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## Offline Vs Online Buying: An Assessment through Analytic Hierarchy Process Approach

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### **Abstract:**

Based on 'Prospect theory' proposed by Kahneman and Tversky (1979), this paper explores determinants of consumer preferences with the perspective of risks involved with the online marketing. Hence its application in assessing the channel preference is suitable as consumers have face conflicting decision tradeoffs when deciding about the channel to buy. Analytic Hierarchy Process (AHP) has been chosen for analysis of the problem. AHP (Saaty, 1980) can tackle multi-criteria problems of choice and prioritization. This paper uses it for its simplicity, ease of use, and great flexibility (Ho, 2008). It tries to establish customers' preference for online or offline buying in three product category namely Apparel, Grocery and Jewelry. This paper aims to contribute to the academia by providing the unexplored area of decision making and for practitioners it aspires to provide an insight about consumer preferences.

### **1. Introduction**

Consumers vary in their choices which are reflected in the diversity of their preferences. To cater to these choices organizations are trying out various channels to offer them alternatives. All these channels have their own pros & cons. It is a challenge for the organizations to identify the best channel for product offering to the customers. The increasing hype of online sales has compelled companies to compare the offline store to their online counterparts on the value attributes (Chiang et al, 2003). This is the first step in identifying the most effective channel strategy for the marketing of products & services.

Based on 'Prospect theory' proposed by Kahneman and Tversky (1979), this paper explores determinants of consumer preferences with the perspective of risks involved with the online marketing. Prospect theory is a behavioral economic theory that describes the way people choose between probabilistic alternatives that involve risk, where the probabilities of outcomes are known. Hence its application in assessing the channel preference is suitable as consumers have face conflicting decision tradeoffs when deciding about the channel to buy. They make their purchase decision on a number of criteria, such as product information accessibility, immediate possession of products, helpfulness of salespeople, brand selection and variety, post-purchase service, and exchange-refund policy for returns.

Companies, who want to retain and expand their market share, will have to figure out the significant criteria of channel selection considered by their customers. This paper provides them a peep into customers' thought process when they make decision involved with risk. With the help of Analytic Hierarchy Process approach we try to establish customers' preference for online or offline buying in three product category namely apparel, Grocery and jewelry.

The paper is divided in three more sections. The section 2 explores the relevant literature for identifying the determinants of customer preference of the channel of purchase. The next section explains methodology with illustration of the hierarchical model of customer preferences and the product categories used for survey. This section also describes the implementation criteria and pairwise comparisons. The last section gives interpretation of the results and conclusion.

This paper contributes to the academia by providing the unexplored area of decision making and for practitioners it provides an insight about consumer preferences.

### **2. Literature Review**

The issue of customer preferences has been considered significant so academicians have tried to observe the phenomenon through various approaches. Multiple Regression Models have been used by many researchers in response to research problems similar to this (Bellman et al., 1999; Szymanski and Hise, 2000; Degeratu et al., 2000; Kwak et al., 2002). Apart from this, two noteworthy investigations were done using Structural Equation Modeling. First one was by Liang and Huang (1998), which based on Transaction Cost Theory, explored customers' acceptance of electronic products through an empirical survey. Similarly Devaraj et al. (2002) examined consumer attitudes toward B2C with the help of technology acceptance model and service quality along with transaction

cost theory. The theoretical frameworks proposed by these two papers are both validated using structural equation models. The multiple regression analysis has limitation of existence of multicollinearity due to correlation between the determinants of the customer preference. Thus, the interpretation of output of the regression becomes unreliable.

To overcome the issue of multicollinearity Khalifa and Liu (2003) used partial least squares to measure the customer satisfaction with the internet based services through specific aspirations and expectations. To take the research forward from methodological point of view, the trained neural networks were tried by Chiang et al. (2006) to predict and explain the reasons behind consumer's decision to choose between online and traditional stores. Statistically neural networks may do better than logistic regression models in terms of the predicting power.

Apart from methodological improvement, context and subject specific improvements were also made. An expectation and disconfirmation approach was applied to establish the measurement of consumer satisfaction about online shopping by McKinney et al. (2002). Pointing out pros of the online channel Morganosky and Cude (2000) indicated convenience to be a significant motive for this due to social constraints, such as illness or small children in the household.

For discovering the factors which influence online purchase decisions, Torkzadeh and Dhillon (2002) develop two instruments with multidimensional measures. These two instruments measured customer perception and reality of the objectives which influenced the online buying by applying exploratory factor analysis. The findings are logical and valid but its implications on online marketing will require further analysis and clarifications.

According to several researchers (Shim et al., 2001; Verhoef and Langerack, 2001; Rohm and Swaminathan, 2004; Ramus and Nielsen, 2005; Seock and Norton, 2007) the information search process of customer decision making model (Engel, Blackwell and Kollat, 1968) influences their channel preference considerably. This process forms their perception towards product variety, convenience and authenticity of the channels to be chosen. Kim et al. (2005) have also demonstrated that consumers' perceptions about product variety and convenience are positively related their decision to buy online.

