A Research on a Comparative Study of Some Brand Switching Models in Marketing

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Abstract

This study compared the static model (Hendry's and SBS model) and dynamic model (DBS) of brand switching for predicting the future market shares ; also, it ascertained the consumer behavior of brand switching with regard to different demographic factors, identified the factors for brand switching among the different brands of packaged tea that are available in the market, and examined the relative importance of the factors on an overall satisfaction level of consumers and their repurchase intention. The methodologies used for the study are : chi square, exploratory factor analysis, and structural equation modeling. The research work found static nature of market for packaged tea, where DBS model was found to be the best for predicting the future market share. Functional benefit, brand reputation, and marketing efforts emerged as factors which positively influenced satisfaction ; whereas, heightened satisfaction level increased repurchase intention for the brands.

Keywords : **brand switching model, static model, dynamic model, Markov model, SEM**

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Marketers are facing challenges in terms of coping with intense competition where customer preferences and key product features have become diversified. Firms that can meet these expectations of customers will be successful, and those who cannot meet these expectations will fail. In this respect, a thorough understanding of the market structure and competition pattern is crucial for designing a successful and effective marketing strategy (Allenby, 1989). Thus, it is essential to scrutinize the market structure by using real market data, specifically where product differentiation becomes complicated and product qualities are almost similar (Lin, Wu, & Wang, 2000). The study of models in the context of brand switching is an interesting part of consumer behavior research. By using these brand switching models, researchers can analyze as well as evaluate the consumer's preferences with the changing times. Different brand switching models are proposed in the field of marketing. While some of the models are static in nature, others are dynamic over time. These models are based on mathematical logic and predict the market share of the respective brands in the market.

Many studies have been carried out in the context of brand switching and brand switching models. The core method adopted in this area is prediction of future market shares of the respective brands in terms of the choice preference of the customer (Shocker & Srinivasan, 1979). It is a rare phenomenon that a market segment buys one particular brand and also that a particular brand is bought only by a market segment. The most used method in this area of study is through the prediction of choice probabilities (Kamakura & Srivastava, 1986). It is crucial to

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understand the changing preferences of consumers, the reason of repurchasing a particular brand and, the reason of shifting to competitors' brands. Understanding of the brand switching behavior of customers is paramount for the marketer, which provides key insights to strategize better and to increase the brand share (Lin et al., 2000).

Thus, the present study intents to investigate both these logical and behavioral aspects of brand switching behavior with respect to packaged tea. The objective of the study is to ascertain the consumer behaviour of brand switching of packaged tea with regard to the demographic factors - age, gender, occupation, and income to test the suitability of brand switching models from among the three models of brand switching, that is, the SBS model, the Hendry's model, and the DBS model with particular reference to the product line of packaged tea to predict the market shares of different brands of packaged tea for the next purchase incidence and to identify the factors for brand switching among the different brands of packaged tea that are available in the market.

Literature Review

The literature review is carried out in two phases. Different brand switching models are discussed in the first phase and behavioral components such as factors influencing brand switching and their importance are discussed thereafter.

(1) Brand Switching Models : Based on the interdependence over time, brand switching models are classified as zero order models (past, present, and future purchase behaviour of consumers are assumed to be independent), Markov models (the brand that would be purchased at the next purchase incidence depends on the brand purchased at present incidence only), and higher order models (brand that would be purchased at the next purchase incidence depends on the brands purchased at k previous purchase incidences, successively including the current purchase incidence, known as the k^{th} order Markov model, $k = 0,1,2,3,\ldots$) (Lilien, Kotler, & Moorthy, 2006).

Various literatures have been reviewed for the study in the context of brand switching models and brand switching behavior. Markov model is widely used in the field of brand switching (Roy & Lahiri, 2004). It is also known as the first order model, according to which, with respect to brands of product lines, given the present purchase of a customer, his/her next purchase will be influenced by his/her present purchase (one period ahead) only, and it does not depend on his/her earlier purchases. This model uses the transition probability matrix, $T=((p_{ij}))$, $i, j = 1, 2\ldots.n$ represent the transition mechanism of the process. The vector m of the market shares is represented as $m=(m_1, m_2, \ldots\ldots m_i, \ldots\ldots m_n)$, where m_i represents the market share of the i^{th} brand, $i = 1,2,3,\ldots\ldots n$; $'n'$ being the number of brands in the product line ; p_{ij} = conditional probability (the consumer purchases brand j on second purchase incident given that he/she purchases the i^{th} brand in the first purchase occasion). $p_{ij} = P(i,j)/P(i,.)$, where $P(i,j)$ = joint probability of purchase of i^{th} brand in the first and j^{th} brand in the second purchase incidence ; $P(i,.)$ = market share of the i^{th} brand in the first purchase incidence.

