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Full Length Research Paper

An Analysis of Brand Choice Behaviour of Indian Consumers for Toothpaste

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This study investigates the brand choice behaviour of Indian consumers for toothpaste. Data has been collected through survey method from the major cities of Punjab. The various variables examined are sales promotion variables (discount, free gifts, feature advertisement, celebrity advertisement and store display), brand-specific attributes (functional aspect, ingredients, value and easiness) and consumer demographics (gender, marital status, age, income, education and occupation). Logit model is used to predict the choice of most preferred brand. Results of the study are useful for marketing managers to make their brand as leading brand.

Keywords: Brand, toothpaste, most preferred brand, sales promotion variables, brand-specific attributes, consumer demographics.

INTRODUCTION

In the present competitive scenario and increasing global market where there is large scale of brand proliferation, marketing managers are interested in determining – how the consumer decides which product to buy. Products are what the company makes. But the features of a product can be easily copied. It means that what the consumer buys is a brand. Thus the brands are considered a marketer's tool for creating product differentiation. The most important function of a brand is that it distinguishes the goods of one producer from the other. The American Marketing Association (AMA) define brand as, "A name, term, design, symbol, or any other feature that identifies one seller's good or service as distinct from those of other sellers. The legal term for brand is trademark. A brand may identify one item, a family of items, or all items of that seller. If used for the firm as a whole, the preferred term is trade name." In fact, brand is comprised of all such elements that identify the brand in general as well as differentiate it from other brands. This can be a name, a logo, a character, a slogan, a jingle, or the packaging. Here the question arises, when the consumer has large number of alternative brands available, then what factors he/she considers while choosing a brand? Further "what is the relative influence of various factors?" Marketing managers look for an answer to these questions before developing a comprehensive marketing strategy.

Consumer evaluates the brands on the basis of their attributes and selects that brand which proves best on his/her evaluative criteria. The concept of evaluating a decision, product or service as a function of its attributes is a universally accepted approach. It has been applied in various other fields such as economics (Fishburn, 1967, 1968; Mcguire and Weiss, 1976; Theil, 1969), engineering (Turban and Metersky, 1971) and finance (Slovic *et al.* 1972). A detailed review of literature reveals that while making a brand choice decision, consumers evaluates the brnad on the basis of its

attributes as depicted by (Kraft *et al*. 1973, Coskunoglu *et al*. 1985, Panda, 2005, Banerjee *et al*. 2005).

Further, the choice of brand is affected due to the difference in sales promotion variables like discount, free gifts, store display and feature advertisement, etc. as examined by Reilbstein (1978), Guadagni and little (1973), Chintagunta *et al*. (1991), Banerjee *et al*. (2005), Singh *et al*. (2005).

Further on, a detailed review with regard to the brand choice behaviour of the consumers reveals that demographics also play an important role in brand choice decision of the consumers. Krishnamurthi and Raj (1988) examine the brand choice probabilities of consumers for frequently purchased products. The demographic variable used in the analysis is income. Results depict a positive coefficient value for income. Kalyanam and Putler (1997) include demographic variables like income in their analysis to examine brand choice behaviour. They find the positive coefficient value for income which shows that households are more likely to buy that brand which has a larger size in the product category. Murthi and Srinivasan (1999) estimate the brand choice probabilities for ketchup category. Results show that income has a negative effect whereas education positively affects the brand choice decision. Degeratu *et al*. (2000) examine the role of income which has a positive effect. Banerjee *et al*. (2005) evaluate the brand preferences for toiletries category. The demographic variables used in the study are age, education, marital status, occupation, income, etc. As per the results, significant demographic variables (age, occupation and income) show preference for a particular brand.

The above discussion shows that a large number of variables put an influence on brand choice decision of consumers. However most of the studies are conducted outside India. Thus in order to examine the influence of above discussed variables on brand choice decision, logit model is used to predict the brand choice behaviour of Indian consumers while buying toothpaste. The choice model proposed in this study is stochastic in nature since it acknowledges the uncertainty of choice outcome. It is different from most stochastic choice models that currently appear in the marketing literature because it explains a single choice.

