Preference Analysis of Consumers Based On Perceptual Map with Respect to Different Detergent Brands

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Abstract: The challenge every market player faces in today's world is how to achieve sustainable growth by retaining existing consumers and at the same time by attracting new consumers. Globalization, rapid expansion of market, and introduction of advance technology in the field of consumer market have given a boost to the demand of FMCG brands as a whole. Multidimensional scaling technique is used in this study to identify the proximities between the FMCG product brands in each of the three categories. The researcher uses ALSCAL method of MDS. In the questionnaires for detergent brands, a particular question is given to get data for multidimensional scaling in the main research. The data are used for MDS are in ordinal scale because consumers are asked to rank their preferences as per their perception about the proximity of the brand in their respective categories.

Keywords- **Perceived Rank, Brand Preference, Perceptual Map, and Dimension.**

I.INTRODUCTION

FMCG products are most frequently used consumable products. In 1991 first liberalization reform took place in India since then Indian market is ever growing. In case of FMCG market before 1991 there was only two major players; one is Nirma and another is Cavinkare. After 1991 there are so many big players entered in Indian FMCG market like HUL, ITC, P& G, Patanjali etc. moreover now consumers have the choice to select from wide range of products offering same benefit. In this highly competitive situation gaining and maintaining brand equity is very much important for every player in Indian FMCG market. Proper brand equity management is only possible if the brand equity of a particular brand can be measured. Since 1991 special emphasis has been given to brand equity concept by the marketers and by the academicians till date. In

1991 David A. Aaker developed a model which is associated with 'Brand Equity Ten' where he mentioed ten sets of measures which is further grouped into five categories (Aaker, 1991). In real life it is hard to get accurate response from consumers to incorporate this model. In 1993 Keller introduced Consumermer Based Brand Equity (CBBE) model in which he mentioned direct and indirect approaches to measure brand equity. This model can be incorporated by well educated marketers or by well aware academicians through controlled experiments and Keller has provided six guidelines to measure customer based brand equity (Keller, 1993). Multidiamentional Scalling technique to measure brand equity was first introduced by Yoo and Donthu in 2001. They examined 12 brands from three product categories (athletic shoes, film cameras, colour television sets) and developed a

multidiamensional scale to measure brand equity based on American, Korean American and Korean respondents. In their study they clearly mentioned that when different respondents from different culture and diferent product caegory will be considered result will be different (Yoo and Donthu, 2001). Most widely used brand equity measurement tool is Brand Asset Valator model by Y & R, this consulting firm gives service related to brand equity measurement to it's clients (Y & R, 2016) but it is highly expensive for a new entreprenure to avail this service from Y & R.

Under the above mentioned context this study has determined weighted average linear equation model to measure brand equity of FMCG products with special reference to Detergent brands in Indian market. In the next section we have done literature review mainly based on origin of variables and their definition. In this study literature also been reviewed to identify the research gap of previous studies done in the area of brand equity measurement. Literature review is followed by section 3. data and methodology, section 4. Analysis and result of the analysis and the last section is 5. Conclusions.

II.LITERATURE REVIEW

Brand equity measures should be responsive one a small change in brand equity can be identified by that measure. In this context we can talk about the "Brand Equity Ten", ten sets of measures grouped into five categories. The first four categories represent customer perceptions of the brand along the four dimensions of brand equity—loyalty, perceived quality, associations, and awareness. The fifth includes two sets of market behavior measures that represent information obtained from market based information rather than directly from customers (Aaker, 1991). CBBE can be measured using both direct and indirect approaches. Two basic approaches to measuring customer-based brand equity are outlined. The indirect approach measures brand knowledge to assess the potential sources of brand equity. The direct approach measures the effects of the brand knowledge on consumer response to elements of the marketing mix. Examples of both types of approaches are provided. Finally, six guidelines

