

CHAPTER 1

INTRODUCTION

- 1.1 MOTIVATION FOR THE RESEARCH
- 1.2 SCOPE OF THE STUDY
- 1.3 OBJECTIVES
- 1.4. THEORETICAL FRAMEWORK
- 1.5. RESEARCH DESIGN
 - 1.5.1 Exploratory Research
 - 1.5.2 Descriptive Research
- 1.6. RESEARCH FRAMEWORK
 - 1.6.1 Design Questionnaire (Step 1 to Step 3)
 - 1.6.2 Training Interviewers (Step 4)
 - 1.6.3 Sampling Plan (Step 5)
 - 1.6.3.1 The unit of analysis
 - 1.6.3.2 Sample selection and sample size
 - 1.6.4 Data Collection (Step 6)
 - 1.6.5 Data Processing (Step 7)
 - 1.6.6 Demographic Profile of Respondents (Step 8) and Petro Retail Outlet Details & Non-Fuel Offerings at Petro Retail Outlets (Step 9)
 - 1.6.7 Factor Analysis (Step 10)
 - 1.6.8 Service Quality Models & Hypotheses Testing (Step 11)
- 1.7 COMPUTER SOFTWARE
- 1.8 HYPOTHESES
- 1.9 LIMITATIONS
- 1.10 CHAPTER SCHEME

CHAPTER 1

INTRODUCTION

1.1 MOTIVATION FOR THE RESEARCH

With the deregulation of the Indian petro retail sector in 2002 (“IBP Co.,” 2004, p. 14), the sector which has traditionally been dominated by the National Oil Companies (NOC) viz. Indian Oil Corporation Limited (IOC), Bharat Petroleum Corporation Limited (BPC) and Hindustan Petroleum Corporation Limited (HPC) has witnessed the entry of private players. Private companies - Reliance Industries Limited, Essar Oil Limited, and Shell India Pvt. Ltd. entered the petro retail sector.

The Government of India (GOI) has been subsidizing the retail prices of petrol, diesel, liquefied petroleum gas, and kerosene of NOC in order to protect the Indian consumer from the volatility of international crude oil prices. The private players like Reliance, however, could not sustain its operations as it could not match the subsidized retail prices of NOC and shut down all its 1,432 petrol pumps (“Reliance closes all,” 2008). Due to the indirect control of GOI over retail fuel prices, the petro retail sector continues to be dominated even after deregulation by the NOC. At the same time, the subsidies have resulted in NOC incurring daily losses of Rs.600 crores on the retail sales of diesel, petrol, liquefied petroleum gas and kerosene when the international crude oil prices were at peak level of \$ 128 plus (“Subsidies Driving Top,” 2008). This has resulted in realization by NOC that their future survival and growth rests not only on fuel

retailing but also non-fuel offerings. Hence they have started focusing on non-fuel offerings.

An important factor for success and sustenance of any business venture in a competitive market is quality (Hampton, 1993; Shearden, 1998). However, there is limited literature available on non-fuel offerings & no literature on service quality of non-fuel offerings of NOC in India.

Considering the above, the present work aims to analyze and compare service quality of the non-fuel offerings of the three dominant players – Indian Oil Corporation Limited (IOC), Bharat Petroleum Corporation Limited (BPC) & Hindustan Petroleum Corporation Limited (HPC) in the petrol retailing sector in India. Through this work, a better understanding can be gathered of the quality that is expected by the customers visiting petro retail outlets of these companies, as well as their perceptions of service. As a result, it will be possible to map the customer's expectations against perceptions and identify service quality gaps. This will help to locate areas of performance where improvements are needed, or where resources could be better utilized elsewhere.

1.2 SCOPE OF THE STUDY

1. The three NOC included Indian Oil Corporation Limited, Bharat Petroleum Corporation Limited & Hindustan Petroleum Corporation Limited.
2. The study was limited to the customers visiting petro retail outlets of the three NOC and who had availed non-fuel offerings in the last six months at the petro retail outlets.
3. Non-fuel offerings (based on review of literature) selected for the study were – convenience store, food outlet, ATM, car wash, pollution under control check, fleet card facility, vehicle servicing, money transfer, dhaba, dormitory for overnight stay, and mobile charge facility.

