CONSUMER CHOICE PROCESS: A QUANTITATIVE RESEARCH

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Abstract: In order to make a choice between various alternatives, every consumer follows five stages of choice process: problem recognition, information search, evaluation, actual purchase and post purchase process. In order to be very specific in business plans and strategies, marketing managers need to understand and measure the choice process of consumers quantitatively. Regression models are used to have a quantitative measurement of information search behaviour of consumers. Brand Choice behaviour is predicted with the help of discrete binary choice models and multinomial discrete choice models. Quantitative analysis of loyalty behaviour with the help of choice models gives an indication about post purchase behaviour. Use of these models helps the marketing managers to find the right mix of variables for their product and thus to position their product in such a manner that the choice process of consumers leads them to select that product which marketing managers want.

Keywords: consumer choice, models, quantitatively

Introduction

A fundamental understanding of consumer behaviour underpins all marketing activities and is necessary prerequisite to organization being marketing oriented and thus profitable. Consumer behaviour is defined as, “the process and activities that people engage in when searching for, selecting, purchasing, using, evaluating, and disposing of products and services so as to satisfy their needs and desires” (Belch and Belch, 1993, pp.115). It studies how consumers take decisions by spending their limited resources—money, time, and efforts on consumption related items.

The complexity of consumer behaviour arises due to a large number of alternatives available to the consumer from which he/she chooses only one alternative. No doubt, in this competitive world, no alternative is less than other; rather all the alternatives are fully compatible. But these alternatives differ more or less from each other in the eyes of the consumer. Thus the question arises how consumer decides which alternative to choose. Consumer choice process studies how consumer chooses between two or more alternatives. To be competitive in the market place, marketers need to understand when and how they need to intervene in the choice process to influence the buying process of consumer. In order to decide what to choose, consumer passes through the following five stages.

Problem Recognition: Problem recognition focuses on the primary motivation behind shopping for products. Problem recognition is the result of a discrepancy between a desired state and an actual state that is sufficient to arouse and activate the choice process (Hill, 2001). When actual state exceeds the desired state or desired state exceeds the actual state, then it leads to a problem, which requires the choice process.

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A discrepancy between actual state and desired state generally arises due to a) changing family characteristics, b) changing financial conditions c) changing financial expectation, d) changing reference groups, e) need for novelty, f) changing situation, g) individual development, h) dissatisfaction with existing solutions, etc.

**Information Search:** Information search refers to all those actions that are taken by a consumer to obtain all relevant facts that could give a solution to the problem. Haines (1978) defined information 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. Information search may be internal or external.

**Evaluation:** In this stage, consumer establishes his/her belief about the features of the alternative products. Information gathered by the consumer about various alternative solutions helps him/her to evaluate alternatives.

Consumers may use various evaluation criteria such as price, size and colour, packing, quality, durability and safety, etc.

When consumers judge alternative brands on several evaluative criteria, they must have some method to select one brand from the various choices. Decision rules serve this function. A decision rule specifies how a consumer compares two or more brands. Five commonly used decision rules are disjunctive, conjunctive, lexicographic, elimination-by-aspects, and compensatory. These decision rules are explained by Hawkins et al., (2003).

**Conjunctive decision rule** establishes minimum required performance standards for each evaluative criterion and selects the first or all brands that surpass these minimum standards.

**Disjunctive decision rule** establishes a minimum level of performance for each important attribute (often a fairly high level). All brands that surpass the performance level for any key attribute are considered acceptable.

**Elimination-by-aspects** decision rule requires the consumer to rank the evaluative criteria in terms of their importance and to establish a cut-off point for each criterion. All brands are first considered on the most important criterion. Those that do not surpass the cut-off point are dropped from consideration. If more than one brand passes the cut-off point the process is repeated on those brands for the second most important criterion. This continues until only one brand remains.

**Lexicographic decision rule** requires the consumer to rank the criteria in order of importance. The consumer then selects the brand that performs best on the most important attribute. If two or more brands tie on this attribute, they are evaluated on the second most important attribute. This continues through the attributes until one brand outperforms the others.

