



Examining the Nonlinear Effects in Satisfaction-Loyalty-Behavioral Intentions Model

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Examining the Nonlinear Effects in Satisfaction-Loyalty-Behavioral Intentions Model

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Abstract

Extant research has widely investigated linear functional forms in satisfaction and loyalty models. Though complex nonlinear nature of satisfaction loyalty link is suggested by several researchers, few attempts have been made to empirically examine nonlinearity. Moreover, researchers have used divergent functional forms to model nonlinearity and their findings are often inconclusive. In this study we use nonlinear form to describe the relationship between satisfaction, attitudinal loyalty, purchase loyalty and customer behavioral intentions such as willingness to pay more and external and internal complaining responses in the context of business-to-consumer ecommerce. We find modest empirical support for nonlinear effects in the relationship. Results support nonlinearity only in the case of attitudinal loyalty to internal complaining response link. Results also present evidence about the mediating role of attitudinal loyalty in the relationship between satisfaction, purchase loyalty, willingness to pay more and internal complaining responses.

Keywords: Nonlinearity, satisfaction, attitudinal loyalty, purchase loyalty, behavioral intentions

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Examining the Nonlinear Effects in Satisfaction-Loyalty-Behavioral Intentions Model

Delivering superior service and ensuring higher customer satisfaction have become strategic necessities for companies. The economic benefits of satisfaction and customer loyalty are immense. Loyal customers recommend new customers to a company, exhibit preference for it over its competitors, repurchase from it and do more business with it in future (Zeithaml et al., 1996). Loyal customers give more business and it costs less to a company to serve them (Reicheld and Sasser, 1990). Cultivating loyalty and retaining customers is important in any business. However, retaining customers in an online environment is relatively more difficult due to factors such as easy availability of price related information and ease of switch (Reibstein, 2002). Economic necessity of loyalty is also higher in the online environment. Reicheld and Schefter (2000) find that in the context of ecommerce, it is costlier to acquire a new customer than in traditional retailing. Early stages of relationships generate more losses for ecommerce firms. However, profits generated by loyal customers also grow more rapidly. Loyal customers make more repeat purchases at the ecommerce site and also recommend the site to others more often. The nature of the online environment facilitates referrals by loyal customers since word of mouth can be spread easily, widely and instantly through online facilities such as email, bulletin boards etc. Realizing this, leading edge Internet-based organizations have made measurement of satisfaction and loyalty a pivotal element of their business strategy. In this paper, we attempt to add more to our understanding of satisfaction and loyalty in online consumer environment.

Although research conducted at firm level has established the linkage between customer satisfaction and financial performance (Buzzell and Gale, 1987), it is now

accepted that this relationship is quite complex and consists of many intermediate links (Zeithaml et al., 1996). One such intermediate link is the relationship between customer satisfaction, loyalty and customer behavioral intentions, which is the focus of our research. While satisfaction and loyalty models are widely studied, research examining the intriguing nature of relationships such as existence of potential nonlinear effects is sparse. We contribute to marketing literature by examining nonlinear nature of conceptualized relationships. In particular, ours is the first study to empirically examine the nonlinearities in satisfaction-loyalty-behavioral intentions model in an online environment. In our study we also make a distinction between attitudinal and purchase loyalty (Chaudhuri and Holbrook, 2001; Dick and Basu, 1994) and test the mediating role of attitudinal loyalty in the relationship between satisfaction and purchase loyalty, willingness to pay more and internal and external complaining responses. Lastly, in view of paucity of the satisfaction and loyalty research concerning emerging economies, we contribute to literature by carrying out our study in one of the fastest growing emerging economies, India.

Nonlinear Effects in Satisfaction, Loyalty and Behavioral Intentions Link

Though the link between satisfaction, loyalty and behavioral intentions has been examined in several studies, in general marketing researchers have ignored the nonlinearity in the relationships (Mittal et al., 1998; Anderson and Mittal, 2000). Nevertheless, few studies have empirically tested the nonlinear effects in these relationships (e.g., Anderson and Sullivan, 1993; Oliva, Oliver and MacMillan, 1992; Agustin and Singh, 2005). Nonlinearity is suggested on the premise that change in the quantum of independent variables (e.g., satisfaction) would not uniformly affect the dependent variables (e.g., loyalty). However, there is a wide variation in the

conceptualized functional forms and the empirical findings on the exact nature of nonlinear effects in the satisfaction-loyalty link. For example, looking at the results of existing studies, it can not be conclusively said whether satisfaction has diminishing incremental effect on loyalty or it exhibits increasing returns. This can be especially frustrating for practicing managers seeking guidance from empirical academic research. They obviously want to know whether they should strive to improve satisfaction on a continuous basis with the hope that it would have equal or at least desirable effect on customer retention.

Coyne (1989) show that the satisfaction-loyalty relationship is nonlinear with increasing returns and involves two thresholds. When satisfaction increased above a threshold, purchase loyalty went up rapidly and when satisfaction dropped below a threshold level, purchase loyalty decreased equally rapidly. However, between these threshold levels, loyalty was relatively unaffected by changes in satisfaction ratings. Oliva, Oliver and MacMillan (1992) find support for nonlinearity in satisfaction and purchase loyalty link. In their findings, above or below a certain critical level of satisfaction, purchase loyalty displayed increasing sensitivity. Mittal, Ross and Baldasare (1998) suggest that satisfaction should exhibit diminishing sensitivity toward attribute performance. However, their empirical findings are inconclusive. Though the results supported diminishing sensitivity, the nonlinear model with diminishing sensitivity did not show significantly better fit than a linear model without diminishing returns.