4. For the study, survey based research was carried out at 58 petro retail outlets of the NOC in 13 cities (Bhopal, Delhi, Kashipur, Moradabad, Gajraula, Rampur, Goa, Agra, Mathura, Lucknow, Navi Mumbai, Mumbai & Faridabad) in 6 states (Madhya Pradesh, Uttar Pradesh, Delhi, Goa, Maharashtra & Haryana) of India between June-July 2008.
5. Data of 756 respondents was utilized for data analysis in the study.
6. Measurement of service quality in this study is based upon the Service Quality Model (Parsuraman et. al., 1985) and modified version of the SERVQUAL (Parsuraman et. al., 1988) instrument.

1.3 OBJECTIVES

The principal objectives of the present study were:

1. To identify the relevant service quality dimensions used by customers to evaluate service quality of non-fuel offerings of NOC at the petro retail outlets.
2. To assess customer's expectations and perceptions of the quality of non-fuel offerings provided by NOC at the petro retail outlets.
3. To find out if gaps existed between customer's expectations and perceptions of service quality of non-fuel offerings provided by NOC at the petro retail outlets.
4. To compare the service quality gaps of non-fuel offerings of the NOC.

1.4 THEORETICAL FRAMEWORK

Measurement of service quality in this study is based upon the Service Quality Model (Parsuraman et al., 1985) and SERVQUAL (Parsuraman et al., 1988) (Annexure-I). There are five major gaps in the service quality concept which are shown in Fig.1.1.

Consumer's expectation-management perception gap (GAP 1)

This constitutes the discrepancies between the executives perceptions and consumer expectations. Thus service executives may not know in advance as to what consumer's expectations are in a service.

Management perception-service quality specification gap (GAP2)

This gap constitutes the constraints which executives face to deliver what the consumers expect. For example, peak demand for repairing refrigerators occurs during the summer when most service personnel go on vacation. So there is a gap between management perception & service quality specification.

Service quality specifications-service delivery gap (GAP 3)

Because of the variability in employee performance, there can be a gap between service quality specification and service delivery. Thus, due to the differences in employee's performance a consistent service cannot be delivered.

Service delivery-external communication gap (GAP 4)

This constitutes gap between the actual service delivery and what is promised through advertisement or external communication more is promised than actual delivered, than there is a gap in service quality.

The gap can also occur when companies neglect to inform consumers about the special efforts made by them for a better service quality.

Expected service-perceived service gap (GAP 5)

The key to ensuring good service quality is to meet or exceed what the consumer expects. Thus, a consumer would be happy if his/her appliances are not only repaired but also told about as to the cause of breakdown of appliance. This way he/she will be careful in future. Similarly, in a bank if a cheque cannot be cashed because of legal constraints, it should be told to customer. Not giving the reason will constitute the poor service quality.

Gap 5 pertains to the consumer and as such is considered to be the true measure of service quality. Thus, by comparing consumer's expected service with his/her perceived service, it can be determined, for non-fuel offerings at petro retail outlets, whether NOC service standard is exceeding, meeting or falling below consumer's expectations.