for the management of customer-based brand equity are discussed. These guidelines emphasize the importance of taking a broad and long term view of marketing a brand; specifying the de-sired consumer knowledge structures and core benefits for a brand; considering a wide range of traditional and nontraditional advertising, promotion, and other marketing options; coordinating the marketing options that are chosen; conducting tracking studies and controlled experiments; and evaluating potential extension candidates (Keller K. L., 1993). Brand equity is a multidimensional concept and it is a complex phenomenon separated it into two components: Brand Awareness (BAW) and Brand Association (BAS).Strong and positive brand equity means the customers will have high brand-name awareness; they will maintain a favorable brand image and perceive the brand as of high quality, and they will be loyal to the brand Keller(2001).In most of the cases it has been seen that brand-equity measures are based on proprietary data from Y&R. Y&R's brand-equity measure BAVTM is widely recognized as one of the major brand-equity measures (Keller K. L., 2006).The BAVTM measures are relative measures; that is, all brands are ranked relative to each other, across all industries. Keller has developed the Customer-Based Brand Equity Pyramid to show how you can build a strong brand. The pyramid consists of four different stages. According to (Keller K. L., 2008) the first stage relates to brand identity, and it uses brand salience as a measurement for awareness. In the second stage called brand meaning, it is imperative to establish brand image in the customer's mind. The third stage refers to eliciting the proper consumer response in relation to brand identity and brand meaning. Finally, the aim is to transform brand response into a loyal relationship between the customers and the brand (Keller, 2001). Another approach of measuring brand equity (Pushpendar Nath, 2012) is construction and validation of a multi item scale to measure brand equity of services. Multidiamentional Scalling technique to measure brand equity was first introduced by Yoo and Donthu in 2001. They examined 12 brands from three product categories (athletic shoes, film cameras, colour television sets) and developed a multidiamensional scale to measure brand equity based on American, Korean American and Korean respondents. In their study they clearly mentioned

that when different respondents from different culture and diferent product caegory will be considered result will be different (Yoo and Donthu, 2001).

Our study has find out that no uniform measure has been developed to measure brand equity till date so there is ample scope of research in this area of study. Specifically no model has been developed to measure brand equity of FMCG products available in Indian market because Yoo and Donthu in 2001 have mentioned that brand equity can differ based on cultural and categorical diversity. Brand equity measurement models offerd by consulting firms are not accesseble for all and the service Y&R offers to measure brand equity by using BAV model is comperetively expensive in nature. Moreover it can be said that techniques which are used to measure brand equity is very much complex in nature and some of the techniques are proprietary. FMCG product is different from FMCD products and from services that is why special attention is needed to measure brand equity of FMCG product's brand. A generalized approach for all types of products and for services also may show a faulty picture.

A.   Objectives of the Study:
The objective behind this study is to create perceptual map for detergent brands.

III. DATA AND RESEARCH METHODOLOGY

Simple random sampling method is followed in this research study. We have gone to each and every above mentioned spot during the time period of 2014 to 2016. In Kolkata every major location has a "More" which means the junction or most important landmark of a said location. We stood on the footpath of some 'mores' and approached most of the people passing by from 10am to 12pm indifferent days of the above said time period. So many people were passing by among them a very few were ready to respond and filling up the questionnaire. It is evident from the data collection procedure that selection of respondents was completely random and unbiased. Each and every resident of the sample

area had equal chance to be selected as a respondent.

A. Determination of sample size: Kolkata is a major city of India which is characterized by high volume of population. It is difficult for an individual to cover the entire population of Kolkata for the purpose of collection of data to overcome this problem we have decided to follow sampling procedure. We have used a statistical model to find out what should be our required size of sample to reflect the population characteristics (Bill Godden, 2004). If the sample size is more than 50,000 (infinite population) then the formula for determining adequate sample size is:

$$SS = (Z^2 \times (p) \times (1 - p))/C^2$$

We have taken 500 respondents for our study which is satisfying these criteria quite clearly.

B. Sample Adequacy Test:

Table 1:KMO Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.943

KMO test result shows that the sample size is taken for this study is adequate with a significant value of 0.943. If the value of KMO test is more than 0.70 then it is considered to be adequate sample size for a study.

C. Data Collection: In our study primary data is collected through one to one interview method. In this respect we have taken help of some predesigned questionnaire which reflect the attitude of consumers towards their preferred brands.

D. Multidimensional Scale Analysis of Select Detergent Brands: Detergent comes under the category of personal care fast moving customer goods. In this study few Detergent brands are selected to get consumers' responses based on certain predetermined questions. Surf excel, Ariel, Sunlight, Tide, Nirma these five brands among all other detergent brands in India are taken into consideration for the study because these brands are identified as most preferred detergent brands

by the respondents. 500 respondents' responses are considered for this part of study. Every respondent had given points to their preferred brands from 1 to 10 against some predetermined questions for every variable. The data generated from 500 hundred respondents on 5 detergent brands.

B. Reliability of the Data to Reflect a Reliable Result:

Table 2:Case Processing Summary		N	%
Cases	Valid	2500	100.0
	Excluded^a	0	.0
	Total	2500	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Reliability statistics shows that all the cases are taken into consideration for the analysis and 100 % of the data set is valid.

Table 3:Reliability Statistics: Detergent Data	
Cronbach's Alpha	N of Items
0.982	10

Value of Cronbach Alpha is 0.982 which is quite higher and it can be said that the data is reliable and the result which will be found out by using this data would be reliable.

