

Multichannel Retailing And Its Implications On Consumer Shopping Behavior

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In 2006, online non-travel retail spending crossed the \$100 billion mark for the first time, reaching \$102.1 billion (Comscore, 2006). The rapid growth of on-line purchasing has required retailers to offer multi-channel services and options to their customers, and to reduce their reliance on brick and mortar outlets. In this paper, we extend and apply the existing literature on multi-channel retailing and interactive marketing to explore the following questions: (i) How do consumers perceive and respond to different multi-channel attributes? (ii) What types of consumers and retailers and what product categories influence specific multi-channel efforts of retailers? (iii) Do all retailers benefit from extending multi-channel options to their entire product-line and services? To accomplish this, we developed a cost-benefit analysis of consumer behavior and tested our model using survey data. We characterized inhibitors and drivers of multi-channel shopping, and estimate their impact on consumer behavior. With this model, we find supporting evidence that suggests that channel unification can generate increased benefits for retailers.

Introduction

Comscore networks recently reported that online non-travel retail spending surpassed the \$100 billion mark to reach \$102.1 billion in 2006 (www.comscore.com). This represents a 24% increase over 2005 totals. Such a rapid growth in online retailing is forcing retailers to struggle with multi-channel options and channel integration issues. This is a departure of over a hundred years of practice followed by most big retailers, who have previously offered their customers only two channels for shopping: in-store or mail-order from catalogues. With the advent of the Internet, however, retail companies that traditionally offered only one or two channels could use online sales channels as a third option, which could respond to new opportunities and challenges (Jette, 2005).

Several studies have already underscored the importance of such multi-channel marketing practices. According to the *Wall Street Journal*, customers who use three different channels spend four times as much as customers using only one of the three channels (Shankar and Winer, 2005). The Aberdeen Group found that 44.7% of retailers surveyed use three channels, while 50.5% of retailers use at least two channels in their multi-channel strategies (Aberdeen group, 2004). A separate study conducted by J.C. Penney (<http://www.jcwg.com/downloads/ACCM-Session1.pdf> accessed August 25, 2007) finds that customers who use all three channels (store, catalog, and website) spend an average of \$887 per year, significantly higher than spent by customers who use only websites (\$157), physical stores (\$195) or catalogues (\$201). Further, this study also reports that sales from J.C. Penney customers who used all three channels grew by 30% annually, and sales from those using at least two of those channels grew by 46% annually. In addition, over 60% of retailers claim that their transactions with multi-channel customers are more profitable than those with customers who use only

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one channel. Finally, a study by McKinsey Consulting reports that retail customers using multiple channels spent two to four times as much as customers using a single channel. In other words, multi-channel shopping is now associated with significant growth and higher sales (www.iexpound.com/2007/06/quick-fact-pact-some-more-multi-channel.html accessed on August 25, 2007).

In these situations, one can think of a typical consumer as having a choice-set A whose elements are possible options available for purchasing a product. For example, consider A to be simply a set with two elements: brick and mortar stores and mail-order catalogues. In this sense any combination of the use of these two “goods” is a possible consumption vector within a consumer’s choice-set, and the arrival of e-services has widened this choice-set.

Overall, consumers’ decisions to consume different amounts of these goods (i.e. the frequency of use for each channel) then depends upon how they value the characteristics of one good, say online shopping, with respect to those of others, such as catalog or in-store shopping. If the cost-of-clicking, for example, is subjectively higher than in-store shopping for certain consumers, then these consumers will switch and substitute web-based shopping with shopping at traditional brick and mortar stores. Given these considerations, it is important to characterize consumers’ perception and responses to different opportunities in a multi-channel system. Obviously, since consumers’ attitudes towards risk and adventure are heterogeneous, it is important to differentiate between the types of consumers who have preferences for specific channels or combinations of channels.

The advent of online shopping also challenges retailers, as they now have to alter their operations and strategies to take into account consumer responses to a new retailing channel. It is clear that not all retailers will benefit equally from offering their products online. Further, a mass exodus of retailers to the Internet will only backfire due to excessive competition, which among other hurdles, might lead to an increase in the cost-of-clicking for the consumers. Consequently, we are interested in identifying the types of retailers who might benefit from moving some or all of their product lines into e-services.