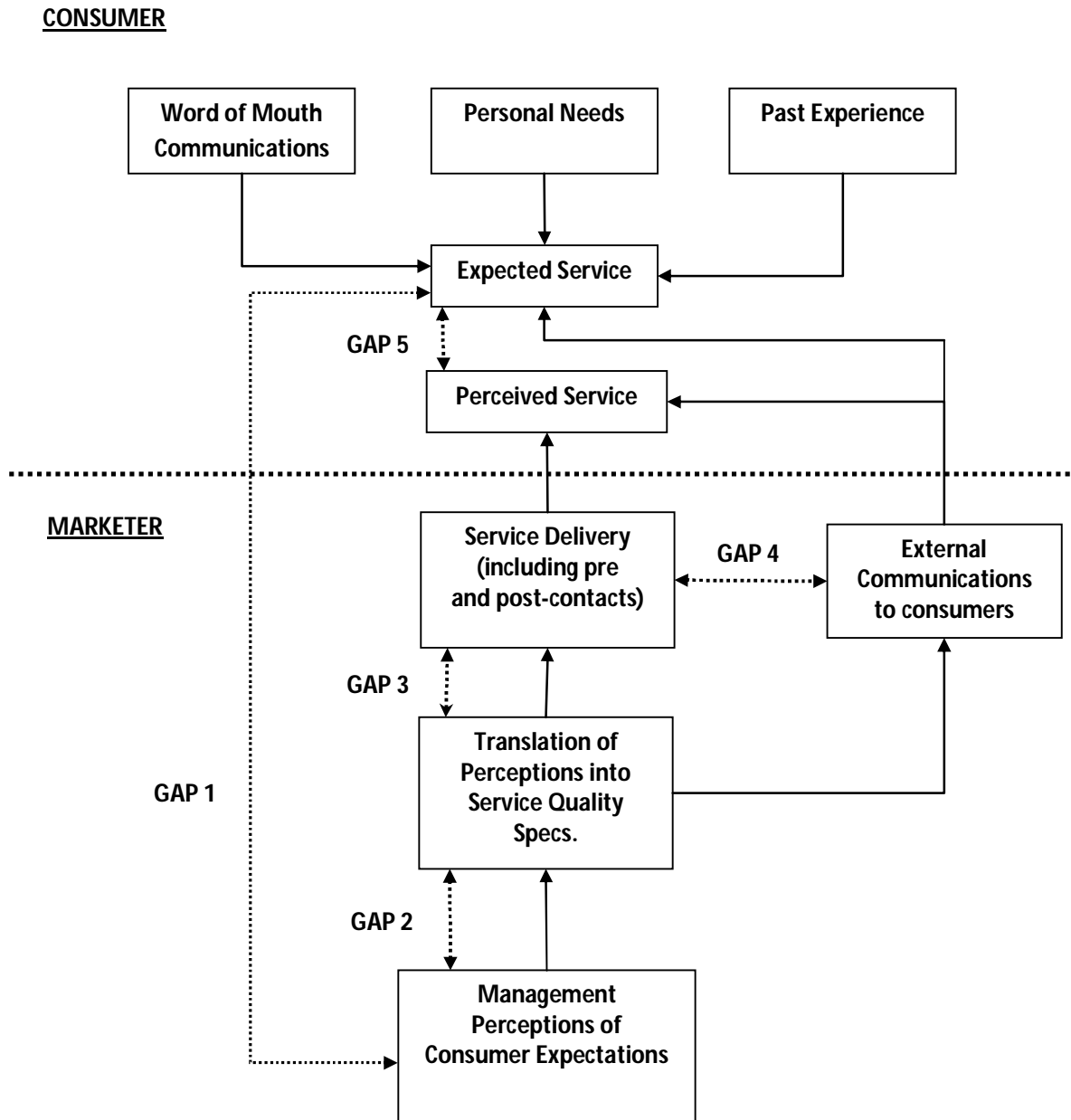


Fig. 1.1: Service Quality Model (Parsuraman et al., 1985)

The gap on which the SERVQUAL (Parsuraman et al., 1988) methodology has influence is Gap 5. SERVQUAL (Parsuraman et al., 1988) is a multi-item scale which is developed to measure consumer's expectations and perceptions of service and retail businesses. The scale measures the service quality on five constructs which are:

- Tangibles – physical facilities, equipment and appearance of personnel.
- Reliability – ability to perform service dependably and accurately.
- Responsiveness – willingness to help and respond to customer need.
- Assurance – ability of staff to inspire confidence and trust.
- Empathy – the extent to which caring and individualized service is given.