Mittal and Kamakura (2001) find that the nature of nonlinearity in satisfaction-repurchase intention and satisfaction-repurchase behavior links is different. While repurchase intention showed diminishing returns, repurchase behavior exhibited increasing sensitivity towards satisfaction. Contrary to this, Gómez, McLaughlin and Wittink (2004) show that sales performance (which is directly driven by repurchase

behavior) displayed decreasing sensitivity to satisfaction. However, in their study the parsimonious linear-symmetric model performed better than the nonlinear-asymmetric one. Streukens and de Ruyter (2004) have similar findings in the context of the relationships between service quality, satisfaction, value and behavioral intentions. Agustin and Singh (2005) find partial support for nonlinearity in satisfaction loyalty link terms of decreasing return. Out of two samples studied, satisfaction had significant quadratic effect only in one.

Jones and Sasser (1995) posit industry structure as an explanation for increasing and decreasing returns of satisfaction. In markets with intense competition, satisfaction shows increasing return and any decline in satisfaction results in rapid drop in loyalty. Hence, merely satisfied and completely satisfied customers exhibit dramatically different levels of loyalty. Anderson and Mittal (2000) suggest that increasing returns for satisfaction occurs particularly when the company's service performance exceeds customer expectations.

Through our research, we provide insights into the complex nature of the relationship between satisfaction, loyalty and different behavioral intentions. We examine the nonlinear effects in these relationships in the online environment. To the best of our knowledge, no study has tested the nonlinear nature of relationships in an online setting. Even a few studies of offline settings which modeled attitudinal and purchase loyalty separately have not investigated the nonlinearity. Cognizant of this knowledge gap, we examine the nonlinearity by including positive quadratic effect in addition to positive linear effect in the relationships (discussed in next section). Since business-to-consumer ecommerce is characterized by intense competition, we predict increasing sensitivity of attitudinal loyalty towards satisfaction (Jones and Sasser, 1995). The rationale of increasing returns holds valid even in other conceptualized relationships in our study as

the same psychological principles also apply there as in the case of the satisfaction-attitudinal loyalty link.

Customer Satisfaction

Oliver (1997) defines satisfaction as “the consumer's fulfillment response, the degree to which the level of fulfillment is pleasant or unpleasant” (p. 28). Literature has also made the distinction between overall satisfaction and attribute satisfaction. Overall satisfaction results from overall experience while attribute satisfaction is based on assessment of performance of individual attributes (Oliver, 1993). In our study we focus on overall satisfaction experienced by customers in the context of B2C ecommerce.

Attitudinal and Purchase Loyalty

Oliver (1999) defines loyalty as an intrinsic commitment in a customer to make repeat purchase of a preferred product or service on an ongoing basis even under the effect of situational factors or competitors' actions to attract him or her. Although his definition includes both behavioral and attitudinal components of loyalty, extant literature in general has focused on behavioral elements of loyalty ignoring attitudinal dimensions of loyalty as well as its relationship with other constructs (Chaudhuri and Holbrook, 2001). However, some researchers have made a distinction between attitudinal loyalty and behavioral or purchase loyalty (Day, 1961; Dick and Basu, 1994; Wernerfelt, 1991). Empirical research conducted in recent years also supports the fact that attitudinal loyalty and purchase loyalty are related but conceptually distinct constructs (Chaudhuri and Holbrook, 2001; Chiou and Droge, 2006; Rauyruen and Miller, 2007).

Purchase Loyalty: Purchase loyalty focuses on results or outcomes of loyalty such as repeat purchase. Dick and Basu (1994) argue that the behavioral definition is “insufficient to explain how and why brand loyalty is developed and/or modified” (p. 100). Behavioral loyal customers can also be spuriously loyal as they may make repeat purchases because of situational constraints such as availability of only a particular brand at retail outlets. Jones and Sasser (1995) suggest that instances such as government regulations limiting market competition, high switching costs associated with changing hospital when treatment is going on, strong loyalty programs like frequent-flier schemes of airlines, etc. can lead to spurious loyalty.

Attitudinal Loyalty: Attitudinal loyalty focuses on the cognitive basis of loyalty and isolates purchases driven by a strong attitude from purchases due to situational constraints. Attitudinally loyal customers are committed to a brand or company and they make repeat purchases based on a strong internal disposition (Day, 1961). Attitudinal loyalty is also viewed as the extent of the customer's psychological attachments and attitudinal advocacy towards the organization (Rauyruen and Miller, 2007). Accordingly, attitudinal loyalty encompasses positive word of mouth intentions, willingness to recommend to others and encouraging others to use the products and services of a company (Zeithaml et al., 1996).

Mediating Role of Attitudinal Loyalty: Recent research has shown that satisfaction is an important determinant of attitudinal loyalty (Bennett et al., 2005; Rauyruen and Miller, 2007). As attitudinal loyalty deals with the process of developing behavioral loyalty, it can predict repeat purchase intentions. The direct positive effect of attitudinal loyalty on purchase loyalty is also supported in literature (Evanschitzky et al., 2006).

Satisfaction is viewed as an affective antecedent and attitudinal loyalty is conative variable (Dick and Basu, 1994). As conative variables mediate the relationship between affective and behavioral constructs (Ajzen and Fishbein, 1980), attitudinal loyalty should mediate the relationship between satisfaction and purchase loyalty (Chiou and Droge, 2006). In other words, the effect of satisfaction on purchase loyalty should be indirect, i.e. through attitudinal loyalty. Our conceptual model depicts these relationships (Figure 1). We posit that attitudinal loyalty will fully mediate the effect of satisfaction on behavioral loyalty. Further, based on our earlier discussion on nonlinear effects in terms of increasing returns, we propose following hypotheses comprising linear and quadratic effects:

H1a: Satisfaction has a positive, linear effect on attitudinal loyalty.

