%)	191 (100.0%)	(25.3%)
25-35	121 (41.3%)	101 (34.5%)	71 (24.2%)	293 (100.0%)	(38.8%)
35-45	81 (48.8%)	56 (33.7%)	29 (17.5%)	166 (100.0%)	(22.0%)
45-55	37 (53.6%)	22 (31.9%)	10 (14.5%)	69 (100.0%)	(9.1%)
55-65	9 (29.0%)	17 (54.8%)	5 (16.1%)	31 (100.0%)	(4.1%)
65-75	3 (50.0%)	2 (33.3%)	1 (16.7%)	6 (100.0%)	(0.8%)
Total	317 (41.9%)	281 (37.2%)	158 (20.9%)	756 (100.0)	

(Source: Estimated through primary data, June-July 2008) (Parenthesis: %)

Table 3.5: Summary of Respondents on the basis of Company and Income

	Oil Company			Total	% of Total Respondents
	IOC	HPC	BPC		
Income per month					
Below Rs. 5000	20 (45.5%)	15 (34.1%)	9 (20.5%)	44 (100.0%)	(5.8%)
Rs 5000-10000	28 (50%)	19 (33.9%)	9 (16.1%)	56 (100.0%)	(7.4%)
Rs 10000 - 15000	46 (49.6%)	30 (32.2%)	17 (18.3%)	93 (100.0%)	(12.3%)
Rs 15000- 20000	62 (33.2%)	70 (37.4%)	55 (29.4%)	187 (100.0%)	(24.7%)
Rs 20000-25000	34 (34.3%)	39 (39.4%)	26 (26.3%)	99 (100.0%)	(13.1%)
Rs 25000-30000	44 (44.0%)	38 (38.0%)	18 (18.0%)	100 (100.0%)	(13.2%)
Rs 30000-35000	27 (44.3%)	27 (44.35)	7 (11.4%)	61 (100.0%)	(8.1%)
Rs 35000-40000	37 (50.7%)	25 (34.2%)	11 (15.1%)	73 (100.0%)	(9.7%)
Rs 45000-50000	11 (47.8%)	8 (34.8%)	4 (17.4%)	23 (100.0%)	(3.0%)
Above Rs 50000	8 (40.0%)	10 (50.0%)	2 (10.0%)	20 (100.0%)	(2.6%)
Total	317 (41.9%)	281 (37.2%)	158 (20.9%)	756 (100.0%)	

(Source: Estimated through primary data, June-July 2008) (Parenthesis: %)

Table 3.6: Summary of Vehicle Ownership of Respondents

S. No.	Vehicle	Oil Company			Total	% of Total Respondents
		IOC	HPC	BPC		
1	Scooter	134 (44.7%)	104 (34.7%)	62 (20.7%)	300 (100.0%)	(39.7%)
2	Motor Cycle	145 (46.6%)	106 (34.1%)	60 (19.3%)	311 (100.0%)	(41.1%)
3	Car	189 (46.4%)	142 (34.9%)	76 (18.7%)	407 (100.0%)	(53.8%)
4	Jeep	150 (46.0%)	126 (38.7%)	50 (15.3%)	326 (100.0%)	(43.1%)
5	SUV	12 (42.9%)	9 (32.1%)	7 (25.0%)	28 (100.0%)	(3.7%)
6	Tractor	3 (50%)	2 (33.3%)	1 (16.7%)	6 (100.0%)	(0.8%)
7	Truck	2 (40.0%)	0 (0.0%)	3 (60.0%)	5 (100.0%)	(0.7%)
8	Bus	11 (68.8%)	4 (25.0%)	1 (6.3%)	16 (100.0%)	(2.1%)

(Source: Estimated through primary data, June-July 2008) (Parenthesis: %)