SERVQUAL represents service quality as the discrepancy between a customer's expectations for a service offering and the customer's perceptions of the service received, requiring respondents to answer questions about both their expectations and their perceptions.

1.5 RESEARCH DESIGN

Kinney and Taylor (1996) define research design as “A research design is a basic plan that guides the data collection and analysis phases of the research project. It provides the framework that specifies the type of information to be collected, its sources, and the collection procedure” (p.129). While according to Churchill and Iacobucci (2005) “It is the blueprint that is followed to complete a study” and it “ensures that the study is relevant to the problem and will use economical procedures” (p.74). While conducting the present study, care was taken to incorporate these concepts in the research design. Further, there are many frameworks of research designs and they can be classified into three traditional categories: *exploratory*, *descriptive* and *causal* (Churchill & Iacobucci, 2005, p.74; Aaker et al., 2007, p.72).

The two research designs utilized for this study were *exploratory* and *descriptive*.

1.5.1 Exploratory Research

Exploratory research was conducted to develop initial ideas & insights and to provide direction for any further research needed (Churchill & Iacobucci, 2005, p.72; Aaker et al., 2007, p.72). An exploratory study is essential when a researcher needs to identify problems, define the problem more precisely and identify any specific objectives or data requirements to be addressed through additional research (Kinnear and Taylor, 1996, pp.129-130). Exploratory research is highly flexible, unstructured and qualitative (Aaker et al., 2007, p.72).

Exploratory research was carried out by a study of secondary sources of data on service quality, oil & gas sector in India and non-fuel offerings of NOC. A detailed review of literature is presented in Chapter-2 of this thesis.

1.5.2 Descriptive Research

Having obtained some primary knowledge of the subject matter by an exploratory study, *descriptive research* was conducted next. Contrary to an exploratory research, a descriptive study is systematic, fixed in format and structure (Churchill & Iacobucci 2005, p.118).

According to Kinnear and Taylor (1996) “Descriptive research is appropriate when the research objectives include (1) portraying the characteristics of marketing phenomena and determining the frequency of occurrence, (2) determining the degree to which marketing variables are associated, and (3) making predictions regarding the occurrence of marketing phenomena” (p.131).

The research objectives of this study match the first two types of objectives as set by Kinnear and Taylor (1996).

There are two basic techniques of descriptive research: *cross-sectional* and *longitudinal*. *Cross-sectional* studies collect information from a given sample of the population at only one point in time, while the latter deals with the same sample units of population over a period of time (Kinnear and Taylor, 1996, pp.133-135; Churchill & Iacobucci, 2005, pp. 107-118).The

cross-sectional study is also referred to as a *survey research design* (Kinnear and Taylor, 1996, p.133).

For the purpose of this study, a *cross sectional study* was adopted as opposed to a longitudinal study due to time constraints, and furthermore, this study did not attempt to examine trends.

In the present study descriptive research was carried out using the research framework as outlined in section 1.6.

1.6 RESEARCH FRAMEWORK

The research framework carried out for service quality measurement is illustrated in Fig 1.2.

1.6.1 Design Questionnaire (Step 1 to Step 3)

The first step in this framework involved the design of a self-administered questionnaire to assess how customers, visiting petro retail outlets, evaluate the service quality of the non-fuel offerings. Twenty-two service quality attributes (Parsuraman *et. al.*, 1988) were incorporated in the questionnaire to identify and analyze service gaps between customer's expectations and perceptions. This gap analysis would provide a good indication of the quality of service of non-fuel offerings at the petro retail outlets.

