The Influence of Price Difference and Equity Sensitivity on Customer Satisfaction in a Dynamic Pricing Environment

Susan K. Harmon, Middle Tennessee State University
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This study investigates consumer reactions to a dynamic pricing situation. The results show that satisfaction with a transaction is impacted by knowledge of the price others paid for the same product. Participants who got a better deal than a comparative other rated their satisfaction higher than those who got a worse deal. The magnitude of the price difference mattered only when the deal was worse, resulting in satisfaction for the higher priced item being lower than for the lower priced item. Counter to our expectations, the Equity Sensitivity Index did not provide any significant explanation of price satisfaction.

Price promotion, a very popular tactic for increasing sales volume, immerses consumers in a sea of coupons, volume discounts, rebates, preferred customer discounts, holiday sales, and countless other forms of marketing. Because firms employ so many varieties of price promotion, many of which are available only to certain individuals or groups, different customers are often charged different net prices (Martins and Monroe, 1994). As a result, different customers may pay different prices even when buying the same item at the same time from the same seller.

As long as customers do not have the opportunity to compare transactions with other customers, judgments of fairness occur largely as a result of the buyer-seller relationship and the buyer’s preconceived ideas regarding a fair price (referred to as internal reference price) for a particular item, based on perceived product quality and buyer sacrifice (Martins and Monroe, 1994). However, when consumers can “compare notes” about their transactions, decisions about what is fair take on a sizeable relative component as well (Monroe and Petroshius, 1981). That is, consumers’ expectation that they should pay relatively equal net prices for what they purchase becomes a significant factor in their decisions about fair price.

Consumers evaluate their transactions in part by assessing transaction utility, the difference between the perceived fair price and the actual price of the item (Thaler, 1985). In determining an internal reference price, consumers take into account the motives of the firm (e.g., passing on costs vs. exploiting consumers) and an intuitive sense of what the price should be based on the conditions of the specific transaction and the prevailing conditions of similar transactions (Campbell, 1999).

Price differences in a traditional ‘brick and mortar’ setting are often obvious, as in the case of a grocery store where the reduced price for customers with a bonus card is clearly marked in close proximity to the higher price for customers without a bonus card. Reduced prices and rates for various groups are openly advertised in signage and media. Because the advertising identifies the type of discount and the group(s) receiving the discounted prices, consumers have information with which they can justify price differences based on their understanding of the benefits and sacrifices associated with membership in that group(s).

In contrast, Internet technology makes it possible for two consumers to access the same web site at the same time and get different prices on identical items, and to do so in virtual isolation from other consumers. This particular aspect of technology enables sellers to simultaneously offer a wide variety of prices to different individuals or groups without publicizing any information that can be used as justification for priced differences by other individuals or groups.

Still, Internet consumers do compare transactions, though perhaps more deliberately and with fewer others. However, in the case of Internet transactions, the absence of justifying information substantially complicates the challenge of preventing perceptions of unfairness. Preventing such perceptions is critical because perceived unfairness in pricing leads to reduced intentions to buy (Campbell, 1999), an outcome exactly opposite that desired. Thus, understanding the process and outcomes of transaction comparisons becomes essential to successful pricing strategies. We believe the concept of equity sensitivity provides important insight into understanding this aspect of consumer behavior.

EQUITY SENSITIVITY
Adams’ (1963) equity theory, a precursor of equity sensitivity, offers a fairly simplistic view of social exchange in which people: (a) tend to seek equitable relationships; (b) compare their own outcomes and inputs to the perceived outcomes and inputs of others; (c) experience distress when they perceive themselves to be in a situation of inequity; and (d) attempt to restore equity in those situations. According to this theory, people share a universal preference that their outcome/input ratio be equal to that of a comparison other. The distress experienced in inequity situations occurs regardless of whether the inequity results from being over-rewarded (the individual’s outcomes are higher in relation to inputs than the comparison other’s) or under-rewarded (the individual’s outcomes are lower in relation to inputs than the comparison other’s). Adams (1965) also noted that if the magnitude of inequity is the same for both the over-reward and under-reward situations, the felt distress will be greater in the under-reward situation.

