

Bricks or Clicks?
Consumer Attitudes Toward Traditional Stores and Online Stores

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Abstract

Do consumers prefer to buy from traditional retail stores (bricks), or do they prefer to shop online (clicks)? Determining what consumers value, and how online stores compare to traditional stores on valued attributes is a necessary first step in understanding the relative benefits of e-commerce. In this paper, we measure consumers' valuation of online stores compared to traditional stores by measuring their perceptions of the performance of online stores on 18 attributes, as well as the importance of each of those attributes. These individual perceptions and preferences from a survey (both web- and paper-based) of 224 shoppers are combined in a self-explicated multiattribute attitude model. We find that all product categories in our survey of online stores are less acceptable overall than traditional stores. Online stores are perceived to have competitive disadvantages with respect to shipping and handling charges, exchange-refund policy for returns, providing an interesting social or family experience, helpfulness of salespeople, post-purchase service, and uncertainty about getting the right item. These disadvantages are not entirely overcome by online stores' advantages in brand-selection/variety and ease of browsing.

“If a man ... makes a better mousetrap than his neighbor, tho’ he builds his house in the woods, the world will make a path to his door” — Ralph Waldo Emerson (attributed)

1. Introduction

Do consumers prefer bricks or clicks? That is, do consumers prefer to buy from traditional retail stores, or do they prefer to shop online? The answer to this question has significant implications for manufacturers and retailers seeking to establish an e-business, for firms who want to expand their market potential by tapping into customer segments that otherwise would not buy, or for manufacturers who are strategically contemplating dual supply chains (Chiang, Chhajed, and Hess 2002).

Online stores sell goods and services where the buyer places an order over an internet, extranet, electronic data interchange network, electronic mail, or other online system. It has been suggested that online retailing is a more convenient shopping channel for consumers because online stores offer greater time-savings (Szymanski and Hise 2000). Consumers can more easily find merchants, products, and product information by browsing the web, reducing search costs, and eliminating the need to travel. Thus, consumers may prefer the convenience of online stores compared to traditional stores. In 2001, however, conventional stores rang up 96.6% of all retail sales compared to 1.1% online and 2.5% from mail order houses (U.S. Census Bureau 2001, 2002), so certainly convenience is not the only factor influencing consumers’ decisions of whether to buy online or at a traditional store. Some costs of buying from an online store such as shipping and handling charges, or delayed consumption during the delivery period exceed those costs associated with buying from a traditional store (see Liang and Huang 1998). *The Wall Street Journal* (Wingfield 2002) reported that, “Online buyers cite shipping discounts as more likely than any other promotion to encourage them to purchase goods. Amazon credits free shipping as a key factor in boosting its growth.” For the 2002 holiday shopping season, 144

merchants on BizRate.com, an online comparison shopping site, offered free shipping to buyers an increase of 31% from the number of online retailers in 2001 (Zimmerman, Merrick, and Tkacik 2002).

Understanding consumer's acceptance level of online stores appears crucial in a business-to-consumer e-business context. Determining what consumers value, and how online stores compare to traditional stores on valued attributes is a necessary first step in resolving the bricks or clicks question.

In this paper, we measure consumers' valuation of online stores compared to traditional stores by taking into account their perceptions of the performance of online stores on several different attributes, as well as the importance of each of those attributes. These individual perceptions and preferences are then combined to form what psychologists call self-explicated multiattribute attitude model (Fishbein 1963, 1967, Meyer and Johnson 1995) or what Keeney (1999) calls a value model. We then investigate in what ways this online attitude measure varies across the population.

2. Prior Research

In an earlier issue of *Management Science*, Keeney (1999) interviewed consumers about the pros and cons of Internet commerce and qualitatively categorized their responses into objectives (attributes) such as maximize product quality, minimize cost, minimize time to receive the product, maximize convenience, and maximize shopping enjoyment. Such "voice of the customer" interviews (Griffin and Hauser 1993) are valuable in identifying the attributes upon which customers distinguish one store-type from another. Keeney (1999) did not measure consumers' perceptions of attributes for online and traditional stores nor did he measure the

importance of each attribute, but he recognized that consumer attitudes (what he calls values) are critical to understanding online shopping:

The values of prospective customers are a key element in essentially all the major decisions facing any organization involved in or considering being involved in Internet commerce...[A] useful research project associated with quantifying customer values... is an applied research project to develop a sample of customer values for a specific category of products... Then the objectives would be quantified and combined with the quantification of prospective customer objectives. This would allow the company to simultaneously investigate the implications of proposed... delivery decisions on both the value proposition to the customer and on the achievement of fundamental company objectives (Keeney 1999, pp. 541-542).

As suggested by Keeney, measuring and quantifying customer values is the fundamental issue for companies considering whether to establish an online retail presence. This is precisely what is done here. Have others tried the same?

Several studies recently published seek to explain consumers' acceptance of online shopping. In an empirical study of consumer willingness to buy from online retailers, Liang and Huang's (1998) respondents stated that they preferred to buy some products (shoes, toothpaste, microwave oven) from traditional stores and other products (books and flowers) from online stores (although only 28 of the 86 student respondents had online shopping experience). The authors explained this acceptance of online buying using consumer perceptions of transaction-costs associated with shopping (composed of seven indicators: search, comparison, examination,

negotiation, payment method, delivery, and post-service costs), uncertainty (product and process indicators), and asset specificity (site, human, special, temporal, and brand asset indicators). Missing from their structural equation model analysis are any direct measures of the relative importance of each of these indicators. Moreover, the structure of their model of online acceptance is under-identified (Fisher 1966, Hess 2002), so their empirical results do not necessarily measure the intended relationships.

