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A STRUCTURAL EQUATION MODEL OF PERCEIVED PRICE ON VALUE PERCEPTIONS: A CONSUMER PSYCHOLOGY VIEW

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Abstract

The Purpose of this study was to develop and test a model based on the influence of price on consumer value formation. The primary goal of this study was to analyze consumer perceptions of price in relation to the mechanism in value formation based on consumer perceptions of price. Consumer perceived value is hypothesized to be formed with the interactions between/among product quality, risk, and sacrifice. The results of this study have generated some interesting findings. Mainly, the study identified the fact that the linkages between the perceived price and perceived value are not completely mediated by perceived quality and sacrifice suggesting that there is an additional variable (Perceived Risk) that also mediate the linkages. The major findings are discussed and directions for future research are suggested.

Key Words: UAE, financial sector, economic development

A Structural Equation Model of Perceived Price on Value Perceptions: A Consumer Psychology View

INTRODUCTION

Price is what is given up to obtain a product. The consumer perspective definition that is based on "Perceived Value Pricing" is different from manufacturer's perspective definition that uses "Rate of Return" concept. For example, the producer may code \$300,000 price considering cost and profit for a personal computer as appropriate, but that might be coded "expensive" by some consumers, while "cheap" for others.

A huge number of research studies in the past 45 years have been designed to test the general wisdom that price and quality are positively related. Price reliance is a general tendency in some consumers as a cue to quality. Monroe and Krishnan (1985) contended that most past price-perceived quality research has been exploratory and has not succeeded in resolving the question of when price is used to infer quality. In fact, the effect of price as an indicator of quality depends in part on informational factors, individual factors, and product category factors as advocated by many researchers (Curry 1985; Geistfeld 1982; Jacoby and Olson 1977; Rao and Bass 1985). The informational factor available to the consumers, especially, has an important influence on the perception of price-perceived quality relationship. Previous research on the relationship between price and perceived quality can be examined in two ways. First, single-cue studies generally have found a statistically significant price-perceived quality relationship. However, Olson (1977) has documented the limitations of single cue studies in that they are overly simplified, and limited internal validity. Second, the multi-cue studies have manipulated other cues in addition to price. While attempting to overcome the limitations of the single cue studies, these multi-cue studies have typically found positive price-perceived quality relationships, although they have not always been statistically significant (Lichtenstein and Janiszewski 1999; Monroe and Krishnan 1985). When, for example, intrinsic cues to quality are readily accessible, when manufacturers image provide evidence of a company's reputation, the consumer may prefer to use those cues instead of price.

The variable 'price' has been studied from many different viewpoints: economics as a demand-supply equilibrium, psychology as an information cue, for instance. In the field of consumer

behavior, somewhat related to psychology, it is reasonable to consider price as a consumers' possible inferential factor that influences other variables. For example, inclusion of a trivial attribute is a normal practice for many, if not most, manufacturers for the purpose of uniqueness or differentiating the product from others. A consumer faced with a choice between similar products might first check the evidence of effectiveness that she believes to be more important than the trivial attribute or/and for price of the product. If one brand is clearly superior on these dimensions, his/her choice may be unaffected by the presence of the trivial attribute. But the normal picture in the marketplace usually differs considerably from this type of simplified calculations. Whenever a product with additional attribute is marketed (no matter whether the attribute is important or trivial) normally the price of the product will be higher than the products without additional attribute. Differentiating the price also is done for the purposes of making differentiation between or among the products and showing the superiority of the product to consumers. In this case consumers are expected to opt one of the two alternative solutions. (a) They might think the trivial attribute as important that differentiates it from the other products and might consider the increase of the price as reasonable. (b) If s/he finds no indisputable differences at the inclusion of the additional attribute, her choice might be unaffected and s/he should perceive the price of the product as costly. Thus, perceived price in this study is described (based on the Adaptation-Level Theory) as: consumer's affective judgment of price with respect to internal norms representing the pooled effects of present and past experiences.

