

Customer Price Sensitivity and the Online Medium

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Abstract

The nature of the online medium and the characteristics of web sites can significantly alter the degree of customer price sensitivity in online markets. Many managers fear that the Internet will increase price sensitivity and intensify price competition. There is, however, very little conceptual or empirical research on this topic. In this paper, we use the information search literature to develop a conceptual framework comprising web site factors and several customer and intermediary factors, to explain the main and moderating effects of the online medium on customer price sensitivity. We use this framework to develop hypotheses, which we test using data from both online and offline customers in the hospitality industry. We examine two important aspects of price sensitivity: the relative weight a customer attaches to price compared to other attributes (price importance), and customer's perceived value of undertaking a search for better prices (price search).

Our results indicate that the online medium does not have a main effect on price importance, but it increases the perceived value of undertaking a price search. However, some aspects of the online medium and some web site tactics can actually dampen price sensitivity. Specifically, web site tactics such as the degree of interactivity and the depth of information provided at a web site reduce both aspects of price sensitivity. Interestingly, the perceived content of the site (in terms of price or non-price orientation) does not influence price sensitivity. In addition to these main effects, the online medium also moderates the effects of several other factors, leading to lower price sensitivity relative to the offline medium. These moderating effects are different for the two aspects of price sensitivity. Compared to the offline medium, the online medium intensifies the effect of product options in lowering price importance and dampens the effect of price bundling in increasing price importance. The online medium also dampens the increase in price search that results when customers use intermediaries to compare prices. We outline the implications of our results for developing Internet marketing strategies. In particular, our results suggest that web sites should make it easy for customers to search for both price and non-price attributes.

Key words

Price sensitivity
Internet marketing
Online medium
Hotel industry

1. Introduction

In many product categories, online shopping on the Internet is becoming increasingly more convenient than offline shopping. The Internet helps buyers and sellers to transcend geographic and temporal barriers in making one-time transactions or for establishing long-term exchange relationships through Electronic Commerce. It enables sellers to offer detailed information about their products and services (often embedded within rich editorial content), engage buyers in richer dialogs than is afforded by direct mail, dynamically influence choices at the point of decision making, and even deliver digital products (e.g., CDs, consulting reports) instantaneously (well, almost). It helps buyers shop among a large number of sellers, explore more choice alternatives, harness vast amounts of potentially relevant information at the point of decision-making, and customize their shopping environments. Several authors have noted the potential transformations of competitive marketing activities that could be brought about by transactions between buyers and sellers in the online environment (Glazer 1991; Hoffman and Novak 1996; Rangaswamy and Wind 1994).

In recent years, the World Wide Web (WWW) is emerging as the most important marketing vehicle on the Internet for facilitating transactions between buyers and sellers. The online shopping industry, comprising travel services, books, and computer products, to name a few, is growing fast as the number of online sellers and the number of individuals and companies with access to the Internet continues to increase at a rapid pace. According to *Forrester Research*, the online shopping industry, estimated at \$9.8 billion in 1998, could grow to a \$327 billion industry by the year 2002.

The online medium can significantly impact the nature and degree of customer price sensitivity. Pricing decisions, which are central to a brand's marketing strategy, depend on price sensitivity toward that brand. In some cases, marketing on the Internet can increase price sensitivity, leading to more intense price competition. Bakos (1997) argues that because online markets reduce customer search costs even for differentiated products, they are likely to increase competition between sellers and lead to lower prices. This seems to be case in the market for books. Amazon.com has spurred significant price competition in both the Internet and conventional channels (*Wall Street Journal*, January 28, 1997). As another example, according to a recent study by JD Power and Associates, less than 10

percent of those who bought a car or truck online paid sticker price – about half as many as walk-in buyers.

Surprisingly, it appears that the online medium could also dampen price sensitivity by enabling customers to find products that best fit their needs. Alba et al. (1997) propose that when quality-related information is important to customers and brands are differentiated, interactive retailing could lead to lower price sensitivity. Lynch and Ariely (1998) conducted experiments in a simulated online wine store to test this hypothesis. They report that price elasticity was lower under experimental conditions where shoppers had information on both price and product quality as compared to conditions where shoppers had information only on price. Degeratu, Rangaswamy, and Wu (1998) used choice modeling on panel data to assess how price response in an online subscription grocery service differed from price response in traditional grocery stores. They found lower price sensitivity online for some product categories. Lee (1998) reports that an online auto auction service in Japan has realized higher prices consistently over a long period of time (since 1985) than conventional auto auctions. A recent Business Week article (Cortese and Stepaneck 1998) points to several online markets that realize higher prices, on the average, than equivalent offline price determining mechanisms (e.g., AucNet, Easy Sabre).

Given these conflicting findings, we need a better understanding of the effects of the online medium on customer price sensitivity. This is an important issue from both theoretical and practical perspectives. From a theoretical perspective, we need to go beyond the extant studies of price sensitivity that have focused on the relationship between advertising in traditional mass media and price sensitivity (see Shankar and Krishnamurthi 1996 for a review). Compared to the traditional mass media, the online medium provides for richer interaction between customers and manufacturers in determining the price associated with a transaction.

There are several theoretical issues of interest. What are the determinants of online price sensitivity? How do these factors differentially impact online price sensitivity as compared to offline price sensitivity? We need research to identify the factors that influence online price sensitivity, examine their differential influence online relative to offline, and articulate how these factors influence two different aspects of price sensitivity: (1) *Price importance* - the relative importance of price in

influencing purchase decisions, and (2) *Price search* - customers' inclination to undertake a price search to find better prices. An understanding of price importance to customers provides a basis for formulating strategies for the marketing mix. Likewise, insights into price search behavior provide a managerial basis for improving the value of the product or service, particularly in the online environment. Although both aspects constitute price sensitivity, they are conceptually different, and not necessarily correlated. While price importance indicates the influence of price on customer choice, price search reflects the customer's perceived value of making an effort to find better prices. It is possible that customers who perceive price to be an important attribute will still not spend the time and effort to find the lowest price, if the observed price is less than their reservation prices. By the same token, customers who do not attach much importance to price in their choice decisions, may actually undertake an extensive search if the observed price is higher than their reference prices.

From a practical perspective, managers are anxious to learn how the online medium and Internet marketing will affect price competition in their markets. Many managers fear that the online medium will increase price sensitivity and intensify price competition. This is a particularly important issue to firms who have considerable investments in traditional distribution channels, but now face the prospect of having to strengthen their Internet presence and grow their online transactions (e.g., automobile manufacturers, hotels). These firms typically market differentiated products online through their web sites. How do web site factors such as interactivity and depth of information influence the two aspects of customer price sensitivity? Is customer's price importance higher online? or does a customer search more for better prices on the Internet even among differentiated products? The answers to these questions have actionable implications for managers of web sites.

Our primary objectives for this research are to: (1) conceptualize how the online medium influences price sensitivity, (2) conceptually and empirically identify the conditions that increase or decrease online price sensitivity relative to offline price sensitivity, and (3) articulate Internet marketing strategies that could lower price sensitivity, thereby reducing the potential for price competition.

We begin by developing a conceptual framework derived from the information search literature. Using this framework, we formulate a series of hypotheses. To test these hypotheses, we develop a measurement model and estimate it using data from the hotel industry. We survey both

online and offline customers to compare the relative influence of several important determinants of price sensitivities online and offline. Finally, we summarize and interpret our results, explore managerial implications, and articulate the contributions and limitations of the study.

Our research builds on previous research on this topic. Burke et al. (1992) and Lynch and Ariely (1998) use controlled experiments to assess online price sensitivity of their subjects. We measure the price sensitivity of people who make real purchases of the product category of interest in a real “store” *both* online and offline. A comparative assessment is likely to be far more useful to managers in firms that have a strong offline presence, but are contemplating making major investments in online markets. Degeratu et al. (1998) also compare shopping behavior of in real online and offline stores. However, their study is based only on behavioral data (e.g., does not contain attitudinal information about value of price search), and the online store they used (Peapod) caters only to members who subscribe to the service. In contrast, our setting is more representative of the “shopping mall” environment that characterizes much of the online transactions between firms and customers.

2. Conceptual Framework and Hypotheses

Our conceptual framework is derived from the information search literature (e.g., Stigler 1961; Urbany, Dickson, and Kalapurakal 1996). The original model of optimal search behavior of Stigler (1961) has been revised and extended in many ways (Meyer 1982; Ratchford 1982; Urbany et al. 1996). Customer price sensitivity depends on the benefits and costs of information search (Srinivasan and Ratchford 1991). The benefits of information search include economic benefits (Stigler 1961) as well as noneconomic benefits such as shopping enjoyment (Marmorstein, Grewal, and Fishe 1992). The costs of information search include the cost of information search on price and the cost of information search on non-price attributes.

Based on this information search perspective, we can state that the higher the expected benefits of information search, the lower is the price sensitivity. The higher the cost of searching for price information, the lower is the price sensitivity. The higher the cost of searching for non-price information, the higher is the price sensitivity. The overall price sensitivity is the net effect of the benefits and costs of information search. Figure 1 provides an overview of how search costs and expected benefits determine price sensitivity.

[Figure 1 about here]

The medium used by a customer can affect information search, and hence price sensitivity (Beatty and Smith 1987). We further posit that the benefits and costs of information search and therefore price sensitivity depend on three broad sets of factors: web site and medium factors, customer factors, and intermediary factors. These factors are consistent with the set of factors that have been found to affect price sensitivity in general (Nagle and Holden 1995). Of the broad sets of factors, the web site factors are specific to online shopping. Although the customer and intermediary factors are common to both online and offline shopping, our primary focus is on isolating the differential impact of these factors on the two aspects of price sensitivity online relative to offline. Each of these factors influences price sensitivity through its effects on the benefits and costs of search. Table 1 summarizes these effects. Figure 2 summarizes the hypothesized main and moderating effects of the online medium on the determinants on price sensitivity. In what follows, we elaborate on these hypothesized relationships.