Then,

$$m_i = P(i,.) = \sum_{j=1}^{n} P(i,j) \quad \text{---------} (1) \qquad \text{and}$$

$$m_{t+1} = m_t T \quad \text{----------} (2)$$

where, the suffix $(t + 1)$ is for the vector of market shares for the next purchase period, and the suffix t is for the current purchase period. By using the Markov model, one can estimate or predict the future market share by the present available information of market shares. Thus, in general, this model is a dynamic model.

Ehrenberg (1965) observed certain shortcomings in the usage of Markov brand switching model. Stationarity of such a model imposes a severe restriction in the practical application of the model, since the market environment is dynamic in nature. To address this, Ehrenberg (1972) proposed the simple brand switching model (SBS) based on

extensive empirical work. The SBS model prescribes the joint probability of purchasing i^{th} brand in the first and j^{th} brand in the second purchase incidence based on the following assumption :

$$P(i,\cdot) = P(\cdot,i) = m_i \quad \text{----------(3)}$$

where,

$$P(i,j) = k\, m_i m_j, \quad \text{if } i \neq j,\ j = 1,2,\ldots n \quad \text{----------(4)}$$

$$P(i,i) = m_i - k\, m_i(1 - m_i). \quad \text{if } i = j,\ j = 1,2,\ldots n. \quad \text{----------(5) and}$$

$$k = 1 - \{\sum P(i,i)/(1 - m_i^2)\} \quad \text{----------(6)}$$

The SBS model is a static model where *m* does not vary over time.

Hendry's model was discussed by Butler and Butler (1972), who used the concept of entropy. As the market is dynamic, several things are uncertain and depend upon chance. Entropy is a concept used to measure this uncertainty. Based on the functional form of entropy, Hendry proposed the following model for the computation of joint probabilities :

$$P(i,j) = h m_i m_j, \text{ if } i \neq j \quad \text{----------(7)}$$

$$P(i,i) = 1 - \sum_{i \neq j} P(i,j), \text{ if } i = j \quad \text{----------(8)}$$

where,

$$h = u / \{1 - \sum_{i=1}^{n} m_i^2\} \quad \text{----------(9)}$$

and

$$u = 1 - \sum_{i=1}^{n} m_i / \{1 - m_i \log m_i\} \quad \text{----------(10)}$$

This model is also a static model, in the sense that the market share vector $m = (m_1, m_2, \ldots\ldots m_i, \ldots\ldots m_n)$ does not vary over time.

Roy and Lahiri (2004) proposed the DBS model. This model is a dynamic model. They formulated the model of brand switching based on market share to predict or estimate the future market share. According to them, the probability of switching from i^{th} brand to j^{th} brand is greater than the probability of switching from j^{th} brand to i^{th} brand, if the present market share of j^{th} brand is greater than that of i^{th} brand.

$$P(i,j) > P(j,i) \quad \text{whenever } P(j,*) > P(i,*) \quad \text{----------(11)}$$

$$P(i,j) = P(j,i) \quad \text{whenever } P(j,*) = P(i,*) \quad \text{----------(12)}$$

The joint probability matrix *((P(i,j)))* of the DBS model is given by :

$$P(i,j) = d m_i m_j [1 - (m_i - m_j)^3] \quad \text{if } i \neq j; j = 1,2,\ldots,n \quad \text{----------(13)}$$

$$P(i,i) = m_i - \sum_{j=1 (\neq i)}^{n} P(i,j), \quad \text{for } i = 1,2,\ldots,n \quad \text{----------(14)}$$

Roy and Lahiri (2004) employed the chi square test of goodness of fit to check the suitability of the above three models, that is, SBS, Hendry's, and DBS models by using the test statistic :

$$\chi^2 = \sum_{i=1}^{n} \sum_{j=1}^{n} \{f_{ij} - N P(i,j)\}^2 / NP(i,j) \quad \text{----------(15)}$$

where, f_{ij} is the observed frequency of purchase of i_{th} brand in previous and j_{th} brand in the current purchase. Roy and Lahiri (2004) carried out the above test by taking the empirical data on brand switching with respect to product lines of toothpaste, shampoo, soap, and sanitary napkins. The analysis showed that the DBS model fared the best.

The Markov study based on market shares involves the computation of loss gain matrix *((f_{ij}))*, joint probability matrix *($(P(i,j))$),* and conditional probability matrix *((p_{ij}))* (Butler & Butler, 1972 ; Ehrenberg, 1965 ; Roy & Lahiri, 2004; Roy, Tiwari, & Tiwari, 2009). Lilien, Kotler, and Moorthy (1999) and Kuehn (1962) adopted the linear learning model for their study. The learning effect says that learning arises from experience, which results in any change in the individual's behaviour (Kotler, 2000).