In spite of the vast number of empirical perceived price studies, little is known about the psychological structure of the effects of a product's price perceptions on perceived value toward a product. Therefore, the main objective of this research is to examine the cognitive processes by which price information influences consumer's evaluation of a product. In doing so, a structural equation modeling approach will be used to test a hypothetical model containing relationships among psychological constructs including price. The second objective is to address whether the value perceived by consumers depends only on the tradeoff between perceived quality and monetary sacrifice, or the complex nature of this construct should be seen from a broader point of view of benefit and costs. How about including some other important construct(s) of consumer product evaluation, such as

perceived risk, will be the second step to explain.

MODEL SUMMARY AND HYPOTHESES

It is predicted that perceived price directly influences the perception of benefit and costs (perceived quality, perceived sacrifice, and perceived risk in this study), and that benefit and cost variables influence perceived value. It has been expected that the perceived benefit and costs will mediate extrinsic cue (perceived price) and perceived value.

A number of hypotheses concerning consumer value judgment have been proposed. First, the underlying assumptions of the proposed research are discussed, and then hypotheses are developed to test the direct and mediating effects of the variables on consumer value perceptions. It is noteworthy to mention that in this general model, some hypotheses are truly new and some have been developed based on the past research.

Influence of Perceived Price

Consumers often perceive price as an extrinsic quality cue. Several studies have searched consumer perception of price as an indicator of quality, and many of these have shown price to operate in the manner of increasing perceived quality, decreasing perceived risk, and finally increasing perceived sacrifice (Dodds and Monroe 1985; Dodds et al. 1991; Erickson and Johansson 1985). Like other extrinsic cues, perceived price serves a valuable role as a risk reduction strategy. Although price as a perception of quality has spawned a large number of studies, there is a surprising lack of research on the effect of price on perceived risk.

Influence of Perceived Price on Quality

Although there are so many arguments in favor and against this rationale, in this study the idea of positive relationship between price and perceived quality is adopted. The argument behind this assumption is that: (a) producing quality good needs sophisticated machineries that cost more and increases price, (b) manufacturers use high quality raw materials to produce quality products. (c) it is unlikely that a product with low quality will be charged more in this competitive world.

Figure 1

Influence of perceived price on Risk

Among the little number of articles on price-perceived risk, some scholars have argued that price, in general, increases perceived risk, i.e., the higher the price of a product, the higher will be the perceived risk (Bearden and Shimp 1982)). Contrariwise, the same scholars in a different research settings have denoted that price reduces performance risk and increases financial risk, i.e., the higher the price, the less the performance risk, and the greater the financial risk (Shimp and Bearden 1982). However, it's not reasonable to expect consumers to give weight only on one or two risk perception(s) during their brand deliberations. Sometimes consumers may rely on the risk related to finance, sometimes on other risks, such as, performance risk, social risk, or psychological risks. Perhaps, most of the cases consumers depend on the combination of all of these risks, or at least more than one.

Figure 2

Influence of Perceived Price on Sacrifice

The sequential model, as described by Peter and Olson (1993), shows that product adoption or purchase can be seen as a sequence of behavior, from prepurchase to purchase and then postpurchase. Consumers' start sacrificing when they start contacting information, then they gradually proceed to collecting fund, contacting suitable store, getting contact with products,

Figure 3

acquire the product in exchange of money, and last of all make consumption. Here, it seems that the stage "acquiring the product in exchange of money" directly related to the sacrifice that consumers make in a purchase. But, a careful look on all the stages reveals that other stages also requires transportation cost and/or needs to spend time. These are also the sacrifice that consumers are employing in order to obtain a product. In the exploratory study, Zeithaml (1988) mentioned that consumers might also incur nonmonetary sacrifices such as time, effort, and search costs. Previous studies only have considered perceived sacrifice as a means of monetary sacrifice. As long as the sacrifice is concerned, research should incorporate sacrifices made with regard to time, effort and search in addition to price consumers employ in a deal. However, it is a valid assumption that as price increases from a low priced model to a higher priced model, consumers' perceived sacrifice also increases. The following hypotheses are drawn based on the above reasoning;

H1a: Perceived price has a positive direct effect on the evaluation of perceived quality.