Szymanski and Hise (2000) investigated consumers' satisfaction with Internet shopping. They found that greater satisfaction with online shopping is positively correlated with consumer perceptions of the convenience, product offerings, product information, site design, and financial security of an online store relative to traditional stores. The authors did not experimentally manipulate perception levels, so this correlational study cannot impute causation. The question of whether perceptions of convenience cause satisfaction or satisfaction causes perception of convenience is left unanswered. Their survey also does not attempt to measure differences in satisfaction across product categories, nor does it measure consumers' overall attitude toward online stores compared to traditional stores. Further, their survey of consumers' satisfaction with online shopping necessarily excluded people who shop only at traditional stores.

Degeratu, Rangaswamy and Wu (2000) studied the decision of individuals to use Peapod online grocery shopping. They gathered a sample of Peapod online buyers and a matching sample of individuals who did their grocery shopping in traditional supermarkets. As part of their broader study of brand preferences, their random utility model specified an indirect utility function for online versus offline shopping that depended only on the income of individuals. Perceptions of online grocers versus traditional grocery stores were not measured. While demographic measures are valuable in describing differences between online versus traditional

grocery store buyers, such variables do not address Kenney's (1999) call to understand and quantify customer values. A single demographic measure, in contrast to measures of a variety of attribute perceptions, does not provide a very rich answer to the question, "Why do some people shop online and others in a traditional store?"

Bellman, Lohse, and Johnson (1999) analyzed the responses of over 8000 participants in the Wharton Virtual Test Market who completed an initial survey about online buying and attitudes. Their logistic regression model found that online experience (i.e., web browsing) was the dominant predictor of whether or not the respondent had ever bought anything online. The survey did not measure respondents' perceptions or the importance of attribute differences between online and traditional stores.

Kwak, Fox, and Zinkhan (2002) surveyed chatroom participants via email to discover whether these consumers had bought any of nine products online. Four broad independent constructs (attitudes toward the Internet, experience with the Internet, demographics, and personality type) explained Internet purchases of these products in logistic regressions. Unfortunately, four distinct single-variable logit models were estimated rather than a single multivariate logit model with all four variables, resulting in biased coefficient estimates (see Judge et al. 1988, p. 842).

All five of these empirical studies are forms of what Urban and Hauser (1980) call "preference regressions" and all share the same problem: the data from all respondents are pooled together and the estimated preference coefficients are assumed equal for all individuals. Other preference measurement methods have been intensely studied over the past two decades. Whether a conjoint or self-explication approach is chosen (Srinivasan and Park 1997), or a logit choice model is estimated, heterogeneity must be recognized by allowing the preference

coefficients to vary within the population (Andrews, Ansari, and Currim 2002, Andrews, Ainslie, and Currim 2002).

In our study, each respondent's valuation of online stores is compared to traditional stores by taking into account both their perceptions of the performance of online stores in delivering eighteen attributes, and also the importance of each of those attributes. Our multiattribute attitude model allows us to measure differences in perceptions and preferences (the importance of an attribute) among respondents in order to better understand consumers' acceptance (or lack of acceptance) of online retail stores.

Specifically, our research addresses the following questions: Do consumers accept online stores like they do traditional stores or are consumers willing to pay more for products at traditional brick-and-mortar stores than at online stores? What are consumers' perceptions of online stores compared to traditional brick-and-mortar stores for a variety of product types? How do various factors such as product search costs, ability to inspect the product before purchase, shipping and handling charges, or delivery waiting time affect consumer preferences? When compared to traditional brick-and-mortar stores, what are the relative advantages of online stores? How do these perceptions and preferences vary within the population?

3. Attitude Model of Customer Acceptance of Online Stores

Our multiattribute attitude model is

$$S_{kt}^i = \sum_{j=1}^J w_j^i a_{ktj}^i - \omega^i p_{kt}^i, \quad (1)$$

where S_{kt}^i is the consumer surplus of individual i for the product category k in store type t , where $t \in \{\text{traditional store, online store}\}$. Our analysis will always be carried out at the

individual level and will investigate different product categories, but the notation for individual and product category will be suppressed to simplify exposition: $S_t = \sum_j w_j a_{ij} - \omega p_t$ denotes the consumer surplus of the typical individual for the typical product category.

The index $j=1, \dots, J$ denotes attributes that consumers use to distinguish the store's product offerings, such as product quality, shipping and handling charges, ability to inspect the merchandise before buying, and other factors (a total of eighteen factors are described in detail below). The term a_{ij} in the attitude model is the individual's perception of how much of attribute j store type t possesses. For example, $a_{\text{traditional S\&H}}$ specifies an individual's perception of a traditional store's shipping and handling charges for some product. Finally, p_t is the perceived price of the product category in store type t .

Preferences are represented by importance weights (called part-worth coefficients in conjoint analysis): w_j denotes the importance weight of attribute j and ω denotes the importance of price. For example, if the preferences of an individual are such that $w_{\text{S\&H}} > w_{\text{quality}}$, then shipping and handling is more important than merchandise quality.

