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**SELECTION OF FUEL STATIONS: ROLE OF
DIFFERENT DIMENSIONS OF PERCEIVED VALUE
ON CUSTOMER PERCEPTION**

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Selection of Fuel Stations: Role of Different Dimensions of Perceived Value on Customer Perception

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Abstract – The research specifically focuses on the effect of Location of Fuel Station, Brand name and Quantity and Quality of fuel (QQ factor) in influencing the choice of customers towards a particular Service Station. Quantitative study through close ended questionnaire was carried out on 270 customers visiting populated Fuel Station (belonging to Indian Oil Corporation IOC, Bharat Petroleum BPC and Hindustan Petroleum HPC) in Dwarka, New Delhi in order to determine the implication of these factors on customer behavior. The research revealed that these factors do not equally contribute towards the decision making process for the customers but some of them are more significant than the others. The study purports to help the Petrol pump stations in making suitable strategies. Along with that, it will aid them and assist in taking precise decisions by knowing the behavior of the customers and hence, their preferences in this regard.

The study is limited to two-wheelers, private cars and taxis only that use Petrol or diesel as fuel

Key Words: Fuel Station, Brand Name, Quality, Quantity, Customer, Purchase Behavior

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1.1 BACKGROUND OF THE STUDY

With the demand of motor vehicles increasing in India, the need of fuel too has got shot in the arm. As such, the demand of oil and gas is shooting up as much as the rate of population growth of the nation. It was reported by Nishith Desai Associates (2014) that India is the 4th largest consumer of total oil production and as such consume 4% of it. Along with that, the Oil and Natural Gas industry contributes more than 15% to the GDP of the country. The two wheelers segment accounts for the highest consumption at 61.42% and the car category constitutes 34% of retail petrol consumption in India. Complementing the same, the usage of petroleum products during 2012-13 was 157.1 million metric tons (MMT) which is 6.0% higher than the 148.1 MMT consumed during 2011-12 (Infraline Energy 2015). New Delhi being the capital and one of the biggest metropolitan cities of the country has 10% of the total vehicles registered in the country and out of all the vehicles, personal vehicles account for 90% in the area (Kokaz et al. 2001). With a large number of vehicles, fuel stations too have increased at a considerable amount.

	1995	2000	2020
			(Predicted)
Total	2,076,120	2,936,505	13,556,004
Cars	25.77	29.05	43.02
Two wheelers	64.02	62.24	51.97
Auto-rickshaws	2.95	2.36	0.90
Taxis	0.46	0.40	0.73
Buses	1.18	0.65	0.40
Trucks	5.62	5.30	3.00

Table 1: Percentage Distribution of Vehicles in Delhi

Source: Kokaz et al. (2016)

1.2 AIM AND OBJECTIVES

The aim of the study is to understand the factors affecting selection of fuel station in Delhi. Such aim is achieved by certain underlying objectives:

1. To explore all the factors influencing selection of fuel station in Delhi.
2. To determine the intensity of the role played by these factors affecting the decision making.

1.3 LITERATURE REVIEW

The strong competition between the oil stations in the market has forced the companies to adopt the marketing and publicity policies in such a way so as to influence the behavior of existing customers as well as to attract the potential ones. Various authors have described the importance of marketing practices practiced by various oil stations and have explained the factors influencing customers' purchase decision, which are being contemplated as below.

1.3.1 Factors influencing consumers' decision of selection of oil stations

Researchers have studied a number of factors that highly affect the present and future of empowered consumer behavior in any area and their behavior changes based on the features of their wants (Vrontis & Thrassou 2007). The aspects including the payment process and safety are some of the appealing factors that are taken into consideration by the customers while visiting the fuel stations. Various other factors consisting of the brightness, cleanliness and surveillance camera installed, attract the users of motor vehicles to pay a visit on a gas or a fuel station (Lertyngyot & Witchulada 2010). Saini & Matinise (2013) studied some significant causal relationships between various factors and consumer's demand in petroleum industry such as—Brand Consciousness, Brand Store loyalty, Novelty Fashion Consciousness, Impulsiveness and over-choice (Dutsenwai et al. 2015). He also discovered some predictors like Service quality, Sales promotion and product assortment as the important predictors for maintaining consumer's loyalty and as such those must be considered by the petroleum companies while marketing their products in the market. Such similar factors were also studied and explained by Sprotles & Kendall (2005) who concluded that the way of customer's general decision making styles depends upon the characteristics of marketing ass employed by the firms. In nutshell, all of them discussed about the various factors including cleanliness, the easiness and simplicity of fuel filling process as well as the precision and correctness of the amount play a role that are normally considered by the customers while visiting a service station.