H1b: Perceived high price has a direct negative effect on the evaluation of perceived risk.

H1c: Perceived price has a direct positive effect on the evaluation of perceived sacrifice.

Antecedents of Perceived Value

Consumers' perceptions of value are generally formed on the basis of "an array of cues". The consumer's task in evaluating any given product is to use cues from this array for making evaluative judgments about that product. These cues mainly can fall into two categories: intrinsic cues or extrinsic cues. Intrinsic cues refer to attributes that cannot be changed without changing the physical characteristics of the product. Extrinsic cues are attributes that are not part of the physical product but consumers take into consideration during the evaluation of a product. In consumer behavior literature, taking altogether, it is argued that the value of a good is not only inherently related with the attributes in the good but also the psychological outcome a person or people have for it.

Influence of quality on perceived value

Perceived quality is a variable which works as summary statistics in consumer value formation (Hauser and Urban 1986). As an image variable, perceived quality is commonly utilized as overall evaluations of a product whenever consumers do not have any specific ideas about the product (Teas and Agarwal (2000; Wood and Scheer 1996). According to categorization theory, attitudes toward a stimulus are directly related to attitudes associated with the activated category (Alba and Hutchinson 1987). When consumers face a brand name associated with high quality, consumers will infer positive value toward the brand. Therefore, when the quality perception of a brand is good, consumer perceived value of that brand will be favorable. When the quality perception is bad, consumer value perception will be unfavorable.

Influence of risk on perceived value

Perception of risk is very important aspect of consumer behavior because it is often perceived to be painful in that it may produce anxiety. Consumers perceive products as having both desirable (positive valence) and undesirable attributes (negative valence) (Dowling and Stealin 1994; Jacoby and Kaplan 1972; Shimp and Bearden 1982). The findings of these research are that individuals attempt to maximize the "net valence" which is

the arithmetic difference between expected positive and negative utility (i.e., net perceived value). Since the outcome of a choice (value) can only be known in the future, the consumer is forced to deal with risk. It is hypothesized that perceived risk will affect negatively to perceived value, that is, the greater the risk associated with a product, the less the consumers will perceive the value of that product. The opposite will be observed in the cases of smaller risk conditions.

Influence of sacrifice on perceived value

Wood and Scheer (1996) have shown how expected benefits, monetary factors, and risk factors affect consumer evaluation of a deal and likelihood of purchasing a product. They considered perceived quality as a potential benefit factor, and potential costs considering both tangible and intangible costs. They considered monetary sacrifice, that is required to acquire a product, as a form of tangible cost, and perceived risk, which represents an uncertainty and probabilistic future financial or psychological costs, as intangible cost. However, "Adaptation-Level Theory" and "Range Theory" explain how consumers consider the sacrifice as acceptable or unacceptable.

In the Adaptation-level theory the assumption is that price judgments depend on a comparison of a market price to an internal reference price. It relies on a comparison of current sensation to the adaptation level of recent sensory experiences (Lichtenstein et al. 1988). A \$1500 price for a dinner may be considered as "high" by one consumer because he usually spends \$1000 for it, and the other may consider it as "cheap" because he spends \$2000 normally. Notable here, perceived price will be encoded in this study based on Adaptation-level theory. Another view of how people make sensory judgments is "Range theory". It suggests that consumers use the range of remembered price experiences to set a lower and upper bound of price expectations, and that the attractiveness of a market price is a function of its relative location within this range. For example, a consumer usually spends \$900 to \$1200 for a dinner. In this case, according to the Range theory, \$800 will be "cheap" and \$1300 will be a high price for him. In both of these cases, the product will bring a lower value for that consumer. So, perceptions of the same price may have different affects across consumers. A higher price obviously may boost up the perception of a product's quality, but at the same time the sacrifice required to purchase the product leads to a reduced value for that consumer. The above discussion leads to the following hypotheses:

H2a: Perceived quality of a product has a direct positive effect on the evaluation of perceived value.