H1b: Satisfaction has a positive, quadratic effect on attitudinal loyalty.

H2a: Attitudinal loyalty has a positive, linear effect on purchase loyalty.

H2b: Attitudinal loyalty has a positive, quadratic effect on purchase loyalty.

Willingness to Pay More

Our model also includes willingness to pay more as a customer behavioral intention construct. Previous studies have shown that satisfaction has a positive influence on intention to pay a price premium (LaBarbera and Mazursky, 1983; Rust and Zahorik, 1993). Literature on brand loyalty provides evidence that loyal customers have lower price sensitivity due to factors such as perceptions of unique value, trust and affect in their preferred brand (Jacoby and Chestnut, 1978). Chaudhuri and Holbrook (2001) show that attitudinal loyalty towards a brand is positively related to its relative price in the marketplace. Similar to satisfaction-attitudinal loyalty-purchase loyalty link, the effect of satisfaction on willingness to pay more should be through attitudinal loyalty as the same

psychological mechanism will operate here also. We predict that attitudinal loyalty will have positive effect on willingness to pay more. We also predict nonlinear effect of increasing return and propose the following:

H3a: Attitudinal loyalty has a positive, linear effect on willingness to pay more.

H3b: Attitudinal loyalty has a positive, quadratic effect on willingness to pay more.

External and Internal Complaining Responses

Prior research has shown that dissatisfaction leads to complaining behavior (Richins, 1987; Singh, 1988; Zeithaml et al., 1996). Customer complaining responses are intermediate and directed towards some intended goals like redress although goal attainment is not certain (Singh and Wilkes, 1996). Customers exhibit multiple complaining responses like complaining to company or communicating bad experience to friends and relatives (Day, 1984; Richins 1983; Zeithaml et al., 1996). Following Zeithaml et al. (1996), we distinguish between external and internal complaining responses. External and internal complaining responses are similar to private and voice responses in the Singh (1988) typology of complaining behavior. Richins (1987) argues that diverse complaining responses (e.g., internal or external) are separate processes influenced by different constructs or through different mechanisms by same constructs.

Internal Complaining Response: Internal complaining response pertains to customers complaining internally to employees of a company. It indicates constructive attempts by a customer in which he actively works with the company to remedy problems (Hirschman, 1970). Attitudinally loyal customers with favorable disposition towards a company may be more prone to complain internally. Their objective could be to give enough

opportunities to the company to take corrective actions and deliver better service performance (Zeithaml et al., 1996). Prior research has shown that internal complaining (or voice) response is positively related to satisfaction (Ping, 1993). We hypothesize that the positive effect of satisfaction on internal complaining response will be through attitudinal loyalty. Further, we predict a nonlinear effect of increasing return and propose the following:

H4a: Attitudinal loyalty has a positive, linear effect on internal complaining response.

H4b: Attitudinal loyalty has a positive, quadratic effect on internal complaining response.

External Complaining Response: External complaining response involves customers complaining to entities external to a company (e.g., other customers) as a result of dissatisfaction with product or service offered. It is retaliatory in nature and may result in far more severe consequences for the companies than internal complaining. Externally complaining customers have higher likelihood of defection. They have deeply held frustration and thus we predict negative relationship between external complaining behavior and attitudinal loyalty. We also suggest the nonlinear effect in terms of increasing return and propose the following:

H5a: Attitudinal loyalty has a negative, linear effect on external complaining responses.

H5b: Attitudinal loyalty has a negative, quadratic effect on external complaining responses.

Research Design

Sample

We collected data using offline as well as online survey carried out in 2004. Prior research has established that online and offline surveys produce equivalent results in mixed-mode studies (Deutskens et al., 2006). In the offline survey, questionnaire was administered in person to respondents in two large Indian cities. For the online survey, the electronic version of the same questionnaire attached with an invitation email was sent to email ids provided by five business organizations and educational institutions supporting this research. The response rate for the online survey was 12 percent. Respondents were asked to fill up the questionnaire only if they had shopped online at least twice in the immediately preceding six months. Responses were given in respect to the ecommerce site where respondents made online purchases recently. A combined total of 202 usable responses (102 through the offline and 100 through the online survey) were collected. We conducted t-test on the collected data to assess offline-online biases. The t-tests of the item means showed no significant differences between online and offline responses. In the aggregate sample, 85 percent of respondents were men and 15 percent women. Seventeen percent of them were in the 18-24 age group, 55 percent in 25-34, 21 percent in 35-44 and 7 percent were in more than 44 age group. Ninety-Six percent had a college degree or above and 62 percent of them had a monthly income of more than Rs. 10,000 (or approximately US\$ 246). Demographically, respondents in the sample were similar to subjects in another reported study on online shopping by the Internet and Online Association of India (2005). Respondents in general were more affluent, younger and more technology savvy than the general population.