Prospect theory emphasizes the risk aspect of the transactions. The literature related to this

### 3. Methodology

The research problem at hand requires judging the preference of customer between the traditional medium of purchase and online buying and the criteria for selection. We have selected Analytic Hierarchy Process (AHP) for the purpose. AHP (Saaty, 1980) can tackle multi-criteria problems of choice and prioritization and it is extensively applied in situations of multiple contradictory alternatives. Its simplicity, ease of use, and great flexibility (Ho, 2008) is the reason for its widespread usage.

The significant ability of AHP is that it can determine the priorities and recognize the best option from various possible alternatives. It converts a complex decision problem in to small pairwise comparisons which formulates a simple hierarchy. These pairwise comparisons are done on the basis of concrete data or individuals' judgment about each of the factors in comparison to another. This in the end yields priority of each factor in the hierarchy. It also reveals consistency in the judgments made by the customers.

The other commonly employed analytical approaches were not considered due to various constraints attached to them. Like the entropy theory (ET) doesn't consider the uncertainty attached with the decision criteria and the goal programming (GP) only works for conflicting objectives. The superiority and inferiority ranking method (SIR) without statistical support restricts their subjective thresholds (Chan and Tong, 2007), whereas for small problems FMCDM requires lengthy calculations (Arslan and Aydm, 2009). Therefore, AHP appeared to be most appropriate for the paper.

The study gathered 21 customer preference predictors from literature review. Then based on 'prospect theory' perspective predictors were narrowed down to 9. They are price, quality, convenience, additional service, product variety, product information, possession time, security of transactions, Reviews/feedback and exchange & refund process. These predictors were converted into a structured questionnaire. This questionnaire was administered on 12 customers and 8 retailers (operating offline & online both) for in the pilot stage. Later it was sent to 600 respondents and 200 responses were received. Total usable responses were 180. The respondents were from the age group of 20 to 35 years. The method of data collection was online along with offline responses through personal interaction.

### 4. Analysis

The Model comprises of three stages of Prospect Theory i.e. Editing Operations, Evaluation of Gains & Losses and Weighting Uncertain Outcomes.

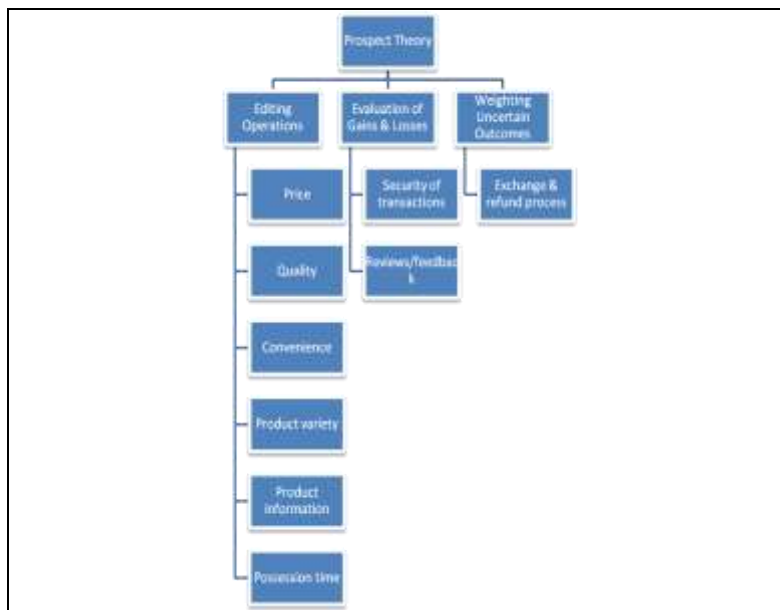


Figure 1

The analysis of the data yields pair wise comparisons of the decision criteria with respect to online and offline purchase decisions. This analysis explored three product categories i.e. Apparel, Grocery and Jewelry. The graphical representation of the data can be illustrated as below.



Figure 2

Results exhibits that the age group of people, considered for this study, prefer online shopping over offline shopping. This trend is less visible in the case of jewelry purchase. People still have trust issues related to online purchase of jewelry. The ‘editing operations’ phase talks about the basic criteria for selection of a channel. The other two phases ‘evaluation of gains & losses’ and ‘weighting uncertain outcomes’ relate to risk estimation and mitigation. The results show that though people select products from the perspective of basic criteria of product & service but they take decision of purchase on the basis of risk involved and easiness of its mitigation.

**5. Conclusion**

Detailed information about product reduces uncertainty and increases the customer satisfaction. Hence under the uncertain circumstances it become although the more important to communicate and provide information. The paper establishes this fact empirically. The growing trend toward online purchase can easily be observed in the results of the study. The limitation of the study is its respondents who fall in the category which is skewed toward usage of new technologies and usually less risk averse. For future research this study can be conducted on the other age group of people who have the tendency of risk avoidance.

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