H2b: Perceived risk has a direct negative effect on the evaluation of perceived value.

H2c: Perceived sacrifice has a direct negative effect on the evaluation of perceived value.

RESEARCH METHODOLOGY

Measurement of Variables and Manipulation

Consumers' value perceptions were measured using thirteen Likert statements developed by Chowdhury and Abe (2002). Consumer quality perception was assessed using thirteen measure scales developed by Lee (1994) and these were again validated for this study. On the basis of the research by Teas and Agarwal (2000) we measured perceived sacrifice using five Likert statements. Consumer perceptions of risk were measured using four Likert statements that assessed financial risk, social risk, performance risk, and psychological risk. Perceived product price was based on the three items developed by Bearden and Shimp (1982).

The automatic camera and the color television set were chosen as product categories. These were selected on the criteria of being relevant to Bangladeshi consumers. Most urban Bangladeshi consumers are familiar with both the products. Thus, the lack of product familiarity is not expected to influence product evaluation greatly. The product categories comprised Sony, a Japanese brand and Rang, a brand from Bangladesh. Information with regard to each brand was manipulated by providing subjects with some formatted information. One page of information relevant to the features of each product was attached to each questionnaire.

Subjects and Data Collection Procedure

Data was collected from a random sample of residents in Rajshahi, a city in the northern Bangladesh, and Khulna, a city in the southern Bangladesh. Eighty subjects were randomly selected for each of the product. Thus, a total sample size for the study was 320. Nine observations were later found to be incomplete. Hence, the usable sample size was reduced to 311. Data were collected from the principal dwellers (either husband or wife) of each household. Each subject was provided with a one-page product profile that included product producer and price information. The exact prices used were: Tk. 10000 and Tk. 5000 for the cameras, and Tk. 22000 and Tk. 11000 for the color television sets. The levels of high and low prices for each category were ascertained through a pretest with a group of 30 participants. The subjects were asked to indicate the typical high and low prices for each product category.

Four versions of the questionnaire have been used, a version corresponding to each of the automatic camera/TV brands in consideration. The brands used for evaluation were the same for all versions of the questionnaires. All instructions regarding the brands under evaluation were of similar length and paragraph construction. When the subject had formed an impression of the brand, he or she was asked to mark the evaluation on a number of seven-point scales. Measures for evaluating perceived risk (PR), perceived quality (PQ), and perceived sacrifice (PS) appeared after the perceived value (PV) measures. Evaluations of perceived product price (PPP) followed PR, PQ, and PS. Finally, the demographic questions were given at the last page of the questionnaire. Most subjects spent between 10 and 12 minutes filling out the entire questionnaire.

RESULTS

Overall Model Fit

The first step of the data analysis was a test of the measurement model before entering into structural model testing. Objectives of this test were: (1) to contain the validity and reliability of measures developed and tested in previous phases of the study; and (2) to select the best subset of observed measure for use in testing the structural model. The data approximated a normal distribution with acceptable skewness and kurtosis values. Coefficient alpha was computed for each set of observed measures associated with a given latent variable, and a confirmatory factor analysis (CFA) was conducted. Alpha values of each item in each dimension were performed separately and were within an acceptable range. Because of the large number of items used to measure the dimensionality of most of the constructs, responses of these items were averaged to form a single measure for each of the dimension.

Estimation of Measurement model for the eight constructs of interest was performed using Amos 4.01. The first step was an evaluation of the overall fit of the structural model as indicated by the chi-square statistic, which was significant $\chi^2 =$

108.2; $df = 71$; $p = 0.001$. The statistic is computed under the null hypothesis that the observed covariances among the answers came from a population that fits the model. A statistically significant value in the goodness of fit test would suggest that the data do not fit the proposed model, i.e., that the observed covariance matrix is statistically different than the hypothesized matrix. Jöreskog and Sörbom (1986, p. 38-39) state, "the statistical problem is not one of testing a given hypothesis --- but one of fitting the model to the data and to decide whether the fit is adequate or not --- instead of regarding χ^2 as a test statistic one should regard it as a goodness (or badness) of fit measure in the sense that large χ^2 value correspond to bad fit and small χ^2 values correspond to good fit."