Objectives of the Study

The overall objective of this study is to determine the brand choice behaviour of consumers for toothpaste. The sub-objectives of the study are:

1. To determine which brands are frequently chosen by the consumer while buying toothpaste.
2. To examine the relative influence of various factors in the brand choice behaviour of the consumer while buying toothpaste.
3. To examine which factor plays the most important role while making a choice between various brands of toothpaste.

METHODOLOGY

The behaviour of the consumers is analysed for toothpaste. The reason behind choosing this product is that

a) this product has a large number of brands,
b) this product is used by end consumer
c) this is purchased frequently. Thus it is deemed that information provided by the consumers will be correct.

In order to examine the brand choice behaviour of the consumers for toothpaste, 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 Rs.15,000/-, 34% are earning between Rs.15,001/- to Rs.25,000/-, 35% are having income from Rs.25,001/-to Rs.35,000/- and 21% are earning `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

Table 1. Brands being used by the respondents for Toothpaste and their respective share

Toothpaste	
Brand	Share
Colgate	54.3
Pepsodent	24.9
Close up	8.1
Dabur Red	3.2
Miswak	2.4
Babool	1.9
Cibacaa	1.4
Glister (Amway)	1.4
Anchor	0.8
Thermoseal	0.8
Promise	0.5
Vicco	0.3
Total	100

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 Structure

A large number of factors persuade the brand choice behaviour of the consumers. Brand specific attributes of toothpaste based on experts' advice and own intuition, various sales promotion variables extracted from the previous literature and demographic characteristics of the consumers are observed to determine their effect on brand choice decision of the consumers.

Brand choice

Brand choice of the consumers is taken as the dependent variable of the study. Consumers are asked to state their brand choice in terms of present brand used for toothpaste. As per Table 1, total 12 brands are mentioned by the respondents with the highest share for Colgate (54.3%). Thus Colgate is taken as the most preferred brand for this analysis. In actual market, Colgate is also the market leader with 63% [1] www.smh.com.au/articles/2003/1/26/1069825840957.html?from=storyrhs of market share in the toothpaste market.

In order to examine the brand choice behaviour of the consumers for the brand with highest share, or most preferred brand by the respondents, this variable is converted into a dummy variable. The value for those respondents is taken as 1 who mentioned Colgate as their present choice of brand and 0 for those respondents who mentioned any other brand of toothpaste as the present brand being used.

Sales promotion variables

Sales promotion variables are also included in this study to make the results more useful for the marketing managers so that they could design their marketing strategy as per the needs and aspirations of the consumers. The sales promotion variables examined in this study is discount, free gifts, feature advertisement, celebrity advertisement, and store display. *Discount* means when the brand is available at a price less than its actual price. *Free gifts* means when the brand offers such gifts/items with the product for which it charges nothing. *Feature advertisement* refers to that brand whose advertisement discloses or concentrates upon the features of the brand rather than other irrelevant aspects. *Celebrity advertisement* means when the brand is being endorsed by some celebrity. *Store display* means the brand is prominently displayed in the store.

The above mentioned sales promotion variables are measured with the help of some questions. Discount is measured by asking the respondents, 'The present brand of toothpaste when purchased was available on discount'. For measuring free gifts, respondents were asked, 'The present brand of toothpaste when purchased, offered some free gifts.' To measure feature advertisements, respondents were asked, 'The present brand of toothpaste when purchased was feature advertised (the attributes of the product were advertised'. Celebrity advertisement was measured by asking, 'I purchased the present brand of toothpaste because some celebrity advertised it'. Store display is measured by asking, 'The present brand of toothpaste when purchased was on display (prominently placed in store)'

In the above mentioned questions, respondents are asked the condition of sales promotion variables (discount, free gifts, feature advertisement, celebrity