Jedidi and Zhang (2002) specify a measure of the reservation price for a product. Suppose that the product at store type t has a perceived profile $[a_{t1}, \dots, a_{tj}, \dots, a_{tJ}]$ and that the numeraire is consumed in an amount x (the numeraire good is used to stand for "all other goods" and its price is set equal to \$1 by convention). The utility of a product from store type t and consumption of all other goods is $U_t = \sum_j w_j a_{tj} + \omega x$. If the consumer buys the product from store t , s/he faces a budget constraint $p_t + x = M$, where M is money income. The indirect utility of the product is

$$U_t = \sum_j w_j a_{tj} + \omega(M - p_t) = \omega M + \sum_j w_j a_{tj} - \omega p_t = \omega M + S_t. \quad (2)$$

On the other hand, if the product is not purchased, then the indirect utility is derived from consuming only the numeraire good: $U_0 = \omega M$. The reservation price R_t (also called “willingness to pay”) for the product t is found by setting U_t equal to U_0 and solving for price:

$$R_t = \sum_j \frac{w_j}{\omega} a_{tj}. \quad (3)$$

To distinguish attitudes toward traditional stores and online stores, we calculate a customer’s acceptance index of online stores θ as the reservation price of buying a product category online relative to the reservation price of a traditional store:

$$\theta = \frac{R_{\text{online}}}{R_{\text{traditional}}}. \quad (4)$$

(Recall that the individual index i and product category index k are present but have been suppressed for notational clarity.) If $\theta < 1$, then customers’ willingness to pay for a product online is lower than at a traditional store, due to the perception that performance on important attributes is better at traditional stores. This customer acceptance index was crucial in explaining the decision of manufacturers to create dual channels in Chiang, Chhajed, and Hess (2002).

4. Method

4.1 Measures

Obviously consumers prefer stores that sell high quality products at a low price, but they also want to make the transaction quickly and pleasantly. Transaction-cost economics (Williamson 1979, Mahoney 2002) suggests that buyers select sellers in part to minimize transaction cost and uncertainty. Transaction costs may include factors such as:

- Search Cost: cost perceived in relation to finding relevant products or process information in the transaction process,

- Comparison Cost: cost perceived in relation to comparing alternatives based on the product attributes in the transaction process,
- Payment Cost: cost perceived in relation to ordering and paying for products in the transaction process, and
- Delivery cost: product-shipping cost incurred by a customer and/or the cost perceived when waiting for the product delivery.

Some consumers might avoid buying from an online retailer because of concerns about uncertainties such as

- Examination Cost: cost perceived in relation to examining the products to get the right product or fit, such as shoes that fit the feet, and
- Post-service cost: cost perceived incurred after receiving a product, such as maintenance, repair of broken products, and customer support.

An initial survey instrument was pretested on 68 MBA and undergraduate students at two Midwestern universities and modified based upon their open-ended feedback. Faculty and doctoral students in research seminars at two universities also proposed improvements to the questionnaire. Based on the pretest results, both a paper and a web-based survey were conducted of over 200 individuals to measure both perceptions and self-explicated preferences of 18 attributes related to buying from online stores versus traditional stores for six product categories. The final set of attributes investigated is found in Table 1 and the final survey instrument appears in the Appendix.

As indicated by many marketing researchers (e.g., Lutz and Bettman 1977), the use of a probability scale to measure the performance of each attribute in a multiattribute attitude model is cumbersome. Therefore, in our study, the perceived performance of online stores on each

attribute is measured in a relative sense, using as a benchmark the perceived performance of the traditional retail store on each attribute. For example, our survey asks, “Compared with traditional stores, how much of a problem is the lack of physical examination of products when buying the following items from an online store?” Respondents were asked to indicate their perception of online stores for each attribute on a 7-point ordinal scale, where the mid-level score of 4 indicates that respondents’ perception is the same for an online store and a traditional store. Based on this scale, the implied score for a traditional store is 4, since, of course, a traditional store is “*about the same*” as a traditional store. As measures of cost, all responses were reverse coded (except for questions 2, 8, 9, 12, 14 in the Appendix).

Table 1
Attributes of Store Type

Attributes	
Price	Low prices Special sales, rebates, coupons
Product Quality	Quality of the merchandise
Transaction Cost	Easy to find product information Immediate possession of products Accepts all forms of payment Helpfulness of salespeople Brand selection and variety Product found is in stock Ability to compare products Speed of selection and purchase Interesting social or family experience Charges for shipping and handling Easy browsing for products
Uncertainty	Physical examination of products Uncertainty about getting the right item Post-purchase Service Exchange-refund policy for returns

4.2 Product Categories

An online sales channel is capable of accommodating many different kinds of products, but not all products are suitable for sale online. Our pretest respondents indicated that different products have different customer online acceptance levels:

“I would never buy any consumable products, such as toothpaste or food online.

I would say of anything I buy books online the most because it is easy to find what you want.”

“The only thing I have purchased on the web is flowers. That was because the person I was buying them for lived in another state. If she had not, I would have purchased them in person.”

“Whether the good is perishable or not will affect my judgment.”