Bagozzi and Yi (1988, p. 76) have pointed out that "one of the first things that should be done before examination of the global criteria is to see if any anomalies exists in the output". Examples of anomalies exist in the output are: (1) negative estimates for the variances, (2) correlation estimates greater than 1, and (3) extremely large estimates for the parameters. None of these anomalies were present in the output of the analysis.

At this stage, an examination of data was initiated that revealed eight multi-variate outliers. Elimination of these eight cases thus resulted a total of 303 samples. Bagozzi (1977) have proposed two options to consider when a proposed model has to be rejected on statistical grounds:

- (1) One can try to modify the rejected model in small ways to improve its fit to the data.
- (2) One can start form scratch to devise another model to replace the rejected one.

Modification indices (M. I) suggest ways of improving a model by increasing the number of decreases faster than the degrees of freedom (Bentler and Bonett 1980). Furthermore, an acceptable chi-square value can be achieved by introducing additional constrains that produce a relative large increase in degrees of freedom with only a small increase in the chi-square statistic. These modifications can be roughly evaluated by looking at the critical ratios (C.R). Alternative analysis were performed by modifying the variables (by correlating and imposing constraints) that deemed logical to improve the model fit but failed to affect the chi-square value significantly.

For the CFA analysis, most factor loadings were acceptable except loadings for some observed measures. Therefore, the measure items which had loading problems were discarded for use in testing the structural model. All the other measures were retained for consideration because, the loadings were significant at 0.05 levels regardless of the magnitude of their factor loadings.

Finally, the model fit the data reasonably well, producing a non-significant chi-square value ($\chi^2 = 83.607$; $df = 71$; $p = 0.145$), a goodness-of-fit (GFI) index of 0.97, adjusted goodness-of-fit index of 0.96, Root Mean Square Residual (RMR) of 0.045.

Take in Figure 1 here

Tests of Hypotheses

Based on previous research, it has been predicted in hypothesis 1a (H1a) that perception of price (higher price compared to lower price) would be positively associated with consumer perception of product quality. Recall that although there are so many arguments in favor and against the effect of price as an

indicator of quality, in this study the idea of positive relationship between price and perceived quality was adopted. The results, however, do not support this hypothesis as the path between perceived product price (PPP) and perceived quality (PQ) is not significant ($\beta_1 = 0.07$, $p = 0.63$).

In hypothesis 1b (H1b) the prediction was that perceived high price would have a direct negative effect on perception of risk of buying a product. It means that the higher the price of a product, the lower would be the possibility of purchase failure. The structural equation results do not support this hypothesis. That is, the direct effect of perceived product price (PPP) on perception of risk of buying a product is not significant ($\beta_1 = -0.04$, $p = 0.49$).

In hypothesis 1c (H1c) we predicted that perceived product price has a direct positive effect on perceived sacrifice (PS). It assumes that as price increases from a low priced model to a higher priced model, consumers' perceived sacrifice also increases. The results show that the direct effect of perceived product price on consumer perception of sacrifice is positive and significant ($\beta_1 = 0.15$, $p = 0.05$).