Table 3.7: Summary of Non-Fuel Offerings at Petro Retail Outlets

S.No.	Vehicle	Oil Company			Total	% of Total Retail Outlets
		IOC	HPC	BPC		
1	Convenience Store	1 (8.3%)	6 (50.0%)	5 (41.7%)	12 (100.0%)	(20.7%)
2	Food Outlet	11 (57.9%)	5 (26.3%)	3 (15.8%)	19 (100.0%)	(32.8%)
3	ATM	4 (30.8%)	8 (61.5%)	1 (7.7%)	13 (100.0%)	(22.4%)
4	Car Wash	17 (47.2%)	13 (36.1%)	6 (16.7%)	36 (100.0%)	(62.1%)
5	Pollution under Control Check	18 (48.6%)	12 (32.4%)	7 (18.9%)	37 (100.0%)	(63.8%)
6	Fleet Card Facility	19 (51.4%)	12 (32.4%)	6 (16.2%)	37 (100.0%)	(63.8%)
7	Vehicle Servicing	12 (46.2%)	9 (34.6%)	5 (19.2%)	26 (100.0%)	(44.8%)
8	Money Transfer	1 (33.3%)	0 (0.0%)	2 (66.7%)	3 (100.0%)	(5.2%)
9	Dhaba	3 (50.0%)	1 (16.7%)	2 (33.3%)	6 (100.0%)	(10.3%)
10	Dormitory for Overnight Stay	1 (68.8%)	3 (25.0%)	1 (6.3%)	5 (100.0%)	(8.6%)
11	Mobile Charge Facility	4 (44.4%)	2 (22.2%)	3 (33.3%)	9 (100.0%)	(15.5%)

(Source: Estimated through primary data, June-July 2008) (Parenthesis: %)

3.6 TOOLS AND TECHNIQUES USED

Factor Analysis (Kinnear and Taylor, 1996, p.626) is a multivariate technique denoting a class of procedures for data reduction and summarizing. It has been employed in the present study for the purpose of analyzing the data. Factor Analysis in expectation was applied to find out the underlying factors and their importance. The Principal Component Method with VARIMAX Component Method is considered appropriate, as the primary purpose is to determine the minimum number of factors that would account for the maximum variance in the data collected. The data was analyzed by using SPSS Version 16.0.

The data validity for Factor Analysis was tested with help of Kaiser-Meyers-Olkin (KMO) (Kaiser, 1974) measures of sampling adequacy and Bartlett's Test of Sphericity (Bartlett, 1950) for the questionnaire. Bartlett's Test of Sphericity examines the Null Hypothesis that the resultant 22x22 co-relation matrix is an identity matrix that all the off-diagonal terms are zero. The minimum acceptable value of KMO is 0.5 whereas in the case of Chi-Square value it is the maximum of 0.05 level of significance.

A VARIMAX rotation was employed to enhance the interpretation of the component loadings on the particular factors. Principal Component Analysis generates component scores of each case, which reflects the importance or otherwise of each component to each respondent (Norusis, 1988). As a conclusion to the Principal Component Analysis procedure Anderson-Rubin component score were obtained for each respondent for each of the extracted principal components. The Anderson Rubin method of deriving component scores generates uncorrelated scores with zero mean and unit standard deviation. Only factors having Eigen Value greater than 1 were retained and others ignored. By comparing VARIMAX rotated component

matrix with un-rotated factor matrix (entitled as component matrix), rotation has provided simplicity and has enhanced interpretability.

After deriving the factors, SERVQUAL model was applied. Specifically the differences score for each item (i.e. Perception - Expectation) were analyzed using Principal Axis. Axis factoring procedure followed by Oblique Rotation. A paired mean t test was used to test the significant mean difference (gap) between respondent's perceptions and expectations of the service quality collected from 58 outlets in 13 cities of India.

3.7 EMPIRICAL RESULT ANALYSIS

The assessment of non-fuel offerings at petro retail outlets was performed using the adapted SERVQUAL instrument. Before finding out dimensions the internal consistency (reliability) and sample adequacy test was used.