[Table 1 and Figure 2 about here]

First, we explore the main effect of the online medium on the two aspects of price sensitivity, relative to the offline medium. The medium per se is unlikely to have a main effect on price *importance*. However, we can expect the online medium to affect price search by decreasing the costs of *search*. In general, search costs are lower when the time required for search is lower (Irwin and Smith 1957; Urbany 1986). The time required for search on the Internet is typically lower than the time required offline. Although the costs of non-price information search, in general, are also likely to be lower, we expect the reduction in the costs of price search to outweigh the reduction in the costs of non-price information search.¹ This is because the online medium, like the print medium, inherently allows quicker inspection of prices relative to the offline medium than of other attributes. Indeed, Prasad and Ring (1976) found higher price sensitivity with print ads relative to TV ads. Thus, we expect customers' inclination to search for better prices to be higher online. These arguments suggest hypothesis H_A.

¹ We recognize that the costs of non-price information search can be higher online relative to offline for certain products that require evaluation of sensory attributes such as touch or smell.

H_A: The online medium increases price search (main effect).

2.1. Web Site and Medium Factors

Among web site and medium factors, the perceived content of web site, the perceived interactivity of the site, the perceived depth of information at the site, the interaction of content and depth of information, the relative ease of price search, and the range of product options are likely to impact price sensitivity. The extent to which the content of a web site is perceived as price-oriented or feature/benefit-oriented plays an important part in determining price sensitivity (Shankar and Krishnamurthi 1996). At the same time, the degree to which a web site is perceived as interactive could also affect price sensitivity (Urban, Weinberg, and Hauser 1996). Similarly, perceptions regarding the perceived depth of information and its interaction with the perceived content at the site (Meyer 1982) will likely affect price sensitivity.

Perceived content of web site. A web site can be price-oriented or feature/benefit-oriented. Marketing messages that are predominantly price-oriented should increase price sensitivity, whereas non-price advertising (e.g., focus on features and benefits) should decrease price sensitivity (Kaul and Wittink 1995). The relationship between a web site's marketing messages and price sensitivity may also depend on the size of customers' consideration sets and the relative strength of preference for the brand in question (Mitra and Lynch 1995). Price-oriented advertising may expand the consideration set and, if the brand preference is not strong, it can elevate the importance of price for customers. More information on prices can lower the costs of price search relative to the costs of searching for non-price information. This phenomenon is particularly likely in computer-mediated environments than in the actual store (Burke, et al. 1992). Conversely, feature-oriented advertising may reduce the costs of non-price information relative to price information, thereby lowering price sensitivity (Shankar and Krishnamurthi 1996). In general, customers encode little price information (Dickson and Sawyer 1990). A feature- or benefit-oriented web site that does not emphasize prices is therefore likely to lead to both lower price importance and price search. These arguments suggest hypothesis H₁.

H₁: The more price-oriented the web site, the higher the online price importance and price search.

Perceived interactivity of web site. Interactivity refers to the ability of web sites to dynamically generate outputs based on customer inputs.² A high degree of static messages may increase the search costs for non-price attributes. This can make customers, who are passive searchers, rely on price as a heuristic to compare alternatives (Urbany et al. 1996), thereby increasing their price sensitivity. On the other hand, interactive web site messages, by their design, could lower the costs of search for both price and non-price information. More important, interactivity can prompt shoppers to examine non-price attributes more than price attributes and simultaneously increase the perceived benefits of shopping online. Interactivity increases customer involvement, which is positively related to non-price information search (Jacoby, Chestnut, and Fisher 1978). The search costs of non-price information is thus reduced compared to the search costs of price information. Interactivity also offers greater control to the shopper, thereby increasing the pleasure of shopping, a benefit of information search (Marmorstein, Grewal, and Fische 1992). In combination, these forces could reduce online price importance and price search. This leads to the next hypothesis.

H₂: The higher the interactivity of the web site, the lower the online price importance and price search.

Perceived depth of information. Some web sites have multiple layers of web pages with detailed information.³ Multi-layered information decreases the costs of searching for information on both price and non-price attributes. If the information is multi-layered and rich, customers will tend to use heuristics to make decisions (Glazer 1991). Multi-layered information tends to increase the use of non-price heuristics, resulting in a reduced focus on prices (Meyer 1982). Such information formats reduce cognitive processing costs and increase non-price information use (Russo et al. 1986). Because of the richer information, the opportunity costs of non-price information search is also lowered (Carlson and Gieseke 1983; Goldman and Johannsson 1978). Together, these effects result in lower online price importance and search, leading to the following hypothesis.

²Highly interactive web sites typically use interface technologies that provide quick and efficient information at a level defined by the customer. Examples of such sites are www.wildfire.com and www.getsmart.com

³A good example is www.apartmentsplus.com that enables visitors to find information on apartments based on their decision-criteria from over 500,000 listings in 32 states. Other examples are www.ibm.com and www.hp.com

H₃: The greater the depth of information at the web site, the lower the online price sensitivity (price importance and search).

Interaction of perceived content and depth of information. If the content of information is feature-oriented, greater depth of information on product features and benefits will likely increase the benefits of information search and lower the search costs for non-price information, consistent with Urbany et al. 1996. This effect will, in turn, decrease price sensitivity further. On the other hand, if the message is price-oriented, more information may prompt greater attention to prices, thereby reducing the search costs for price information. Reduced search costs for price, in turn, will lead to higher price sensitivity. If content is measured with respect to the price-orientation of the web site (i.e., more content means a more price-oriented site), these arguments lead to the following hypothesis.

H₄: The interaction of price-oriented content and depth of information will increase online price sensitivity (price importance and price search).

Relative ease of price search. When the cost of information search is low, customers will use more information in evaluating alternatives (Stigler 1961). To the extent that price becomes easier to search in *comparison to other search attributes*, customers may base their choices predominantly on prices. Thus, the relative ease of price search is likely to increase price sensitivity for both online and offline customers. However, price search costs are likely to be lower in online channels than in conventional channels (Bakos 1997). With the advent of online search agents like www.jango.com and www.junglee.com, the cost of price search online has come down significantly.⁴ Thus, we expect the impact of relative ease of price search on price sensitivity to be higher online than offline. This leads to our next hypothesis.⁵

H₅: The effects of the ease of searching for price (relative to other attributes) on increasing price importance and price search, are more pronounced online than offline.

Perceived range of options. Perceived variety in product and price options (e.g., menu of prices for variations of the product type) can impact price sensitivity. When a greater variety of offerings are

⁴Note that search agents work best when a common product or service is sold by different vendors.

available, customers would typically benefit by finding products that offer higher value to them (Benjamin and Wigand 1995). The benefits are more transparent online than offline. It is also easier to search for non-price information online than offline, especially when there is a large number of product offerings. Whereas the extent of non-price information search offline is often low (Urbany, Dickson, and Key 1991), the level of non-price information search online is enhanced by online sorting mechanisms. Customers may be willing to place less emphasis on prices or be less willing to search for prices online relative to offline because they could more easily find products online that fit their needs better. These arguments lead to H₆.

H₆: The effects of product and price options in lowering price importance and price search are more pronounced online than offline.

2.2. Customer Factors

We can expect the degree of price sensitivity (online or offline) to be governed by such factors as brand loyalty, value of time, and frequency of shopping. These factors typically affect the level of information search and may differ across customers (Furse, Punj, and Stewart 1984). The extent to which these factors influence price sensitivity may depend on the medium (offline or online), i.e., the medium may moderate the relationship between these factors and price sensitivity (Beatty and Smith 1987).

Brand loyalty. Brand loyalty is likely to play an important role in determining price sensitivity both online and offline. Brand loyalty reduces attention to prices. Krishnamurthi, Mazumdar, and Raj (1992) demonstrate that customers are relatively insensitive to changes in prices of their favorite brands. Likewise, Jacoby, Syzabillo, and Busato-Schach (1977) show that loyal customers are more likely to pay more for a brand than non-loyal customers. In particular, as compared to offline customers, loyal online customers may have lower costs of searching for non-price attributes than non-loyal online customers, because it is more convenient to choose their favorite brands in the online environment. With more information available online than offline, increased loyalty could reduce the

⁵ We assume that bulk of then information search is done within the respective medium. If, however, the information search is done in both media, the net effect of the medium on the impact of the determinants of price sensitivity will depend on the relative degree of search online and offline.

cost of analytical processing, providing another benefit (Shugan 1980). Loyal customers are thus likely to be less sensitive to prices online. The above arguments lead to the following hypothesis.

H₇: The effects of brand loyalty in reducing price importance and price search, are more pronounced online than offline.

Value of time. Time-stressed shoppers may use simple choice tactics such as “buy what you bought last time” (Hoyer 1984). Such shoppers may also base their decisions on brand recognition. If those shopping online do it for saving time, this will lower price sensitivity. Indeed, MCI’s strategy in selling music CDs online seems to reflect this as it targets shoppers with high value of time for its online CDs, each of which is priced between \$13.99 and \$16.99 compared to the retail price of \$11.99 (*Washington Post* 1995).

Frequency of shopping. Items purchased or searched more frequently either online or offline have a narrower latitude or zone of price acceptance than those searched less often (Kalyanaram and Little 1994). Customers who search often may be more exposed to prices and have a narrow latitude of price acceptance (Monroe 1971). These customers may find price more important or search for better prices than customers who shop rarely.

2.3. Channel Intermediary Factors

Customer price sensitivity is also influenced by intermediary services available online and offline. For example, in the travel industry, some online customers choose their airlines and hotels through electronic channel intermediary services such as www.expedia.com and www.travelocity.com, just like customers shopping offline make their decisions through travel agents. Two intermediary factors are likely to affect the degree of price sensitivity: (1) price comparison using intermediary and (2) price bundling.