Measurements

In the study we used scales adapted from existing literature. The customer satisfaction scale was adapted from Spreng et al. (1996). Three items were used to measure customer satisfaction with overall shopping experience (“very dissatisfied”/“very satisfied,” “very unpleasant”/“very pleasant” and “terrible”/“delightful”). We used a four-item attitudinal loyalty scale adapted from Chaudhuri and Holbrook (2001), Rauyruen and Miller (2007) and Zeithaml et al. (1996). A three-item purchase loyalty scale was adapted from Chaudhuri and Holbrook (2001) and Zeithaml et al. (1996). A two-item willingness to pay more scale was adapted from Zeithaml et al. (1996). We used single-item scales adapted from Zeithaml et al. (1996) for measuring external and internal complaining responses. Previous studies on satisfaction and loyalty (e.g., Kekre et al., 1995; Mittal et al., 1998; Shankar et al., 2003) have used single-item measures. Use of single-item measures may not be necessarily be a concern in service marketing studies (Drolet and Morrison, 2001). The appendix provides the list of constructs and the corresponding items.

Method of Analysis

To estimate the proposed model, we developed the following equations:

$$(1) \eta_1 (\text{attitudinal loyalty}) = \gamma_{11} (\text{satisfaction}) + \gamma_{12} (\text{satisfaction}^2) + \zeta_1$$

$$(2) \eta_2 (\text{purchase loyalty}) = \beta_{21} (\text{attitudinal loyalty}) + \gamma_{23} (\text{attitudinal loyalty}^2) + \zeta_2$$

$$(3) \eta_3 (\text{willingness to pay more}) = \beta_{31} (\text{attitudinal loyalty}) + \gamma_{33} (\text{attitudinal loyalty}^2) + \zeta_3$$

$$(4) \eta_4 (\text{external complaining response}) = \beta_{41} (\text{attitudinal loyalty}) + \gamma_{43} (\text{attitudinal loyalty}^2) + \zeta_4$$

$$(5) \eta_5 \text{ (internal complaining response)} = \beta_{51} \text{ (attitudinal loyalty)} + \gamma_{53} \text{ (attitudinal loyalty}^2) + \zeta_5$$

In the equations above, η represents endogenous constructs, ζ indicates disturbance terms, and γ and β refer to coefficients for the effect of exogenous and endogenous constructs.

Testing Quadratic Effects

Our model equations include linear as well as quadratic terms. Based on the seminal work of Kenny and Judd (1984), several techniques (e.g., Jaccard and Wan, 1995; Joreskog and Yang, 1996, Ping, 1995; Mathieu et al., 1992), have been proposed for testing structural models with latent quadratic and interaction terms. Comparison and illustration of these techniques have been published recently (Cortina et al., 2001; Lee et al., 2004). We chose the single indicator approach of Ping (1995), as it extracts parameter values well, produces a model that usually fits real world survey data and gives acceptable model-to-data-fit, and is less tedious to use (Cortina et al., 2001; Ping, 2003).

Ping (1995) suggests use of product of the sum of relevant indicators as a single indicator to specify a quadratic term. For example, if in the model being tested has X as latent construct and x_1 and x_2 are its indicators, then the term $(x_1+x_2)^2$ is specified as the sole indicator of latent quadratic XX. We used the single step version of this approach in which indicator loading ($\lambda_{x:x}$) and measurement error ($\theta_{ex:x}$) for single indicator of the quadratic term are calculated using following equations:

$$(6) \lambda_{x:x} = (\lambda_{x1} + \lambda_{x2})^2$$

$$(7) \theta_{ex:x} = 4(\lambda_{x1} + \lambda_{x2})^2 \text{Var}(X)(\theta_{ex1} + \theta_{ex2}) + 2(\theta_{ex1} + \theta_{ex2})^2$$

For model testing, we mean centered all observed variables in which mean of the observed variable was subtracted from corresponding values of each observed variable to minimize multicollinearity related problems (Ping, 2003).

Results

Confirmatory Factor Analysis

The measurement model with all 14 items produced following fit statistics: $\chi^2 = 117.53$, degree of freedom (d.f.) = 64, Comparative Fit Index (CFI) = .95, Non-Normed Fit Index (NNFI) = .93 and Root Mean Square of Approximation (RMSEA) = .065 (90% confidence interval [CI]: .046 to .083). CFA yielded acceptable values of CFI, NNFI and RMSEA. CFI value of .90 or above suggests good model fit (Bentler, 1990). The recommended value of NNFI is .90 or above (Hair et al., 1998). Likewise, RMSEA value of .08 or below indicates acceptable fit (Browne and Cudeck, 1993).

Panel A of Table 1 provides the Cronbach's alphas, construct reliabilities and variance extracted values. For multi-item scales construct reliability and variance extracted values were above or close to the recommended values of .7 and .5 respectively (Fornell and Larcker, 1981). Cronbach's alpha values were also above or near the recommended value of .7 (Nunnally et al., 1978). For single item variables external and internal complaining responses, we assigned reliability value of .70. Jöreskog and Sörbom (1993) recommend this approach for single item variables as it is unrealistic to assume that the measures are error free, i.e. they have reliability value of 1. Error variances, computed as .30 times the variance of indicators, were fixed during model estimation.

We assessed the discriminant validity of the constructs by constraining the correlation between each pair of constructs to unity. The constrained model produced significantly higher χ^2 values than the unconstrained model, indicating that all constructs

were not perfectly correlated. This established the discriminant validity (Bagozzi and Phillips, 1982). All possible one-factor, two-factor, three-factor, four-factor and five-factor models were compared with the hypothesized six-factor model. The six-factor model yielded the best fit. In CFA, all loading of indicators to their corresponding latent constructs were significant at $p < .01$. All indicators' loadings were greater than twice their standard error, hence the convergent validity was established.