(2) Brand Switching Behavior : As the paper deals with some of the brand switching models and their applicability, it is essential to discuss about the marketing environment and the nature of the market. Whether the market is relatively static or dynamic, the marketers need to have a clear idea in their minds before going in for any brand-switching model to estimate the market shares of the brands.

Brand switching is a dynamic process that develops over a particular time period which results in ending the relationship between a customer and a marketer (Stewart, 1998). It is necessary to reduce the proportion of disloyal customers and strengthen the brand loyalty of existing customers as brands having a low degree of loyalty cannot relish high power and value (Lin et al., 2000). Ehrenberg (1964) considered customers as switchers those who purchased other brands atleast once in a specific time period. Consumers routinized their purchase by using the same brand over time in case of frequently purchased low priced product categories (Howard & Sheth, 1969). Currently purchased brands have a higher probability of being chosen in the future than any other brands, which again may deviate by different situational factors such as non availability, high switching cost, relative low attitude towards the brand (Nagar, 2009). Evans, Mountinho, and Raaij (1996) opined that brand switching occurs when a new product is introduced, when the customer is dissatisfied, or when a single brand is not efficient to fulfill all their needs. As per Shukla (2009), consumers are involved in an ever changing and dynamic environment, which demands understanding and re-examination of the influencing factors affecting brand switching behaviour on a time-to-time basis.

Lin et al. (2000) conducted a study for household appliances and identified quality, after sales services, marketing efforts, and brand awareness to influence the next purchase decision. Lau, Man, Ka, and Wing (2006) carried out an empirical study in sportswear and suggested price, style, store environment, brand image, service quality, and promotion as the major factors which affected brand loyalty and switching, where brand name, price, and promotion are the key factors that influenced brand switching. Further, they also found promotion as the most efficient strategy to attract the brand switchers. Promotion effectively communicates brand attributes to potential customers, which influences their purchase decision (Evans, Mountinho, & Raaij, 1996 ; Mise, Nair, Odera, & Ogutu, 2013). Deighton, Henderson, and Neslin (1994), after thorough investigations, found that advertising plays a significant role in brand switching and there exists a close relation between brand selection and effective advertising. According to Michaelidou, Dibb, and Arnott (2005), the cause of brand switching in one class of product may not be same as for others. They examined the relation between consumers' need for variety and their brand switching behaviour. The results explained the internal and external motivation for brand switching. According to them, the internal motivation such as satisfaction, future uncertainty, and external motivation like price, promotion, discounts, availability, had more influence on brand switching behaviour of customers. Nagar (2009) conducted a study for washing powder and shampoo brands and found that sales promotions had more influence on brand switchers than loyal consumers.

Promotion and advertising make customers less price sensitive and also change their attitude and behavior towards a brand. Price is also an important factor which influences the switching behavior (Mise et al., 2013) as brand switchers are highly price sensitive (Cadogen & Foster, 2000). Brand name also disseminates the product

benefit, which can lead to high recall and repurchase (Keller, 1993; Mise et al., 2013). According to Gould (1995), gaining a new customer is five times more expensive than retaining a customer. At times, demographic factors also play a role in influencing the decision to switch brands (Lin, Wu, & Wang, 2000). Quality is one more component that influences the satisfaction level of customers (Orel & Kara, 2014 ; Romaniuk & Sharp, 2003), where satisfaction is positively correlated with repurchase intention and loyalty (Jana & Chandra, 2016). Satisfaction derived from customer value anticipation for product/service offerings is positively related with loyalty (Flint, Blocker, & Boutin, 2011). According to Deng, Lu, Wei, and Zhang (2010), customer satisfaction, trust, and switching cost is directly proportional to brand loyalty. Intention to purchase the brand again in the future is majorly influenced by the satisfaction level and also the derived high switching cost for the current brand (Jana & Chandra, 2016).

The probability of repurchasing a brand increases when customers derive high satisfaction from that brand ; whereas, the probability of repurchasing the brand decreases with low satisfaction levels (Roy et al., 2009). Information related to quality, functional benefits, and other product related information can create an attitude towards the brand and in turn can influence the purchase intention for the brand (Saleem, Wasaya, & Zahra, 2017). According to Mise et al. (2013), "product quality encompasses the features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs" (p. 707). According to Lin et al. (2000), the present purchase of a particular brand is influenced by the past experience as it creates a strong brand image in the customer's mind which increases customer's satisfaction level and hence prevents brand switching to the competing brands.