Price comparison using an intermediary. If customers use online or offline intermediaries that provide comparative prices of competitors, their price sensitivity could increase. Comparative prices increase the salience of price as a decision criterion and reduce the costs of price search. They may also expand the consideration sets of customers, prompting them to examine prices of more brands (Mitra and Lynch 1995). Furthermore, the availability of comparative prices from an intermediary could be perceived as a signal to evaluate the different brands on price. Although price comparison tends to

increase price sensitivity, this effect is likely to be lower online than offline. Comparative prices provide reference prices for customers. When the search costs are low, as in the online environment, reference prices have little effect on price search tendency (Urbany, Bearden, and Weilbaker 1988). In contrast, in the offline environment, where the search cost for non-price information is higher, the presence of comparative reference prices tends to heighten price search. The importance of price, however, is not likely to be different online relative to offline due to price comparison using an intermediary. These arguments suggest the following hypothesis.

H₉: The effects of price comparison using an intermediary in increasing price importance and price search, are less pronounced online for price search.

Price bundling. Product bundles are typically offered by intermediaries, and often involve savings on individual items. If customers choose from a product bundle (e.g., a vacation package from a travel agent online or offline which includes offerings of airlines, hotels, and car rentals) offered by an intermediary, they may focus more on the value of the bundle and less on prices of individual components. This is because the value of the bundle has a strong impact on buyers' perceptions of transaction value (Yadav and Monroe 1993). To this extent, bundles may lower price importance (Guiltinan 1987). Customers also typically use the "psychophysics-of-price" heuristic in that they perceive the expected savings from price search in relative terms rather than in absolute amounts (Grewal and Marmorstein 1994). Because the value of a bundle is higher than that of a component, customers expect higher absolute savings on a bundle than on its components. According to the psychophysics heuristic, if the savings on a product or service is relatively small, customers typically decide that such savings are not worth the time and effort of search. Because the savings on the component is smaller than the savings on the bundle as a whole, customers attach less importance to price, and are less likely to search for better prices for the component. It is much easier to use this heuristic online where such savings are more transparent than offline. Therefore, we expect the online medium to intensify the tendency of price bundling to decrease price sensitivity. This leads to our final hypothesis.

H₁₀: The effects of choice of a price bundle in reducing both price importance and price search are more pronounced online than offline.

Shared cost effect. Customer price sensitivity is also influenced by who the payer of the product or service is. If the customer is not the payer, but his/her organization pays for the product or service, then price sensitivity would be lower (Nagle and Holden 1995). We will control for this variable in our empirical analysis.

3. Data and Model for Testing Hypotheses

To test our hypotheses, we collected primary data in 1998 from both online and offline customers of the same service, namely, Marriott International. The online respondents chose a Marriott hotel on the Internet and the offline respondents selected a Marriott hotel using conventional methods (e.g., travel agents or toll-free telephone number). By having both samples, we are able to: (1) compare the attitudes and behavior of demographically comparable populations that differ only in the medium they use to make hotel reservations, (2) examine how the online medium moderates the effects on price sensitivity of the hypothesized factors common to both populations, and (3) highlight the effects of web site factors on online price sensitivity – these are unique to the online population. By focusing on a single product and web site to test our hypotheses, we reduce error variance due to these conditions. Furthermore, by keeping these conditions fixed, we establish a common frame of reference for our respondents (e.g., in terms of their prior brand experiences).

To test the hypotheses, we develop regression models linking price sensitivity to the various factors we identified in the previous section. We describe the data and measures and the model specification in the following subsections.

3.1. Data and Measures

About one-fourth of the revenues in the online shopping industry come from travel services and this segment of the online industry is growing at the fastest rate (*Forrester Research*). Therefore, the travel industry provides a good context to test our hypotheses.⁶ To collect data on shopping behavior in the travel industry, we developed separate questionnaires for online and offline customers of the Marriott International hotel chain. The online and offline customers were mutually exclusive in that they used only the respective media to make their purchases. The questionnaire included items on

⁶ Note, however, that less than 1% of current travel reservations are done on the Internet. About 80% of the reservations are still done by travel agents (Jones 1998).

shopping behavior, choices, customer attitudes, measures of the hypothesized factors, and demographics. The questions that pertain to factors common to both the online and offline surveys were identical in both questionnaires. In addition, the online questionnaire included items on web site factors. Most of the questions pertained to the last purchase of the product, i.e., the last service encounter. This way, we were able to elicit shoppers' attitudes more specifically. To ensure that the bulk of the information search by the respondent is done within a single medium (online or offline), we had a screening question to determine the medium from which the respondent obtained information.

The offline sample is a random sample generated from the population of 12 million customers of Marriott International's customer database. For the online sample, we posted the survey at Marriott's web site with a "New" tag and requested online visitors to fill out the survey. Furthermore, we screened online respondents by asking them to indicate whether they had ever stayed at a Marriott hotel. Although random sampling on the Internet is extremely difficult to achieve, it is worth noting that online surveys typically elicit responses from a reasonably representative sample of the universe of online shoppers of a given product (*Intelliquest 1997*). This is because those who are likely to shop online for a product also tend to be the ones who respond to online surveys on the product.

We collected 214 usable responses from the online survey and 306 usable response from the offline survey, which represented a response rate of 15%. Of the responses we obtained from the offline surveys, we selected the first 181 that allowed us to closely match the online sample in demographics. As is well recognized, the online population is younger, on the average, than the general population. To match the two samples, therefore, we dropped several respondents from the older age groups from the offline responses. Instead of using a simple random sample to identify respondents to be dropped, we chose to retain respondents in the order in which we received their completed surveys – keeping respondents who sent their surveys early. We did this because early respondents are more likely to have a "response tendency" similar to those visitors to a site who choose to fill out the online questionnaire (*Intelliquest 1997*).⁷ To ensure that any difference in the recency of

⁷Even so, we subsequently reanalyzed our data using a simple random sample to identify the respondents to be dropped, but the results of our empirical analysis were not different.

response between online and offline respondents does not bias results, we account for differences in the frequency of shopping between the two samples in our analysis.

Table 2 summarizes the demographic data of the online and offline samples. Comparing the online sample with the unmatched offline sample, we see that the samples are very similar in terms of sex, proportion of (35-54) age group, and the percentage of post-graduate educated members. However, on average, the online customers are, much younger, less educated, and less affluent than the offline customers.

[Table 2 about here]

Table 2 also summarizes the characteristics of the two matched samples we retained for our data analysis. The two samples are well matched on: (1) sex (the percentage of women in the online sample is 26 compared to 25 in the offline sample), (2) age (the proportion of customers in the middle age [35-54] bracket is almost the same in both samples), (3) education (the percentage of those with post-graduate study is 43 in the online sample versus 46 in the offline sample), and (4) annual family income. However, the percentage of respondents with business as the primary purpose of hotel stay is much lower online (43) than offline (69). We control for the effect of purpose and payer in our analysis.

Table 3 summarizes the variables we use in our analyses, their operationalizations, and their mean values for the online and offline samples (matched and unmatched).⁸ As mentioned earlier, we measure two aspects of price sensitivity. First, we determine the importance of price using a constant sum scale for the price importance measure. Second, we measure attitude toward price search through a Likert scale, following Lichtenstein, Ridgway, and Netemeyer (1993).⁹ In Table 3, the variables, TIMVAL, PREXP, LOYAL, FREQ, OPTION, INTERAC, and INFO are measured on 5- or 7-point

⁸ The means for the key variables such as price sensitivity, brand loyalty, and intermediary comparison in the unmatched offline sample are quite close to the means of the matched sample. Because our purpose is to compare online and offline samples with similar demographics to isolate the effects of the medium on price sensitivity, we focus only on the matched samples for all our analyses.

⁹The four items in the price search measure are:

- (1) I did not go to extra effort to find lower prices.
- (2) I shopped around more than one hotel to take advantage of low prices.
- (3) I do not consider the money saved by finding low prices to be worth the effort.
- (4) I consider the time taken to find low prices to be worth the effort.

These items were related to the most recent purchase.

scales. CONTENT, PRINT, BUNDL and BUS are dummy variables. CONTENT is 1 if the web site is perceived to be price-oriented, 0 otherwise; PRINT is 1 if the customer went through a channel intermediary who offered comparative prices and 0 otherwise; BUNDL is 1 if the customer chose from a price bundle (such as a vacation package) and 0 otherwise; and BUS is 0 if the hotel stay was for leisure, 1 otherwise (i.e., if the hotel stay for only business). CONINF is the product or interaction of CONTENT and INFO. Finally, EASRCH is computed as the ratio of the expressed ease of searching for price over the expressed ease of searching for the highest rated non-price attribute. This ratio provides an index of the relative ease of price search.

[Table 3 about here]

We now discuss the means of the variables for the online and the matched offline samples. Note also that the means of the unmatched and matched offline samples are not very different for most of the variables. The correlation between the two measures of price sensitivity, price importance and price search are low for both the offline (0.19) and the online samples (0.36), suggesting that these two measures are distinct from each other. The overall means of price importance measure in Table 3 are not statistically different between the online and offline samples (17.20 versus 15.76, $p > 0.01$). In contrast, the mean for the price search measure is significantly higher in the online sample than in the offline sample (4.17 versus 3.36, $p < 0.001$). We also note from Table 2 that the percentage of respondents who were business travelers is lower online (43%) than offline (69%). Therefore, we next examine the mean price sensitivities of the leisure and business travelers separately. The means for the price importance measure for the leisure travelers in the online sample (20.39) and in the offline sample (22.81) are not statistically different at a significance level of 0.01.¹⁰ As expected, the means of price importance for business travelers are lower than for nonbusiness travelers, with an online mean of 13.02 and an offline mean of 12.52 (these are not significantly different, $p > 0.01$). For the price search measure, however, the mean of the online sample is higher than that of the offline sample for both leisure (4.37 vs. 3.50; $p < 0.01$) and business travelers (3.91 vs. 3.28; $p < 0.01$). Consistent with this result, we also find that online customers are willing to spend more time in choosing a hotel ($p < 0.01$),

¹⁰This comparison and the subsequent comparisons are based on paired t-tests.

make less frequent bookings ($p < 0.05$), and more of them go to intermediaries to get price information ($p < 0.01$) than offline customers. Interestingly, online customers are also more brand loyal ($p < 0.05$), i.e., the web site tends to attract loyal customers. Furthermore, the relative ease of price search online (0.89) is not significantly different from that offline (0.95, $p > 0.01$) and the proportion of customers choosing from a price bundle is also similar across online (0.06) and offline (0.08) samples ($p > 0.01$).