In **compensatory decision rule** the very good performance on one evaluative criterion compensates the poor performance on another evaluative criterion. Consumers may wish to average out very good features with some less attractive features of a product in determining overall brand preference. The decision rules work best with functional products and cognitive decisions.

**Outlet Selection:** The procedure for selecting an outlet is same as the process for selecting the brand. Consumer recognizes a problem, which requires purchase of some product. External and internal search is made from where to buy that product. Various alternatives are evaluated. The alternative, which best fits the evaluative criteria is selected. The evaluative criteria of an outlet include store image, location, layout, size, sales personnel, point of purchase (POP) displays, equipments, furnishings, etc.

Consumers can follow three basic sequences while making a purchase decision: brand or item first, outlet second; outlet first, brand second; or brand and outlet simultaneously (Hawkins et al., 2003).

**Actual Purchase:** In the evaluation stage of brand, the consumer forms a ranked set of preferences for the alternative products and intent to purchase the product he/she likes best from that outlet that he/she selects by evaluating various outlets. A number of additional factors also intervene before actual purchase is made. For example negative attitude of others, change in expected family income, change in expected price of product, change in expected benefit of the product.

There can be three types of purchase decision categories: fully planned purchase (in which brand
and product are pre decided before store visit), partially planned purchase (in which product is decided but brand is not selected), Impulse purchase (both product and brand are chosen in store). These three purchase types may overlap due to situational factors such as product promotion, store atmosphere, weather etc (Belk et al, 1975).

**Post purchase feelings:** After purchasing the product, the consumer will experience some level of satisfaction or dissatisfaction. The satisfaction level of the buyer is measured by a difference between buyer’s expectation and product’s perceived performance (Swan and Combs, 1976). If product’s performance is equal or greater than expectation, then it will lead to repeat purchase, committed customer and increased use whereas if performance falls short of expectation then it gives rise to brand switching or discontinued use. Satisfied consumers may switch from one brand to another when motivated by higher perceived quality or lower price or both (Blattberg et al., 1995).

### Quantitative Research in Marketing

The chief executives and operating officers of various companies believe that marketing is the most important function of business (Fredrick and Webster, 1981). Marketing managers face a lot of problems that call for decision making for example, deciding the price of product, deciding promotional offers, deciding the timings of launching a new product. In order to be successful in this competitive world, these problems must have some reliable solutions. Reliable solution is derived from quantitative tools rather than qualitative analysis. This is not to assert that better results always occur when quantitative approach is used but one is more likely to achieve superior results. In order to deal with complex problems of marketing, there is a need to capture the essence of marketing phenomena in well-specified models.

There are two basic methodologies for modelling in marketing: Verbal and Mathematical.

**Verbal models** are described in words. For example:

Increase in Price → Reduction in Sales

This model says verbally that there is reduction in sales if a company adopts a strategy of increasing prices, other things remaining the same. Verbal models do not give a quantitative measurement of change that is, in the given example of verbal model it cannot be ascertained that if the price increases by one rupee that by which amount the sales will fall.

**Figure 1:** Sales Price relationship

Often, verbal models are explained graphically in the form of graphs, pictures or charts. Examples include road maps, organizational charts and flow diagram. These models describe the overall phenomena so that viewers can grasp the whole relationship. Figure 1 shows the inverse relationship between price and sales. It says that when price increases then the amount of sales decreases.

**Mathematical models** use symbols to denote marketing variables and express their relationship as equations or inequalities. For example

\[ Y = \alpha + \beta X + \mu \]  
*(Equation -1)*

Where \( Y \) is sales (dependent variable), \( X \) is price (independent variable). \( \alpha \) is known as intercept, which gives the value of dependent variable (amount of sales–Y) when independent variable/variables (price–X) is zero. So in equation 1, value of \( \alpha \) represents that amount of sales when price is zero. It can be inferred that the value of \( \alpha > 0 \) that is, positive since who will not want to buy when price is zero. Often the intercept has no particular economic meaning (Gujarati, 2004). In equation 1, since the price can never be zero, \( \alpha \) has no relevance for decision-making. \( \beta \) is known as slope, which measures the rate of change in dependent variable for a unit change in independent variable. In equation 1 if price (X) increases by one rupee, then the amount of sales will be changed by \( \beta \) amount. Now since there is inverse relationship between price and amount of sales, it
could be inferred that $\beta < 0$ that is, negative which means that if there is an increase in price by one rupee then amount of sales will fall by $\beta$ amount. $\mu$ is random error term that represents all those forces besides price that affect sales and can also be accounted for but have not been included in the model for determining the amount of sales. These forces can be income of the consumer, promotional offers, etc. $m$ also includes purely random forces which can't be included in model for example, inherent randomness in human behaviour, errors of measurement.