IV. Perceptual Map of Different Brands of Detergent:

In this part of study five brands of detergent: Surf excel, Tide, Nirma, Sunlight and Ariel are considered for multidimensional scaling. This technique is used to determine brand positioning of different detergent brands in consumers' mind. Data collection is done by asking all the respondents to rate the similarity between all pairs of detergent brands on a numerical scale. A three dimensional solution is generated. The interpretation is totally subjective and it is valid for all the methods are used here. Three dimensions are as follows:

Dimension 1: Product related considerations of consumers for detergent brands.

Dimension 2: External considerations of consumers for detergent brands

Dimension 3: Internal considerations of consumers for detergent brands

The Table 4.57 shows Iteration history, S-stress, Improvement.

Table 4.57: Showing Iteration History for the 3 Dimensional Solutions (in Squared Distances) Young's S-stress Formula 1 is Used.		
Iteration	S-stress	Improvement
1	.12913	
2	.09983	.02929
3	.07997	.01986
4	.06519	.01478
5	.05374	.01145
6	.04464	.00911
7	.03726	.00737
8	.03122	.00604
9	.02631	.00491
10	.02213	.00418
11	.01861	.00352
12	.01564	.00296
13	.01315	.00249
14	.01106	.00210
15	.00930	.00176
16	.00782	.00148
17	.00657	.00124
18	.00552	.00105
19	.00465	.00088
Iterations stopped because		
S-stress improvement is less than .001000		

- Stress and squared correlation (RSQ) in distances RSQ values are the proportion of variance of the scaled data (disparities)
- In the partition (row, matrix, or entire data) which is accounted for by their corresponding distances.
- Stress values are Kruskal's stress formula 1.

Averaged (rms) over matrices: Stress = 0.00227 RSQ = 0.99988

The above results show the three dimensional solution is the best one as the stress value close to 0 and RSQ value is close to 1.

Results for a 3-Dimensional Representation Space Configuration

Table 4.58: Showing Dimension

Stimulus Number	Stimulus Name	1	2	3
1	Surf excel	1.0998	-0.0786	1.6759
2	Ariel	-1.4492	-0.7527	0 .2985
3	Sunlight	-1.0419	0 .5735	-0.2677
4	Tide	1.1720	-1.2391	-1.0526
5	Nirma	0 .2192	1.4970	-0.6541

Table 4.58 is showing of a 3-Dimensional Representation Space Configuration. The pictorial illustration of the stimulus coordinates on each dimension is displayed next. The coordinates of each object are the coordinates used to create the plots in the map.
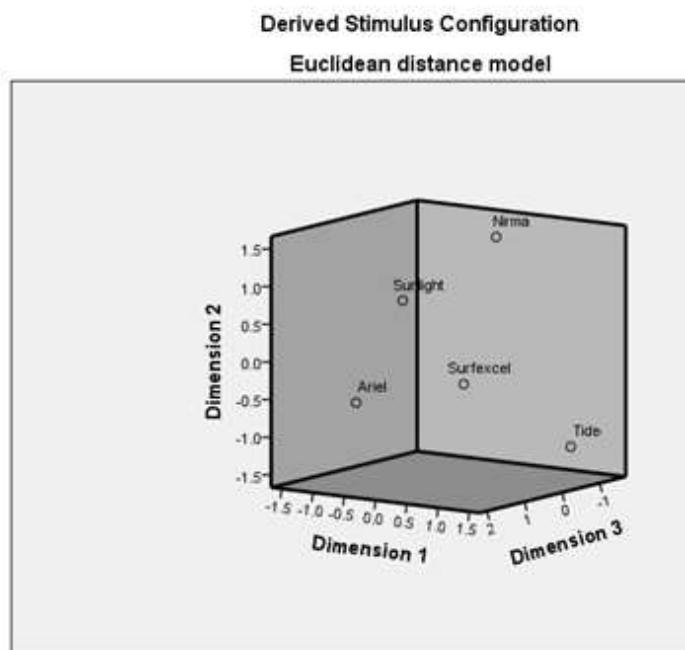

Image 14: Showing Perceptual Map of Detergent Brands

In the above graph it is seen that all detergent brands have their unique position in consumers' mind. In terms of product related considerations like quality, product line etc Ariel, Surf excel and Tide are perceived to be better than other brands in consumers' mind. In case of external consideration of consumers like hike in price, brand switch, brand promotion Ariel and Sunlight are perceived to be better than other brands in consumers' mind. In terms of internal consideration of consumers like self image, word of mouth Nirma, Surf excel and Tide are perceived as better brands by the consumers.

V.Conclusion :

In case of detergent brands respondents have said that hike in present price by a particular brand and by a substitute brand have become determining parameter while repurchasing a detergent brand. Apart from hike in price, word of mouth is also a very important variable, which regulates a consumer's willingness to pay for a particular detergent brand.

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