Estimating Structural Model

The results of structural model testing are presented in Panel B of Table 1. The model has acceptable fit with $\chi^2 = 181.69$, d.f. = 94, CFI = .93, NNFI = .91 and RMSEA = .068 (90% CI: .053 to .083). After establishing the model fit, we examine the estimated path coefficients to test various hypotheses. Looking at linear effects first, results indicate that satisfaction is positively and significantly related to attitudinal loyalty. This provides support for hypothesis H1a. Attitudinal loyalty has significant positive effects on purchase loyalty, willingness to pay more and internal complaining response. The effect of attitudinal loyalty on external complaining response is insignificant. Therefore, results provide support for hypotheses H2a, H3a and H4a but H5a is not supported. The coefficients for quadratic terms in the model are insignificant except in the case of relationship between attitudinal loyalty and internal complaining response. It means that nonlinearity in most hypothesized relationships could not be established, only attitudinal loyalty was found to have a positive quadratic effect on internal complaining response. Hence, H1b, H2b, H3b and H5b are not supported while H4b is supported. Adding quadratic terms increases R^2 of attitudinal loyalty, purchase loyalty and internal complaining response by 3.4, 1.2 and 25 % respectively. This increment in variance explained in dependent variables justifies the inclusion of quadratic effects in the model.

Competing Models: Fully Mediated and Partially Mediated

We hypothesized that attitudinal loyalty would fully mediate the effect of satisfaction on purchase loyalty and behavioral intentions such as willingness to pay more and external and internal complaining responses. To verify the superiority of this fully mediated model over partially mediated model, i.e. a model in which satisfaction has indirect effect through attitudinal loyalty as well as direct effect on purchase loyalty and other behavioral consequences, we separately estimated the partially mediated model also. We compared our hypothesized model and the partially mediated model across different fit indices. Compared to the parsimonious fully mediated model, the partially mediated model produced lower CFI (.92 against .93) and NNFI (.89 against .91) and higher RMSEA (.073 against .068). The difference in χ^2 values was not significant with $\Delta\chi^2 = 3.51$, d.f. = 8, $p > .05$. The hypothesized model yields better fit to data than the partially mediated model. Hence, testing the alternative model supported the mediating role of attitudinal loyalty.

Discussion

We empirically examine the nonlinearity in satisfaction-loyalty-behavioral intentions relationship in the online environment. Though our results provide only partial support for nonlinear effects, they challenge previous findings (e.g., Mittal et al., 1998) about diminishing returns of satisfaction. In our study increasing sensitivity was supported only in the case of one dependent variable: internal complaining response. At the same time absence of negative coefficients for quadratic terms clearly goes against diminishing returns hypotheses in satisfaction loyalty domain. The implication of these results can be startling as they suggest that managers can not afford to stop or cut down

investment in satisfaction drivers with the belief that satisfaction displays diminishing returns. If their objective is customer retention, they should strive to improve service performance continuously to achieve or sustain highest customer rating in the satisfaction measuring scale.

These results also show that satisfaction has a strong positive effect on attitudinal loyalty. Attitudinal loyalty in turn affects purchase loyalty, willingness to pay more and internal complaining response. The model explains a substantial proportion of the variances in attitudinal and purchase loyalty with R^2 values as .61 and .83 respectively. However, the variance explained is lower for willingness to pay more and internal complaining response. R^2 values for them are .30 and .20 respectively. Attitudinal loyalty has stronger relationship with purchase loyalty than willingness to pay more. This implies that attitudinal loyal online shoppers are not as likely to pay price premium to an ecommerce site as they may intend to repurchases from it. This corroborates the finding of Zeithaml et al. (1996) in offline services settings.

Another finding is that attitudinal loyalty positively affects internal complaining response but its relationship with external complaining response is insignificant. It can be inferred that attitudinally loyal customers are more likely to complain to employees. Through their actions, they facilitate service recovery. Internal complaining response in the absence of external complaining also indicates the customer's confidence on responsiveness of the company to customer grievances. Internal complaining occurs when the customer perceives 'repairable lapses' due to negative assessment of individual episodes as against the perception of total deterioration of performance (Ping, 1993).

Research Contributions

We add to existing literature by detangling the complex relationships between satisfaction, attitudinal and purchase loyalty and behavioral intentions. Ours is the first study to examine the nonlinear effects in satisfaction loyalty domain in an online context. To the best of our knowledge, the relationship of willingness to pay more with the satisfaction and loyalty in the online environments is first time investigated in our research. Our study also provides support for the mediating role of attitudinal loyalty in relationships between satisfaction, purchase loyalty and behavioral intentions. We also extend the satisfaction and loyalty literature by conducting the study in India, an emerging economy. Emerging economies are characterized by significant departure from the assumptions of theories developed in the matured markets. Research concerning emerging economies can contribute substantially to the literature, especially since the major limitations of exiting body of knowledge of marketing is that it is based almost entirely on research carried out in high income developed economies (Burgessa and Steenkamp, 2006).

Managerial Implications

The findings of this research can help practicing managers in several ways. Our study addresses a number of managerially relevant questions: What is the exact nature of relationship between satisfaction, attitudinal loyalty, repeat purchases and behavioral consequences? Which is more important - attitudinal or purchase loyalty -from managerial point of view? Are external and internal complaining responses related to satisfaction and loyalty through conceptually different mechanisms? Our study provides further evidence that measuring customer repeat purchase intentions and behavior may not be adequate for managers. Their loyalty measurement system should also capture

attitudinal loyalty data which can help them in segregating spurious loyal customers from truly loyal customers.