In the next step a pilot study was conducted with 20 customers visiting petro retail outlets who had availed non-fuel offerings in the last six months at the petro retail outlets. The results of the pilot test provided valuable information about the questionnaire design, wording and sequence of questions. The final questionnaire was designed on the basis of the pilot study and it included three sections (Annexure II). 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. Respondents were asked to indicate their position on a Likert Scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree) for each of the twenty-two expectation and

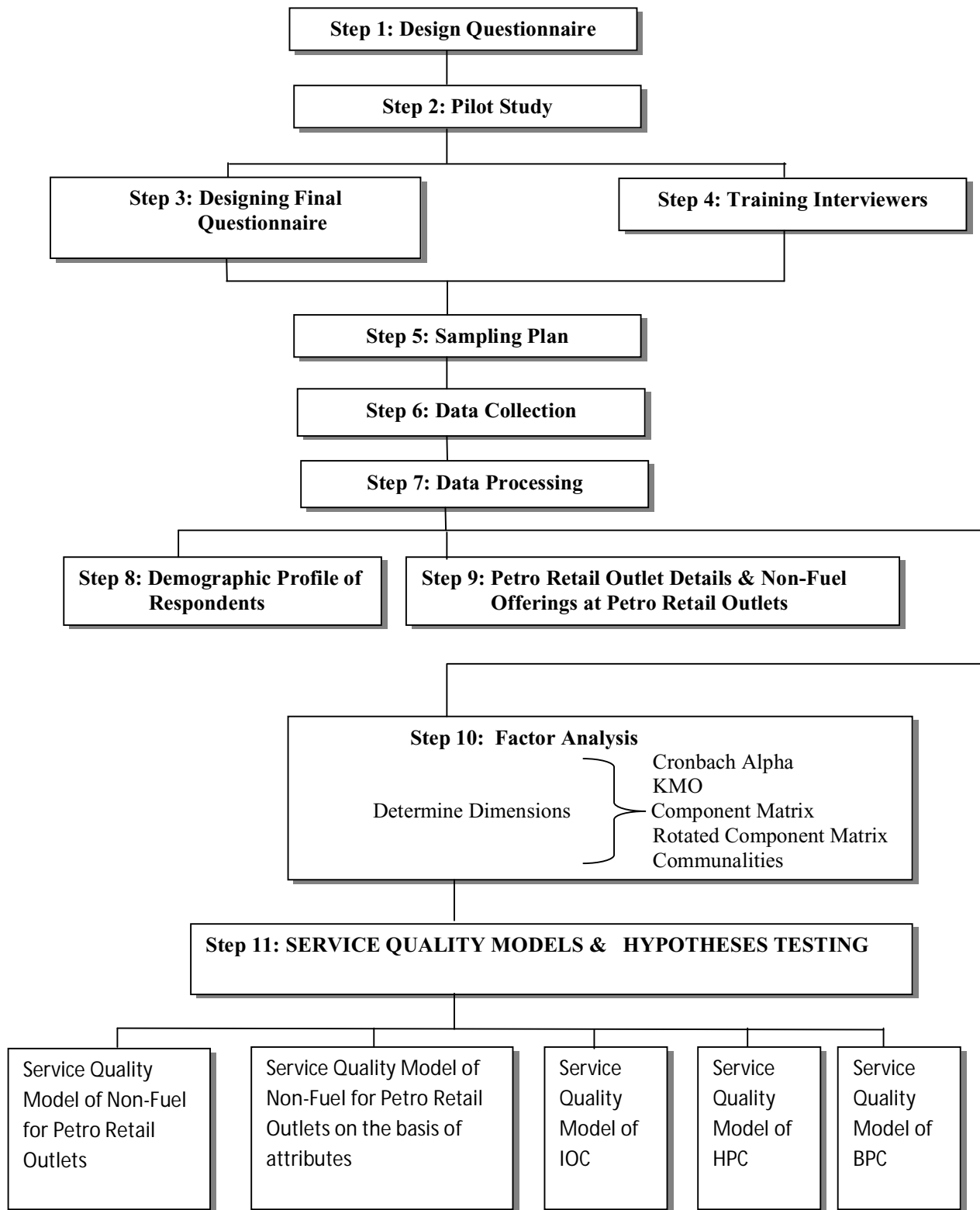


Fig. 1.2: Research Framework of Service Quality Measurement

perception statements (attributes). 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. Section C was completed by the interviewers.