In order to verify that different products have different consumer online acceptance, we measured consumer willingness to purchase the six products listed in Table 2: DVD player, shoes, toothpaste, book, flowers, and food items, which cover durable, nondurable, and perishable categories. To provide a comparison to the Liang and Huang (1998) study, four of the six products in our survey were identical to theirs: book, shoes, toothpaste, and flowers.

Table 2
Products Used in the Survey

Product Category	Characteristics of the Selected Product
DVD Player:	Durable high price; requires maintenance
Shoes:	Durable with need of physical examination
Toothpaste:	Nondurable low price convenience product
Book:	Nondurable with need for browsing
Flowers:	Perishable with temporal considerations
Food Items:	Perishable product with quality considerations

4.3 Description of Survey Respondents

Both students and non-student adults living in the Midwestern United States were recruited to participate in the survey. Eighty-four filled out a paper and pencil questionnaire and 140 completed a web-based version of the questionnaire, resulting in 224 usable responses.

A description of the survey respondents is presented in Table 3. The respondents consisted of university students (72%) and non-student adults (28%); 56% were female. The mean age of the sample is 29 years old (range: 20 to 82 years). Eighty-five percent of the subjects indicated that they had previously purchased some product or service online. The proportion of experienced web shoppers is high for both non-student adults (87%) and students (84%).

Table 3
Description of Survey Respondents

	Students	Non-student Adults	Total
	N = 161	N = 63	N = 224
Female	58%	51%	56%
Experienced	84%	87%	85%
Mean age (years)	24	41	29

5. Empirical Findings

The first issue to be investigated is whether online stores are as acceptable to consumers as traditional stores. If they are not, then what exactly are the shortcomings of online stores in the minds of consumers? What are the important attributes that online stores do not perform as well on compared to traditional stores? Finally, are these attitudes towards online stores identical across the population, or do segments of consumers exist that prefer online stores to traditional stores? How can companies discriminate between such segments?

5.1 Consumer Acceptance of Online Stores versus Traditional Stores

In response to Keeney's (1999) call for research quantifying consumer values, the first issue we address is whether consumers accept online stores as equivalent to traditional stores. We operationalize consumer acceptance of online stores by measuring the willingness to pay for products in each type of store. If the willingness to pay is identical for both online and traditional stores, then $\theta=1$. If the willingness to pay is lower at online stores, then $\theta<1$. Aggregate U.S. Census Bureau sales data (2001, 2002) suggests that traditional stores outsell online stores 90 to 1. For each individual and each product category we compute the willingness to pay (Equation 3) for each type of store (using a perception score of 4 for traditional stores as described above), then compute the online acceptance index $\theta=R_{\text{online}}/R_{\text{traditional}}$. Table 4 summarizes consumers' acceptance index for each product category.

Table 4
Customer Acceptance Index of Online Stores (θ)

<i>Statistics</i>	<i>Durable Goods</i>		<i>Nondurable Goods</i>		<i>Perishable Goods</i>		Overall
	DVD	Shoes	Toothpaste	Book	Flowers	Food	
Mean, $\bar{\theta}$	0.80*	0.78*	0.90*	0.92*	0.81*	0.79*	0.83*
Std. Deviation	0.12	0.12	0.13	0.14	0.13	0.13	0.10
Std. Error	0.0083	0.0079	0.0087	0.0091	0.0086	0.0087	0.0070
t-stat ($\theta=1$)	23.7	27.6	11.4	8.6	22.5	23.7	23.6
Sig.(1-tailed)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Count ($\theta>1$)	10	7	50	52	15	12	11

* Hypothesis $\bar{\theta} = 1$ is rejected in favor of $\bar{\theta} < 1$ at the 1% level.

N = 224. All missing values in the survey have been replaced by the corresponding series mean.

The overall acceptance index of the online stores is $\bar{\theta}=0.83 < 1$ indicating that consumers have considerably lower willingness-to-pay for products online than at traditional stores (one-tailed test, statistically significant at the 1% level). T-tests reveal that this is true across durables, nondurables, and perishables: acceptance indices of the online stores are less

than 1 for all product categories ($p < .01$). The category with the highest online acceptance is books but its reservation price is still 8% below that of traditional stores and only 52 out of 224 respondents (23%) would pay extra to shop for books online instead of at a traditional bookstore. The least accepted product category for online buying is shoes, where the reservation price is 22% lower than at traditional shoe stores.

There is no statistical difference between the θ s for DVD players and flowers or DVD players and food, but all other differences are significant at the 5% level using paired-sample t-tests. A joint test of whether all six products have θ below 1 has a Wilks Lambda statistic that is statistically significant at the 1% level.

Empirical Finding 1: Unless prices are 8-22% lower online (depending on product category), consumers prefer to buy from traditional stores rather than from online stores.

5.2 Why is Willingness-to-Pay at Online Stores Lower than at Traditional Stores?

The reservation price for all six products is lower at online stores than at traditional stores, as measured by a multiattribute attitude model. Why? This finding suggests that the online store is perceived to have higher costs and lower benefits for attributes that are judged to be important to the consumer. The differences in consumer perception levels and importance weights for the 18 attributes measured in our survey are explored next.