Quantitative Research in Consumer Choice

A key determinant to effective marketing is an understanding of consumers. Foxall et al., (1998) suggest that success of a business depends upon how effectively a manager understands his/her consumers and thus executing a strategy based on this understanding. Here understanding means, understanding the process consumers follow, while making a choice. Choice process can be understood with the help of co-relational and causal relationship

Co-relational relationships: A Co-relational relationship occurs when two variables are correlated, that is, an observed change in one variable is accompanied by a corresponding change in the other variable. There may be positive, negative as well as zero co-relation. A positive co-relation means that as one variable increases, other also increases. In contrast, a negative co-relation means that as one variable increases, the other decreases. Zero co-relation means that there is no systematic relationship between two variables, that is, a change in the one variable is accompanied sometimes by an increase, sometimes by a decrease, and sometimes by no change in the other variable (Kardes, 2002). For example, a high and positive co-relation between product involvement and information search intention has been shown by Lin and Chen (2006) which means that as the involvement for a product increases the intention for search also increases and vice-versa.

With the help of co-relational relationships one can determine the relationship between variables of information search and extent of search, brand choice and its determinants, store choice and its antecedent variables and drivers of repeat purchase behaviour.

Causal relationship: Causal relationship between two variables does not only mean that there is a co-relation between two variables but it also tells that one variable influences the other. That is, there is cause and effect relationship and cause always precedes the effect. For example, in the study of Taylor et al., (2004), the satisfaction with the current brand acted as cause and the repeat purchase was the effect.

Experts call antecedent or causal variable the independent variable, the consequence, or effect as dependent variable because it is dependent on the independent variable (Kardes, 2002).

Models of Consumer Choice Process

Analysing consumer choice process is easier said than done. To measure consumer choice process quantitatively, there are various consumer choice models so that marketing managers can be very specific in their plans and strategies. Some models, which describe the consumer choice process, are discussed as under:

Consumer problem recognition: Consumers develop styles of recognizing problems because of repeated occurrence of the same or similar problems. Some consumers recognize problems primarily when their actual state changes and hardly ever as a result of change to the desired state; other consumers tend to recognize problems when their desired state changes although they also recognize problem when their actual state changes (Bruner, 1987).

At this stage, choice models determine whether there is any need to buy a particular category or not. Consumer recognises a problem that stimulates him/her to buy a product. Because of budget constraints, he/she will buy after comparing utility of buying with utility of not buying. Consumer will consider buying a product/category only if utility of buying exceeds utility of not buying. For example, in routine life, a consumer has a large number of needs. Because of any stimulus, he/she determines the need of buying a car. Determinants of utility of buying a car will be saving of time, comfort, status, etc. Problem arises in specifying the components of utility of not buying. Various authors have suggested different benchmarks against which the utility of buying within the category can be compared for example budgetary constraints. Now if the utility of buying the car is consumer's top priority and the price of the car is within the range of his/her budget, he/she will buy the car.
Generally authors develop such models in which first category choice is estimated and after that, brand choice is examined. Ching (2006) proposed price consideration model that examined the consumer’s decision of choosing a particular category for every week. After choosing the category, consumers decided what to buy.

Consumer Information Search: In order to make a wise choice, information search is necessary (Guo, 2001). How much consumers know about the product or service when they decide to make a purchase and how they obtain this information are important issues. Knowledge of consumer information acquisition is fundamental to understand buyer behaviour, planning marketing communication, and developing strategies and tactics (Xia and Morroe, 2005).

Regression models are generally used to measure extent of information search made by the consumers from the various sources of information like mass media advertisement, word of mouth (WOM) communication, and previous experience, etc. These models also explain the relationship of extent of search with its determinants (product involvement, product class knowledge, cost of search, and benefits of search, etc).