Table 2. Results of Factor analysis

Statements	Functional aspect	Ingredients	Value	Easiness
It has a good flavour.	0.517			
It prevents tooth decay.	0.667			
It gives me a feeling of freshness.	0.888			
It has a good whitening power.	0.809			
It is sweet in taste.		0.547		
It is vegetarian toothpaste.		0.526		
It has herbal ingredients.		0.843		
The price of this brand is reasonable.			0.828	
The manufacturer is reputed one.			0.649	
My doctor recommended it.			0.729	
It is easily available.				0.827
I am familiar with this brand.				0.806

Table 3. Description of demographic variables

Demographic variables	Description
Gender	1 if the respondent is male, 0 otherwise.
Marital Status	1 if the respondent is married, 0 otherwise.
Age	Actual age of respondent
Income	1, if income is up to `15,000/-. 2, if income is between `15,001/- to `25,000/-. 3, if income is between `25,001/- to `35,000/-. 4, if income is `35001/- or above.
Education	1, if the respondent is under graduate. 2, if the respondent is graduate. 3, if the respondent is postgraduate/professionally qualified.
Occupation (self employed as base category)	1, if the respondent is salaried, 0 otherwise.
	1, if the respondent is housewife, 0 otherwise.
	1, if the respondent is student, 0 otherwise.
	1, if the respondent is retired personnel, 0 otherwise.

advertisement and store display) one by one at the time of purchase. The value of the variable is taken as 1 if it is present at the time of purchase and 0 otherwise. If the respondent has purchased the brand at a 'discount' it has been allotted a value of 1, and 0 otherwise. Further if the respondent has purchased that brand which offers certain free gift with it then the variable 'free gifts' has a value of 1, otherwise 0. If according to the respondent, the brand is 'feature advertised', its value is 1, 0 otherwise. If the brand is endorsed by some celebrity, its value is 1, 0 otherwise. Lastly if the respondent has purchased the brand because the brand is prominently displayed in the store, its value is 1, otherwise 0.

In all the above mentioned questions, the respondents are supposed to answer in 'yes' or 'no' only.

Brand-specific attributes

Brand specific attributes play an important role in the choice of the brand. Thus specific attributes of toothpaste are included in this study which are based on experts' advice and own intuition. The respondents were to rate these attributes on a seven-point likert scale ranging from 'highly satisfied' to 'highly dissatisfied'. Total twelve attributes are examined which are in relation to the particular brand of toothpaste being used. Thus, actually these scale items are asked in the context of the present brand being used by the respondents. These scale items are factor analysed. Rotated component matrix with varimax rotation has been employed to extract factors appropriate for representing brand specific attributes. The total variance explained is 60%. This percentage of variance is acceptable since the satisfactory percentage of variance explained in social sciences is 60% (Hair, *et al*. 2005). The scale items result into four factors. Factor score of the resultant factors is used for further analysis. Only those items could be considered whose factor loading is greater than .05 (Hair *et al*. 2005). Thus all the items are considered for further analysis since no item has value less than .05. The results of factor analysis are presented in Table 2.

Consumer demographics

Consumer demographics are also taken into account to

analyse brand choice behaviour. Consumers differ from one another because of the demographic traits. Hence their choice process is also likely to be different. Thus it becomes necessary to include the demographic traits as explanatory variables in the brand choice model. The various demographic characteristics examined in this analysis along with their measurement criteria are listed in Table 3.

Hypothesis Development

Three categories of variables are examined to determine their influence on brand choice behaviour of the consumers. Significance level of these variables is checked through the following hypothesis.

Sales promotion variables

Various sales promotion variables examined in the study are discount, free gifts, feature advertisement, celebrity advertisement and store display. Hypothesis set are as under:

H_{1a}: Discount and brand choice have significant relationship.
H_{1b}: Free gifts and brand choice have significant relationship.
H_{1c}: Feature advertisement and brand choice have significant relationship.
H_{1d}: Celebrity advertisement and brand choice have significant relationship.
H_{1e}: Store display and brand choice have significant relationship.