Recall that attribute performance online was measured on a 7-point scale where the midpoint value indicated online stores were perceived “about the same” as a traditional store. Table 5 shows the perceived performance of online stores for each attribute and for each product

category. To make this easier to interpret, in Table 5 we have rescaled attribute performance online to a 0-100 scale, where 50 indicates an online store is perceived to be the same as a traditional store on that attribute. Bold face type highlights attributes where the online store's performance is significantly better than traditional stores (at the 5% level) and asterisks highlight attributes where traditional stores perform better than online stores.

Table 5

Mean Attribute Performance of Online Stores and Attribute Importance Weights

Attribute	DVD Player	Shoes	Tooth-paste	Book	Flowers	Food	All Products	Importance Weights
Quality of the merchandise	55	53	52	58	50	48*	53	6.3
Brand selection and variety	65	60	52	72	60	53	60	5.8
Uncertainty about getting the right item	35*	28*	58	57	34*	35*	41*	5.7
Easy browsing for products	59	52	53	69	56	51	57	5.7
Charges for shipping and handling	20*	22*	28*	26*	22*	25*	24*	5.6
Exchange-refund policy for returns	24*	28*	34*	33*	22*	26*	28*	5.5
Product found is in stock	53	54	59	58	55	54	56	5.5
Physical examination of products	37*	25*	66	66	42*	38*	46*	5.4
Ability to compare products	52	41*	46*	55	45*	43*	47*	5.4
Speed of selection and purchase	44*	48	53	47	47*	50	48	5.4
Easy to find product information	41*	48	64	56	52	54	52	5.2
Post-purchase Service	31*	36*	45*	44*	37*	37*	38*	5.2
Accepts all forms of payment	53	55	55	57	55	53	55	4.9
Immediate possession of products	48	45*	44*	53	38*	33*	44*	4.7
Helpfulness of salespeople	38*	34*	33*	36*	36*	34*	35*	4.5
Interesting social or family experience	27*	22*	25*	27*	28*	25*	26*	3.3
Low prices	57	54	49	61	46*	47*	52	6.0
Special sales, rebates, coupons	62	52	41*	58	53	46*	52	5.0

N=224. All missing values in the survey have been replaced by the corresponding series mean. Performance of 50 signifies the online store is perceived to be the same as a traditional store. Greater than 50 signifies that the online store is better than a traditional store and below 50 it is worse.

Bold face means significantly greater than 50, and * means significantly less than 50 at the 5% level.

Of the 6 products × 16 attributes = 96 product-attribute perceptions (leaving aside the price perceptions), the majority (54 versus 42) of the perception measure scores are below 50 indicating that traditional stores are perceived to perform better than online stores. Moreover, the depth of the attribute performance difference is also perceived to be greater: for those scores below 50, the average perception is 35 (15 points below 50) while for those scores above 50 the average perception is 56 (only 6 points above 50).

Empirical Finding 2: For all products except books the majority of the attributes are perceived to be better at a traditional store compared to an online store.

The differences in perceptions are stronger for attributes where the traditional store is better and weaker for attributes where the online store is better.

Not all attributes are equally important, however, as the right-most column of Table 5 confirms. The importance of each attribute was measured on a 7-point scale and the attributes in Table 5 have been sorted so that the most important (non-price) attributes appear at the top of the table. Online stores are perceived to have good “brand selection and variety” and this attribute is very important (6.3 out of 7) to consumers. However, online stores are perceived to be extraordinarily poor at “charges for shipping and handling” and “exchange-refund policy for returns” and these attributes are both quite important (5.6 and 5.5 out of 7). Finally, some store attributes are not important, such as providing an “interesting social or family experience” which scores 3.3 out of 7. Even though online stores are perceived poorly on some dimensions, such perceptions do not impact the overall attitude toward online stores if the attributes are not very important to consumers.

Empirical Finding 3: The importance of attributes varies widely, from very important attributes, such as quality of merchandise, product variety, and uncertainty of getting the right item, to unimportant attributes, such as interesting social or family experience.

The overall attractiveness of online versus traditional stores is computed as a product of importance weight times perceived performance attribute, summed across all attributes (as seen

in Equation 1). The previous analysis of the customer acceptance index of online stores (θ in Table 4) looked at this acceptance measure in aggregate, but in Table 6 we disaggregate this measure to understand in detail why traditional stores are preferred to online stores.

Table 6
Relative Performance of Online Store × Importance Weights for each Attribute

Attribute	Relative Performance of Online Stores	Rescaled Importance Weights	Performance × Importance
Quality of the merchandise	3	0.88	+2.7
Brand selection and variety	10	0.80	+8.0
Uncertainty about getting the right item	-9	0.78	-7.1
Easy browsing for products	7	0.78	+5.5
Charges for shipping and handling	-26	0.77	-19.9
Exchange-refund policy for returns	-22	0.75	-16.5
Product found is in stock	6	0.75	+4.5
Physical examination of products	-4	0.73	-2.9
Ability to compare products	-3	0.73	-2.2
Speed of selection and purchase	-2	0.73	-1.5
Easy to find product information	2	0.70	+1.4
Post-purchase Service	-12	0.70	-8.4
Accepts all forms of payment	5	0.65	+3.3
Immediate possession of products	-6	0.62	-3.7
Helpfulness of salespeople	-15	0.58	-8.8
Interesting social or family experience	-24	0.38	-9.2
Low prices	2	0.83	+1.7
Special sales, rebates, coupons	2	0.67	+1.3

Relative Performance of Online Store equals attribute performance of online store (Table 5) minus 50.
Rescaled Importance Weight is importance weight (Table 5) minus 1 divided by 6.
Bold face indicates greatest differences in performance×importance between online and traditional stores.