The structure of the questionnaire in terms of the different sections of the questionnaire, the specific aspects measured and the question numbering according to which different aspects were measured is given in Table 1.1.

Table 1.1: Structure of the Final Questionnaire (Annexure II)

Section	Aspects Measured	Question Numbering
A	Respondent Qualifying for survey Expectations (E1 to E22) Perceptions (P1 to P22)	Question 1 Question 2 Question 3
B	Respondent's demographic aspects Gender Age Income per month Vehicle ownership	Question 1 Question 2 Question 3 Question 4
C	Petro Retail Outlet Details Name of Outlet Oil Company Address Contact Person Name Designation Telephone Number Non Fuel Offerings at Petro Retail Outlet*	Question 1 Question 2 Question 3 Question 4 Question 5 Question 6 Question 7

* Reference, Review of Literature Section 2.3.3

1.6.2 Training Interviewers (Step 4)

The survey was undertaken with students of University of Petroleum & Energy Studies, Dehradun. They were explained the aims of the study, coached through all questions in order to ensure that they were totally familiar with what was required and understood what each and every question meant.

1.6.3 Sampling Plan (Step 5)

1.6.3.1 The unit of analysis

The unit of analysis for this study were customers who visited petro retail outlets of the three NOC (viz. – Indian Oil Corporation Limited, Hindustan Petroleum Corporation Limited & Bharat Petroleum Corporation Limited), used non-fuel service during the last 6 months and were willing to participate.

1.6.3.2 Sample selection and sample size

Convenience sampling was applied in this study, through which a researcher selects sample members who can provide required information and available to participate in the study. The sample size at each of the petro retail outlets was 30 or more to ensure statistically significant results (Levin and Rubin, 2008, p.319).

1.6.4 Data Collection (Step 6)

The period of data collection was June-July 2008. 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.

1.6.5 Data Processing (Step 7)

Before undertaking the data analysis, a three stage process was followed to prepare the data for analysis. This included (a) editing the

completed questionnaires (b) coding the responses and (c) cleaning and screening the data.

(a) Editing the completed questionnaires

During editing, questionnaires were reviewed for legibility, consistency and completeness (Kinnear et al., 1996, p. 67). Questionnaires not meeting all the above three criteria were rejected. After processing the data as detailed above, a total of 32 questionnaires were found to be filled incomplete & 38 questionnaires were found to be wrongly entered. Finally data of 756 respondents from a total of 58 petro retail outlets was utilized for data analysis in the study.

(b) Coding the responses

Coding of the responses was carried out for various categories of responses.

(c) Cleaning and screening the data

The process involved checking for inconsistencies and missing data. Using SPSS 16.0 the frequencies procedure was run for every variable to check for errors for data entry. Checking with the individual responses of each questionnaire, any detected errors were rectified. In order to ensure the accuracy of the data, the original questionnaires were randomly checked for any possible incorrect entries.

1.6.6 Demographic Profile of Respondents (Step 8) and Petro Retail Outlet Details & Non-Fuel Offerings at Petro Retail Outlets (Step 9)

The data of 756 respondents was carefully entered into SPSS 16.0. The demographic profile of all the surveyed respondents and the profile of petro retail outlets was prepared in the form of tables and cross-tables. The non-fuel offerings at the 58 petro retail outlets which were surveyed was also prepared in the form of tables and cross-tables. All these tables and cross-tables are discussed in detail in Chapter 3.

1.6.7 Factor Analysis (Step 10)

Factor Analysis (Kinneer 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 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 correlation 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 unrotated factor matrix (entitled as component matrix), rotation has provided simplicity and has

enhanced interpretability. The findings of the Factor Analysis carried out are given in Chapter 3.

1.6.8 Service Quality Models & Hypotheses Testing (Step 11)

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.