3.7.1 Validity and Reliability

The internal consistency of the total response (756) each tested by computing Cronbach's Alpha (Cronbach, 1951) using **SPSS 16.0**. The Cronbach Alpha of all the statements was **0.731**. The Cronbach Alpha of expectation statements is **0.85** whereas Cronbach Alpha of perception statements was **0.586**. An Alpha value of **0.50** or above is considered to be acceptable for demonstrating internal consistency of the established scale (Table 3.8). In this case all the values of Alpha values exceed the obligatory requirement. Cronbach's Alpha explains the positive relationship to the number of items in the scale (Hair et al., 1998). As a self report questionnaire contained 22 items, it is to be expected that a high value would be achieved, however the magnitude of the Alpha values obtained thus constitutes positive proof of the internal consistency of the items forming the self reported questionnaire scale.

The value of Kaiser-Meyer-Olkin (KMO) which is a measure of sample adequacy was found to be **0.943**. This indicates that Factor Analysis test had proceeded correctly and the sample used was adequate as the value of KMO is more than **0.5** (Kaiser, 1974) (Table 3.9). Therefore it can be concluded that the matrix did not suffer from multi co linearity or singularity. The result of the Bartlett's Test of Sphericity shows that **it is highly significant (Significance = 0.000)**, which indicates that the Factor Analysis process was correct and suitable for testing multi dimensionability. Bartlett's Test of Sphericity tests the hypothesis that the correlation matrix is an identity matrix that we want to reject the Hypothesis that the matrix is a unitary matrix (Mercury, 2000). The concurrent Bartlett's Test of Sphericity returned an approximate Chi Square of 9,764.839 with 231 degrees of freedom which indicates **significance at greater than 19.9% (p = 0.000)** (Table 3.9).

Table 3.8: Scale Reliability Values

Statements	N	Cronbach's Alpha
All statements	44	0.731
Expected statements	22	0.85
Perception Statements	22	0.586

Table 3.9: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.943
Bartlett's Test of Sphericity	Approx. Chi-Square	9,764.839
	Df	231
	Sig.	0.000

3.7.2 Data Reduction Summary

The SERVQUAL instrument is designed to interrogate respondent's experiences of service quality on five dimensions – tangibility, reliability, responsiveness, assurance and empathy. The authors (Parsuraman et. al, 1991) claim that the instrument's strength in the areas of scale reliability and validity, is well proven, as assessed by a number of published studies (Brensinger and Lambert, 1990; Carman, 1990; Finn and Lamb, 1991). However, while attempting to replicate the earlier studies Factorial representation using only Eigen values greater than 1, the rotated component matrix output by SPSS 16.0 software produced only **3 factors** for the independent variables. The current research result highlighted that the structure proposed by Parsuraman et al., (1988) for the **SERVQUAL scale was not confirmed**. This finding is **in line** with the previous relevant studies (Carman, 1990; Reidenbach and Sandifer-Smallwood, 1990; Lytle and Mokwa, 1992; Licata et al., 1995; Lim and Tang, 2000).

The Factor Analysis is summarized in Table 3.10. The total variance explained (**61.019%**) by these three factors exceeds the **60%** that is usually accepted in social sciences to support the solution (Hair et al., 1995).

Factor 1 which explained **37.038%** of the total variance was labeled **“Reliable & Appealing Facilities”** having Eigen value of **8.148**. Factor 1 constitutes 12 statements (S9, S8, S6, S3, S3, S16, S5, S15, S4, S2, S14, S1, & S17). The 12 items in Factor 1 are composed of items which represent tangibility, reliability and assurance in services. Factor 1 could be explained by the fact that non-fuel offerings are provided primarily by tangible elements such at convenience stores, food outlets, ATM's, car wash etc. The consumers want that these elements should be appealing (for convenience store, food outlet & dhaba); reliable and assured service should be provided to them at the petro retail outlets. The 12 statements are having component loading value ranging from 0.6362 to 0.854 and most important attribute is that “For Non-Fuel Offerings they should keep their records accurately.” having highest loading value 0.854 and the least impact is “For Non-Fuel Offerings their employees should get adequate support from the companies to do their jobs well.” having a loading value of 0.6362.