Recall that the price importance measure captures the relative importance of price with respect to other attributes in brand choice. Therefore, it is reasonable to expect it to be the same across demographically comparable online and offline shoppers, holding other factors constant. The price search measure, however, reflects customers' perceived value for undertaking a price search. This measure could be different across online and offline shoppers because it is directly related to their willingness to spend time in searching for price information and to other factors.

Although there are differences between variable means in the two samples, note that our objective in this study is not to explain the absolute magnitudes of price sensitivities in the two samples. Rather, our interest is in identifying the factors that increase or decrease online price sensitivity and explain the role of the online medium on the impact of these factors.

3.2. Specification of Models

We use regression models to determine the effects of the various factors in explaining the observed price sensitivities in both samples. Multiple factors combine to determine overall price sensitivity, and a linear compensatory model helps us to determine the relative impact of each factor on the overall level of price sensitivity. We first specify separate models for the online and offline samples because these models represent the least restricted models. We then specify a pooled model that allows us to assess the differential effects of the online medium on price sensitivity. The online model is given by:

$$\begin{aligned}
 PRSEN_i = & \mathbf{a}_0 + \mathbf{a}_1 CONTENT_i + \mathbf{a}_2 INTERAC_i + \mathbf{a}_3 INFO_i + \mathbf{a}_4 CONINF + \\
 & \mathbf{a}_5 PRSRCH_i + \mathbf{a}_6 PREXP_i + \mathbf{a}_7 LOYAL_i + \mathbf{a}_8 OPTION_i \\
 & + \mathbf{a}_9 TIMVAL + \mathbf{a}_{10} FREQ_i + \mathbf{a}_{11} INTPR_i + \mathbf{a}_{12} INTBUNDL_i + \mathbf{a}_{13} BUS_i + \mathbf{e}_i
 \end{aligned} \tag{1}$$

where $PRSEN = \{PRIMP, PRSEARCH\}$, $PRSEN$ is price sensitivity, $PRIMP$ is price importance, $PRSEARCH$ is price search, i is customer, the variables are as defined in Table 3, \mathbf{e}_i is an error term

assumed to be normal with mean 0.¹¹ We use BUS as a control variable to account for the lower price sensitivity when a third party (business organization) is the payer for the service.

For the offline sample, the model is identical, except that the web site marketing factors are absent. Specifically, the model for offline customers is given by:

$$PRSEN_i = \mathbf{b}_0 + \mathbf{b}_5 PRSRCH_i + \mathbf{b}_6 PREXP_i + \mathbf{b}_7 LOYAL_i + \mathbf{b}_8 OPTION_i + \mathbf{b}_9 TIMVAL_i + \mathbf{b}_{10} FREQ_i + \mathbf{b}_{11} INTPR_i + \mathbf{b}_{12} INTBUNDL_i + \mathbf{b}_{13} BUS_i + \mathbf{e}_i \quad (2)$$

To facilitate comparison, we use the same subscripts for the factors common to both online and offline customers.

The pooled model is:

$$PRSEN_i = \mathbf{I}_0 + \mathbf{I}_1 CONTENT_i + \mathbf{I}_2 INTERAC_i + \mathbf{I}_3 INFO_i + \mathbf{I}_4 CONINF + \mathbf{I}_5 PRSRCH_i + \mathbf{I}_6 PREXP_i + \mathbf{I}_7 LOYAL_i + \mathbf{I}_8 OPTION_i + \mathbf{I}_9 TIMVAL_i + \mathbf{I}_{10} FREQ_i + \mathbf{I}_{11} INTPR_i + \mathbf{I}_{12} INTBUNDL_i + \mathbf{I}_{13} BUS_i + \mathbf{e}_i \quad (3)$$

where the parameters λ_j $j = \{0, 5, 6, 7, 8, 11, 12\}$ are a function of the medium according to the following equation.

$$\mathbf{I}_j = \mathbf{I}_j^0 + \mathbf{I}_j^1 MEDIUM \quad (4)$$

and the parameters λ_k $k = \{1, 2, 3, 4\}$ are a function of the medium according to the following equation (because these parameters are relevant only for the online medium).

$$\mathbf{I}_k = \mathbf{I}_k^1 MEDIUM \quad (5)$$

MEDIUM is a dummy variable = 1 if online, 0 if offline. λ_k^0 capture the effects of the offline medium, and λ_k^1 capture the differential effects of the online medium. To ensure that the results are not idiosyncratic to model structure, we compare them to the results from alternative model specifications, namely, semi-log, log-log, and log-reciprocal models. These models allow us to examine if any of the relationships between the dependent and the independent variables is nonlinear. The explanatory variables are the same as in the proposed models.

In Equations (1), (2), and (3) a positive sign of the coefficient of any variable would suggest that the variable increases price sensitivity. Conversely, a negative sign indicates lower price

¹¹We tested the error term in this equation and the subsequent equations for normality. The results did not reject the normality assumption.

sensitivity. Consistent with our hypotheses, we expect the main effect signs of INTERAC, INFO, PREXP, LOYAL, OPTION, BUNDL to be negative, while the signs of CONTENT, CONINF, PRSRCH, and PRINT to be positive. The predicted signs of the parameters according to our hypotheses are summarized in Table 4.

[Table 4 about here]

4. Results

We estimated Equations (1), (2), and (3) separately for the two measures of price sensitivity. In addition, we also estimated the alternative model specifications for both measures of price sensitivity. In estimating the models, we tested for multicollinearity and heteroscedasticity. The data matrices for Equations (1), (2), and (3) did not suggest any major multicollinearity problem. The variance inflation factors (VIF) for each independent variable ranged from 1.3 to 2.9. In particular, the correlation between the two explanatory variables, brand loyalty and previous experience is low for both online (0.23) and offline (0.23) samples, ruling out a potential confound. The likelihood ratio test of heteroscedasticity (Greene 1993, p. 395), however, rejected equal error variances for all the models; so we use the Weighted Least Squares (WLS) estimation in all the models. We also tested for potential endogeneity of the explanatory variables in each equation using the Hausman (1978) test, but the results did not indicate any evidence of endogeneity.¹²

4.1. Online Sample Analysis

The four statements used to measure the price search measure online showed high reliability. The Cronbach's alpha for these items is 0.76. The results of model estimation appear in Table 5. The models fit the data well. The correlations between predicted and actual values of the dependent

¹² Note that the models with the two measures of price sensitivity as the dependent variables have the same set of independent variables. This leads to a possibility of estimating the equations as a Seemingly Unrelated Regression (SUR) or a canonical correlation. However, because the equations have the same set of independent variables, the gains from canonical correlation are unlikely to be higher than multiple regressions. Furthermore, there is little gains in parameter efficiency using SUR if the regressors are the same in the two equations (Johnston 1984).

variables are 0.61 and 0.68 for the two models, respectively.¹³ Recall that this model allows us to examine the parameters for the online model under the least restricted set of conditions.¹⁴

[Table 5 about here]

Significant factors affecting price importance: In terms of web site factors, perceived interactivity of the message and perceived depth of information on the web site dampen price sensitivity ($p < 0.01$), supporting H_2 and H_3 , respectively. Interestingly, neither the content of web site (price versus non-price information) nor the interaction of content and depth of information at the web site is significant.

Among customer-related factors, relative ease of price search, prior brand experience, perceived range of options, value of time, and frequency of shopping are the significant factors influencing online price importance. The easier it is to search online on price relative to other attributes, the higher the online price importance. The more favorable the previous experience, the lower the online price importance. Perceived range of product and price options reduces online price importance. The higher the value of time to customers, the lower their online price importance. Online price importance increases with the frequency of shopping. With regard to electronic intermediary factors, price comparison using intermediary increases online price importance, whereas price bundling reduces online price importance.

Significant factors affecting price search: These results are mostly consistent with those obtained for the price importance measure, but reveal a new significant factor, and two factors that are no longer significant. Brand loyalty reduces online price search ($p < 0.001$), implying that the more loyal customers are less price sensitive. However, perceived range of options and price bundling that were significant in the model with the price importance measure, are not significant in this model.

Importance of factors in explaining price sensitivity: The relative importance of a variable in the proposed model is reflected by its beta weight (i.e., the standardized coefficient) in Table 5. For both the price sensitivity measures, the perceived depth of information and price comparison using

¹³Note that R^2 is not interpretable for WLS-estimated models (Judge et al. 1985, pp. 254-255), so we report the correlation between the actual and predicted values of the dependent variable.

intermediary are very important factors. In addition, prior brand experience and price bundling are very important in explaining online price importance, while time-value is very important for explaining online price search. The differences in results for these two measures of price sensitivity are intuitive. Brand loyalty reduces the perceived value of a price search (e.g., higher perceived switching costs), but does not affect the customer's relative importance of price. On the other hand, price bundling reduces the importance of price relative to other attributes, but does not influence the perceived utility of undertaking a price search. Note, however, that the number of online respondents that purchased a travel package in the sample is only 12, so this result should be treated with caution. The increased importance of the value of time and the decreased importance of prior brand experience in the price search measure (as measured by the beta weights) are also consistent with the above arguments.

4.2. Offline Sample Analysis

The four items in the price search measure for offline customers indicated high reliability (with Cronbach's alpha of 0.72). The results of the proposed model for offline customers are similar to that of the online model and are summarized in Table 6.

[Table 6 about here]

By comparing the beta weights of the offline model with those of the online model, it appears that price comparison using intermediaries has a much stronger impact on price search offline than online. This is not surprising, because it is much easier offline to do price search by calling intermediaries than by separately calling each brand (hotel).