Research Design

For the present study, the product category chosen is beverages and the product is tea. Tea is the most consumed beverage after water in the world (Markmanellis, 2014). Almost every household consumes tea in India. The reason for choosing tea is also due to its stable purchase frequency (Ehrenberg, 1964). A survey was carried out in the city of Hyderabad from the tea users. This study was conducted during June - December 2014. The population for the study consisted of those consumers who purchase packaged tea from shopping malls. Survey by mall intercept method was adopted for the data collection process. The sampling frame for the study were consumers from Big Bazaar, Reliance Fresh, Spencer's, and More. A total of 563 questionnaires were distributed, out of which 504 responses were considered for the final evaluation process. With the demographic questions, open-ended questions were also given to the respondents about which brand of tea they bought last month, which brand of tea they purchased this month, and what was their preference for the next period. In response, the brands purchased came out as - 3 Roses, Lipton, Taaza, Black Eagle, Wagh Bakri, Chakra Gold, Jivraj 9, Society, Gemini, Red Label, Taj Mahal, and Tata Tea. Out of the total sample, 34.53% of the respondents bought Red Label, 25% bought Taj Mahal, 15.47% bought Tata Tea, and the remaining 25% bought brands other than Red Label, Taj Mahal, and Tata Tea. Based on this preliminary study, the main brands chosen for the study are Red Label, Taj Mahal, Tata Tea, and rest of the brands are merged into one category for the purpose of the present study and labeled as 'Others'.

Out of the sample of 504 respondents, 67% were aged below 30 years, 33% were aged more than 30 years and above ; 49% were women and 51% were men ; 49% were drawing a salary of below ₹ 35,000/month, 39% were drawing a salary of ₹ 35,000 and more per month, and 12% did not have any direct source of income. With reference to the occupational status, 59% were engaged in service sector and 41% were engaged in occupations other than the service sector ; 95% of the sample respondents said that they purchased the packaged tea brands once in month and almost maintained the same purchase quantity.

Data Analysis and Results

The study is divided into six parts. The first part deals with the aspect of verifying the brand switching behaviour of consumers with respect to their gender, income, and age by using the chi-square test of independence. The second part deals with the aspect of verifying the dynamicity of the model, that is, whether the mechanism of brand switching changes over successive purchase incidences by using the principle of the likelihood ratio. The third part employs the "test of goodness of fit of joint probability distribution" to verify which of the three brand switching models fits best for the empirical data for the case under study. The fourth part deals with the aspect of predicting the future market share by using the Markov model for the respective brands of packaged tea. The fifth part deals with identifying brand-switching factors in packaged tea brands and assessing their importance.

The detailed aspects of data analysis are discussed in the following parts of the paper :

(1) Brand Switching Behavior and Demographic Factors : To ascertain the consumer behavior of brand switching of packaged tea with regard to the demographic factors - age, gender, employment status, and monthly income, a chi square test of independence is carried out. The hypotheses are formulated as :

- **H_1:** Consumers' behaviour of switching or non-switching is independent of age.
- **H_2:** Consumers' behaviour of switching or non-switching is independent of gender.
- **H_3:** Consumers' behaviour of switching or non-switching is independent of monthly income.
- **H_4:** Consumers' behaviour of switching or non-switching is independent of employment status.

To calculate the expected frequency under H, the formula is given as:

Table 1. Age vs. Behaviour

	Loyal	Switchers	Total
Below 30 years	222 **(228)**	114 **(108)**	336
30 years and above	120 **(114)**	48 **(54)**	168
Total	342	162	504

Table 2. Gender vs Behaviour

	Loyal	Switchers	Total
Male	186 **(179.142)**	78 **(84.858)**	264
Female	156 **(162.858)**	84 **(77.142)**	240
Total	342	162	504

Table 3. Monthly Income vs Behaviour

	Loyal	Switchers	Total
No income	54 **(162)**	18 **(23.142)**	72
< ₹ 35K/month	180 **(171)**	72 **(81)**	252
≥ ₹ 35K/month	108 **(122.142)**	72 **(57.857)**	180
Total	342	162	504

$$NP(i,j) = [P(i,.).P(.,j)] \ / N \qquad \text{----------(16)}$$

The test statistic for independence test is given as :

$$\chi^2 = \sum_{i=1}^{n} \sum_{j=1}^{n} [fij - NP(i,j)]^2 / [NP(i,j)] \qquad \text{----------(17)}$$

With a degree of freedom = $(r-1)(s-1)$. The analysis and results are discussed as follows. All the expected frequencies are given in bold font in parentheses along with the observed frequencies in Tables 1 - 4.

Table 4. Occupational Status vs Behaviour

	Loyal	Switchers	Total
Service	222 **(240.214)**	132 **(113.785)**	354
Non-service	120 **(101.785)**	30 **(48.214)**	150
Total	342	162	504

The results of the first study indicate no evidence to reject all the above hypotheses H1 - H4 (see Table 5). This implies that the brand switching behaviour is independent of demographic factors, that is, either to switch or not to switch the brand does not depend upon demographic factors.