Chapter Three SPECIFICATION AND ESTIMATION OF SERVICE QUALITY DIMENSIONS IN NON FUEL OFFERINGS IN PETRO RETAIL OUTLETS

Table 3.10 Summary of Factor Analysis

Factor	Statement No.	Statement	Component Loading	Rotated Loading	% Variance Explained	Eigen Value	% Total Variance Explained	
Factor 1: Reliable & Responsive Facilities	S9	For Non-Fuel Offerings they should keep their records accurately.	0.854	0.863				
	S8	For Non-Fuel Offerings they should provide their Offerings at the time they promise to do so.	0.843	0.825				
	S6	For Non-Fuel Offerings when customers have problems, the companies should be sympathetic and reassuring.	0.839	0.859				
	S3	For Non-Fuel Offerings the employees should be well dressed and appear neat.	0.833	0.847				
	S16	For Non-Fuel Offerings their employees should be polite.	0.830	0.85				
	S5	For Non-Fuel Offerings when these companies promise to do something by a certain time, they should do so.	0.814	0.828				
	S15	For Non-Fuel Offerings customers should be able to feel safe in their transactions with the companies employees.	0.811	0.832				
	S4	For Non-Fuel Offerings the appearance of the physical facilities of these companies should be in keeping with the type of the Offerings provided.	0.773	0.802		37.038	8.148	
	S2	For Non-Fuel Offerings the physical facilities should be visually appealing.	0.740	0.777				
	S14	For Non-Fuel Offerings customers should be able to trust employees of the companies.	0.738	0.756				
	S1	For Non-Fuel Offerings the companies should have up-to-date equipment.	0.711	0.636				
	S17	For Non-Fuel Offerings their employees should get adequate support from the companies to do their jobs well.	0.636	0.685				
Factor 2: Human Aspect	S21	For Non-Fuel Offerings it is unrealistic to expect the companies to have their customer's best interests at heart.	0.711	0.745			61.019	
	S22	For Non-Fuel Offerings they shouldn't be expected to have operating hours convenient to all their customers.	0.707	0.738				
	S13	For Non-Fuel Offerings it is okay if they are too busy to respond to customer request promptly.	0.672	0.692				
	S19	For Non-Fuel Offerings employees of the companies cannot be expected to give customers personal attention.	0.653	0.719				
	S11	For Non-Fuel Offerings it is not realistic for customers to expect prompt service from employees of the companies.	0.649	0.709		18.787	4.133	
	S10	For Non-Fuel Offerings they shouldn't be expected to tell customers exactly when Offerings will be performed.	0.624	0.672				
	S18	For Non-Fuel Offerings the companies should not be expected to give customers individual attention.	0.603	0.669				
	S20	For Non-Fuel Offerings it is unrealistic to expect employees to know what the needs of their customers are.	0.585	0.638				
	S12	For Non-Fuel Offerings their employees don't always have to be willing to help customers.	0.536	0.614				
	Factor 3: Dependability	S7	For Non-Fuel Offerings the companies should be dependable.	0.915	0.921		5.193	1.143

Factor 2 is labeled as “**Human Aspect**” having explained **18.787%** of variation with Eigen value of **4.133**. Factor 2 constitutes 9 statements (S21, S22, S13, S19, S11, S10, S18, S20, & S12). These statements consist of the responsiveness and empathy elements in services. This factor could be regarded as the “soft” dimension of quality. This could be explained by the fact that for non-fuel offerings the role of employees in providing the service through the tangible elements is also very important. The 9 statements are having loading values ranging from 0.536 to 0.711. The most impact attribute of this factor is “For Non-Fuel Offerings it is unrealistic to expect the companies to have their customer’s best interest at heart.” having the highest loading value 0.711. Similarly the least impact of this factor is “For Non-Fuel offerings their employees don’t always having willing to help customers”.

Factor 3 constitutes of one statement (S7). This factor was labeled as “**Dependability**”. This statement is having highest loading value 0.915 which is much higher than all the other 21 statements. It shows that for any non-fuel offering any company should be dependable to the customer. **Factor 3** with only one statement alone explains **5.193%** of variance having Eigen value of **1.143**.