4.3. Pooled Sample Analysis

The main value of the pooled model is that it allows us to formally test how the online medium moderates the effects of various factors on price sensitivity. Our primary interest here is in the incremental effects of the online medium (both main and moderating effects). Before pooling the online and offline data, we tested for the homogeneity of the intercept and the slope coefficients of Equation (2) across the samples using the Chow (1960) test. The data suggest that we should reject

¹⁴We also tested for the best-fitting model in both the online and offline data using the Box-Cox approach (Box and Cox 1982) and found the linear model to be the best-fitting model for both measures. Details of the best fitting alternative model are provided in the Appendix.

the null hypothesis of homogeneity ($p < 0.001$). The results of the pooled model are summarized in Table 7.¹⁵

[Table 7 about here]

The main effect of the online medium is significant for the price search measure, consistent with H_A ($p < 0.01$). On average, online customers are more likely to undertake price searches. Two of the four factors specific to the online medium are significant ($p < 0.05$ or better): Perceived interactivity and perceived depth of information at the web site reduce both price importance and price search, supporting H_2 and H_3 . The moderating effects of the online medium are pronounced for some of the factors ($p < 0.05$ or better). The effect of perceived range of options available at the site and of price bundling in reducing price importance are more pronounced online than offline, supporting H_8 and H_{10} , respectively. Favorable prior brand experience and price comparison using intermediaries have less pronounced effects on price search online than offline, supporting H_6 and H_9 , respectively. The effects of the factors are largely consistent with the results from the separate models summarized in Tables 5 and 6. Hypotheses H_1 (perceived content of web site), H_4 (interaction of content and depth of information), H_5 (relative ease of price search), and H_7 (brand loyalty), however, are not supported. The results of the alternative models are similar. The results of the best fitting alternative model are provided in the Appendix.

The beta weights in Table 7 are consistent with those in Tables 5 and 6. The main effect of the online medium is the most influential factor in determining price search. However, the main effect is not significant in the case of price importance, suggesting high variability in its effects across customers. Prior experience, price comparison using intermediary, and price bundling are the next most important factors affecting price importance. Prior experience, price comparison using intermediary and perceived depth of information are the most influential determinants of price search.

5. Discussion

¹⁵Note that the estimates from this model are not exactly identical to those from the online and offline models because the online and offline models are not completely nested in the pooled model (the effects of value of time, frequency, and business stay variables are not moderated by the medium). Furthermore, the estimates from the pooled model are based on a GLS model that accounts for heteroscedasticity.

Table 8 provides an overview of the results from the tests of hypotheses. We now articulate the important insights from our study by first focusing on the results of the factors unique to the online medium, and then on the differential effects of the online medium.

[Table 8 about here]

Unique effects of the online medium: Taken together, the web site factors provide substantial incremental explanation of price sensitivity. Considering the separate online model, the correlation between predicted and actual values of the dependent variable improves from 0.48 (0.49) for price importance (price search) model without these factors to 0.61 (0.68) in price importance (price search) model that includes these factors. The perceived depth of information and interactivity of the messages at the web site are significant and important determinants (i.e., have higher beta weights) of price sensitivity, particularly the depth of the information at the site. It appears that if customers perceive that a site offers in-depth and searchable information (i.e., interactive and dynamic messages), it decreases their price sensitivity on both the measures. A multi-layered and rich web site helps reduce customers' tendency to use price as a decision criterion, resulting in greater use of non-price heuristics. Interactive web sites help reduce attention to prices and prompt shoppers to examine important non-price attributes.

A surprising result is that the perceived content of the message (price versus non-price) does not influence either measure of price sensitivity. This is contrary to results from research on the impact of offline media (Kaul and Wittink 1995) that indicate that price-oriented messages increase price sensitivity, but non-price oriented messages decrease price sensitivity. We should note, however, that we did not directly manipulate the messages seen by the respondents online. Nevertheless, this is an interesting finding that should be explored further through controlled field experiments.

Differential effects of the online medium on price sensitivity: The online medium has a strong positive main effect on the perceived value of undertaking price search. In addition, it has moderating effects on both price importance and price search. Product options and price bundling tend to lower the importance of price more in the online medium than in the offline medium. Prior experience tends to have a stronger negative effect on price search online than offline. The role of price comparison using intermediary in raising price search is less severe online than offline.

When customers perceive that a site offers a range of products and prices, they expect to be able to choose items that offer them the best value (Benjamin and Wigand 1995). A range of products at different prices should also help customers “anchor and adjust” their reference prices according to the range of prices available at the time of shopping (Tversky and Kahneman 1981). This, in turn, should make customers’ reference prices be more consonant with the wider range of offered prices, making them less price sensitive when they have more product options. However, we obtain mixed results suggesting a more complex story. For online customers, the perceived range of options decreases the weights they assign to the price attribute, but has no impact on the value of undertaking a price search. Offline, we get the opposite result – perceived range of options has no effect on the importance assigned to price, but decreases the value of a undertaking a price search. These results are, however, consistent with the notion that providing more product options increase customers’ ability to find products that best fit their needs, but this is accompanied by increased search costs to find the most appropriate product. Search costs are higher for offline customers. As a result, they are less likely than online customers to undertake the search for the best fitting product. On the other hand, search costs being low online, the range of options does not affect the price search behavior of online customers. Also, the online medium has a stronger impact on reducing the importance of price when customers buy products that are part of a bundle.

Prior experience more strongly dampens price search online than offline (see beta weights in Tables 5, 6, and 7). This is probably because online customers, being unable to talk to a human travel agent, perhaps place a higher weight on their past experience. It could also be that online customers bookmark sites which offer brands that provide them favorable experiences, thereby limiting their future consideration sets when making hotel reservations. Price comparison using channel intermediary increases price search and this effect is less pronounced online.

6. Conclusions and Managerial Implications

Taken together, the key finding of the empirical analysis is that the online medium has both a main effect and several moderating effects on price sensitivity relative to the offline medium. Further, these effects are in opposite directions. On the one hand, it has a main effect by making it easier for customers to do price search, which increases price sensitivity relative to offline. It has no main effect,

however, on price importance. On the other hand, the online medium's moderating effects through previous experience and price comparison using intermediaries serve to decrease price search, while its moderating effects through perceived range of options and price bundling act to decrease the importance of price. Furthermore, the effects of such web site factors as interactivity and depth of information serve to reduce both price importance and price search relative to offline. The overall price sensitivity online relative to offline is a net effect of the countervailing forces of the main effects and the moderating effects of the online medium.

Our analysis suggest that the relative importance of price is not significantly different across online and offline customers, but online customers are more likely to search for better prices than offline customers of the same product. Although online customers perceive a higher value for undertaking a price search than customers offline, more importantly, our analyses indicate that several factors can increase or decrease online price sensitivity. From a management perspective, firms that have lower prices than their competitors should try to enhance the factors that increase price importance and search. On the other hand, firms that have higher priced, but higher quality products, should try to enhance factors that encourage non-price comparison, i.e., decrease the focus on price search.

Based on our results, we suggest several strategies that online marketers can use to both dampen the importance that customers assign to price (relative to other attributes) and reduce their perceived value of price search. Some of the more obvious ways by which firms can accomplish this include: (1) Providing a rich set of useful information through multiple web pages, in particular, on non-price attributes. Online customers are more likely to search for price. If we make this process easier, they may then have some time to also search non-price attributes. (2) Increasing convenience for the less price sensitive customers by providing more non-price attributes (e.g., providing one-stop shopping of car, hotel, and air rentals to business travelers). (3) Enhancing brand experience by designing and delivering a superior product and service experience when the customer buys the product. (4) Making the site highly interactive, whereby price becomes just one of the many attributes that interested shoppers can browse.

There are some “not so obvious” strategies to increase online customers’ use of non-price attributes. Some ways to do this are by having strong editorial content, making available customer testimonials, and embedding special features (e.g., customized map with locations of attractions near a hotel). For example, based on our data, Marriott could provide expanded descriptions and information about each of its properties (particularly because “Location” has the highest average relative importance among all attributes in the online sample, 34 points out of 100). In this way, whenever customers search for price information, they are also likely to be presented with considerable amount of non-price information, reducing their price sensitivity.

Providing more price and product options and using price bundling reduce the importance of price to customers. Both these factors can be used to “customize the offer.” The online medium is particularly well suited for this. A smart marketer could find ways to dynamically develop and offer customized product bundles based on search patterns of specific customers. For example, in the hotel industry, price sensitive customers can be either offered a reduced rate if they stay an extra day over the weekend, or lower room rates if they also rent cars from an affiliated car rental agency. Because these bundles are unique to each customer, the prices offered are not part of the standard menu of prices listed at a site. This strategy also has the desirable effect of increasing the perceived range of options offered at the web site, another factor that reduces online price importance.

7. Contributions, Limitations, and Extensions

Our research contributes in several ways to the emerging research on online marketing. First, we identified and articulated several factors unique to the online medium that could significantly influence online price sensitivity (e.g., interactivity and depth of information at the web site) that are ignored by traditional studies of price sensitivity. Second, we have identified and explained the main and moderating effects of the online medium on price sensitivity. Third, we explored two different aspects of price sensitivity, which allowed us to more clearly distinguish between customers’ price search behavior and the relative importance they assign to price in comparison to other attributes influencing their choice. Fourth, unlike other studies (e.g., Lynch and Ariely 1998), this paper offers insights into online price sensitivity based on a comparison of shopping attitudes and behavior online and offline using a working web site. Finally, by analyzing the impact of Internet marketing factors

that could influence the design of a web site, we have provided actionable implications for Internet marketers.

Our empirical study has several limitations that should be addressed by future research. An important limitation is that our online sample is not a truly random sample of online customers. Although the sample selection is the best we could obtain with our resources and that such samples are often reasonably representative, the sampling procedure is less than ideal. Our empirical analysis is also restricted to price sensitivity toward one product. Future studies should explore price sensitivity issues in other product categories with different structural characteristics (e.g., airline reservations, financial services, music CDs). We also focused only on customers who have purchased from the firm in the past. However, online pricing strategy also influences the ability of the firm to attract new customers – a site considered to offer low prices may be able to attract more new customers than a site perceived to offer a better selection. This may be worthwhile to explore in future studies. Finally, an important research opportunity is to study how the actions and reactions of competitors using Internet marketing strategies influence the intensity of price competition by altering customers' price sensitivities.

