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

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ABSTRACT

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 the consumers' 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 web-based and paper-based survey of 224 shoppers are combined in a self-explicated multi-attribute attitude model. The findings show that, overall, all product categories in our survey of online stores are less acceptable than traditional stores. Online stores are perceived as having 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. The advantages that online stores have in areas such as brand-selection/variety and ease of browsing do not entirely overcome the disadvantages listed above.

"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 to clicks? While, the U.S. Census Bureau reports that retail e-commerce sales continue to grow, they still represented 4.7% of total retail sales (U.S. Census Bureau, 2013). So what is the future of e-commerce? Do consumers really prefer to buy from traditional retail stores, or do they prefer to shop online? The answers to these questions have significant implications for manufacturers and retailers seeking to establish an e-business, for firms that wish to expand their market potential by tapping into customer segments that otherwise would not buy, and for manufacturers that are strategically contemplating dual supply chains (Chiang, Chhajed, & Hess, 2003).

At an online store, the buyer places an order for goods and/or services over an internet, extranet, electronic data interchange network, electronic mail, or other online system. Online retailing has been described as a more convenient shopping channel for consumers because online stores offer greater time savings (Szymanski & Hise, 2000). Consumers can more easily find merchants, products, and product information by browsing the web, which reduces search costs and eliminates the need to travel. Therefore, consumers may prefer the convenience of online stores compared to traditional stores. However, the fact that conventional stores accounted for 95.3% of all retail sales in 2005, compared to e-commerce's 4.7% share (U.S. Census Bureau, 2013), indicates that 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 the costs associated with buying from a traditional store (see Liang & 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, which

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represented an increase of 31% from the number of online retailers in 2001 (Zimmerman, Merrick, & Tkacik, 2002).

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

In the present study, we measured 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. We then combined these individual perceptions and preferences to form what psychologists call a self-explicated multi-attribute attitude model (Fishbein, 1963, 1967; Meyer & Johnson, 1995) or what Keeney (1999) calls a value model. We then investigate the ways in which this online attitude measure varies across the population.

2. Prior Research

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 & Hauser, 1993) are valuable for identifying the attributes with which customers distinguish one store type from another. Keeney (1999) did not measure consumers' perceptions of attributes for online and traditional stores or the importance of each attribute, but he did recognize 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 Keeney suggested, measuring and quantifying customer values is the fundamental issue for companies considering whether to establish an online retail presence. The present paper addresses this issue using a suitable empirical approach.

Several recent studies have sought 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 certain products (such as shoes, toothpaste, and microwave ovens) from traditional stores and other products (such as 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 the 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). However, their structural equation model analysis is missing any direct measures of the relative importance of each of these indicators. Moreover, the structure of Liang and Huang's model of online acceptance is under-identified (Fisher, 1966; Hess, 2002), which means that 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. However, because they did not experimentally manipulate perception levels, this correlational study cannot impute causation and the question of whether perceptions of convenience cause satisfaction or satisfaction causes perception of convenience remains unanswered. In addition, Szymanski and Hise (2000) did not attempt to measure differences in satisfaction across product categories or measure consumers' overall attitude toward online stores compared to traditional stores. Furthermore, their survey of consumers' satisfaction with online shopping necessarily excluded people who shop only at traditional stores.

Degeratu, Rangaswamy, and Wu (2000) studied the decisions of individuals to use Peapod online grocery shopping. The authors gathered a sample of Peapod 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 solely on the income of individuals. Their study did not measure perceptions of online grocers versus traditional grocery stores. While demographic measures are useful for describing differences between online versus traditional grocery store buyers, such variables do not address Kenney's (1999) call to understand and quantify customer values. Unlike measures of a variety of attribute perceptions, a single demographic measure does not provide a particularly rich answer to the question of why 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 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, which resulted in biased coefficient estimates (see Judge et al., 1988, p. 842).

The five empirical studies described above are all forms of what Urban and Hauser (1980) called "preference regressions" and they all share the same problem: the data from all respondents are pooled together and the estimated preference coefficients are assumed to be 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 & 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 & Currim, 2002; Andrews, Ainslie & Currim 2002).

A study by Levin, Levin, and Weller (2005) allowed for heterogeneity among respondents who were surveyed about their shopping preferences for five products. Their multi-attribute analysis of consumers' perceptions of nine online and traditional store attributes, along with their ratings of the importance of these attributes, found that online stores were generally perceived to be

better on the attributes "shop quickly," "large selection," and "best price," while traditional stores were rated more highly on "see-touch-the-product," "speedy delivery," and "no-hassle exchange." The attributes "best price," "no-hassle exchange," "large selection," and "speedy delivery" were rated as being more important than "enjoying the shopping experience," and "see-touch-the-product." There were some differences among the attribute ratings depending upon the product (books, electronic entertainment products, clothing, and computer products). Attributes contribute heavily to the overall attitude if their perceptions weighted by their importance are large. Unfortunately, these multiplicative combinations were not reported, which made it impossible to directly compare consumers' evaluations of traditional stores and online stores by attribute, or to judge the relative performance of each type of store on each attribute.