Building on studies suggesting that individuals differ in their assessment of what constitutes inequity (e.g., Carroll & Dittrich, 1978; Tornow, 1971), Huseman, Hatfield, and Miles (1985, 1987) developed the concept of equity sensitivity as a more complex way of explaining the dynamics of equity perceptions. Equity sensitivity addresses varying perceptions of inequity among individuals by positing that individuals vary in their preferences when comparing their own outcome/input ratios to those of referent others.

As originally set forth by Huseman et al. (1985, 1987), equity sensitivity identified three equity preferences. First, equity sensitives exhibit classic equity theory preferences. They seek equity in their own outcomes and inputs, and prefer net outcomes equal to those of referent others. Second, entitles prefer that their outcomes exceed their inputs. They prefer to get more from a relationship than they give to it, and that their net outcomes are greater than those of referent others. Third, benevolents, conceptually opposite from entitles, prefer to have their inputs exceed their outcomes. They prefer to give more to a relationship than they get from it, and that their own outcome/input ratios are less than those of comparison others (i.e., their net outcome is less than that of referent others).

Researchers have used equity theory to illuminate a number of marketing issues, such as consumer expectations of service (Clow, Kurtz, and Ozment, 1998), business-to-business marketing (Patterson, Johnson, and Spreng, 1997; Boyd and Bhat 1998), customer complaints (Lapidus and Pinkerton, 1995), fairness in
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EQUITY SENSITIVITY AND PRICE

Based on earlier studies discussed and on equity theory, we believe that consumers take into account the price paid by others when evaluating their satisfaction with the transaction.

H1: Consumers will indicate higher levels of satisfaction when they get a better deal (pay less) relative to a comparison other than they will when they get the worse deal (pay more), even though the price paid is less than a published price for the item.

Carrell and Dittrich (1978) identified a number of general, internal individual factors, such as social and religious values, intelligence, and gender that influence equity perceptions. In the case of online transactions, we believe that consumers’ familiarity with the Internet will moderate their evaluations of the transaction. If a consumer gets a worse deal he may attribute it to his lower Internet skills and as such may evidence less dissatisfaction than someone who gets a worse deal but who believes he has strong Internet skills. We would expect those with greater Internet familiarity are likely to have higher expectations regarding their own ability to find the better deal when purchasing online. Therefore:

H2a: On a worse deal, those who have greater familiarity with the Internet will be less satisfied with the transaction.

H2b: On a better deal, those who have less familiarity with the Internet will be more satisfied with the transaction.

There is also evidence of external factors that influence equity perceptions. Huppertz et al. (1978) found that perceptions of inequity were greater for high cost items than for low cost items. That is, in situations where the prices of both a high cost item and a low cost item were substantially more than expected, individuals’ perceptions of inequity were significantly stronger for the high cost item than for the low cost item.

Inequity magnitude may be another related external factor. We noted earlier that the reactions of parties in an inequitable exchange are proportional to the magnitude of the inequity perceived (Adams, 1965). In other words, a greater perceived difference in compared inputs/outcomes should result in stronger feelings of distress or guilt than does a lesser perceived difference. Also, as previously stated, the intensity of the distress felt by the disadvantaged party (i.e., the one who got the worse deal) should be greater than the intensity of the guilt felt by the advantaged party (the one who got the better deal). Thus we expect that:

H3a: Consumers’ evaluations of the transaction will be more negative if they paid more for the airline ticket ($150 price difference from comparison other) than if they paid less for the book ($10 price difference).

H3b: Consumers’ evaluations of the transaction will be more positive if they paid less for the airline ticket ($150 price difference) than if they paid less for the book ($10 difference).

Equity Sensitive

These reactions illustrate classical equity theory responses to situations of inequity and, as such, should be typical of equity sensitive. If equity sensitive do not pay the same price for a product or service as does a comparison other, we can expect their satisfaction level to decrease as price magnitude increases. In addition, even though they prefer situations of equity, because the inequity of a given situation will produce more intense reactions for the disadvantaged party than for the advantaged party, we can expect equity sensitive to experience higher levels of satisfaction (i.e., a less negative reaction) when advantaged than when disadvantaged. However, because individuals differ in their sensitivity to inequity, we should expect the reactions of entitleds and benevolents to differ from each other and from those of equity sensitive in important ways. Unfortunately, very little empirical work has been done in this area to date.