Our results also are evidence against the diminishing returns hypothesis for satisfaction and loyalty variables. This indicates the pitfalls of the commonly belief held by many managers that a level of satisfaction below total satisfaction is acceptable in their business and even just satisfied customers (e.g., providing rating of 4 in 1-5 scale) continue to remain with them. These managers believe that investment to turn satisfied customers to totally satisfied customers does not yield desired returns and hence investment is not justifiable (Jones and Sasser, 1995). Our study clearly indicates that investment on satisfaction drivers provides significant returns in terms of equal increase in customer loyalty. In markets with intense competition, any gap in level of satisfaction experienced and total satisfaction level can be suicidal. Managers need to make adequate investment in satisfaction drivers on a continuous basis to improve service performance.

Further, on nonlinear effects, our results show increasing sensitivity of internal complaining towards changes in attitudinal loyalty. Increasing internal complaining can help managers in timely feedback and provide opportunities for redress and service recovery. The importance of proper customer complain management and using complains as tool for service performance improvement is also highlighted in this research.

Limitations and Directions for Future Research

Our research work is subject to some limitations. Drawing random samples online is extremely tough due to lack of sampling frame (Shankar et al., 2003). We could not follow probability sampling but depend on support from business organizations and academic institutions for collecting data from their employees. While selecting the sample we took adequate care to choose respondents having profiles similar to those of online

shoppers. The demographic profiles of our sample are similar to the profiles of respondents in other studies conducted in India on online shoppers. Therefore, the sample is reasonably representative of universe of Indian online shoppers.

We used single item instruments for some of our constructs of interest due to questionnaire length restrictions. While there is support for using single item constructs in such research, future researchers can use multi-item instruments for external and internal complaining response constructs. Further, it might be useful to include in the model third-party complaining responses such as taking legal action (Singh, 1988).

Though several techniques have been developed for testing latent quadratics, we preferred to use Ping's (1995) single indicator approach. This method is better on several accounts since it yields robust estimates and is least likely to produce problems with convergence. At the same time, it has its own weaknesses such as specification tediousness and need for external calculations. We found several of the hypothesized quadratic terms in the model to be insignificant. However, these statistical insignificances are of the hypothesized form of associations, not of all forms of non-linear associations. As theoretical rationale exists for these associations being nonlinear, we recognize that it may not be sufficient to test only quadratic forms. Other forms of increasing/diminishing returns (e.g., cubic) are possible. Future research can model other plausible forms of associations. Since we used cross-sectional data, the causal relationships should be further corroborated by longitudinal studies. Future research can also include actual online behavior in satisfaction loyalty models. Actual behaviors as dependent variables can have potentially higher predictive validity (Zeithaml et al., 1996).

Table 1:
Psychometric Properties of Measures and Structural Model Results

Panel A: Reliability and Validity of Proposed Factor Structure

Variables	Cronbach's Alpha	Construct Reliability	Variance Extracted
Customer Satisfaction	.87	.88	.71
Attitudinal Loyalty	.80	.81	.53
Purchase Loyalty	.65	.66	.40
Willingness to pay more	.69	.71	.56

For single item variables, i.e., external and internal complaining behavior, the reliability value of .70 is assumed (Jöreskog and Sörbom, 1993)

Panel B: Estimated Coefficients

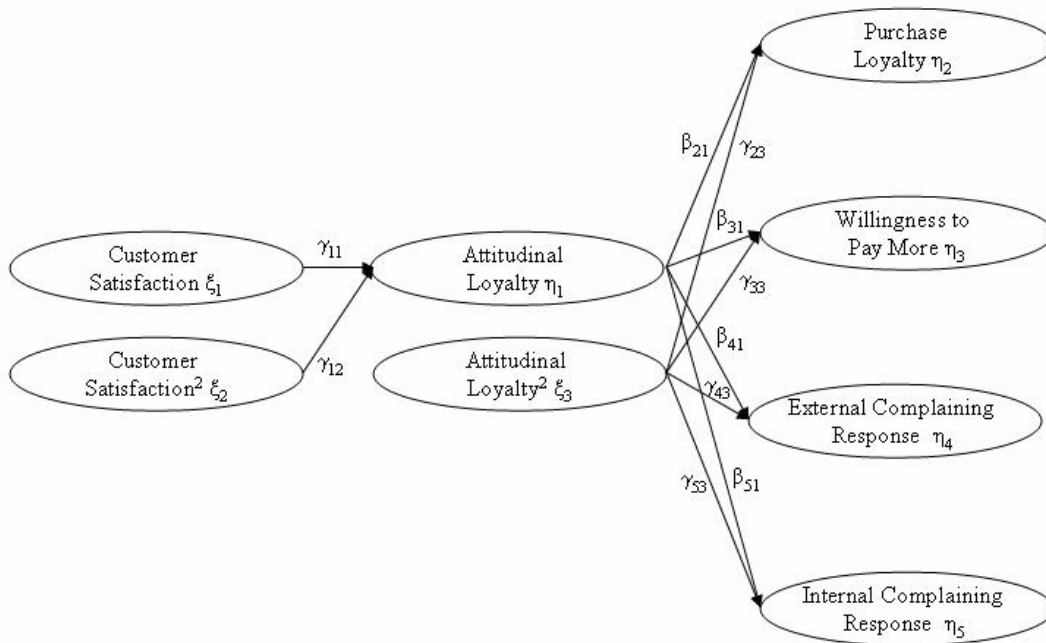
Hypothesized Path	Unstandardized Coefficients ^{ab}	Standardized Coefficients ^a
Satisfaction → Attitudinal Loyalty	.85*	.81*
Satisfaction ² → Attitudinal Loyalty	.05	.09
Attitudinal Loyalty → Purchase Loyalty	.81*	.90*
Attitudinal Loyalty ² → Purchase Loyalty	-.02	-.03
Attitudinal Loyalty → Willingness to pay more	.71*	.55*
Attitudinal Loyalty ² → Willingness to pay more	-.01	-.02
Attitudinal Loyalty → External complaining response	.08	.08
Attitudinal Loyalty ² → External complaining response	-.02	-.04
Attitudinal Loyalty → Internal complaining response	.42*	.43*
Attitudinal Loyalty ² → Internal complaining response	.12*	.20*

^aThe reported coefficients are the maximum likelihood estimates.