Brand-specific attributes

The following hypotheses are built to check the significance of brand-specific attributes on brand choice of toothpaste.

H_{2a}: Functional aspect and brand choice have significant relationship.
H_{2b}: Ingredients and brand choice have significant relationship.
H_{2c}: Value and brand choice have significant relationship.
H_{2d}: Easiness and brand choice have significant relationship.

Consumer demographics

The hypothesis for demographic traits of gender, marital status, age, income, education and occupation are as under:

H_{3a}: Gender and brand choice have significant relationship.
H_{3b}: Marital Status and brand choice have significant relationship.
H_{3c}: Age and brand choice have significant relationship.
H_{3d}: Income and brand choice have significant relationship.
H_{3e}: Education and brand choice have significant relationship.
H_{3f}: Salaried (Occupation) and brand choice have significant relationship.
H_{3g}: Housewife (Occupation) and brand choice have significant relationship.
H_{3h}: Student (Occupation) and brand choice have significant relationship.
H_{3i}: Retired Personnel (Occupation) and brand choice have significant relationship.

Logit Analysis

Logit analysis has been used to determine the relationship between a binary dependent variable and multiple independent variables. As already discussed, if the respondent has purchased the most preferred brand he/she is allotted a value of 1, 0 otherwise. This variable, by taking a binary value of either 1 or 0, becomes the dependent variable. Further, factor scores of brand-specific attributes consisting of functional aspect, ingredients, value and easiness act as the independent variables of the study. Dummy value of sales promotion variables consisting of discount, free gifts, feature advertisement, celebrity advertisement and store display are other independent variables. Moreover demographic traits of gender, marital status, age, income, education and occupation are also added to the analysis as independent variables.

The model of consumer's decision of buying the most preferred brand takes the following form:

$$\text{Log}\,[P_i/1 - P_i] = \alpha + ß\,X_j + \lambda U_{ij} + \gamma Z_i + \mu_i$$

Equation: 1

where i (i=1,2, _ _ _, n)) refers to the individual; j refers to the current brand used by individual i; α is constant; X_j is a vector of sales promotion variables; U_{ij} is a vector of brand-specific attributes; Z_i is a vector of demographic variables; ß, λ and γ are the coefficients of X_j, U_{ij} and Z_i respectively; μ_{ij} refers to the error term which captures all misspecifications associated with a given individual and brand being used. P_i is the probability of buying the most preferred brand; and 1 - P_i is the probability of not buying the most preferred brand. Log $[P_i/1 - P_i]$ is log-odds ratio, that is, the natural logarithm of the odds that most preferred brand will be bought by a particular individual.

After specifying the values for explanatory variables the above specified model is tested. The method of

Table 4. Logit results

Description of variables	Variable	Toothpaste Coefficient (T ratio)
	Constant	10.91 (6.61)*
Sales promotion Variables	Discount	-0.99 (-2.02)****
	Free gifts	1.24 (1.28)
	Feature advertisement	-0.52 (-2.57)**
	Celebrity advertisement	-0.70 (-0.54)
	Store display	0.17 (0.04)
Brand-specific attributes	Functional aspect	1.81 (2.95)**
	Ingredients	0.74 (2.87)**
	Value	0.96 (2.59)***
	Easiness	-0.56 (-0.32)
Consumer demographics	Gender	0.29 (2.14)****
	Marital Status	0.47 (1.95)****
	Age	0.73 (1.17)
	Income	1.52 (1.94)****
	Education	0.89 (3.45)*
	Salaried (Occupation)	-0.99 (-1.35)
	Housewife(Occupation)	0.48 (2.54)***
	Student(Occupation)	0.74 (0.75)
	Retired Personnel (Occupation)	0.99 (1.12)
	Correct predictions	88%

Note: *,**,***,**** represent highly significant, significant at 1%, 5% and 10% respectively.

maximum likelihood has been used wherein that value of the coefficients is taken which maximizes the following log likelihood function (Madnani, 1994):

$$L=\sum_{i=1}^{n} Yi \log [F\{\alpha+\beta X_j+\lambda U_{ij}+\gamma Z_i\}]+\sum_{i=1}^{n} 1(1-Yi)\log[1-F\{\alpha+\beta X_j+\lambda U_{ij}+\gamma Z_i\}]$$

Equation: 2

where L = the log- likelihood function to be maximized and Yi is dummy variable taking value 1 if most preferred brand is purchased and 0 otherwise.