The correlation between the computed factor mean score was explained in Table 3.11. From the result it is evident that all the factor mean score matrix is significantly correlated. **Hence Hypothesis 1 is supported.**

3.7.3 Communalities

The communalities for the variables for each framework are presented in Table 3.12. Of the 22 statements from the original SERVQUAL questionnaire (Parsuraman et al., 1988), 13 positive influence statements and 9 negative impact statements have been considered in the study. The communalities score emphasize the importance of the statements according to the choices of the respondents. The most impact statement is “**For Non-Fuel Offerings the companies should be dependable.**” (0.872) followed by “**For Non-Fuel Offerings they should keep their records accurately.**” (0.756) then “**For Non-Fuel offerings when customers have problems, the companies should be sympathetic and reassuring.**” (0.750).

Table 3.11: Correlations between the Factor Mean Scores

	g1	g2	g3
g1	1	0.377**	0.253**
	756	0.000	0.000
		756	756
g2	0.377**	1	0.297**
	0.000	.	0.000
	756	756	756
g3	0.253**	0.297**	1
	0.000	0.000	.
	756	756	756

** . Correlation is significant at the 0.01 level (2-tailed).

Chapter Three SPECIFICATION AND ESTIMATION OF SERVICE QUALITY DIMENSIONS IN NON FUEL OFFERINGS IN PETRO
RETAIL OUTLETS

Table 3.12: Communalities

Statement No.	Statement	Initial	Extraction
S 7	For Non-Fuel Offerings the companies should be dependable.	1.000	0.872
S 9	For Non-Fuel Offerings they should keep their records accurately.	1.000	0.756
S 6	For Non-Fuel Offerings when customers have problems, the companies should be sympathetic and reassuring.	1.000	0.750
S 16	For Non-Fuel Offerings their employees should be polite.	1.000	0.729
S 3	For Non-Fuel Offerings the employees should be well dressed and appear neat.	1.000	0.725
S 8	For Non-Fuel Offerings they should provide their Offerings at the time they promise to do so.	1.000	0.722
S 15	For Non-Fuel Offerings customers should be able to feel safe in their transactions with the companies employees.	1.000	0.698
S 5	For Non-Fuel Offerings when these companies promise to do something by a certain time, they should do so.	1.000	0.696
S 4	For Non-Fuel Offerings the appearance of the physical facilities of these companies should be in keeping with the type of the Offerings provided.	1.000	0.663
S 2	For Non-Fuel Offerings the physical facilities should be visually appealing.	1.000	0.614
S 14	For Non-Fuel Offerings customers should be able to trust employees of the companies.	1.000	0.575
S 21	For Non-Fuel Offerings it is unrealistic to expect the companies to have their customer 's best interests at heart.	1.000	0.566
S 11	For Non-Fuel Offerings it is not realistic for customers to expect prompt service from employees of the companies.	1.000	0.555
S 22	For Non-Fuel Offerings they shouldn't be expected to have operating hours convenient to all their customers.	1.000	0.546
S 13	For Non-Fuel Offerings it is okay if they are too busy to respond to customer request promptly.	1.000	0.544
S 10	For Non-Fuel Offerings they shouldn't be expected to tell customers exactly when Offerings will be performed.	1.000	0.538
S 1	For Non-Fuel Offerings the companies should have up-to-date equipment.	1.000	0.537
S 19	For Non-Fuel Offerings employees of the companies cannot be expected to give customers personal attention.	1.000	0.531
S 17	For Non-Fuel Offerings their employees should get adequate support from the companies to do their jobs well.	1.000	0.506
S 18	For Non-Fuel Offerings the companies should not be expected to give customers individual attention.	1.000	0.466
S 20	For Non-Fuel Offerings it is unrealistic to expect employees to know what the needs of their customers are.	1.000	0.421
S 12	For Non-Fuel Offerings their employees don't always have to be willing to help customers.	1.000	0.413

Extraction Method: Principal Component Analysis.

These statements imply that customers want dependable non-fuel services (which will perform accurately every time) along with proper record keeping (important for delivery of services) and at the same time employees should be sympathetic, reassuring and polite.