^bUnstandardized coefficients are recommended when the model includes quadratic terms (Cortina et al., 2001).

* Coefficients significant at $p < .05$

Figure 1: Conceptual Model



Appendix: Constructs and Items Used in Study

Attitudinal Loyalty

1. I say positive things about this website to other peoples.
2. I recommend this website to anyone who seeks my advice.
3. I encourage friends and relatives to do more shopping at this website.
4. I hesitate to refer my acquaintance to this website (R).

Purchase Loyalty

1. I consider this website as first choice to shop online.
2. I would do more shopping at this website in the coming days.
3. You would do less shopping at this website in the coming days (R).

Willingness to Pay More

1. I would continue to shop at this site even if its prices increase somewhat.
2. I would pay a higher price than competitor websites charge for the benefit I currently receive from this website.

External Complaining Response

I would complain to other customers if I experience a problem with this website.

Internal Complaining Response

You would complain to the website if you experience a problem with this website.

Customer Satisfaction

My overall shopping experience at this website is [very dissatisfied (1) to very satisfied (7); very unpleasant (1) to very pleasant (7); terrible (1) to delightful (7)]

Note: (R) items are reverse coded.

References:

- Agustin C, Singh J. Curvilinear effects of consumer loyalty determinants in relational exchanges. *J Mark Res* 2005;42(1):96-108.
- Ajzen I, Fishbein M. *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall, 1980.
- Anderson EW, Mittal V. Strengthening the satisfaction-profit chain. *J Serv Res* 2000;3(2):107-120.
- Anderson EW, Sullivan M. The antecedents and consequences of customer satisfaction for firms. *Mark Sci* 1993;12(2):125-143.
- Mittal V, Kamakura WA. Satisfaction, repurchase intent, and repurchase behavior: investigating the moderating effect of customer characteristics. *J Mark* 2001;38(1):131-142.
- Bagozzi RP, Lynn WP. Representing and testing organizational theories: a holistic construal. *Administrative Science Quarterly* 1982;27:459-489 [September].
- Bennett R, Hartel CEJ, McColl-Kennedy JR. Experience as a moderator of involvement and satisfaction on brand loyalty in a business-to-business setting. *Ind Mark Manage* 2005;34(1):97-107.
- Bentler PM. Comparative fit indices in structural models. *Psychol Bull* 1990;107(2):238-246.
- Browne, MW, Robert C. Alternative ways of assessing model fit. In: Bollen KA, Long JS, editors. *Testing Structural Equation Models*, Newbury Park, CA: Sage, 1993. pp.136-162.
- Burgessa SM, Steenkamp J-BEM. Marketing renaissance: how research in emerging markets advances marketing science and practice. *Int J Res Mark* 2006;23:337-356 [December].
- Buzzell RD, Gale BT. *The PIMS Principles*. New York: The Free Press, 1987.

- Chaudhuri A, Holbrook M. The chain of effects from brand trust and brand affect to brand performance: the role of brand loyalty. *J Mark* 2001;65(2):81-93.
- Chiou J-S, Droge C. Service quality, trust, specific asset investment, and expertise: direct and indirect effects in a satisfaction-loyalty framework, *J Acad Mark Sci* 2006;34(4):613-627.
- Cortina JM, Chen G, Dunlap WP. Testing interaction effects in LISREL: examination and illustration of available procedures. *Org Res Methods* 2001;4(4):324-360.
- Coyne KP. Beyond service fads: Meaningful strategies for the real world. *Sloan Manage Rev* 1989;30:69-76.
- Day GS. A two-dimensional concept of brand loyalty. *J Advert Res* 1969;9(3):29-35.
- Deutskens E, de Ruyter K, Wetzels M. An assessment of equivalence between online and mail surveys in service research. *J Serv Res* 2006;8:346-355 [May].
- Dick AS, Basu K. Customer loyalty: toward an integrated conceptual framework. *J Acad Mark Sci* 1994;22(2):99-113.
- Drolet AL, Morrison DG. Do we really need multiple-item measures in service research? *J Serv Res* 2001;3(3):196-204.
- Evanschitzky H, Iyer GR, Plassmann H, Niessing J, Meffert H. The relative strength of affective commitment in securing loyalty in service relationships, *J Bus Res* 2006;59:1207-1213.
- Fornell C, Larcker DF. Evaluating structural equation models with unobservable variables and measurement error. *J Mark Res* 1981;18(1):39-50.
- Gómez MI, McLaughlin EW, Wittink DR. Customer satisfaction and retail sales performance: an empirical investigation. *J Retail* 2004;80(4):265-278.
- Hair JF, Anderson RE, Tatham RL, Black WC. *Multivariate Data Analysis*. 5th ed. Upper Saddle River: Prentice-Hall, 1998.