Service quality models were developed and hypotheses tested for each of these models. The service quality models were developed on the basis of the factors & on the basis of attributes in the factors. Service quality models of IOC, HPC & BPC were developed and service quality compared. Chapter 4 provides details of the service quality models developed and the hypotheses tested.

1.7 COMPUTER SOFTWARE

The data was analyzed using Statistical Package for Social Sciences (SPSS) 16.0 and Microsoft Excel 2007. SPSS was utilized for computing all the statistical measures for present study. Microsoft Excel 2007 was utilized to prepare various tables of present study.

1.8 HYPOTHESES

The hypotheses formulated for the present study were as follows:

Hypothesis 1 : The dimensions reflecting service quality of non-fuel offerings in petro retail outlets is significantly related to each other.

Hypothesis 2 : There is significant difference in service quality of "Reliable & Appealing Facilities" in non-fuel offerings in petro retail outlets.

- Hypothesis 3 : There is significant difference in service quality of “Human Aspect” for non-fuel offerings in petro retail outlets.
- Hypothesis 4 : There is significant difference in service quality of “Dependability” for non-fuel offerings in petro retail outlets.
- Hypothesis 5 : There is significant difference in service quality of “Reliable and Appealing Facilities” for IOC for non-fuel offerings in petro retail outlets.
- Hypothesis 6 : There is significant difference in service quality of “Reliable and Appealing Facilities” for HPC for non-fuel offerings in petro retail outlets.
- Hypothesis 7 : There is significant difference in service quality of “Reliable and Appealing Facilities” for BPC for non-fuel offerings in petro retail outlets
- Hypothesis 8 : There is significant difference in service quality of “Human Aspect” for IOC for non-fuel offerings in petro retail outlets.
- Hypothesis 9 : There is significant difference in service quality of “Human Aspect” for HPC for non-fuel offerings in petro retail outlets.
- Hypothesis 10 : There is significant difference in service quality of “Human Aspect” for BPC for non-fuel offerings in petro retail outlets.
- Hypothesis 11 : There is significant difference in service quality of “Dependability” for IOC for non-fuel offerings in petro retail outlets.
- Hypothesis 12 : There is significant difference in service quality of “Dependability” for HPC for non-fuel offerings in petro retail outlets.
- Hypothesis 13 : There is significant difference in service quality of “Dependability” for BPC for non-fuel offerings in petro retail outlets

1.9 LIMITATIONS

1. The study covered only 6 states (Madhya Pradesh, Delhi, Uttar Pradesh, Goa, Maharashtra & Haryana) and not all 28 states of India. As all states have not been covered in the study hence the findings cannot be generalized for the whole of India.
2. The volume of work and distances precluded the coverage of petro retail outlets in rural areas.
3. As expectations and perceptions of the customers vary, the findings of the study are valid for the time the study was carried out.
4. Availability of limited literature on non-fuel offerings for petro retail outlets in India.

1.10 CHAPTER SCHEME

The chapter scheme of the rest of the thesis is as follows:

Chapter 2 - Review of Literature

This chapter reviews the studies on Service Quality, Oil and Gas Sector in India, and Non-Fuel Offerings.

Chapter 3 - Specification and Estimation of Service Quality Dimensions in Non-Fuel Offerings in Petro Retail Outlets

This chapter with details of the survey design, demographic profile of the respondents, vehicle ownership of respondents, non-fuel offerings of petro retail outlets surveyed and Factor Analysis carried out on the data of respondents.

Chapter 4 - Specification and Estimation of Service Quality Gap Model in Non-Fuel Offerings in Petro Retail Outlets

This chapter gives details about the analysis of Service Quality Model for Non-Fuel Offerings for Petro Retail Outlets, Service Quality Model for Non-Fuel Offerings for Petro Retail Outlets on the basis of Attributes in factors, and a Comparison of Service Quality Gaps of IOC, HPC & BPC.

Chapter 5 - Summary of Findings, Contributions of the Study, and Scope for Further Work

It deals with Summary of Findings, Contributions of the Study, and Scope for Further Work.