

Using Regression and Correlation Approach to Assess Information Search Behavior of FMCG Consumers

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Abstract- *This study uses regression analysis to determine the effect of demographic characteristics on information search behaviour of FMCG consumers so as to extract the most influential demographic element influencing the information search behaviour. Further correlation matrix is used to analyse the interdependence of demographic variables. Finally marketing implications are suggested.*

Keywords- *Information search behavior, Demographic characteristics, Regression analysis, Correlation matrix*

1. INTRODUCTION

Consumer is the driving force in today's market economy. In order to have high quality products at fair, reasonable and compatible prices, he/she needs to be the knowledgeable consumer. Thus information search stage plays a very crucial role in consumer purchase decision. Information search is a conscious goal-oriented behaviour whereby consumers acquire information to clarify or evaluate a particular brand or product class. Haines (1978) defines information search to include such data that induces consumer to construct or alter an existing decision process for the relevant product, including raw data, encoded symbols, and any other data capable of representing reality to the decision-maker. Thus it means that the consumer makes information search to obtain all relevant facts that could provide satisfactory solution to the problem. McColl-Kennedy and Fetter (2001) suggest that information search is a primary means of increasing knowledge, reducing perception of risk and uncertainty and increasing post purchase satisfaction. Understanding information search stage is equally important for marketing managers for strategic decision-making. Slama and Tashchian (1985) suggest that understanding the information search efforts made by different segments of consumers is of great relevance for marketing managers to frame appropriate marketing strategy for appropriate segment. So far, a large number of studies have examined the information search behaviour of consumers for the consumer durables (Newmann and Staelin, 1973; Kiel and Layton, 1981; Duncan and Olshavsky, 1982 and Beatty and Smith, 1987). This study concentrates on examining the information search behaviour of Indian consumers for fast moving consumer goods (FMCG). A question comes to mind that whether information search stage is equally important in case of FMCG products. East (1997) provides that in case of FMCG products, choice is the outcome of habitual behaviour because of low involvement of the

consumers. Further Rundle-Thiele and Bennett (2001) argue that such products become high involvement products at the time of their initial purchase and subsequent purchases become routine process provided the market is stable. But whenever there is a new entry, the decision making process breaks the habitual nature of purchase. Thus in case of FMCG, information search behaviour becomes important, because every now and then, a new brand comes in the market to catch the attention of the consumers. Hence one can say that consumers conduct information search efforts to gain knowledge about various alternatives prevailing in the market. Further, one group of consumers differ from another because of their distinctive demographic features. Also, two different consumers may not necessarily show the same pattern of information search behaviour. A large number of studies have analysed the role of demographics in the process of information search task by studying one or more traits. Newman and Staelin (1972) and Claxton *et al.* (1974) find that education level of the consumers influence their information search process. Moore and Lehmann (1980) analyse the role of marital status of the consumers in information search behaviour. Kiel and Layton (1981) explore the importance of various demographic variables like age, education, and income with the extent of information search activities. Furse *et al.* (1984) depict that age is related to the amount of information search made. Avery (1996) illustrates the role of income in information search behaviour of the consumers. Hawkins *et al.* (2003) present the demographic variables as an external force influencing the information search stage of consumers. This study compiles the above stated demographic variables in one analysis to examine the information search behaviour of the consumers for FMCG products. Thus this study is conducted in order to achieve the following objectives.

- To determine the effect of demographic characteristics on information search behaviour of FMCG consumers.
- To find the most important demographic element that influence information search behaviour of FMCG consumers.
- To examine the interdependence of demographic variables.

2. RESEARCH METHODOLOGY

For the purpose of understanding the information search behaviour of consumers, data is collected through survey method. People from Punjab are approached through a field survey. Survey is conducted in various areas like Amritsar (26%), Jalandhar (24%), Ludhiana (26%) and Chandigarh (24%). The information needed is collected from the consumers of the product selected for the study. A sample of 550 respondents is selected on the basis of judgement cum convenience sampling. As far as possible, the respondents were approached in the market place outside the major shopping centres of the four cities. They were requested to participate in the 'not for profit' survey. If they agreed, they were asked to fill the questionnaire. Due care was taken to give appropriate representation to gender and age. Finally, 543 questionnaires have been used in the analysis. Biased and incomplete questionnaires have been removed from the study. The sample shows that out of the total respondents, 44% are male and 56% are females. The actual age of the consumers has been recorded. Thus no age wise description is made. However age of the respondents varies between 18-59 years of age. Out of the total sample, the percentage of married respondents is 46% and that of unmarried is 54%. The respondents were asked their educational qualification. Education level of the respondents shows that 8% of the respondents have passed secondary school, 44% are graduates, 31% are post graduates and 17% are professionally qualified. The respondents are segregated on the basis of income also. Income level shows that 10% of the respondents are earning up to Rupees 15,000/-, 34% are earning between Rupees 15,001/- to Rupees 25,000/-, 35% are having income from Rupees 25,001/- to Rupees 35,000/- and 21% are earning Rupees 35,001/- and above. The sample collects information from almost all types of the consumers who are engaged in different occupations. Self-employed means businessmen as well as professionals having their own practice like doctors and chartered accountant doing their own practice. The percentage of respondents who are self employed is 28%. Salaried people cover serviceman as well as respondents working as executives or on other higher posts. The percentage of salaried people is 35%. Housewives account for 17%, students 15% and retired personnel are only 5%. The scope of this study is restricted to the fast moving consumer goods (FMCG). The product category chosen is toothpaste which creates importance in the minds of the consumers because of its utilitarian nature as any wrong purchase