Hirschman A. Exit, Voice and Loyalty: Responses to Decline in Firms, Organizations and States. Cambridge, MA: Harvard University Press, 1970.

Internet and Online Association of India. The power shopper: IOAI ecommerce report 2005. Retrieved September 1, 2005, from <http://www.iamai.in/>

IOAI_Ecommerce_Research_Report_2005.pdf

Jaccard J, Wan CK. Measurement error in the analysis of interaction effect between continuous predictors using multiple regression: multiple indicator and structural equation approaches. *Psychol Bull* 1995;117:348-357.

Jacoby J, Chestnut RW. Brand Loyalty: Measurement and Management. Trans. New York: John Wiley and Sons, 1978.

Jones TO, Sasser WE. Why satisfied customers defect. *Harvard Bus Rev* 1995;73:88–99 [November/December].

Jöreskog KG, Sörbom D. LISREL 8 - User's Reference Guide. Chicago: Scientific Software, 1993.

Joreskog KG, Yang F. Nonlinear structural equation models: The Kenny-Judd model with interaction effects. In: Marcoulides GA, Schumacker RE, editors, *Advanced Structural Equation Modeling Techniques*, Hillsdale, NJ: Lawrence Erlbaum, 1996. pp.57-88.

Kekre S, Krishnan MS, Srinivasan K. Drivers of customer satisfaction for software products: implications for design and service support. *Manage Sci* 1995;41:1456-1470 [September].

Kenny D, Judd CM. Estimating the nonlinear and interactive effects of latent variables. *Psychol Bull* 1984;96:201-210.

LaBarbera PA, Mazursky D. A longitudinal assessment of consumer satisfaction/dissatisfaction: the dynamic aspect of the cognitive process. *J Mark Res* 1983;20(4):393-404.

- Lee S, Song X, Poon W. Comparison of approaches in estimating interaction and quadratic effects of latent variables. *Multivariate Behavioral Res* 2004;39(1):37-67.
- Mathieu JE, Tannenbaum SI, Salas E. Influences of individual and situational characteristics on measures of training effectiveness. *Acad Manage J* 1992;35:828-847.
- Mittal V, Ross Jr. WT, Baldasare PM. The asymmetric impact of negative and positive attribute-level performance on overall satisfaction and repurchase intentions. *J Mark* 1998;62:33-47 [January].
- Mittal V, Kamakura WA. Satisfaction, repurchase intent, and repurchase behavior: investigating the moderating effect of customer characteristics. *J Mark Res* 2001;38:131-42 [February].
- Nunnally JC. *Psychometric Theory*. 2d ed. New York: McGraw-Hill Book Company, 1978.
- Oliva TA, Oliver RL, MacMillan IC. A catastrophe model for developing service satisfaction strategies. *J Market* 1992;56(3):83-95.
- Oliver RL. *Satisfaction: A Behavioral Perspective on the Consumer*. New York, NY: McGraw-Hill, 1997.
- Oliver RL. Cognitive, affective, and attribute bases of the satisfaction response. *J Consum Res* 1993;20:418-430 [December].
- Oliver RL. Whence consumer loyalty? *J Mark* 1999;63(4):33-44.
- Ping RA. The effects of satisfaction and structural constraints on retailer exiting, voice, loyalty, opportunism, and neglect. *J Retail* 1993;69(3):320-352.
- Ping RA. A parsimonious estimating technique for interaction and quadratic latent variables. *J Mark Res* 1995;32:336-347.

- Ping RA. Latent variable interactions and quadratics in survey data: a source book for theoretical model testing. 2nd edition. 2003 [on-line monograph]. <http://home.att.net/~rpingjr/intquad/toc2.htm>
- Rauyruen P, Miller KE. Relationship quality as a predictor of B2B customer loyalty. *J Bus Res* 2007;60(1):21-31.
- Reibstein DJ. What attracts customers to online stores, and what keeps them coming back? *J Acad Market Sci* 2002;30(4):465-473.
- Reichheld FF, Sasser Jr WE. Zero defections: quality comes to services. *Harvard Bus Rev* 1990;68(5):105-111.
- Reichheld FF, Schefter P. E-loyalty: your secret weapon on the web. *Harvard Bus Rev* 2000;78(4):105-113.
- Richins ML. Negative word-of-mouth by dissatisfied consumers: a pilot study. *J Market* 1983;47:68-78 [Winter].
- Rust RT, Zahorik AJ. Customer satisfaction, customer retention, and market share. *J Retail* 1993;69(2):193-215.
- Shankar V, Smith AK, Rangaswamy A. Customer satisfaction and loyalty in online and offline environments. *Int J Res Market* 2003;20(2):153-175.
- Singh J. Consumer complaint intentions and behavior: definitional and taxonomical issues. *J Market* 1988;52:93-107 [January].
- Singh J, Wilkes RE. When consumers complain: a path analysis of the key antecedents of consumer complaint response estimates. *J Acad Mark Sci* 1996;24(4):350-365.
- Spreng RA, MacKenzie SB, Olshavky RW. A re-examination of the determinants of customer satisfaction. *J Mark* 1996;60(3):15-32.
- Streukens S, de Ruyter K. Reconsidering nonlinearity and asymmetry in customer satisfaction and loyalty models: an empirical study in three retail service settings. *Mark Letters* 2004;15(2-3):99-111.

Wernerfelt B. Brand loyalty and market equilibrium. *Mark Sci* 1991;10(3):229-246.

Zeithaml VA, Berry LL, Parasuraman A. The behavioral consequences service quality. *J Mark* 1996;60(2):31-46.