Table 5. Demographic vs Switching Behavior Results

Demographic Factors	L.O.S	D.O.F	Tabulated χ^2 value	Calculated χ^2 value	Results
Age	1%	1	6.635	0.491	Not Significant
Gender	1%	1	6.635	0.5716	Not Significant
Monthly Income	1%	2	9.210	2.7505	Not Significant
Employment Status	1%	1	6.635	4.8121	Not significant

(2) Dynamicity and Suitability of Brand Switching Models : In this section, care has been taken to test the suitability of brand switching models from among the three models of brand switching, that is, the SBS model, the Hendry's model, and the DBS model, with particular reference to the product line of packaged tea. To check the dynamicity of the models, likelihood ratio test is conducted followed by a chi-square test of goodness of fit to test the suitability of the models. From the collected data, a loss - gain frequency matrix is constructed (refer Table 6). This loss - gain matrix shows the two purchase incidences, that is, previous purchase and current purchase. It is denoted by $F = ((f_{ij}))$, where f_{ij} represents the observed frequency of loss of customers by i^{th} brand to j^{th} brand ; or equivalently, gain of customers of j^{th} brand from i^{th} brand.

Table 6. Empirical Loss - Gain Matrix (Frequency Distribution), *F= ((fij)*)

	Red Label	Taj Mahal	Tata Tea	Others	Total
Red Label	138	6	18	12	174
Taj Mahal	30	78	12	6	126
Tata Tea	12	6	60	0	78
Others	30	12	6	78	126
Total	210	102	96	96	**504**

Table 7. Joint Probability Distribution, *P = ((Pij)*)

	Red Label	Taj Mahal	Tata Tea	Others	Total
Red Label	0.2738	0.0119	0.0357	0.0238	0.3452
Taj Mahal	0.0595	0.1547	0.0238	0.0119	0.25
Tata Tea	0.0238	0.0119	0.1190	0	0.1547
Others	0.0595	0.0238	0.0119	0.1547	0.25
Total	0.4166	0.2038	0.1904	0.1904	**1**

The Table 6 shows that Red Label has the highest market share in both the periods followed by Taj Mahal. Out of 174 consumers who purchased Red Label previously, 138 repurchased the brand in the current period, showing highest loyalty quotient of 79.31%. Taj Mahal lost its market share by 19.04% in the second period, having the highest switching quotient of 38.09%. Despite of having the lowest market share previously, Tata Tea is able to increase its share by 23.07%, and also, it has the second highest loyalty quotient of 76.92%. The loyalty and switching quotient for the brands of packaged tea are calculated by using the conditional probability concept.

From this loss - gain matrix (Table 6), the joint probability matrix *P* is formed by using the formula :

$P(i,j) = f_{ij}/N$, for all i and j ----------(18)

The joint probability is represented by $P=((P_{ij}))$. The $(i,j)^{th}$ element $P(i,j)$ of P represents the joint probability of purchase of i^{th} brand in the previous purchase incidence and j^{th} brand in the current incidence (refer Table 7). The row totals of *P* indicate the market shares of the respective brands in the previous period. The column totals indicate the market shares of the respective brands in the current period. The Table 7 indicates lucidly that the current choice of a brand is highly influenced by the past choices. This result is especially true for Red Label brand, which has the highest proportion of loyal buyers and the highest market share.

To perform the dynamicity test, the hypotheses are formulated as :

Ho: $P(i,j) = P(j,i)$, for all i and j

v/s

H_1: $P(i.j) \neq P(j,i)$, for at least one pair of i and j.

$((P(i,j)))$ = joint probability matrix, $((f_{ij}))$ = Loss-gain matrix (frequency distribution), *where,* $P(i,j) = f_{ij}/N$, for all i and j.

The test statistic is formulated as :

$$\lambda = \prod_{i=1}^{n}\prod_{j=1}^{n}\{(f_{ij}+f_{ji})/2f_{ij}\}^{f_{ij}} \quad \text{----------(19)}$$

where, $\chi^2 = \{-2\log e(\lambda)\}$ has a chi square distribution with D.O.F(υ_0)= $n(n-1)/2$, $\lambda = 0.0014889$, the calculated $\chi^2 = -2 \log \lambda = 13.0194$, which is less than the tabulated χ^2=16.8119 at 1% L.O.S and D.O.F (υ) = 6, so we are not rejecting the null hypothesis and conclude that the market is relatively stable.