Entitleds

Huseman et al. (1987:225) described entitleds as persons for whom “distress would occur if they were not ‘getting a better deal’ than their comparison other.” In other words, they want to get more for their money than their comparison other got, or to pay less for the same product or service than did their comparison other. If price magnitude is also a factor, as we propose it is, then these preferences should be stronger for high cost items than for low cost items, or when their advantage in percentage of price difference is larger.

Benevolents

Conceptually opposite from entitleds in their preferences, benevolents are typically more satisfied with situations in which they give more to a relationship than they get from it, and when their own net outcome is less than a comparison other’s net outcome. Considering price magnitude as a factor, benevolents’ reactions may exhibit a similar intensity to that of entitleds in that their preferences should also be stronger for high cost items than for low cost items, and for larger percentage of price differences, as we hypothesized above. Consequently, we suggest equity sensitivity will influence consumers’ response to a better or worse deal relative to a comparison other. Specifically:

H4a: On a better deal, those with the highest level of entitlement will be most positive in their evaluations of the transaction.

H4b: On a worse deal, those with the highest level of entitlement will be most negative in their evaluations of the transaction.

METHOD

This study used a 2 product-airline ticket or book x 2 (price–paid more or paid less) between subjects experimental design. The products were chosen because each has a fairly lengthy and significant history of online sales. We developed four scenarios that described various on-line purchase transactions followed by an encounter with another purchaser of the identical item. The four scenarios described: 1) a high-cost item (airplane ticket) that the respondent paid more for than the other purchaser ($300 vs. $150); 2) a high-cost item (airplane ticket) that the respondent paid less for than the other purchaser ($150 vs. $300); 3) a low-cost item (book) that the respondent paid more for than the other purchaser ($25 vs. $15); and 4) a low-cost item (book) that the respondent paid less for
than the other purchaser ($15 vs. $25). In all scenarios the price paid by the respondent was less than a published price for the item. Each respondent received only one of the four scenarios.

Subjects were given a scenario to read and were asked to complete a questionnaire. The survey asked respondents to rate their satisfaction with the transaction, their perception of fairness regarding the price they paid, and their evaluation of the value/risk of purchasing online. Because this is a study of online pricing judgments, we also included nine items to measure respondents’ experience and familiarity with the Internet. Equity sensitivity was measured using the Equity Sensitivity Instrument (ESI) developed by Huseman et al. (1985, 1987).

A pilot study with 60 undergraduate and graduate management students had the respondents read the scenario and complete a short survey. After students completed the survey, we solicited their comments on the scenarios and the survey questions. Based on this feedback, we made minor modifications to the survey and to the scenarios.

The actual study consisted of two separate sampling plans. First, students in a large Southern state university were contacted during a business class and asked to participate. The 351 (186 male, 163 female, 2 did not indicate gender) students who chose to participate received one of the four scenarios, randomly distributed, along with the survey items, which they read and completed during class.

Second, as part of a project in a marketing research class, students were asked to recruit a non-student sample to complete the survey. Each student was asked to recruit ten respondents who met the following qualifications: at least 25 years old, non-students, and a balance of men and women. Again, the participants each received one of the four scenarios, randomly distributed, along with the survey items, which they completed and returned to the marketing research students. In addition, the non-student respondents were asked to provide a contact number for follow-up verification. We contacted about 20 percent of the respondents to verify participation or responses. The student sample did not differ significantly from the sample of the general public on any measure; therefore, the results reported represent the combined sample. Eight items were developed to measure consumers’ evaluation of their purchase. These eight items were subjected to a reliability analysis that showed a Cronbach’s alpha of .76. While this is sufficient for an initial scale, further examination revealed two items that had very low (below .30) item-to-total correlations. Removing these two items (“The other person probably spent more time searching online than I did” and “The deal I got was not worth the risk of buying online”) resulted in a substantially improved Cronbach’s alpha of .90. Table 1 shows the items that were summed to get a measure of Purchase Evaluation for further analysis.