Various studies have provided interesting results with regard to information search behaviour of consumers. Claxton et al., (1974) suggest that differences in the extent of the search arise due to the personal, situational and product characteristics. Moore and Lehmann (1980) examined the information search behaviour of the consumers for nondurable product that is bread. A large number of independent variables (market environment, situational variables, product importance, knowledge and experience and individual differences) were analysed. Results of regression analysis depicted the same results as found in previous studies. Punj and Staelin (1983) examined negative relationship between cost of search and amount of external search. Zaichkowsky (1985) indicated that high involvement with the product encouraged more search for information. Bruks (1985) identified U shaped relationship curve between product class knowledge and amount of search made. Beatty and Smith (1987) analysed various sources of information like retailer search, media search, interpersonal search and neutral sources (consumer reports and publications) and concluded that purchase involvement, attitude towards shopping and time availability had a positive effect on information search behaviour of consumer whereas product class knowledge reduced the likeness for information search. Dowling and Staelin (1994) found that increased perceived risk with the product induces more search for information. Urbany et al., (1996) found negative relation between mobility constraint and amount of search for grocery items. Moorthy et al., (1997) used Log-Lin model to determine the effect of determinants of search (brand uncertainty, cost of search, and experience, etc) on amount of search made by consumers. Erdem et al., (2002) depicted that cost of various information sources would alter information acquisition behaviour of consumers. Iglesias and Guillen (2002) used multiple regression analysis and found that prior knowledge and sales price variation were positively related to information search of the consumers.

Evaluation and Purchase: Whenever a consumer decides to buy a product, he has a large number of choices in the form of number of brands and he has to decide which brand he has to choose. This choice problem is more complicated because all these brands of product are available in a large number of stores. These stores offer different services to the consumers. Thus the consumer has to decide that from where he/she will buy. Evaluating various alternatives on the basis of their attributes makes the choice and finally the chosen product is purchase. This stage is very crucial for a marketing manager since all the plans and action of an organisation are directed towards influencing purchasing behaviour of consumer. Marketers, in order to examine the evaluation process of consumers, ask them to rate the attributes of a particular alternative. This method is adopted when survey method is used or the details of the consumers are not available. Otherwise by using panel data evaluation process can be examined for any consumer at any time for marketing mix variables. After evaluation, choice process of consumers is predicted with the help of binary choice models (logit, probit) and multinomial choice models (multinomial logit, multinomial probit) etc.

When there are exactly two choices, choice models are called binary choice models. Marketing managers generally face such type of behaviour in practical situations. Multinomial Models are extensions of binary model of purchase incidence, in which dependent variable has only two outcomes. But in case of multinomial framework dependent variable has more than two outcomes.
Various studies have used different methods to evaluate and predict the choice behaviour of the consumers.

Punj and Staelin (1978) applied stochastic utility model to analyse the choice behaviour for business schools of graduate students. Gensch and Recker (1979) used multinomial logit framework to predict the store choice behaviour of consumers. The consumers were asked to rate the attributes of the stores visited by them on a seven-point scale. Guadagni and Little (1983) used multinomial logit model to examine the effect of marketing variables on consumer choice among various brand alternatives of coffee by using panel data. Coskunoglu et al., (1985) factor analysed the various attributes of a product to examine choice behaviour and then applied new logit model to predict the purchase behaviour of the consumers. Gensch (1985) used logit framework to predict the choice behaviour of the consumers for various means of transportation that is, bus and car. Dubin (1986) used nested logit model to estimate the space heat and water heat choice in order to predict operating and capital cost of each residence. Dai (1998) used discrete choice model to analyse the college choice behaviour of high school seniors. The survey was made to collect the data with regard to the number of attributes of the students and factors important in college choice. Anand (2001) examined consumer preferences for the attributes of alternative sources of water supply in Chennai (India) and analysed their choice behaviour by using multinomial logit framework. Sinha, et al., (2002) factor analysed the various reasons acting as drivers of store choice and applied multinomial logit model to analyse the store choice process of Indian consumers. Banerjee et al., (2005) applied nested logit model to determine the brand choice for toiletries category. They selected three categories of independent variables that is, marketing mix variables (price, promotion and distribution), demographics and psychometric variables (economy, performance and overall usefulness). Psychometric variables were attitude statements and were factor analysed to extract three factors. The model was a two stage model that examined the brand choice first and then pack size. Panda (2005) used multi-dimensional scaling technique to identify the preferences of Indian consumers for the new car. Bhat and Jain (2006) determined the health insurance purchase decision of Indian consumers in a binary probit framework by evaluating their attitude towards various health insurance schemes. Liu et al., (2006) factor analysed various attributes of oysters to examine the evaluative criteria of consumers and then applied logit framework to analyse the purchase behaviour of consumers. Klee (2006) presented a model that determines the payment instrument consumer would use from various alternatives (debit cards, credit cards, direct payments from bank account and paper money) available to him. Kumar and Sachan (2006) used discrete choice experiments to understand the students’ preferences for management institutes in India.