Appendix

The results from the best fitting alternative model specification, namely, the semi-log model, are summarized in Table A1. Table A2 presents the results of the alternative model for offline customers. The results are similar to those of the proposed model for both online and offline models. Because the proposed model is simpler and has a slightly higher degree of fit over the alternative model, we chose the proposed model over the alternative model.

Table A1: Results of Alternative (Semilog) Model for Online Customers (n=214)

<i>Variable (Parameter)</i>	<i>Price Importance Value (Std. Error)</i>	<i>Price Search Value (Std. Error)</i>
Intercept (α_0)	2.86 (0.011)***	2.05 (0.02)***
Perceived content of web site ($\alpha\beta_1$)	- 0.10 (0.28)	0.02 (0.06)
Perceived interactivity of web site (α_2)	- 0.09 (0.02)***	- 0.02 (0.00)***
Perceived depth of information (α_3)	- 0.15 (0.02) ***	- 0.08 (0.01)***
Interaction of content and depth (α_4)	- 0.09 (0.06)	- 0.02 (0.01)
Relative ease of price search (α_5)	0.28 (0.06)***	0.21 (0.02)***
Prior experience (α_6)	- 0.17 (0.03)***	- 0.04 (0.01)***
Brand loyalty (α_7)	0.01 (0.01)	- 0.03 (0.00) **
Perceived range of options (α_8)	- 0.17 (0.02) ***	- 0.01 (0.00)*
Value of time (α_9)	- 0.09 (0.01)***	- 0.04 (0.01)***
Frequency of shopping (α_{10})	0.12 (0.03)***	0.00 (0.01)
Price comparison using intermediary (α_{11})	0.44 (0.04)***	0.20 (0.01)***
Price bundling (α_{12})	- 0.70 (0.10)***	- 0.06 (0.03)*
Business stay (α_{13})	-0.28 (0.03)***	-0.06 (0.01)***
Correlation between actual and predicted values of the dependent variable	0.61	0.65

Table A2: Results of Alternative (Semilog) Model for Offline Customers (n=181)

<i>Variable (Parameter)</i>	<i>Price Importance Value (Std. Error)</i>	<i>Price Search Value (Std. Error)</i>
Intercept (β_0)	0.66 (0.22)***	0.47 (0.06)***
Relative ease of price search (β_5)	0.98 (0.24)***	0.36 (0.05)***
Prior experience (β_6)	-0.13 (0.05)**	-0.10 (0.01)***
Brand loyalty (β_7)	0.01 (0.03)	- 0.07 (0.00)***
Perceived range of options (β_8)	0.17 (0.14)	- 0.03 (0.01)**
Value of time (β_9)	-0.12 (0.02)***	-0.06 (0.00)***
Frequency of shopping (β_{10})	0.15 (0.04)***	0.00 (0.00)
Price comparison using intermediary (β_{11})	0.67 (0.08)***	0.46 (0.01)***
Price bundling (β_{12})	0.26 (0.31)	-0.17 (0.03)***
Business stay (β_{13})	- 0.48 (0.07)***	- 0.02 (0.01)*
Correlation between actual and predicted values of the dependent variable	0.59	0.61

* Significant at 0.05 level; ** Significant at 0.01 level; *** Significant at 0.001 level.

References

- Alba, Joseph, John Lynch, Barton Weitz, Chris Janiszewski, Richard Lutz, Alan Sawyer and Stacy Wood (1997), "Interactive Home Shopping: Consumer, Retailer, and Manufacturer Incentives to Participate in Electronic Marketplaces," *Journal of Marketing*, 61 (July), 38-53.
- Bakos, J. Yannis (1997), "Reducing Buyer Search Costs: Implications for Electronic Marketplaces," *Management Science*, 43 (12), 1676-92.
- Beatty, Sharon E. and Scott M. Smith (1987), "External Search Effort: An Investigation Across Several Product Categories," *Journal of Consumer Research*, 83-95.
- Benjamin, Robert and Rolf Wigand (1995), "Electronic Markets and Virtual Value Chains on the Information Superhighway," *Sloan Management Review*, Winter, 62-72.
- Box, G.E.P. and D.R. Cox (1982), "An Analysis of Transformations Revised and Rebutted," *Journal of the American Statistical Association*, 77, 209-210.
- Burke, Raymond R., Bari A. Harlam, Barbara E. Kahn, and Leonard M. Lodish (1992), "Comparing Dynamic Consumer Choice in Real and Computer-Simulated Environments," *Journal of Consumer Research*, 19 (June), 71-82.
- Carlson, John A. and Robert J. Gieseke (1983), "Price Search in a Product Market," *Journal of Consumer Research*, 357-365.
- Chow, Gregory C. (1960), "Tests of Equality Between Sets of Coefficients in Two Linear Regressions," *Econometrica*, 28, 591-605.
- Cortese, Amy E. and Marcia Stepanek (1998), "Good-Bye to Fixed Pricing?: How Electronic Commerce could Create the Most Efficient Market of them All," *Business Week*, May 4, 71-84.
- Degeratu, Alexandru, Arvind Rangaswamy, and Jianan Wu (1998), "Consumer Choice Behavior in Online and Traditional Supermarkets: The Effects of Brand Name, Price, and Other Search Attributes," *Working Paper*, The Smeal College of Business, Penn State University, PA 16802-3007.
- Dickson, Peter and Alan G. Sawyer (1990), "The Price Knowledge and Search of Supermarket Shoppers," *Journal of Marketing*, 42-53.
- Furse, David H., Girish N. Punj, and David W. Stewart (1984), "A Typology of Individual Search Strategies Among Purchasers of New Automobiles," *Journal of Consumer Research*, 417-431.
- Goldman, Arieh and J.K. Johansson (1978), "Determinants of Search for Lower Prices: An Empirical Assessment of the Economics of Information Theory," *Journal of Consumer Research*, 176-186.

- Grewal, Dhruv and Howard Marmorstein (1994), "Market Price Variation, Perceived Price Variation, and Consumers' Price Search Decisions for Durable Goods," *Journal of Consumer Research*, 453-460.
- Glazer, Rashi (1991), "Marketing in an Information-Intensive Environment: Strategic Implications of Knowledge as an Asset," *Journal of Marketing*, 55(October) 1-19.
- Greene, William H. (1993), *Econometric Analysis*, New York: Macmillan Publishing Company.
- Guiltinan, Joseph P. (1987), "The Price Bundling of Services: A Normative Framework," *Journal of Marketing*, 51 (April), 74-85.
- Hausman, J.A. (1978), "Specification Tests in Econometrics," *Econometrica*, 46 (6), 1251-71.
- Hoffman, Donna L. and Thomas P. Novak (1996), "Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations," *Journal of Marketing*, 60 (3), 50-68.
- Hoyer, Wayne D. (1984), "An Examination of Consumer Decision Making for a Common Repeat Purchase Product," *Journal of Consumer Research*, 11 (December), 822-29.
- Howard, John and J.N. Sheth (1969), *The Theory of Buyer Behavior*, New York: Wiley.
- Intelliquest* (1997), "Worldwide Internet/Online Tracking Study," www.intelliquest.com.
- Irwin and Smith (1957), "Value, Cost, and Information as Determinants," *Journal of Experimental Psychology*, 229-232.
- Jacoby, Jacob, Chestnut, and Fisher (1978), "A Behavioral Process Approach to Information Acquisition in Nondurable Purchasing," *Journal of Marketing Research*, 532-544.
- _____, George J. Syzabillo, and Jacqueline Busato-Schach (1977), "Information Acquisition Behavior in Brand Choice Situations," *Journal of Consumer Research*, 3 (4), 209-16.
- Johnston, J. (1984), *Econometric Methods*, New York, NY, McGraw Hill.
- Jones, Terrell B. (1998), "Will New Technologies Change Distribution Channels?," presentation made at the ISBM Web Consortium, Dallas, February 27.
- Judge, George G., W. E. Griffiths, R. Carter Hill, Helmut Lutkepohl, and Tsound-Chao Lee (1985), *The Theory and Practice of Econometrics*, Second edition, New York, NY: John Wiley & Sons, Inc.
- Kalyanaram, Gurumurthy and John D. C. Little (1994), "An Empirical Analysis of Latitude of Price Acceptance in Consumer Packaged Goods," *Journal of Consumer Research*, 21 (December), 408-18.