We had hypothesized that the respondent’s perception of his skill at using the Internet would impact satisfaction with the deal he got. As shown in Table 2, the nine items measuring Internet aptitude generated a Cronbach’s alpha reliability rating of .81. These items were summed for each respondent to create a new variable, Internet Skill.

An analysis of variance was run with “Purchase Evaluation” as the dependent variable, product (airline ticket/book), price paid (more/less), Internet skill (low/high), and Equity Sensitivity (entitled/equity sensitive/benevolent) as factors. The design is unbalanced since each cell in the model does not contain the same number of cases.

Both product and price had significant main effects (p < .000) as well as two-way interaction effects (p < .000). Figure 1 shows respondents were more favorable in their price evaluations when they paid less for the product than a comparison other than they were when they paid more, supporting Hypothesis 1. When the price paid was higher than a comparison other, the size of the price difference was significant, with price satisfaction for the book ($10 price difference, 1.67 times higher than other price) higher than for the airline ticket ($150 price difference, 2 times higher), thus supporting H3a. However, there was no significant difference between products when the price paid was lower, failing to support Hypothesis 3b. Future research might investigate whether this satisfaction difference would hold if the absolute value were greater but the relative difference were less (for example if the ticket had been $50 higher or 1.34 times the comparison other, while the book was $10 higher or 1.67 times the comparison other). As seen in Table 3, the Equity Sensitivity Index was not a significant covariant with satisfaction, failing to support Hypotheses 4a and 4b.

### Table 1: Purchase Evaluations

<table>
<thead>
<tr>
<th>Response</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>The (book/ticket) was a good value for the money</td>
<td></td>
</tr>
<tr>
<td>I am satisfied with the price I paid</td>
<td></td>
</tr>
<tr>
<td>The price I paid was good given time I spent searching online</td>
<td></td>
</tr>
<tr>
<td>The online (book/travel) industry sites are fair in their pricing</td>
<td></td>
</tr>
<tr>
<td>The Internet allows me to find the best price</td>
<td></td>
</tr>
<tr>
<td>What I paid was a fair price</td>
<td></td>
</tr>
</tbody>
</table>

## RESULTS

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### Table 2
Internet Skill

<table>
<thead>
<tr>
<th>Item</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoy using the Internet.</td>
<td></td>
</tr>
<tr>
<td>I am not at all familiar with the Internet (R)</td>
<td></td>
</tr>
<tr>
<td>Others ask me how to find things online. (R)</td>
<td></td>
</tr>
<tr>
<td>It takes me longer to find things online than it does my friends. (R)</td>
<td></td>
</tr>
<tr>
<td>I am often frustrated in attempting to navigate the Internet. (R)</td>
<td></td>
</tr>
<tr>
<td>I only visit the same few sites anytime I am online. (R)</td>
<td></td>
</tr>
<tr>
<td>I am confident purchasing items online.</td>
<td></td>
</tr>
<tr>
<td>I find the Internet very useful in finding information I need.</td>
<td></td>
</tr>
<tr>
<td>When looking for a product online, I usually visit several sites.</td>
<td></td>
</tr>
<tr>
<td>(R) Indicates item was reverse-scored.</td>
<td></td>
</tr>
</tbody>
</table>

skill did have a significant main effect on satisfaction; however, correlations between satisfaction and Internet skill were positive regardless of whether the respondent got a better or worse deal. This was counter to hypotheses 2a and b. Although the main effects for price, product and Internet skill were statistically significant, the effect size for product and Internet skill were relatively small, with the partial Eta squared showing each accounted for less than 4% of the overall (effect + error) variance.

**DISCUSSION**

Consistent with earlier studies and with equity theory, this study demonstrates that consumer satisfaction with a transaction is impacted by knowledge of the price others paid for the same product. Participants who got a better deal than a comparative other rated their satisfaction higher than those who got a worse deal. When getting a better deal, the magnitude of the difference did not seem to matter, but when the deal was worse satisfaction for the higher priced item with $150 difference (airline ticket) was lower than for the lower priced item with a $10 difference (book). Since both the absolute and relative value of the differences was higher for the airline ticket, we don’t know if the dissatisfaction was driven more by the absolute value of the difference or by the relative value of the difference. Future research is needed to explore the threshold of impact in comparing prices with others.