The outcome of above stated model would give the estimated values of coefficients of explanatory variables that is, sales promotion variables (discount, free gifts, feature advertisement, celebrity advertisement, store display), brand-specific attributes (functional aspect, ingredients, value, easiness) and demographic variables (gender, marital status, age, income, education, occupation) which will depict the value of change in log odds ratio of the purchase probability of most preferred brand.

Thus the above stated model depicts the probability of buying the most preferred brand for each consumer.

DATA ANALYSIS

The logit model is used to estimate the probability of buying the most preferred brand by the respondents. Table 4 depicts that 88% of the observations are correctly predicted.

Table 4 reveals that all variables except free gifts, celebrity advertisement, store display, age, salaried, student and retired personnel do not play a significant role in brand choice decision. Thus H_{1a} (discount), H_{1c} (feature advertisement), H_{2a} (functional aspect), H_{2b} (ingredients), H_{2c} (value), H_{3a} (gender), H_{3b} (marital status), H_{3d} (income), H_{3e} (education), H_{3g} (housewife) are accepted whereas H_{1b} (free gifts), H_{1d} (celebrity advertisement), H_{1e} (store display), H_{2d} (easiness), H_{3c} (age), H_{3f} (salaried), H_{3h} (student), H_{3i} (retired personnel) are rejected.

The most important variable affecting brand choice decision is functional aspect of toothpaste with the highest coefficient value (1.81). The least influencing factor is marital status (0.47)

DISCUSSION

Among the sales promotion variables, the most influencing variable is discount (-0.99). Discounted brands can attract the attention of the consumer and he/she can swing from his/her last purchased brand which may be even the top brand of the market. A price conscious consumer buys the discounted brands to save money or to store a large quantity for future. The product category chosen in this study is largely affected due to discount strategy of the consumers. However the marketing managers must be wide awake while drawing discount strategy. While explaining about promotion techniques, Alvarez and Casielles (2005) suggest the marketing managers that the sales promotion techniques (discount mainly) will be more result oriented when consumers are not expecting it.

In case of toothpaste, feature advertisement (-0.52)

affect brand choice decision which means that consumers are willing to know about the features of various brands of toothpaste so that they could take a right brand choice decision. As celebrity advertisement is not important for the consumers, hence consumers are required to be informed, no matter who provides this information. Further free gifts and display are also not important for the consumer while buying toothpaste. Bhusghan and Daftari (2007) have suggested one new mechanism – modern trade that offers better displays and ambience as compared to kiryana stores to push the sales of brand up.

Regaining brand specific attributes, in case of toothpaste, all the factors work well except easiness. Consumers are willing to buy the most preferred brand because of its functional aspect (1.81), ingredients (0.74) and value (0.96). However easiness is not effective in influencing the purchase of most preferred brand. The most important attribute for the consumers is functional aspect of toothpaste. The reason may be the utilitarian nature of the product as any wrong purchase could result in serious long lasting dental problems. While discussing the role of advertising in generation of brand attitudes, Baker (2001) suggests that advertising must maximise specific brand information that can be used by the consumers to make a differentiation between various alternatives so that they could choose the best one.

In this study various demographic variables are also examined and significant results are found. Results depict that male (0.29), married (0.47) and housewives (0.48) are willing to buy the most preferred brand. Increase in income and increase in education also increases the probability of buying the most preferred brand.

CONCLUSION

This article investigates the reasons that why consumers buy a particular brand more because of which it becomes the top or leading brand. Influencing factors extracted from the results could be used by marketing managers to make their brand as the leading brand.

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