- Kaul, Anil and Dick R. Wittink (1995), "Empirical Generalizations About the Impact of Advertising on Price Sensitivity and Price," *Marketing Science*, Vol. 14, No. 2, Part 2 of 2, p. G151-G160.
- Krishnamurthi, Lakshman, Tridib Mazumdar, and S.P. Raj (1993) "Asymmetric Response to Price in Consumer Brand Choice and Purchase Quantity Decisions," *Journal of Consumer Research*, 19 (3), February, p. 387-400.
- Lee, Ho Guen (1998), "Do electronic marketplace lower the price of goods?" *Communications of the ACM*, Vol. 41, No. 1, p. 78-??.
- Lichtenstein, Donald R., Nancy M. Ridgway, and Richard G. Netemeyer (1993), "Price Perceptions and Consumer Shopping Behavior: A Field Study," *Journal of Marketing Research*, 30 (May), 234-45.
- Lynch Jr., John and Dan Ariely (1998), "Interactive Home Shopping: Effects of Search Cost for Price and Quality Information on Price Sensitivity, Satisfaction with Merchandise, and Retention," *Working Paper*, Fuqua School of Business, Duke University.
- Marmorstein, Howard, Dhruv Grewal, and Raymond P. H. Fiske (1992), "The Value of Time Spent in Price-Comparison Shopping: Survey and Experimental Evidence," *Journal of Consumer Research*, 52-61.
- Meyer, Robert (1982), "A Descriptive Model of Consumer Information Search Behavior," *Marketing Science*, 93-121.
- Mitra, Anushree and John G. Lynch, Jr. (1995), "Toward a Reconciliation of Market Power and Information theories of Advertising Effects on Price Elasticity," *Journal of Consumer Research*, 3, 263-76.
- Monroe, Kent B. (1971), "Measuring Price Thresholds by Psychophysics and Latitudes of Acceptance," *Journal of Marketing Research*, 8 (November), 46-64.
- Nagle, Thomas T. and Reed K. Holden (1995), *The Strategy and Tactics of Pricing: A Guide to Profitable Decision Making*, Englewood Cliffs, N.J., Prentice Hall, Second Edition.
- Prasad, V. Kanti and L. Winston Ring (1976), "Measuring Sales Effects of Some Marketing Mix Variables and Their Interactions," *Journal of Marketing Research*, 13 (November), 391-96.
- Rangaswamy, Arvind and Yoram Wind (1994), "Don't Walk In, Just Log In! Electronic Markets and What They Mean for Marketing," *Working Paper*, December, University of Pennsylvania.
- Ratchford, Brian T. (1982), "Cost-Benefit Models for Explaining Consumer Choice and Information-Searching Behavior," *Management Science*, 28 (February), 197-212.
- Russo, J. Edward, Richard Staelin, Catherine A. Nolan, Gary J. Russell, and Barbara L. Metcalf (1986), "Nutrition Information in the Supermarket," *Journal of Consumer Research*, 13 (June), 48-70.

- Shankar, Venkatesh and Lakshman Krishnamurthi (1996), "Relating Price Sensitivity to Retailer Pricing and Promotional Variables: An Empirical Analysis," *Journal of Retailing*, 72 (Fall), 249-272.
- Shugan, Steven M. (1980), "The Cost of Thinking," *Journal of Consumer Research*, 99-111.
- Srinivasan, Narasimhan and Brian T. Ratchford (1991), "An Empirical Test of a Model of External Search for Automobiles," *Journal of Consumer Research*, 233-242.
- Stigler, G. (1961), "The Economics of Information," *Journal of Political Economy*, 69, (June), 213-25.
- Tversky, Amos and Daniel Kahneman (1981), "The Framing of Decisions and the Psychology of Choice," *Science*, 211 (January), 453-458.
- Urban, Glen, Bruce Weinberg and John R. Hauser (1996), "Premarket Forecasting of Really New Products," *Journal of Marketing*, 60 (1), 47-60.
- Urbany, Joel E. (1986), "An Experimental Examination of the Economics of Information," *Journal of Consumer Research*, 257-271.
- _____, Bearden, and Weilbaker (1988), "The Effect of Plausible and Exaggerated Reference Prices on Consumer Perceptions and Price Search," *Journal of Consumer Research*, 95-110.
- _____, Peter Dickson, and Key (1991), "Actual and Perceived Consumer Vigilance in the Retail Grocery Industry," *Marketing Letters*, 15-25.
- _____, Peter Dickson, and Kalapurakal (1996), "Price Search in the Grocery Market," *Journal of Marketing*, 91-104.
- Wall Street Journal* (1997), "Booksellers Prepare to Do Battle in Cyberspace," January 28.
- Washington Post* (1995), "To Ring Up Music Sales," November 13.
- Yadav, Manjit S. and Kent B. Monroe (1993), "How Buyers Perceive Savings in a Bundle Price: An Examination of a Bundle's Transaction Value," *Journal of Marketing Research*, 30 (August), 350-58.

Table 1
The Differential Impact of the Online Medium on
Information Search and Price Sensitivity: Summary of Hypotheses

<i>Factors (Hypotheses)</i>	<i>Benefits of information search</i>	<i>Costs of non-price information search</i>	<i>Costs of price information search</i>	<i>Overall price sensitivity</i>	
				<i>Price importance</i>	<i>Price search</i>
Main effect of online medium (H _A)	ENS	-	-	ENS	+
Perceived price-oriented content of web site (H ₁)	ENS	+	-	+	+
Perceived interactivity of web site (H ₂)	+	-	-	-	-
Perceived depth of information (H ₃)	ENS	-	-	-	-
Interaction of content and depth (H ₄)	ENS	+	-	+	+
Relative ease of price search (H ₅)	ENS	ENS	-	+	+
Perceived range of options (H ₆)	+	-	ENS	-	-
Brand loyalty (H ₇)	+	ENS	ENS	-	-
Value of time (H)					
Frequency of shopping (H)					
Price comparison using intermediary (H ₉)	ENS	ENS	+	ENS	-
Price bundling (H ₁₀)	ENS	ENS	+	-	-

ENS – Effect Not Significantly different online as compared to offline

Table 2: Comparison of Online and Offline Sample Demographics

<i>Demographic Variable and Category</i>	<i>% of Online Sample</i>	<i>% of Offline Sample (unmatched)</i>	<i>% of Offline Sample (matched)</i>
<u><i>Sex</i></u>			
Female	26	23	25
<u><i>Age</i></u>			
18-34	30	15	28
35-54	61	59	59
55 and above	9	26	13
<u><i>Education</i></u>			
No college	20	14	12
College	37	41	42
Post-graduate	43	45	46
<u><i>Annual Family Income</i></u>			
Below \$60,000	17	13	20
\$60,000-\$99,000	41	25	36
\$100,000 and above	42	62	44
<u><i>Purpose of Hotel Stay</i></u>			
For business (%)	43	65	69

Table 3: Operationalization and Means of Variables in the Data

<i>Variable</i>	<i>Operationalization</i>	<i>Online Mean</i>	<i>Offline Mean (Unmatched)</i>	<i>Offline Mean (Matched)</i>
Price importance (PRIMP)	Relative importance of price among top 8 factors influencing choice (100-point constant-sum scale)	17.20	15.86	15.76
Price search (PRSEARCH)	Attitude toward the cost-benefit of price shopping (7-point Likert scale on four statements)	4.17	3.34	3.36
Perceived content of web site (CONTENT)	Relative degree of perceived price/feature orientation of the message at the web site (Dummy variable represented by 1 if price-oriented, 0 otherwise)	0.34	N/A	N/A
Perceived interactivity of web site (INTERAC)	Perception of interactivity of the web site message (5-point scale ranging from “Much better than at other sites” to “Much worse than at other sites”)	3.69	N/A	N/A
Perceived depth of information at the web site (INFO)	Perception of extent of web site information relative to expectations (5-point scale ranging from “Much better than expected” to “Much worse than expected”)	3.87	N/A	N/A
Relative ease of price search (PRSRCH)	Expressed ease of searching price relative to the ease of searching for the most important non-price attribute (Ratio of ratings on 5-point scales ranging from “Very easy” to “Very difficult”)	0.89	0.95	0.95
Perceived range of options (OPTION)	Perception of the available range of products and price options online (5-point scale ranging from “Much better than expected” to “Much worse than expected”)	3.50	3.27	3.25
Brand loyalty (LOYAL)	Expressed degree of loyalty to the brand (7-point scale)	5.62	5.11	5.14
Customer value of time (TIMVAL)	Time a customer is willing to spend in choosing a hotel (Five-point scale ranging from “5 minutes or less” to “More than 60 minutes”)*	- 2.81	-2.42	- 2.39
Frequency of shopping (FREQ)	Expressed frequency of shopping for the product (Scale ranging from “Less than once a month” to “More than 5 times a month”)	1.71	2.13	2.18
Price comparison using intermediary (PRINT)	Whether a customer went through a channel intermediary and compared prices (Dummy variable represented by 0 or 1)	0.57	0.47	0.44
Price bundling (BUNDL)	Whether a customer’s choice of a hotel was part of a price bundle (Dummy variable represented by 0 or 1)	0.06	0.08	0.08

N/A - Not Applicable. * Since time value negatively corresponds to willingness to spend time, the figures are in negative.

Table 4: Predicted Parameter Signs***Online Model***

<i>Hypothesis</i>	<i>Parameter</i>	<i>Predicted Sign</i>	
		<i>Price importance</i>	<i>Price search</i>
H ₁ : Perceived content of web site	α_1	+	+
H ₂ : Perceived interactivity of web site	α_2	-	-
H ₃ : Perceived depth of information	α_3	-	-
H ₄ : Interaction of content and depth	α_4	+	+

Pooled Model

<i>Hypothesis</i>	<i>Parameter</i>	<i>Predicted Sign</i>	
		<i>Price importance</i>	<i>Price search</i>
H _A : Main effect of online medium	λ^1_0	NS	+
H ₅ : Relative ease of online price search	λ^1_5	+	+
H ₈ : Perceived range of options	λ^1_8	-	-
H ₇ : Brand loyalty	λ^1_7	-	-
Value of time			
Frequency of shopping			
H ₉ : Price comparison using intermediary	λ^1_{11}	NS	-
H ₁₀ : Price bundling	λ^1_{12}	-	-

NS – Not Significant

Table 5: Results of Proposed Model for Online Customers (n=214)

<i>Variable (Parameter)</i>	<i>Price Importance Value (Std. Error)</i>	<i>Beta Weight</i>	<i>Price Search Value (Std. Error)</i>	<i>Beta Weight</i>
Intercept (α_0)	28.44 (4.75)***		6.72 (0.22)***	
Perceived content of web site (α_1)	-4.15 (5.90)	0.11	-0.25 (0.21)	0.08
Perceived interactivity of web site (α_2)	-2.39 (0.45)***	0.12	-0.05 (0.03)*	0.03
Perceived depth of information (α_3)	- 2.18 (0.77)**	0.20	- 0.29 (0.03)**	0.18
Interaction of content and depth (α_4)	-0.69 (1.38)	0.07	0.03 (0.05)	0.04
Relative ease of price search (α_5)	13.07 (2.33)***	0.15	0.64 (0.10)***	0.09
Perceived range of options (α_8)	- 1.86 (0.34)***	0.10	0.00 (0.02)	0.00
Brand loyalty (α_7)	0.56 (0.34)	0.04	-0.10 (0.02)***	0.10
Value of time (α_9)	-1.49 (0.36)***	0.11	-0.20 (0.02)***	0.16
Frequency of shopping (α_{10})	1.74 (0.61)**	0.08	0.24 (0.03)***	0.13
Price comparison using intermediary (α_{11})	7.30 (0.97)***	0.20	0.61 (0.06)***	0.20
Price bundling (α_{12})	-17.13 (2.70)***	0.22	-0.23 (0.18)	0.04
Shared cost effect-Business stay (α_{13})	-6.75 (0.54)***	0.18	-0.44 (0.05)***	0.15
Correlation between actual and predicted values of the dependent variable	0.61		0.68	