In Table 6, the perceived performance of online stores on each attribute is baselined against the perceived performance of traditional stores by subtracting 50 from the online attribute performance given in Table 5 (to keep the exposition clear, we look at the overall performance of all six categories). This relative performance measure ranges from –50 to 50. The importance weights in Table 5 have been rescaled to lie between 0 and 1, rather than between 1 and 7.

Finally, the product of relative performance and importance is computed for each attribute. This value can be as large as 50 or as small as -50.

The right column of Table 6 highlights in bold face large font the attributes that contribute or subtract the most to the perceived attractiveness of an online store (part-worth differences of 5 points or more). In the minds of the consumers, online stores have an important comparative advantage over traditional stores on brand selection and variety and ease of browsing. However, for many more attributes (uncertainty about getting the right item, charges for shipping and handling, exchange-refund policy for returns, post-purchase service, helpfulness of salespeople, and interesting social or family experience) online stores are at a serious disadvantage. The most acute source of disadvantage for online stores is shipping and handling charges, verifying the *Wall Street Journal* (Swingfield 2002) assertion that shipping discounts are a prime factor in motivating consumers to buy from an online store. Reducing shipping charges would increase consumers' acceptance of online stores.

Almost equally disadvantageous for online stores is consumer perceptions of refunds and refund policy for the return of merchandise purchased online. Chu, Gerstner, and Hess (1996) showed that return policies are linked to shipping and handling charges because refunds are offered only for the list price but not the shipping and handling charges. In Hess, Gerstner, and Chu (1998) the authors demonstrate theoretically that a no-questions-asked partial refund is the optimal return policy.

Empirical Finding 4: Compared to traditional stores, online stores have serious competitive disadvantages with respect to shipping and handling charges, exchange-refund policy for returns, providing an interesting social or family experience, helpfulness of salespeople, post-purchase service, and uncertainty about getting the right item. These disadvantages cannot be entirely overcome by online stores' advantages in brand-selection/variety and ease of browsing. To compensate, online stores must have lower prices than traditional stores.

Do consumers perceive that online stores have lower prices than traditional stores? Are the prices low enough to compensate for the disadvantages just described? The numbers in the bottom two shaded rows of Table 5 indicate that online stores are perceived to have both lower prices and better discounts (sales, rebates, and coupons) on books and DVD players compared to traditional stores and that these price-related factors are very important to customers (6.0 and 5.0 respectively on a 7-point scale). These perceptions also tend to be true for the product category of shoes, but not true for flowers, food, and toothpaste. As seen in the bottom two shaded rows of Table 6, across all product categories studied the perceived advantage of low price is not very large compared to the above disadvantages: the combined performance differences \times importance weight scores are only +1.7 and +1.3 for low price and discounts, in contrast to the -19.9 score for shipping and handling charges. However, for books the perceived low prices of online stores are enough to compensate for consumers' 8% lower willingness-to-pay. In addition to the better discounts on books available from online stores, the low-price performance advantage of online stores (61 versus 50) translates into a 7% lower perceived price (see question 1 in Appendix).

Empirical Finding 5: Online stores are perceived to have lower prices for books, shoes, and DVD players than traditional stores, and for books this may be enough to compensate for the perceived disadvantages of online stores on other attributes. Flowers, food, and toothpaste are perceived to be less expensive at traditional stores compared to online stores.

5.3 Who Is Willing to Pay More Online than at a Traditional Store?

In our survey, we measured respondents' student-status, gender, and whether they had online buying experience. Do different demographic segments have different attitudes toward buying from an online store compared to a traditional store? Cross-tabulation results are given in Table 7. For all segments, it appears that the willingness to pay at an online store is significantly below that of a traditional store, regardless of the product category.

Table 7
Acceptance Index of the Online Stores (θ) Across Different Segments

(a) Students and Non-Students

	DVD		Shoes		Toothpaste		Books		Flowers		Food		Overall	
	Student	Non-Student	Student	Non-Student	Student	Non-Student	Student	Non-Student	Student	Non-Student	Student	Non-Student	Student	Non-Student
Mean $\bar{\theta}$	0.80	0.82	0.78	0.79	0.90	0.91	0.92	0.92	0.80	0.83	0.78	0.82	0.83	0.85
t-stat $\bar{\theta} = 1$	22.2*	10.0*	26.1*	11.6*	10.5*	5.0*	8.1*	3.5*	22.7*	8.4*	24.3*	8.7*	24.1*	8.8*

$N_{\text{students}}=161, N_{\text{non-student}}=63$

(b) Males and Females

	DVD		Shoes		Toothpaste		Books		Flowers		Food		Overall	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Mean $\bar{\theta}$	0.81	0.80	0.80	0.77	0.89	0.91	0.92	0.92	0.80	0.81	0.79	0.80	0.83	0.84
t-stat $\bar{\theta} = 1$	16.6*	17.0*	19.6*	20.0*	8.5*	7.8*	5.8*	6.3*	16.0*	15.9*	17.1*	16.6*	16.3*	17.0*