Out of the 9 negatively worded statements the highest communality statement is **“For Non-Fuel offerings their employees don’t always have to be willing to help customers.” (0.413)**, **“For Non-Fuel offerings it is unrealistic to expect employees to know what the needs of their customers are.” (0.421)** and **“For Non-Fuel offerings the companies should not be expected to give customers individual attention.” (0.466)**. This implies that customers want employees to be more responsive, understanding about needs of customers and give individual attention (Table 3.12).

3.7.4 Correlations between the statements and factors

To find the degree of association between the identified statements and factors, a correlation analysis is performed. The Karl-Pearson correlation between the 22 statements are given in Table 3.13 where the correlation value ranges from +1 to -1. Interesting factor is that the correlation between positively worded and negatively worded statement is negative. Similarly the correlation between both positively worded statements is positive. As per assumption (Anderson-Rubin) the correlation among the derived factors should be zero. It means that the derived factors are uncorrelated. This is depicted in Table 3.14.

Annexure III provides details of Total Variance Explained, Annexure IV the Component Matrix (a) & Annexure V the Rotated Component Matrix (a).

Table 3.13: Correlation Matrix(a) of Statements

	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17	E18	E19	E20	E21	E22
E1	1.000	0.508	0.534	0.475	0.514	0.559	0.058	0.568	0.524	-0.277	-0.276	-0.265	-0.202	0.455	0.516	0.539	0.367	-0.288	-0.318	-0.237	-0.256	-0.232
E2	0.508	1.000	0.612	0.689	0.534	0.630	0.160	0.596	0.627	-0.059	-0.044	-0.098	-0.030	0.546	0.588	0.608	0.541	-0.090	-0.068	-0.085	0.002	0.018
E3	0.534	0.612	1.000	0.623	0.749	0.700	0.151	0.715	0.730	-0.107	-0.189	-0.162	-0.008	0.609	0.677	0.697	0.510	-0.159	-0.154	-0.072	-0.074	-0.063
E4	0.475	0.689	0.623	1.000	0.609	0.667	0.199	0.609	0.648	-0.098	-0.030	-0.120	-0.039	0.593	0.633	0.645	0.537	-0.110	-0.119	-0.057	0.015	-0.009
E5	0.514	0.534	0.749	0.609	1.000	0.694	0.189	0.697	0.692	-0.082	-0.140	-0.166	-0.013	0.596	0.678	0.703	0.515	-0.152	-0.157	-0.092	-0.054	-0.052
E6	0.559	0.630	0.700	0.667	0.694	1.000	0.059	0.687	0.761	-0.104	-0.117	-0.225	-0.019	0.579	0.697	0.721	0.554	-0.173	-0.123	-0.114	-0.061	-0.050
E7	0.058	0.160	0.151	0.199	0.189	0.059	1.000	0.097	0.137	-0.082	-0.065	-0.067	-0.177	0.119	0.106	0.101	0.194	-0.076	-0.087	-0.069	-0.104	-0.011
E8	0.568	0.596	0.715	0.609	0.697	0.687	0.097	1.000	0.700	-0.175	-0.253	-0.238	-0.095	0.627	0.659	0.712	0.500	-0.183	-0.248	-0.146	-0.118	-0.151
E9	0.524	0.627	0.730	0.648	0.692	0.761	0.137	0.700	1.000	-0.151	-0.121	-0.267	-0.006	0.614	0.725	0.736	0.557	-0.145	-0.135	-0.146	-0.087	-0.097
E10	-0.277	-0.059	-0.107	-0.098	-0.082	-0.104	-0.082	-0.175	-0.151	1.000	0.469	0.461	0.395	-0.065	-0.120	-0.086	-0.007	0.358	0.401	0.323	0.404	0.449
E11	-0.276	-0.044	-0.189	-0.050	-0.140	-0.117	-0.065	-0.253	-0.121	0.469	1.000	0.427	0.474	-0.135	-0.119	-0.169	-0.052	0.378	0.436	0.425	0.450	0.422
E12	-0.265	-0.098	-0.162	-0.120	-0.166	-0.225	-0.067	-0.238	-0.267	0.461	0.427	1.000	0.353	-0.077	-0.209	-0.174	-0.090	0.329	0.386	0.341	0.353	0.363
E13	-0.202	-0.030	-0.008	-0.039	-0.013	-0.019	-0.177	-0.095	-0.006	0.395	0.474	0.353	1.000	-0.027	0.038	-0.025	0.041	0.355	0.421	0.413	0.411	0.432
E14	0.455	0.546	0.609	0.593	0.596	0.579	0.119	0.627	0.614	-0.065	-0.135	-0.077	-0.027	1.000	0.600	0.668	0.437	-0.094	-0.129	-0.120	-0.057	-0.049
E15	0.516	0.588	0.677	0.633	0.678	0.697	0.106	0.659	0.725	-0.120	-0.119	-0.209	-0.038	0.600	1.000	0.650	0.572	-0.138	-0.095	-0.137	-0.047	-0.049
E16	0.539	0.608	0.697	0.645	0.703	0.721	0.101	0.712	0.736	-0.086	-0.169	-0.174	-0.025	0.668	0.650	1.000	0.490	-0.105	-0.171	-0.083	-0.049	-0.028
E17	0.367	0.541	0.510	0.537	0.515	0.554	0.194	0.500	0.557	-0.007	-0.052	-0.090	-0.041	0.437	0.572	0.490	1.000	-0.055	-0.021	-0.038	-0.067	-0.059
E18	-0.288	-0.090	-0.159	-0.110	-0.152	-0.173	-0.076	-0.183	-0.145	0.358	0.378	0.329	0.355	-0.094	-0.138	-0.105	-0.055	1.000	0.502	0.362	0.465	0.481
E19	-0.318	-0.068	-0.154	-0.119	-0.157	-0.123	-0.087	-0.248	-0.135	0.401	0.436	0.386	0.421	-0.129	-0.095	-0.171	-0.021	0.502	1.000	0.359	0.487	0.485
E20	-0.237	-0.085	-0.072	-0.057	-0.092	-0.114	-0.069	-0.146	-0.146	0.323	0.425	0.341	0.413	-0.120	-0.137	-0.083	-0.038	0.362	0.359	1.000	0.465	0.377
E21	-0.256	-0.002	-0.074	-0.015	-0.054	-0.061	-0.104	-0.118	-0.087	0.404	0.450	0.353	0.411	-0.057	-0.047	-0.049	-0.067	0.465	0.487	0.465	1.000	0.524
E22	-0.232	0.018	-0.063	-0.009	-0.052	-0.050	-0.011	-0.151	-0.097	0.449	0.422	0.363	0.432	-0.049	-0.049	-0.028	-0.059	0.481	0.485	0.377	0.524	1.000