1.3.2 Significance of Brand value, location and product quality & quantity in influencing consumers' purchase behavior

Location or site of the fuel station is one of the factors that are considered by majority of the authors and various conclusions of the same were obtained (Aslani & Alesheikh 2011). Along with that, many other studies

have been contemplated by the scholars and their conclusions are discussed as below.

The type of fuel, its price and location of the gas station plays a major role in affecting the consumers purchase behavior towards the oil and fuel stations. The findings of Lertyngyot & Witchulada (2010) suggested that the one with highest quality, lowest price and convenient location attracts more consumers as well as the potential buyers towards it. Similar study towards E85 fuel carried on by (Bromiley et al. 2008) suggested that the customers utilization depends mainly on the fuel access station, besides consumer choice, product availability and pricing. Fuel access station or the gas station is the most important element drawing fuel users towards it. The research of Alleweldt et al. (2014) studied the brand value and product quality of petrol and diesel favorably affecting the firms and also on average, the prices of non-branded fuels are slightly lower than the fuels with good brand names in the industry. On the other hand, Saini & Matinise (2013) contemplated that the customers only need convenience no matter what the brand is. They are, as such, concerned with the location and not the quality and quantity of fuel. The firm location choice highly proves to be a boost for the firms and a catalyst to multiply its sales. It aids in building customers and improving the relationships with them (Seetharam Sridhar & Wan 2010). Such customer patronage towards fuel station highly depends upon the convenience and reach of such station that helps in maintain their loyalty and constancy towards them (Abdul Wahid 2009). According to Singh (2009), a customer seeks Quality & Quantity assurance, Quick filling and efficient forecourt service, Rewarding loyalty, Premium fuels, Cashless transactions and Non-fuel services while visiting a gas station or any petrol pump. Aslani & Alesheikh (2011) also studied the importance of the site of fuel station analyzing its effect through theories like the fuzzy logic model and similar procedures to determine the most efficient features of location of gas or oil station and thus, observed the location as a major factor in the business of service station.

The above said authors mainly studied about the location, brand loyalty and quality of fuel as the considerable factors that must be determined by the owners of oil stations to retain the customers and attract the potential ones.

1.4 HYPOTHESIS AND RESEARCH MODEL

The research carried out is based on the study of Lertyngyot & Witchulada (2010) wherein all of the factors, major and minor, affecting the choice of fuel station is studied and researched acutely. This research progresses on the same lines and studies the role of Fuel Station Location, fuel quantity, quality and brand's name specifically as the influencing factors affecting the choice of consumers. Data was

collected from 270 respondents visiting the 3 fuel stations in Dwarka, Delhi namely BPCL's Shiv service station in sector 1, Indian Oil Sushanti Filling Station in sector 6 and Kamlesh HP Centre in sector 17 as selected through probability random sampling plan. 90 respondents each were chosen from each service center. The approach for gaining their views was carried out randomly asking objective based questions to them through close-ended and structured questionnaire. Analysis of the study was conducted statistically, using SPSS software (V 21.0), thereby deducing a concrete perspective on the causal relationship between factors and its resulting customer behavior. The theoretical framework (hypothesis) developed through exploration of secondary sources are—

H_{0N} : The mean ratings of all the three factors (Location, Q&Q and Brand) is equal

$$\mu_1 = \mu_2 = \mu_3$$

Where μ_1 = mean rating score of Location parameter

Where μ_2 = mean rating score of Q&Q parameter

Where μ_3 = mean rating score of Brand parameter

1.5 FINDINGS

The findings of the research carried out through one way ANOVA, concludes that 83% of the respondents rank location and, quantity and quality of fuel (QQ Factor) as important factors in influencing the choice of customers of Fuel Stations, with their share of 'Very Significant' factor being 50% and 53% respectively. In addition to it, the results shows that only 7% of the customers feel that the location of station does not play any role or has 'No Significant Effect' on the choice of service station as against none of them perceiving QQ factor as 'Not a Significant Factor'. This implies that Quantity and Quality parameters are the major factors that influence the decision making of customers as compared to the location of the service station. On the other hand, the Brand of the fuel does not have much notable effect in choosing the Service station and hence, only 16% of them regard it as a significant factor with 3% of them voting it as a 'Very Significant' issue. However, 54% of the respondents are in favor of Brand of the fuel as not being a significant parameter.