$N_{\text{males}}=99, N_{\text{females}}=125$

(c) Experienced vs. Inexperienced Online Shoppers

	DVD		Shoes		Toothpaste		Books		Flowers		Food		Overall	
	Experi	Inexper	Experi	Inexper	Experi	Inexper	Experi	Inexper	Experi	Inexper	Experi	Inexper	Experi	Inexper
Mean $\bar{\theta}$	0.81	0.79	0.79	0.75	0.90	0.91	0.93	0.90	0.81	0.79	0.80	0.78	0.84	0.82
t-stat $\bar{\theta} = 1$	21.8*	9.0*	25.6*	10.3*	10.7*	3.8*	7.5*	4.3*	20.7*	8.6*	21.8*	9.0*	21.8*	8.8*

$N_{\text{experienced}}=189, N_{\text{inexperienced}}=35$

* $\bar{\theta} < 1$ is statistically significant at the 1% level

It is difficult to see directly from Table 7 whether the demographic variables we measured have an influence on consumers' level of acceptance of online shopping. As a result, multivariate regression models were estimated to explain consumers' online acceptance index using the main and interacted demographic variables (see Table 8).

Table 8
Regression of Online Acceptance Index (θ) on Segment Descriptors

Variables	Independent	Gender	Student	Experience	Gend×Stud	Gend×Exp	Stud×Exp	Intercept
DVD	Coeff	-0.02	0.05	0.10*	0.04	-0.01	-0.10**	0.74*
R ² =0.03	t-stat	-0.37	0.92	2.01	0.98	-0.17	-1.88	15.46
	Sig(2-tail)	0.71	0.36	0.05	0.33	0.87	0.06	0.00
Shoes	Coeff	0.01	0.06	0.16*	0.07*	-0.04	-0.13*	0.67*
R ² =0.08	t-stat	0.18	1.21	3.34	1.95	-1.00	-2.52	15.12
	Sig(2-tail)	0.86	0.23	0.00	0.05	0.32	0.01	0.00
Toothpaste	Coeff	-0.08	0.06	0.02	0.01	0.06	-0.08	0.90*
R ² =0.02	t-stat	-1.40	0.99	0.43	0.26	1.15	-1.42	17.83
	Sig(2-tail)	0.16	0.32	0.67	0.79	0.25	0.16	0.00
Books	Coeff	-0.05	0.06	0.06	0.01	0.05	-0.08	0.88*
R ² =0.02	t-stat	-0.95	0.99	1.12	0.26	1.03	-1.31	16.42
	Sig(2-tail)	0.34	0.32	0.27	0.79	0.30	0.19	0.00
Flowers	Coeff	-0.08	0.08	0.13*	0.06	0.03	-0.16*	0.74*
R ² =0.06	t-stat	-1.47	1.39	2.49	1.59	0.64	-2.83	15.14
	Sig(2-tail)	0.14	0.16	0.01	0.11	0.52	0.01	0.00
Food	Coeff	-0.01	0.07	0.12*	0.01	-0.01	-0.13*	0.73
R ² =0.05	t-stat	-0.20	1.26	2.34	0.16	-0.31	-2.35	14.79
	Sig(2-tail)	0.84	0.21	0.02	0.87	0.76	0.02	0.00
Overall	Coeff	-0.04	0.06	0.10*	0.03	0.01	-0.11*	0.78*
R ² =0.04	t-stat	-0.88	1.37	2.33	1.02	0.32	-2.48	19.30
	Sig(2-tail)	0.38	0.17	0.02	0.31	0.75	0.01	0.00

* Significant at the 5% level

** Significant at the 10% level

In total, gender, student status, online experience and the interactions of these variables do not explain very much of the online acceptance index (R^2 's are below 0.10). In fact the only variable that generally predicts online acceptance is prior experience with online shopping, consistent with Bellman et al.'s (1999) findings. The results of the multivariate regressions indicate that for four product categories – DVDs, shoes, flowers, and food, adult female non-students who are experienced online shoppers are more accepting of online stores than inexperienced adult female non-students.

Empirical Finding 6: Experienced online adult female consumers are more accepting of online stores than inexperienced adult female consumers.

6. Conclusions

In this paper, we developed a multiattribute attitude model to empirically investigate consumers' attitudes toward buying six different products from online stores compared to buying them from traditional bricks-and-mortar stores. We viewed consumers' likelihood of purchasing a product from an online store (an antecedent of consumers' willingness to pay) as a function of their beliefs about the attributes possessed by the online stores compared to traditional stores, weighted by the importance of each attribute. These attributes included price, quality of the merchandise, acceptable forms of payment, help by salespeople, product information, ability to compare products, physical examination of products, negotiating terms of purchase, immediate delivery of items, returns policy, and eight other factors.

A combined web-based and paper-based survey was used in our study. In the survey, purchases from online stores were contrasted with purchases from traditional stores, and consumers' acceptance index of the online stores for each of six product categories was

computed using the respondents' perceived attribute performances and self-explicated importance weights.