a. Determinant = .000

Table 3.14: Correlations of Factors

		REGR factor score 1 for analysis 1	REGR factor score 2 for analysis 1	REGR factor score 3 for analysis 1
REGR factor score 1 for analysis 1	Pearson Correlation	1	0.000	0.000
	Sig. (2-tailed)	-	1.000	1.000
	N	756	756	756
REGR factor score 2 for analysis 1	Pearson Correlation	0.000	1	0.000
	Sig. (2-tailed)	1.000	-	1.000
	N	756	756	756
REGR factor score 3 for analysis 1	Pearson Correlation	0.000	0.000	1
	Sig. (2-tailed)	1.000	1.000	-
	N	756	756	756

3.8 SUMMARY OF RESULTS

The research on measuring service quality has focused primarily on how to meet or exceed respondent's expectations and has viewed service quality as a measure of how the delivered service level matches the customer's expectations. The study applied an adapted SERVQUAL instrument to measure the service of non-fuel offerings in petro retail outlets. In such a sector service quality should be given utmost importance. Three factors such as **“Reliable & Appealing Facilities”**, **“Human Aspect”** and **“Dependability”** explain **61.01%** of the variation. These factors should be given the utmost importance by the management to improve the service quality performance. Factors extracted from the study can aid the management of petro retail outlets in planning its marketing strategy and marketing improvements in the standard and quality of service. Further, the present study found that the most important influential factor is **“Reliable & Appealing Facilities”**.