could result into serious dental problem. Thus a consumer is very conscious while indulging in the buying process of this product.

3. MEASURES OF VARIABLES

3.1 Amount of information search: This study uses the same scale for measuring the amount of information search as suggested by Moorthy et al. (1997). Amount of information search is simply the summation of information obtained from each of the sources shown in Table 2. It has been measured on seven-point scales, ranging from "hardly anything" to "quite a bit" in response to the question "Did you get any relevant information about present brand of toothpaste being used from". The mean values along with their standard deviation of these measures for toothpaste are shown in Table 1.

3.2 Gender: Zeithaml (1985) find that men and women often shop differently in terms of amount of pre purchase activity. Hence in order to understand the diverse behaviour of males and females, gender is taken as a dummy variable in this study. Female category is taken as base. Thus a respondent if male, is assigned a value of one and if female, then zero.

3.3 Age: All the respondents are asked to state their actual age. Thus age is taken as a continuous variable. The actual age mentioned by the respondents is taken as the value of the variable.

3.4 Marital status: Respondents are to state their marital status in terms of married and unmarried. It is presented as a dummy variable. Unmarried status is taken as base category. Thus respondents who are married are allotted a value of 1 and zero otherwise.

Table 1: Statistics for sources of information search

Sources of information	Mean (Standard deviation)
TV advertisements	6.16(1.03)
Radio advertisements	4.11(1.67)
Newspaper, Magazine advertisements	4.99(1.46)
Past experience	5.85(1.26)
Manufacturer's brochure and pamphlets	4.52(1.42)
Salesperson and Shopkeeper's advice	4.50(1.61)
Friends and family's advice	4.91(1.58)
Window shopping through store visits	4.57(1.63)
Manufacturer's websites	4.14(1.67)

POP advertisements	4.79(1.58)
Ads on public transport	3.91(1.78)
Cinema advertisements	4.03(1.81)
Road side bill boards/hoardings	4.25(1.72)
Direct mails	3.78(1.83)
Internet	4.07(1.85)

3.5 Education: Education is measured in terms of years of schooling. Respondents are asked to state the number of years since then they are in their present stage of education. The years mentioned by respondents is taken as the value of the variable.

3.6 Occupation: In this study, occupation is examined in two categories that is, working group and nonworking group. Any respondent who is engaged in earning his/her livelihood, whether he/she is in service, business or professional has been put in the working group while others like, students, housewives and retired people have been placed in the nonworking group. Nonworking group is taken as a base category. Working group is presented by the value of 1 and nonworking is allotted a value of zero.

3.7 Income: Income is measured as a categorical variable. Respondents are asked to mention their monthly family income in any of following mentioned categories, a) less than Rupees 15000/- b) Rupees 15000/- to Rupees 25000/- c) Rupees 25000/- to Rupees 35000/- d) Rupees 35000/- and above. At the time of analysis of data, values of 1,2,3,4 were assigned to income groups: less than Rupees 15000/-, Rupees 15000/- to Rupees 25000/-, Rupees 25000/- to Rupees 35000/- and Rupees 35000/- and above respectively.

4. MODEL SPECIFICATION

For the purpose of analysis, a regression equation was estimated through ordinary least square (OLS). The relationship between Y (dependent variable) and Xs (independent variables) is specified as under:

$$Y = \alpha + \beta_{\text{Gender}}X_{\text{Gender}} + \beta_{\text{Age}}X_{\text{Age}} + \beta_{\text{Marital status}}X_{\text{Marital status}} + \beta_{\text{Education}}X_{\text{Education}} + \beta_{\text{Occupation}}X_{\text{Occupation}} + \beta_{\text{Income}}X_{\text{Income}} + \mu_{ij}$$

Where Y refers to amount of information search made; α is constant; β is the vector coefficient of X. μ_i refers to the error term which reflects a number of different aspects that cannot be observed by a researcher such as measurement errors, omitted variables etc. All the above stated variables are with regard to specific individual i for the brand j that he/she is using currently. After conducting regression analysis, a correlation matrix is solved to check the interdependence of various variables.