We found that for all product categories in our survey, consumers are less willing to buy online compared to buying at a traditional store. However, different product categories do have different consumer acceptance indices; consumers appear most willing to pay for books and toothpaste online, and least willing to pay for shoes or food online. Future research should explore specific product attributes that make consumers more or less willing to buy a product online. For example, Nelson (1970) proposed a typology of search, experience, or credence attributes that affect consumers' ability to evaluate products before purchase. Products with more experience- and credence-related attributes may decrease consumers' willingness to buy that product online. Perceived risk, including financial, physical, performance, social, and psychological risk (e.g., Kaplan, Szybillo, and Jacoby 1974) may also play a role in consumers' acceptance of buying products online. Consumers may be less willing to buy products online that are higher in certain types of perceived risk .

We also found that adult female non-student shoppers appeared to be more positive toward online shopping than were other groups if they already have online buying experience. Future studies might investigate whether income or the availability of credit cards are correlated with consumer attitudes toward online retailers.

Last, the results from our survey indicate no differences in the attitudes of men and women, or between students and adult non-students toward buying online compared to traditional stores. E-tailers should feel less need to develop gender-based marketing strategies, and may be able to achieve scale economies by developing one marketing strategy for the mass-market

Appendix Questionnaire Items

<i>Scale repeated for items 2-16,19</i>	<i>Absolutely low</i>	<i>Very low</i>	<i>Low</i>	<i>About the same</i>	<i>High</i>	<i>Very high</i>	<i>Absolutely high</i>
Books	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shoes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Toothpaste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DVD player	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flowers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Compared with buying in traditional stores, how would you describe the list prices (not including charges for shipping and handling) for the following items when buying from a web store?

<i>30 % lower</i>	<i>20 % lower</i>	<i>10 % lower</i>	<i>About the same</i>	<i>10 % higher</i>	<i>20 % higher</i>	<i>30 % higher</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Compared with buying in traditional stores, how attractive are special sales, promotional rebates, and coupons for the following items when buying from a web store?
3. The first step for buying merchandise is often to collect information such as where to buy, prices, and others' comments. Compared with buying in traditional stores, how much time and effort is spent in searching relevant information when buying the following items from web stores?
4. Sometimes people want to examine the product. Web stores usually don't allow potential buyers to physically examine the product. Compared with traditional stores, how much of a problem is the lack of physical examination of products when buying the following items from web stores?
5. Web stores usually deliver the merchandise you ordered by mail or other means, which is different from traditional stores where you pick up what you buy immediately after payment. Compared with traditional stores, how much of a problem is delayed possession of products when buying the following items from web stores?
6. Compared to traditional stores, how much uncertainty is involved when purchasing the following items from web stores (e.g., the product you receive may not be exactly what you want)?
7. Web shopping requires that the order be placed on the web and the item(s) be paid by credit card or money orders. Compared with traditional stores, how much of a problem is placing orders and paying on the web when buying the following items from web stores?

8. Sometimes we want to ask a salesperson a question about a product or the store before making our purchase. Compared with buying in traditional stores, how easy is it to obtain the help of a salesperson or customer service representative before buying the following items from a web store?
9. Compared with buying in traditional stores, how would you describe the brand selection and variety available for the following items when buying from a web store?
10. After receiving the merchandise, it may need some post-purchase service. Compared with traditional stores, how much of a problem is post-purchase service after buying the following items from web stores?
11. After receiving the merchandise, it may need to be returned because it is not what you wanted. Compared with traditional stores, how much of a problem is returning a product when buying the following items from web stores?
12. Compared with buying in traditional stores, how would you describe the quality of the following items when buying from a web store?
13. Sometimes a store runs out of a product we want to purchase. Compared with buying in traditional stores, how big of a problem are stock-outs when buying the following items from a web store?
14. After collecting information, we often want to evaluate products based on various attributes such as size, color, or features. Compared with buying in traditional stores, how convenient are product evaluations when buying each of the following items from web stores?
15. Compared with buying in traditional stores, how much time does it take to get online, locate, evaluate, select, and purchase a product for the following items from a web store?
16. Compared with shopping in traditional stores, how easy is it to have an interesting family or social experience shopping for the following items from a web store?
17. Traditional stores do not charge for shipping and handling because you bring the product home with you after purchase, but web stores sometimes charge for shipping and handling. What percent of the listed purchase price is typically charged for the following items from a web store?

<i>No charge</i>	<i>2 % of price</i>	<i>4 % of price</i>	<i>6 % of price</i>	<i>8 % of price</i>	<i>10 % of price</i>	<i>12 % of price</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. Compared with browsing in traditional stores, how easy is it to browse for the following items from a web store?

19. Several factors might influence where you shop, traditional store or web-store. For each factor, indicate how important that factor is to you in choosing where to shop in comparison to the other factors (*check box*).

	Very unimportant	Unimportant	Slightly unimportant	Neither	Slightly Important	Important	Very Important
	1	2	3	4	5	6	7
i Low prices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii Special sales, rebates, coupons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii Easy to find product information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv Physical examination of products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v Immediate possession of products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vi Uncertainty about getting the right item	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vii Accepts all forms of payment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
viii Helpfulness of sales-people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ix Brand selection and variety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
x Post-purchase Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
xi Exchange-refund policy for returns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
xii Quality of the merchandise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
xiii Product found is in stock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
xiv Ability to compare products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
xv Speed of selection and purchase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
xvi Interesting social or family experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
xvii Charges for shipping and handling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
xviii Easy browsing for products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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