Hypothesis 2a (H2a) states that perceived quality of a product has a direct positive effect on the evaluation of perceived value. That is, as one's perceptions of quality toward the brand increases, his trust of the brand as a satisfaction supplier and thus a fulfiller of value will also increase. This hypothesis was supported that provides positive and significant values ($\beta_1 = 0.41$, $p = 0.01$). In hypothesis 2b (H2b), we hypothesized that perception of risk of purchasing a product would have direct negative effect on the evaluation of perceived value. It means that the greater the risk associated with a product, the less the consumers will perceive the value of that product. The results do support this hypothesis as the path between perceived risk (PR) and perceived value (PV) is negative and significant ($\beta_1 = -0.15$, $p = 0.05$). In hypothesis 2c (H2c), we predicted that perceived sacrifice would effect perception of value negatively. That is, the more a consumer sacrifices to purchase a product, the less the product would be valuable to that consumer. This hypothesis was supported in the structural equation model that provides negative estimates and significant value ($\beta_1 = -0.18$, $p = 0.05$).

DISCUSSION AND CONCLUSION

General Discussion

The results of this study have generated some interesting findings. First, the study identified the fact that the linkages between the perceived price and perceived value are not completely mediated by perceived quality and sacrifice suggesting that there is an additional variable (Perceived Risk) that also mediate the linkages. The results of the study extend the previous findings by providing support in favor of perceived risk as a mediating variable. This study lends support to the basic framework proposed by Zeithaml (1988), yet provides the basis for a broader conceptualization of the tradeoffs involved in consumer perceptions of value. This broader, more general model extends previous models (Dodds and Monroe 1985; Dodds, Monroe, and Grewal 1991; Teas and Agarwal 2000; Zeithaml 1988) by incorporating the tradeoff between costs and benefits inherent in a value assessment. In this case, the risks and monetary outlay relative to expectation associated with a purchase are evaluated alongside the beneficial, desirable qualities of the product.

The present study has several limitations. First, only electronic product class was considered for evaluation in this study. Also, a more comprehensive study will include a few more product categories to ensure better generalization of results. Future stud-

ies must explore how the underlying model works for a wider range of products, situations, settings, and populations. A finding's failure to replicate is evidence of a limit to the generalizability of the relation. The study was supposed to tap and test a theory of consumer value perception, and considerations of internal validity were paramount. However, when a finding does replicate, the scope of relation is extended. Further research should offer enough variety in addition to the product class used here. Second, the study is carried out in Bangladesh. The results may not be directly applied to another country. However, a similar research methodology may be used to examine possible price effects in other developing as well as developed countries.

Concluding Remarks

This study has attempted to answer a subset of questions central to understanding consumer perceived value phenomena. To this end, a model of perceived value was proposed that contained the major variables thought to impact consumers' perception of value. These variables were Perceived Quality (PQ), Perceived Risk (PR), Perceived Sacrifice (PS), and Perceived Product Price (PPP). Results indicated that all the variables were important in the model of perceived value.

These results substantially contribute to theoretical and managerial understanding of consumer value formation process. At the theory level, this study has produced greater understanding of the variables that appear to be most responsible in structuring consumer perceptions of value. In other words, the model as a whole means that when a consumer evaluates the value of a product, s/he may retrieve the constructs directly related to value and some cues determine those constructs. For example, in the deliberation of a computer, the first evoked constructs (cues) might include perceived quality, risk and sacrifice, and perceived quality, risk and sacrifice might be formed by the interaction with perceived product price. Thus, rather adopting arbitrarily the determinants of perceived value, the result of the model fit denotes that it is important to account all the potential variables in a research setting to assess consumer perception of value.

From a practical standpoint, results of this study should provide managers with greater insight concerning the potential benefits (and limitations) associated with using perceived value strategies. This research clarifies the sometimes confusing roles of perceived product price. Finally, because the investigation of consumer perception of value is crucial to both researchers and marketers, this study has emphasized that much additional research remains before a thorough understanding of perception of value can be achieved. Thus, this research indicates that there is great potential for developing more sophisticated models of consumer value formation process. Many of the areas requiring research have been highlighted in the preceding pages, but there are certainly others that remain to be unearthed. By building on the substantial search literature already available and by incorporating important variables our understanding and the perceptions of value process to provide substantial insights into consumer decision-making will be greatly enhanced. It is hoped that the proposed relationships and accompanying tests will stimulate work in the area of perceived value.

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