As the Internet facilitates dynamic pricing and companies have more opportunities for finely targeted pricing they must recognize that consumers have greater access to quick price comparisons online. While pre-purchase comparisons may guide consumer choice (as companies have known for years), post-purchase comparisons may impact consumers’ satisfaction. Companies cannot control the word-of-mouth comparisons of prices, nor the accessibility of price comparisons on others’ web sites; however, a company with consistently low prices may want to consider providing price comparisons on their web site to highlight the price advantage over the competition and reinforce consumers’ choices. Furthermore, companies must recognize that segmented pricing has the potential to lead to dissatisfied consumers.

Counter to our expectations, the Equity Sensitivity Instrument did not provide any significant predictive power for price satisfaction. A possible explanation for this result is that the artificiality of scenarios failed to completely engage participants’ emotions and may have resulted in evaluations that differ from what they would be in real life situations.

It is reassuring to note that the evaluations of the transaction did not vary between the student sample and the sample of the general public. Academic researchers are often torn by the conflicting goals of conducting research in a timely and cost effective manner (which can be most readily done using student samples) while ensuring that the research results are generalizable to the broader public (typically requiring a non-student sample). Yet this study suggests there may be occasions when results from a student sample may not differ significantly from results from a non-student sample.

While Internet skill showed statistically significant main and interaction effects on participant satisfaction with price, from a practical point of view the impact was minimal as shown by the low partial Eta squared values.

**REFERENCES**


TABLE 3
Results of Analysis of Variance

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product</td>
<td>20.128</td>
<td>.000</td>
<td>.037</td>
</tr>
<tr>
<td>Price</td>
<td>294.662</td>
<td>.000</td>
<td>.359</td>
</tr>
<tr>
<td>Equity Sensitivity</td>
<td>1.142</td>
<td>.320</td>
<td>.004</td>
</tr>
<tr>
<td>Internet Skill</td>
<td>17.841</td>
<td>.000</td>
<td>.033</td>
</tr>
<tr>
<td><strong>2-Way Interactions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product x Price</td>
<td>13.823</td>
<td>.000</td>
<td>.026</td>
</tr>
<tr>
<td>Product x Equity Sensitivity</td>
<td>.509</td>
<td>.601</td>
<td>.002</td>
</tr>
<tr>
<td>Price x Equity Sensitivity</td>
<td>1.352</td>
<td>.260</td>
<td>.005</td>
</tr>
<tr>
<td>Product x Internet Skill</td>
<td>6.181</td>
<td>.013</td>
<td>.012</td>
</tr>
<tr>
<td>Price x Internet Skill</td>
<td>.052</td>
<td>.819</td>
<td>.000</td>
</tr>
<tr>
<td>Equity Sensitivity x Internet Skill</td>
<td>.266</td>
<td>.766</td>
<td>.001</td>
</tr>
<tr>
<td><strong>3-Way Interaction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product x Price x Equity Sensitivity</td>
<td>.637</td>
<td>.529</td>
<td>.002</td>
</tr>
<tr>
<td>Product x Price x Internet Skill</td>
<td>6.044</td>
<td>.014</td>
<td>.011</td>
</tr>
<tr>
<td>Product x Equity Sensitivity x Internet Skill</td>
<td>.009</td>
<td>.991</td>
<td>.000</td>
</tr>
<tr>
<td>Price x Equity Sensitivity x Internet Skill</td>
<td>1.250</td>
<td>.287</td>
<td>.005</td>
</tr>
<tr>
<td><strong>4-Way Interaction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product x Price x Equity Sensitivity x Internet Skill</td>
<td>1.627</td>
<td>.197</td>
<td>.006</td>
</tr>
</tbody>
</table>

R Squared=.424 (Adjusted=.399)


FIGURE 1
2-Way Interaction Effect of Relative Price Paid and Product on Price Satisfaction
Means labeled with different letters are significantly different at p<.000