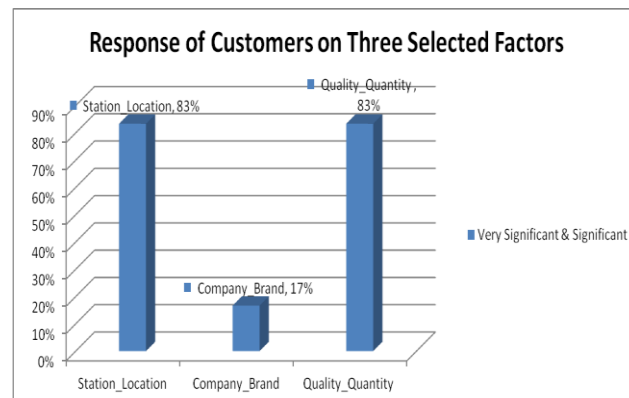


Figure 1: Graphical Representation of Customers' Responses on Factors Influencing their Behavior

In order to discover if there is a significant difference between the independent variables (Location Factor, Quality & Quantity (QQ) parameter and Brand Factor), Kruskal-Wallis H Test was being put into use. The test is an Omnibus test that exhibits the difference status of at least two groups and therefore, suggests that at least two variables are significantly different from each other out of all the variables (Elliott & Hyman 2011).

The aftermath of the research reveals that there is a statistically significant difference in the location, QQ parameter and Brand factor that are taken into consideration while deciding the choice of fuel station, with their Chi square value being 36.208 and the significance value being less than 0.05. In addition to it, the mean value of all 3 parameters is determined as 55.67, 23.08 and 57.75 respectively, hence showing the average difference between the three parameters.

Ranks			
	Category	N	Mean Rank
Rating	1. Station_Location	270	55.67
	2. Company_Brand	270	23.08
	3. Quality_Quantity	270	57.75
	Total	810	

Table 2: Mean Rank Table reflecting values of three selected factors

Test Statistics	
	Rating
Chi-Square	36.208

Df	2
Asymp. Sig.	.000

Table 3: Tabular representation of Test Statistics Values

After looking at the percentage distribution of the 3 factors and Kruskal-Wallis H Test, it can be concluded that the Location and QQ Factors differ significantly from Brand factor while taking the decision of selection of fuel station by customers. Therefore, the null hypothesis that was formed is rejected and contrary to it, it is established that:

H1_A: The mean ratings of all the three factors (Location, Q&Q and Brand) is not equal

$\mu_1 < \mu_2 < \mu_3$

Where μ_1 = mean rating score of Location parameter

Where μ_2 = mean rating score of Q&Q parameter

Where μ_3 = mean rating score of Brand parameter

1.6 DISCUSSION AND CONCLUSION

The research study concludes that only Location and QQ factors play a major role in determining or choosing the petrol stations by the customers and as such, excludes the variable of Brand name of the company while making such choice. In other words, customers only seek convenience and quality, no matter what the brand is. Such research study guides the marketers of the fuel station, and as such, aids them to pay attention towards these factors while taking any decision in this regard. Therefore, it is recommended that the fuel companies should primarily be focusing upon the Quantity and Quality of the fuel offered as well as the site of the petrol pump, being the major factors, in order to increase its sales. The location of the station can either be residential or commercial area that has easy accessibility and high visibility and the product aspects, that is, the quality and quantity are required to give the utmost importance to meet the customer's expectation and suffice them.

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APPENDIX I:

QUANTITATIVE QUESTIONNAIRE

- Q.1 Are you a frequent visitor to this petrol station?
 Do you normally buy fuel from this station?

If the answer is YES, proceed with the questionnaire.

Tick any one of the 4 choices given below. Only One Option can be selected.

A	B	C	D
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- Q.2 Does the Location of a station play significant role in the selection of the station

	A	B	C	D
Location Parameter	Station's proximity to work place/ residence/ its being on the way plays a VERY SIGNIFICANT role in selecting the station	Station's proximity to work place/ residence/ its being on the way plays a SIGNIFICANT role in selecting the station	Station's proximity to work place/ residence/ its being on the way plays a SMALL role in selecting the station	Station's proximity to work place/ residence/ its being on the way plays NO role in selecting the station

- Q.3 Does the BRAND of the Oil Company play significant role in the selection of the station (IOC. BPC or HPC)

	A	B	C	D
Brand Parameter	The Company brand plays a VERY Significant role in the decision making	The Company brand plays a Significant role in the decision making	The Company brand plays a SMALL role in the decision making	The Company brand plays a NO role in the decision making

- Q.4 Is your choice of station governed by the reputation of the station (in terms of "Q&Q" right quantity and quality being dispensed)

	A	B	C	D
Quality & Quantity Factor	Q&Q plays a VERY significant role in selecting the station	Q&Q plays a significant role in selecting the station	Q&Q plays a Small role in selecting the station	Q&Q plays a NO role in selecting the station

Kindly be kind enough to let me have your following particulars. These will be kept confidential and not shared with anyone else

1. Your name
2. Email id
3. Contact number
4. Type of vehicle used 2-wheeler or 4-wheeler