In the present 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 18 attributes, as well as the importance of each of those attributes. Our multi-attribute attitude model allows us to measure differences in perceptions (beliefs about the extent to which a store type possesses an attribute) and preferences (the importance of an attribute) among respondents, and to compare consumers' evaluations of traditional and online stores on each attribute 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 as they do traditional stores? If not, 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 for store type? What are the relative advantages of online stores over traditional brick-and-mortar stores? How do these perceptions and preferences vary within the population?

Our study fits nicely into the Online Shopping Acceptance Model (OSAM) proposed by Zhou, Dai, and Zhang (2007), whose literature review prompted them to design a conceptual model to explain consumer acceptance of online shopping. Consumer attitudes – the central concept of their model – directly affect online shopping intentions that lead to online buying.

3. Attitude Model of Customer Acceptance of Online Stores

Our multiattribute attitude model is

$$S^i_{kt} = \sum_{j=1}^{J} w^i_j a^i_{ktj} - \omega^i p^i_{kt} \quad (1)$$

where S^i_{kt} is the consumer surplus of individual *i* for the product category *k* in store type *t*, where tÎ{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: $S_t = \sum_j w_j a_{tj} - p_t$ denotes the consumer surplus of the typical individual for the typical product category.

The index j=1,...J denotes attributes that consumers use to distinguish the store's product offerings, such as product quality, shipping and handling charges, and ability to inspect the merchandise before buying (a total of 18 factors are described in detail below). The term a_{tj} 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 a particular product. Finally, p_t is the perceived price of the product category in store type t.

Preferences are represented by importance weights (referred to as 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 an individual's preferences are such that $w_{S\&H} > w_{quality}$, this indicates that shipping and handling is more important to that individual than merchandise quality.

Jedidi and Zhang (2002) specified a measure of the reservation price for a product. Suppose that the product at store type t has a perceived profile [at1,...atj,...atJ] 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 pt+x=M, where M is money income. The indirect utility of the product is

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

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:

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

To distinguish attitudes toward traditional stores and online stores, we calculated 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:

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

(Recall that the individual index i and product category index k are present but have been suppressed for notational clarity.) If θ<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 et al. (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 their transactions quickly and pleasantly. Transaction-cost economics (Mahoney, 2005; Williamson, 1979) suggests that buyers select sellers partly to minimize transaction cost and uncertainty. Transaction costs may include factors such as the following:

- 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.
- 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, including the following:

- Examination Cost: Cost perceived in relation to examining the products to get the right product or fit, such as shoes that fit.

- 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 US Midwestern universities and modified based on 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, a paper survey and a web-based survey were conducted with over 200 individuals to measure the perceptions and self-explicated preferences of 18 attributes related to buying products in six product categories from online stores versus traditional stores. The final set of attributes investigated is found in Table 1 and the final survey instrument appears in the Appendix.

As other marketing researchers have indicated (e.g., Lutz & Bettman, 1977), the use of a probability scale to measure the performance of each attribute in a multiattribute attitude model is cumbersome. Therefore, the present study measured the perceived performance of online stores in a relative sense, using the perceived performance of the traditional retail store on each attribute as a benchmark. 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 seven-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 a traditional store is, of course, "*about the same*" as a traditional store. As measures of cost, all responses were reverse-coded (except for questions 2, 8, 9, 12, and 14 in the Appendix).

4.2 Product Categories

Although online sales channels are capable of accommodating many different kinds of products, 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. Four of the six products in our survey (book, shoes, toothpaste, and flowers) were identical to those in Liang and Huang's (1998) study, while three (book, shoes, and DVD player) are comparable to Levin et al.'s (2005) study.

4.3 Description of Survey Respondents

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

Table 3 describes the survey respondents. The respondents consisted of university students (72%) and non-student adults (28%). Fifty-six percent of respondents were female and the mean age of the sample was 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%).

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 do consumers consider the shortcomings of online stores to be? What are the important attributes for which online stores do not perform as well as traditional stores? Finally, are these attitudes towards online stores identical across the population, or do certain segments of consumers prefer online stores to traditional stores? How can companies discriminate between such segments?

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

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

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

5.1 Consumer Acceptance of Online Stores versus Traditional Stores

In response to Keeney's (1999) call for research quantifying consumer values, the first issue we addressed is whether consumers consider online stores to be equivalent to traditional stores. We operationalized 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 θ=1. If the willingness to pay is lower at online stores, then θ<1. Aggregate U.S. Census Bureau sales data (2007) suggests that traditional stores outsell online stores 90 to 1. For each individual and each product category, we computed the willingness to pay (Equation 3) for each type of store (using a perception score of 4 for traditional stores as described above), then computed the online acceptance index $\theta=R_{online}/R_{traditional}$. Table 4 summarizes consumers' acceptance index for each product category.