To test the suitability of the model, the chi-square test has been conducted, the general null hypothesis is formulated as :

- H_0: The model is not a good fit. vs.
- H_1: The model is a good fit. The test statistic for goodness of fit is given as :

$$\chi^2 = \sum_{i=1}^{n} \sum_{j=1}^{n} [f_{ij} - NP(i,j)]^2 / [NP(i,j)] \quad \text{----------(20)}$$

The formulae for calculating the expected $P(i,j)$; $i \neq j$ and $P(i,i)$ for all the three models, that is, SBS, Hendry's, and DBS are based on different assumptions discussed earlier in this paper under literature review. The expected frequency $NP(i,j)$ is calculated for the three models based on the formula they proposed for estimating the expected frequency and then a chi square test is carried out. The model suitability results are given in the Table 8 for the three models and from the results, one can conclude that the SBS and the DBS models fit the data well. However, the Hendry's model is not a good fit. Further, between the SBS model and DBS model, one should prefer the DBS model, since the chi-square value (which represents the agreement between the observed and expected frequencies) is smaller, since smaller value of chi-square leads to better agreement between observed and expected frequencies.

Table 8. Model Suitability Results

Model	L.O.S	D.O.F	Tabulated value	Calculated value	Results
SBS	1%	11	24.725	16.8038	Don't reject
Hendry's	1%	12	26.217	62.7588	Reject
DBS	1%	11	24.725	15.3743	Don't reject

(3) Prediction of Future Market Share : As the DBS model is tested as the most suitable one, in this section, the DBS model is used to predict the future market share of the respective brands of packaged tea by considering the Markov analysis : $m_{t+1} = m_t . T$; $t = 0,1,2,\ldots t$, where $'T'$ is the transition proportion, m_{t+1} is the market share in the next period, which can be obtained by multiplying the current period market share $'m_t'$ with the transition proportion T. By using the DBS model, the conditional probability matrix is formulated by using the Markov analysis and the future market share for the brands of packaged tea is calculated. The data is collected on three purchase incidences of consumers (previous, current, future). The future preferences for purchasing the brand of tea by the consumers are taken as the observed future market shares. Thus, the calculated future market shares are compared with the observed future (next period) market shares and a close observation is carried on and is given in the Table 9.

Table 9. Comparison of Expected and Observed Future Market Shares

	Red Label	Taj Mahal	Tata Tea	Others
Calculated/ expected m_{t+1}	0.3664	0.2307	0.1718	0.2307
Observed m_{t+1}	0.3214	0.2500	0.1666	0.2619
Direction of Change	(-)	(+)	(-)	(+)

The Table 9 indicates that the observed and calculated future market shares are very close to each other. Hence, it validates that the DBS model is most suitable for predicting the future market scenario in the present dynamic marketing environment.

From the contents of the Table 9, one can observe that Red Label and Tata Tea may lose their market shares and also Taj Mahal and the others brands will increase their share in the market. This means Red Label and Tata Tea will lose their customers to Taj Mahal and the other brands of tea. Hence, it is essential for the marketing manager to identify the causes due to which they will lose their market shares. By knowing the various factors which influence the customers to switch the brand, the marketing manager vis-à-vis the organization can take preventive measures

beforehand. In this respect, the next aspect of the study deals with identifying the various factors and ascertaining their relative importance, which will be helpful to the marketing organizations to build up their strategies for attracting and holding customers.

(4) Factors Influencing Brand Switching and Their Relative Importance : The survey based questionnaire was constructed on a 7 point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree)*. Initially, the items in the questionnaire comprised of 26 items, out of which 18 items were about what influences customers to switch between packaged tea brands, which were borrowed from existing literature and FGD ; 4 items stating their satisfaction levels were borrowed from Caruana, Ewing, and Ramaseshan (2000) ; and remaining four items stating their future purchase intention were borrowed from Yoo and Donthu (2001).

An exploratory factor analysis was conducted initially to explore the factor structure. The EFA results are given in the Table 10. The KMO value of 0.919 (p <0.000) indicates good sample adequacy. The criteria for factor extraction is based on Eigen value greater than one and factor loadings of more than 0.5 (Pett, Lackey, & Sullivan, 2003) ; 23 items met this criterion and loaded properly on five factors, accounting for 78.765 % of the total variance. Sixteen (16) of the 18 brand switching items loaded on three factors (Functional Benefit, Brand Reputation, and Marketing Effort), the four repurchase intention items and the remaining three of the four satisfaction items loaded on two separate factors. Cronbach's alpha value for all the five factors is more than 0.7, indicating high reliability. After exploring the three factors of brand - switching, the next step is to see their behavioral consequences. These factors influence the satisfaction level (Cadogen & Foster, 2000 ; Keller , 1993 ; Lau et al., 2006 ; Mise et al., 2013 ; Romaniuk & Sharp, 2003). If the overall satisfaction is significantly high, then there is high probability that the customer will repurchase the brand again in the future. On the contrary, lower satisfaction level increases the chance of brand switching (Lin et al., 2000 ; Roy et al., 2009). A conceptual model is constructed based on the EFA results and literature review (refer Figure 1). The alternative hypotheses are formulated based on the literature review and they are:

- **H_5:** Higher functional benefits of a brand increase the satisfaction level.
- **H_6:** Higher brand reputation increases the satisfaction level.
- **H_7:** Increased marketing efforts of a brand increase the satisfaction level.
- **H_8:** Higher derived satisfaction with a brand increases the future purchase intention.