5. RESULTS AND DISCUSSION

The pre specified value of amount of information search as dependent variable is put into EvIEWS 5 along with independent variables to test the equation 1 with the help of OLS estimators. The results after running the model are presented in Table 2. The above stated model is a good fit since R² constitutes 0.74. The higher the value of R², greater is the % of variation of Y, explained by regression, that is, better the goodness of fit (Gujarati, 2004). The above model explains 74% of total variation in Y. All the above stated variables are found to be significant. As per the results of Table 2, education is found to be the most important factor influencing information search behaviour of the consumers. Increase in education level of the consumers reduces their desire for making search. Punj and Staelin (1983) assert a positive relationship between product class knowledge and information search behaviour. Further, more knowledgeable consumers are less likely to make information search (Moore and Lehman, 1980). Thus marketing managers are required to design the communication strategy as per the needs of low educated people because they make intensive search for information and make available such sources of information which are mostly used by low educated group. For example, Engel et al. (1973) provide that low educated people make more use of interpersonal sources of information. The next influential factor in information search behaviour is income. With the overall economic development of the country, the income level of the Indian population at large is also increasing. This increase in income is driving the consumers to upgrade to novel and inexperienced brands. This may be the probable reason behind negative relation between income and information search behaviour. Kiel and Layton (1981) replicate that consumers to whom purchase represents a high proportion of income, undertake more information search. It is very obvious that FMCG products like toothpaste constitute a burden for low-income group whereas high-income group people are not affected by any increase/decreases in prices of such products. Table 2 reports that increase in income leads to fewer searches for information. Further correlation matrix as shown in Table 2 depicts positive relation between education and income which means as education of the people increases, their income level also raises and more educated people are less desired for undertaking information search effort. Thus marketing managers should try to attract low-income group. Age is the next important determinant influencing information search behaviour. Westbrook and Fornell (1979) provide that age is assumed to have opposite effect on buyer's need for information search. Cole and Balasubramanian (1993) say that limited memory constrains the amount of information any person can process while solving a problem; elder people face an especially limited memory. Hence they cannot hold and manipulate numerous alternatives in memory. Table 2 shows that with the increase in age, the longing for making more information search trims down.

Further as per correlation Matrix, a positive as well as significant relationship is observed for age, education and income. With the increase in age, education of the people increases and also increase in income takes place and thus urge for making information search reduces. Avery (1996) finds that females are more information seekers. Caplow (1982) and Fischer and Arnold (1990) also show that females are more information seekers and males are less interested in undertaking information search. As per the regression results specified in Table 2, males are found to be less information seekers whereas females search for more information. Information search activities increase with the increase in involvement with the product (Beatty and Smith, 1987), Slama and Tashchian (1985) find that women have higher levels of purchase involvement because she is identified as family purchasing agent (Davis, 1971, Wilkes, 1975) thus they are more likely to do more information search. This study provides that working people are likely to make more search for

information (Table 2). Working group comprise of businessman, service class people or professionals. On the other side, nonworking group consists of housewives, retired people and students who are not making any contribution in earning the livelihood. A high and positive correlation is observed in income and working status of people (0.789), which means that working class possesses more income and increase in income, induces people to make lower information search. In addition to this, more educated people constitute working group who again make less search. Moore and Lehmann (1980) contend that when people get married, they start making fewer searches. Regression results show that married people are less concerned for exploring information. A high positive correlation is scrutinized between age and marital status (0.643), which means that as the age of the people increases, they get married and aged people are less likely to make search for information.

Table 2: Regression results and Correlation matrix

Regression results		Correlation matrix						
Variable	Coefficient (T-ratio)	Information search	Gender	Age	Marital status	Education	Income	Occupation
Constant	99.42 (6.22)*							
Information search	-	1						
Gender	-1.76 (-2.27)***	-0.681**	1					
Age	-1.69 (-3.06)**	-0.668*	0.280*	1				
Marital status	-1.63 (-2.30)***	-0.776**	0.322*	0.643*	1			
Education	-2.53 (-3.08)**	-0.859**	N.S.	0.879*	-0.171*	1		
Income	-2.11 (-2.93)**	-0.666*	N.S.	0.274*	0.299*	0.736**	1	
Occupation	-1.74 (-1.96)***	-0.589**	0.367**	N.S.	N.S.	0.698*	0.789*	1
R2	0.74							

Note: *,** represent significance at 1%, and 5% respectively. N.S. means non-significant.

6. CONCLUSION

Consumer is said to be a king. Thus the marketing managers need to move according to the saying of the consumer. Brands are evolved keeping in mind the need behaviour of the consumers. But these brands are of no use if these do not come in the knowledge of the consumers. Such strategies are totally useless which concentrate on informing those consumers who are not at all interested in collecting new information. Thus marketing managers need to focus on those consumers who are more information searchers. This study provides useful results with regard to the information search behaviour of consumers with the help of regression analysis as well as

by examining the interdependence of variables by correlation analysis so as to help the marketing managers in capturing distinctive segments of the consumers by designing useful marketing plans as per their requirement.

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