The overall acceptance index of the online stores is $\bar{\theta}=0.83 < 1$, which indicates 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 finding applies 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, although 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 θs 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 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. This finding suggests that the online store is perceived as having higher costs and lower benefits for attributes that are judged to be important to the consumer. Below, we explore the differences in consumer perception levels and importance weights for the 18 attributes measured in our survey.

As mentioned above, attribute performance online was measured on a seven-point scale, the midpoint value of which indicated that online stores were perceived "about the same" as a traditional store. Table 5 shows the perceived performance of online stores for each attribute and each product category. To make this easier to interpret, we have rescaled attribute performance online to a 0–100 scale, where 50 indicates that an online store is perceived as being the same as a traditional store on that attribute. Bold-face type highlights attributes for which the online store's performance is

Table 4
Customer Acceptance Index of Online Stores (θ)

Statistics	Durable Goods		Nondurable Goods		Perishable Goods		
	DVD	Shoes	Toothpaste	Book	Flowers	Food	Overall
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 (θ=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 (θ>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.

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.

significantly better than traditional stores (at the 5% level), and asterisks highlight attributes for which traditional stores perform better than online stores.

Six 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, which indicates that traditional stores are perceived as performing better than online stores. Moreover, the depth of the attribute performance difference is also perceived as being 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 six points above 50).

Empirical Finding 2: For all products except books, the majority of the attributes are perceived as being better at a traditional store compared to an online store. The differences in perceptions are stronger for attributes for which the traditional store is better and weaker for attributes for which the online store is better.

However, not all attributes are equally important, as the right-most column of Table 5 confirms. The importance of each attribute was measured on a seven-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 as having good "brand selection and variety," an attribute that is very important (6.3 out of 7) to consumers. However, online stores are perceived as being extraordinarily poor at "charges for shipping and handling" and "exchange/refund policy for returns," attributes that are quite important (5.6 and 5.5 out of 7, respectively). 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.

Next, we computed the overall attractiveness of online versus traditional stores as a product of importance weight multiplied by 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. In Table 6, however, we disaggregate this measure to understand in detail why traditional stores are preferred to online 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-hand column of Table 6 highlights in bold-face large font the attributes that contribute or subtract the most to or from the perceived attractiveness of an online store (part-worth differences of five 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 several other 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, a finding that verifies the *Wall Street Journal* (Wingfield 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 and not the shipping and handling charges. Hess, Gerstner, and Chu (1998) demonstrated 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

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 equ als 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.

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*

$N_{students}$=161, $N_{non\text{-}student}$=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_{males}=99, $N_{females}$=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*

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

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

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 described above? The numbers in the bottom two shaded rows of Table 5 indicate that online stores are perceived as having both lower prices and better discounts (sales, rebates, and coupons) on books and DVD players than traditional stores and that these price-related factors are very important to customers (6.0 and 5.0, respectively, on a seven-point scale). These perceptions also tend to be true for the product category of shoes, but not for flowers, food, and toothpaste. As seen in the bottom two shaded rows of Table 6, the perceived advantage of low price is not very large across all of the product categories studied compared to the above-mentioned disadvantages. The combined performance differences · importance weight scores are only +1.7 and +1.3 for low price and discounts, respectively, in contrast to the –19.9 score for shipping and handling charges. For books, however, 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 as having 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 as being less expensive at traditional stores than at 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 to determine whether 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 demographic segments, the willingness to pay at an online store is significantly less than that of a traditional store, regardless of the product category.

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).

Overall, gender, student status, online experience, and the interactions of these variables do not explain much of the online acceptance index (R^2s are below 0.10). In fact, the only variable that generally predicts online acceptance is prior experience with online shopping; this is 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

The present study developed a multiattribute attitude model to empirically investigate consumers' attitudes toward buying six different products from online stores compared to buying them

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

Variables	Independent	Gender	Student	Experience	Gend•Stud	Gend•Exp	Stud•Exp	Intercept
Dependent								
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

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 from 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.

We used a combined web-based and paper-based survey in the 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 of the product categories in our survey, consumers are less willing to buy online than to buy 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 & 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 other groups, if they already have online buying experience. Future studies could investigate whether income or the availability of credit cards are correlated with consumer attitudes toward online retailers.

Finally, 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 a single marketing strategy for the mass market.

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Appendix

Questionnaire Items

Scale repeated for items 2–16,19	Absolutely low	Very low	Low	About the same	High	Very high	Absolutely high
Books	☐	☐	☐	☐	☐	☐	☐
Shoes	☐	☐	☐	☐	☐	☐	☐
Toothpaste	☐	☐	☐	☐	☐	☐	☐
DVD player	☐	☐	☐	☐	☐	☐	☐
Flowers	☐	☐	☐	☐	☐	☐	☐
Food items	☐	☐	☐	☐	☐	☐	☐

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?

30 % lower	20 % lower	10 % lower	About the same	10 % higher	20 % higher	30 % higher
☐	☐	☐	☐	☐	☐	☐

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?

No charge	2% of price	4% of price	6% of price	8% of price	10% of price	12% of price
☐	☐	☐	☐	☐	☐	☐

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