In the next stage, SEM is employed by using AMOS 20.0 to confirm the factor structure, to see the reliability and validity and to test the structural model. CFA is performed on the measurement model, and it consists of five first -

Figure 1. Conceptual Model

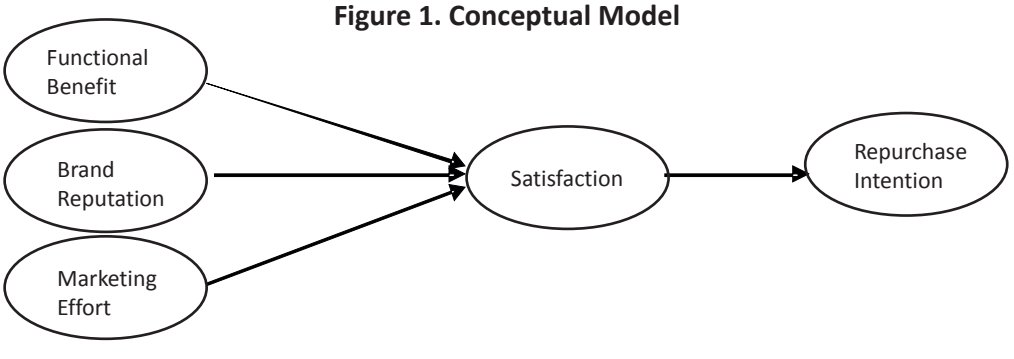


Table 10. EFA Results, *CR, AVE*

Factors	Measurement Items	Factor Loading	Cronbach's Alpha	Variance explained (%)	*CR*	*AVE*
	Price	0.883				
	Value for money	0.895				
Functional Benefit (FB)	Quality	0.852				
	Taste	0.849	0.963	25.33	0.95	0.769
	Flavor	0.821				
	Ingredients	0.783				
	Refreshment	0.817				
	Brand name	0.736				
Brand Reputation (BR)	Reputation	0.736				
	Credibility	0.764	0.872	15.65	0.86	0.556
	Successful, well established, stable, and professional	0.813				
	Availability	0.793				
	Advertisement	0.822				
Marketing Efforts (ME)	Sales promotion	0.831	0.929	14.165	0.93	0.785
	Packaging	0.818				
	Window displays	0.787				
	Fully satisfied	0.764				
Satisfaction (SAT)	Recommend to others.	0.867				
	Right decision to use the current brand.	0.820	0.884	10.941	0.89	0.739
	It makes sense to buy the current brand instead of any other brand next time.	0.791				
	Even if another brand has the same features as the current brand, I would prefer to buy the current brand next time.	0.821				
Repurchase Intention (RI)	If there is another brand as good as the current brand, I prefer to buy the current brand next time.	0.689				
	If another brand is not different from the current brand in any way, it seems smarter to purchase the current brand next time.	0.786	0.893	12.679	0.88	0.675

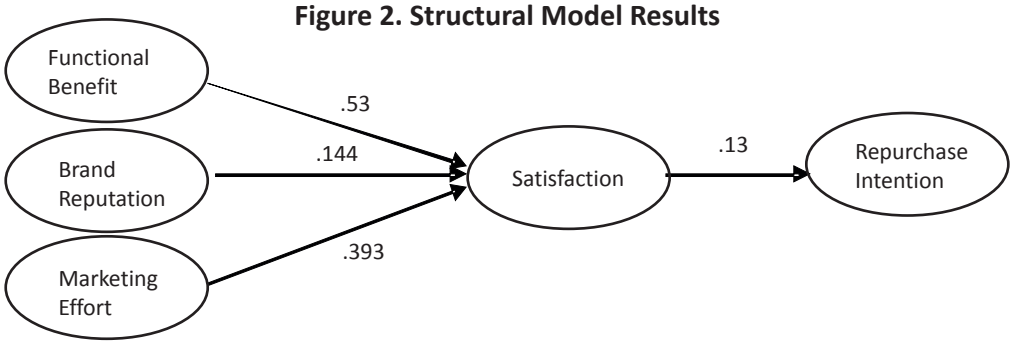
order constructs (Functional Benefit, Brand Reputation, Marketing Efforts, Satisfaction, and Repurchase Intention). The results suggest reasonable model fit of the data (*CMIN/df* = 2.084, *GFI* =.886, *AGFI* =.854, *CFI* = .962, *TLI* = .955, *RMR* = .091, *IFI* =.962, *NFI* =.930, and *RMSEA* =.061) (Anderson & Gerbing, 1988). All the items significantly load on the respective factors, indicating good fit of the measurement model with the data (Byrne, 2001). Composite reliability (*CR* > 0.70) and average variance extracted (*AVE* > 0.50) values in Table 10 show good internal consistency (Carmines & Zeller, 1988; Fornell & Larcker, 1981). The *AVE* values (>0.5) and the significant item loadings indicate acceptable convergent validity of the latent constructs (Fornell & Larcker, 1981). In addition, the *AVE* values are more than the inter-construct correlations (refer Table 11) ; thus indicating good discriminant validity of the latent constructs (Fornell & Larcker, 1981).