Table 6: Results of Proposed Model for Offline Customers (n=181)

<i>Variable (Parameter)</i>	<i>Price Importance Value (Std. Error)</i>	<i>Beta Weight</i>	<i>Price Search Value (Std. Error)</i>	<i>Beta Weight</i>
Intercept (β_0)	-10.30 (2.25)***		2.39 (0.16)**	
Relative ease of price search (β_5)	13.06 (1.40)***	0.11	0.46 (0.07)***	0.06
Perceived range of options (β_8)	- 0.48 (0.40)	0.02	-0.03 (0.01)**	0.07
Brand loyalty (β_7)	-1.49 (1.18)	0.10	-0.13 (0.01)**	0.12
Value of time (β_9)	-1.40 (0.21)***	0.09	-0.14 (0.01)**	0.13
Frequency of shopping (β_{10})	2.77 (0.33)***	0.13	0.02 (0.02)	0.02
Price comparison using intermediary (β_{11})	6.00 (0.50)***	0.14	1.37 (0.03)***	0.48
Price bundling (β_{12})	4.85 (1.19)***	0.06	-0.27 (0.06)**	0.05
Shared cost effect-Business stay (β_{13})	-10.45 (0.66)***	0.23	-0.04 (0.02)*	0.01
Correlation between actual and predicted values of the dependent variable	0.59		0.63	

* Significant at 0.05 level; ** Significant at 0.01 level; *** Significant at 0.001 level.

Table 7: Results of Proposed Pooled Model (n= 395)

<i>Variable (Parameter)</i>	<i>Price Importance Value (Std. Error)</i>	<i>Beta Weight</i>	<i>Price Search Value (Std. Error)</i>	<i>Beta Weight</i>
Intercept (λ^0_0)	-3.85 (12.56)		2.02 (0.86)*	
Perceived content of web site (λ^1_1)	-3.90 (2.86)	0.08	- 0.19 (0.20)	0.05
Perceived interactivity of web site (λ^1_2)	- 1.08 (0.46)*	0.11	-0.06 (0.03)*	0.07
Perceived depth of information (λ^1_3)	- 1.61 (0.68)**	0.17	-0.30 (0.12)**	0.39
Interaction of content and depth (λ^1_4)	0.14 (1.07)	0.01	0.05 (0.07)	0.05
Relative ease of price search (λ^0_5)	12.75 (6.30)*	0.13	0.51 (0.17)**	0.07
Perceived range of options (λ^0_8)	- 0.51 (2.01)	0.02	-0.10 (0.04)*	0.06
Brand loyalty (λ^0_7)	-1.53 (1.07)	0.11	- 0.13 (0.07)*	0.12
Value of time (λ^0_9)	-1.02 (0.41)*	0.07	- 0.17 (0.06)**	0.15
Frequency of shopping (λ^0_{10})	0.30 (0.13)*	0.01	0.08 (0.08)	0.05
Price comparison using intermediary (λ^0_{11})	7.32 (2.94)**	0.18	1.31 (0.20)***	0.43
Price bundling (λ^0_{12})	6.50 (5.42)	0.08	-0.34 (0.37)	0.06
Shared cost effect-Business stay (λ^0_{13})	-7.53 (3.13)*	0.19	- 0.08 (0.03)*	0.03
Main effect of online medium (λ^1_0)	15.69 (16.40)	0.39	3.21 (1.23)**	1.05
Relative ease of price search-online (λ^1_5)	-5.36 (10.37)	0.13	0.24 (0.71)	0.07
Perceived range of options-online (λ^1_8)	- 0.88 (0.33)*	0.08	- 0.12 (0.18)	0.14
Brand loyalty-online (λ^1_7)	-0.92 (1.43)	0.14	0.04 (0.10)	0.08
Price comparison using intermediary-online (λ^1_{11})	- 1.51 (4.00)	0.04	-0.59 (0.27)*	0.18
Price bundling-online (λ^1_{12})	-16.61 (7.72)*	0.15	0.25 (0.53)	0.03
Correlation between the actual and predicted values of the dependent variable	0.53		0.57	

* Significant at 0.05 level; ** Significant at 0.01 level; *** Significant at 0.001 level.

Table 8: Summary of Results of Hypotheses Tests

<i>Hypothesis (Parameter)</i>	<i>Price Importance</i>		<i>Price Search</i>	
	<i>Predicted</i>	<i>Actual</i>	<i>Predicted</i>	<i>Actual</i>
H _A : Main effect of online medium (λ^1_{0})	Ns	Ns	+	+
H ₁ : Perceived content of web site (α_1)	+	Ns	+	Ns
H ₂ : Perceived interactivity of web site (α_2)	-	-	-	-
H ₃ : Perceived depth of information (α_3)	-	-	-	-
H ₄ : Interaction of content and depth (α_4)	+	Ns	+	Ns
H ₅ : Relative ease of price search (λ^1_5)	+	Ns	+	Ns
H ₆ : Perceived range of options (λ^1_8)	-	-	-	Ns
H ₇ : Brand loyalty (λ^1_7)	-	Ns	-	Ns
Value of time				
Frequency of shopping				
H ₉ : Price comparison using intermediary (λ^1_{11})	Ns	Ns	-	-
H ₁₀ : Price bundling (λ^1_{12})	-	-	-	Ns

Note: All reported signs are significant at the 0.05 level or better. Ns: Not significant

Figure 1
Information Search and Customer Price Sensitivity

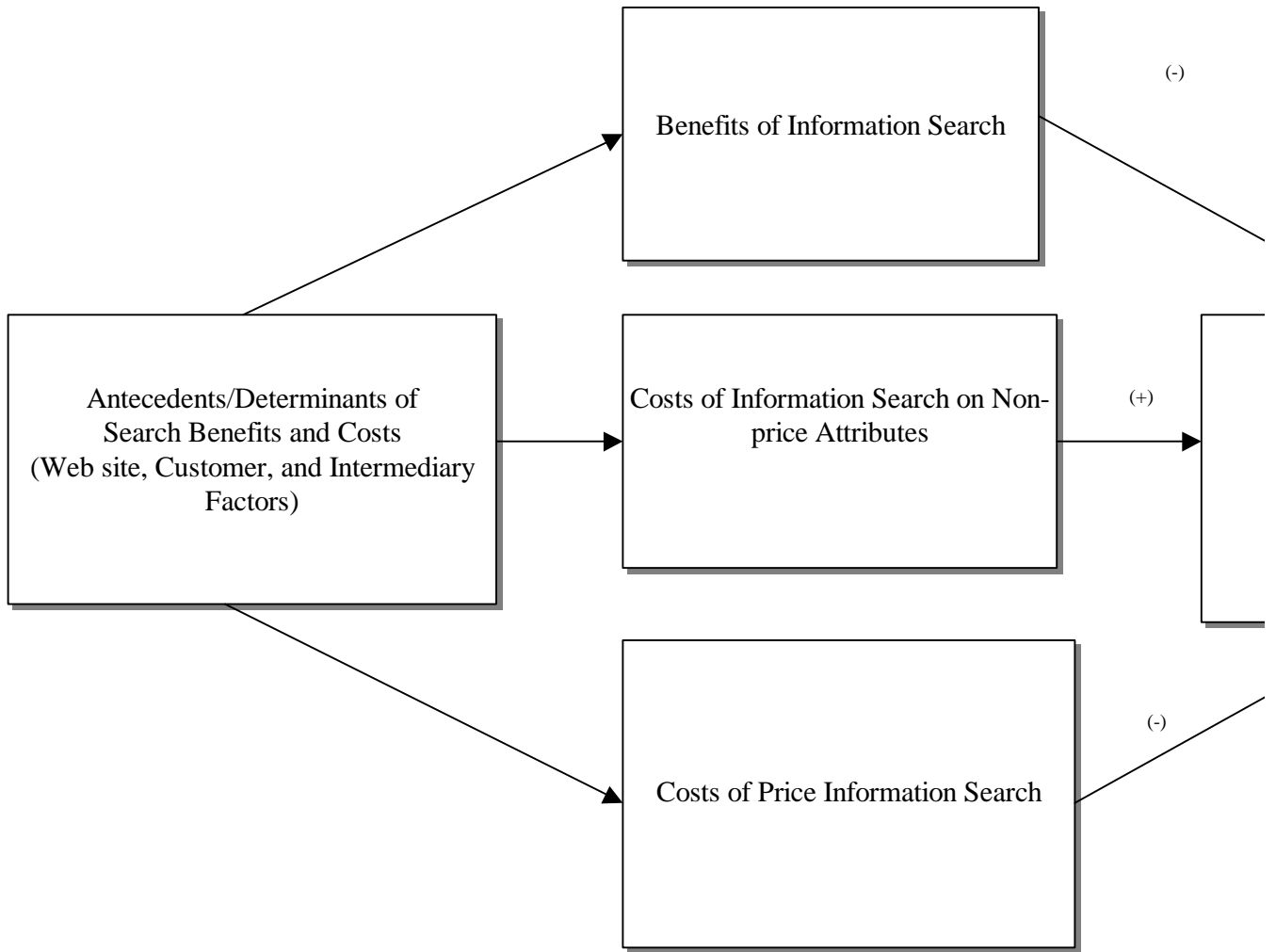


Figure 2

A Conceptual Framework of the Effects of the Online Medium on Customer Price Sensitivity