**Post Purchase Behaviour:** Marketing manager’s task never ends with the purchase of product by the consumer rather after purchase he/she becomes interested in determining the post purchase behaviour of consumer that is, repeat purchase intention, word of mouth behaviour, purchase loyalty and attitudinal loyalty. Loyalty behaviour of the consumer generally depends upon the experience/ satisfaction with the product. Satisfaction is measured by the difference between perceived product performance and consumer expectation. The level of satisfaction affects the future choice behaviour of consumers. If the consumer is satisfied with his/her past purchase, there is a great probability of repeat purchase. For example, a person drinks coke, if he/she is highly satisfied with the performance of coke, then there is a high probability that the consumer will demand coke for the next time also, though he has a large choice for soft drinks.

Again large number of studies has used various techniques like path analysis, regression models, logit choice models to measure loyalty pattern.

Colombo and Morrison (1989) suggested a simple model that could be estimated by using a standard log-linear model approach to determine the loyal and switcher customers. Hallowell (1996) used ordinary least square (OLS) regression to measure the relationship between satisfaction and loyalty pattern. Bloemer and Ruyter (1998) employed regression models to estimate the relationship between satisfaction, image, deliberation and involvement on measure of loyalty. Leszczyc and Timmermans (1997) proposed a probit model to determine the repeat shopping behaviour for a store. Chaudhuri (1999) used path analysis to determine the direct and indirect influences of brand attitudes and brand loyalty on brand performance measures. Delgado–Ballester and Munuera–Aleman (2001) examined the
effect of commitment, involvement, satisfaction and trust on loyalty with the help of regression equations. Chaudhuri and Holbrook (2001) used path analysis to examine loyalty (attitudinal loyalty and purchase loyalty) and its antecedents (brand trust and brand affect). Lambert-Pandrauel and Laurent (2002) used logistic regression to predict the repeat buying behaviour of older people for automobiles. Arora and Shaw (2002) used correlation measure to test the relationship between satisfaction and repeat purchase intention. Back and Parks (2003) used Oliver’s (1997) model to test the relationship among satisfaction and loyalty. Taylor, et al., (2004) used structural equation analysis to measure two aspects of loyalty that is, behavioural loyalty and attitudinal loyalty. The independent variables taken were satisfaction, value, resistance to change, affect, trust and brand equity. Skogland and Siguaw (2004) used a series of regression models to examine the relationships of various aspects of loyalty (repeat purchase, attitudinal loyalty and word of mouth loyalty) with satisfaction, involvement and demographic characteristics of consumers. Datta and Chakraborty (2006) examined the consumer’s loyalty on the basis of their shopping behaviour with the help of Oliver’s four stage model (Oliver, 1997).

Conclusion

Consumer choice models target to model consumer purchase behaviour and more specifically, to model the procedure used by consumer to make up his mind. The most important advantage of consumer choice models is that, the results derived from these models, are of quantitative nature. No doubt, use of these models makes the whole process complex but the results are extremely promising because a quantitative approach more accurately predicts as compared to qualitative ones (Wheller, 1974). If these models are used, marketing managers can find the right mix of variables for their product and thus can position their product in such a manner that the choice process of consumers leads them to select that product which marketing managers want.

References