The structural model results shows adequate model fit indices (χ^2/df = 2.353, *GFI* = .872, *AGFI* = .838,

Table 11. Discriminant Validity Results

	FB	*BR*	*ME*	*SAT*	*RI*
FB	**.769**				
BR	.342	**.556**			
ME	.601	.406	**.785**		
SAT	.573	.203	.548	**.739**	
RI	.409	.465	.448	.189	**.675**

Figure 2. Structural Model Results



CFI =.952, *RMSEA* =.068, *RMR* =.091, *IFI* =.952, *NFI* =.920, and *RMSEA* = .068). All the four alternative hypotheses are supported. Functional Quality, Brand Reputation, and Marketing Efforts are positively correlated with Satisfaction level, also Satisfaction is positively correlated with Repurchase Intention (refer Figure 2). This means that all the three factors significantly explain the variation in Satisfaction and Satisfaction significantly explains the variation in the Repurchase Intention.

Managerial Implications

The study was conducted with regard to the empirical data to investigate the aspects of brand switching behaviour of consumers, and the findings have both managerial and academic contributions. The findings of the study show that brand switching behaviour of consumers does not vary with age, income, employment status, and gender, which is in contradiction to the findings of Lin et al. (2000). It implies customers from all the age groups, various income levels, and employment statuses showed a similar kind of brand switching behaviour in packaged tea. It also shows customers, whether they are male or female, showed a similar pattern of brand switching behaviour in packaged tea. This findings will guide the marketers specifically with respect to the packaged tea market to formulate their strategies irrespective of demographic factors.

The study findings also depict that "the market is relatively static" and the DBS model is the most suitable model for predicting the market shares. Red Label and Tata Tea are likely to lose their market shares in the next period ; whereas Taj Mahal and Other brands of tea are likely to gain the market share in the next period. This finding will help the practitioners to ascertain the core nature of current market and the market dynamics, which will help them to identify their own position in the market. By predicting the future market share for them and their competitors, the firms can gain a better understanding of the competition, and hence can strategify better to regain or maintain their market share. The factors that influence the brands that emerged from the factor analysis are Functional Quality, Brand Reputation, and Marketing Efforts. Functional benefits of the packaged tea brands such as quality, price, flavor, taste, etc. play a major role and marketing efforts of the firms such as attractive advertising,

sales promotion, merchandising, etc. play the next prime role in creating a heightened satisfaction level of consumers (supported by Cadogen & Foster, 2000 ; Michaelidou et al., 2005 ; Mise et al., 2013 ; Nagar, 2009 ; Romaniuk & Sharp, 2003) ; whereas, reputation of the brand positively influences the satisfaction level but is least important as compared to functional benefits and marketing efforts. These findings of the study will help the practitioners to better strategify themselves based on the importance of different factors that influence consumer's decision to purchase the brand again. The study findings also show that an increased satisfaction level increases the chances of repurchasing the brand again in the future (supported by Deng et al., 2010 ; Lin et al., 2000; Roy et al., 2009).

Hence, a practitioner should try more of the functional aspects and should come up with lucrative offers in order to build up heightened satisfaction levels, which will further increase their brand loyalty proportion. The findings of this study will also be beneficial to the academicians as it adds to the existing body of literature.

Limitations of the Study and Scope for Future Research

This comparative study on some brand switching models and brand switching behaviour gives an introduction to the fundamental logic of stochastic and dynamic models. Furthermore, it identifies the factors which cause brand switching behaviour and their relative importance. We used both static and dynamic methods to estimate or predict the future sales of particular brands in a given marketing condition. The steps to be adopted to choose an appropriate model for the product line are investigated. The process of choosing the best model is demonstrated through a case study of packaged tea brands.

There are different brand switching models available in the field of marketing for predicting the future market; one way is through market shares, which may not be regarded as the best method but can be regarded as the most error-free method. This study adopted this method. The study limits itself to the city of Hyderabad to the packaged tea brands and to a sample of 504 respondents. After reviewing the present study, a road map for the future scope of research includes the following aspects : to expand the scope of the present study to other parts of the country ; to consider certain other product categories for the study ; to include studies based on learning models ; and to formulate models based on the functional forms of the conditional probabilities with appropriate conditions on Markov type of transitional mechanism in brand switching.

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