In this paper, we provide a conceptual framework to integrate retailers’ multi-channel efforts, product categories and consumer characteristics, extending the existing marketing literature to explore consumers’ perceptions and responses to multi-channel opportunities. Specifically, this framework identifies different consumer characteristics and opinions that increase the *likelihood* of using *specific* multi-channel attributes of retailers. Second, from the perspective of the consumers, we examine the types of retailers that are the *most likely* to benefit from multi-channel retailing by extending traditional channels to the Internet. We also identify the product category determinants for *both* parties that are most suited for e-tailing relative to in-store shopping.

This paper is divided into several sections. In the next section we present a literature review that discusses multi-channel shopping and the findings in recent literature. In the third section, we present the conceptual framework of our model, and define and identify multi-channel purchase decisions along with the inhibitors and drivers that affect consumer behavior. We incorporate some important features from the models of consumer behavior into these models, and describe how they influence

consumer decisions across two specific purchase channels. Key research questions and testable hypotheses presented in Section Four and Section Five describes the data collected for this research while Section 6 reports the empirical results. The paper ends with a brief summary and conclusion.

Literature Review

The growth of on-line transactions has forced retailers to unify their channels and lessen their total reliance on brick and mortar, as technology has transformed the purchase behavior and delivery expectations of all shoppers. According to Jupiter Research, Americans spent \$65 billion on online retail purchases in 2004, which constituted 4% of the total retail sales, and by 2008, this total is estimated to rise to \$110 billion (Brustein, 2004). Customers routinely use the Internet for product information and expect customer service options across all possible informational, interaction, and transaction channels. This indicates that over time, only those managers who understand and deliver to their customers across a variety of channels are likely to succeed and prosper (Aberdeen Group, 2004).

It is obvious, therefore, that retailers will try to rush to provide multi-channel facilities and services to consumers. Existing literature has investigated the issues surrounding traditional or in-store shopping and Internet shopping. Research on in-store shopping, for example, has focused mainly on identifying the primary determinants of such in-store or mall shopping behavior: demographics (gender, age, ethnicity, etc.) and mall characteristics (e.g., location, regional vs. big box, entertainment, etc.). Similarly, research on Internet shopping has examined the role of technology and its effects on brick-and-mortar establishments (Soyeon, Eastlick, Lotz, 2000). Venkatesh and Brown (2001) hypothesize that download delays, search problems, and security issues are potential impediments that can inhibit consumers from online shopping. Earlier studies by Kangis and Rankin (1996) and Katz and Aspen (1997) found that the perceived benefits and inhibitors of online shopping differ across product categories. Related to these findings are studies conducted by Teo, Lim, and Lai (1999), Fenech and O’Cass (2001), and Jarvenpaa and Todd (1997) whom indicate that “perceived usefulness” as a benefit is generally more important than “perceived ease and enjoyment” with regards to Internet use. Studies by Eastlick and Lotz (1999), Citrin, Sprott, Silverman and Stem (2000), Swaminathan, Lepkowska, and Rao (1999) have presented empirical results that identifies “convenience” as an important driver which influences consumers engagement with e-services. In addition, Li, Kuo, and Russell (1999) found that Internet usage and online shopping are directly related to consumers’ levels of education, convenience orientation, experience orientation, channel knowledge, perceived distribution utility, and perceived accessibility.

Researchers have also examined the behavior of shoppers in a multi-channel environment, taking into account consumer utility, channel quality, and search costs (Youn-Kyung *et al*, 2002). For example, Balasubramanian *et al*. (2005) present a framework that examines how consumers’ utilities are affected by a variety of factors such as their economic goals, their quest for symbolic meaning within the shopping process, social interaction, experiential impact, and their reliance on schemas and script

for shopping. It is important to note that while they do not empirically implement their model, their framework provides recommendations for researchers and marketing managers. Our paper extends their model and examines some of the implications of their conclusions.

In related research, Kumar and Venkatesan (2005) identify customer-level characteristics and supplier factors that are associated with purchase behavior across multiple channels used by a high-tech manufacturer. Overall, they find that consumers' benefits are positively related to the number of communication channels. Cross-buying, frequency of web contacts, customer tenure, and purchase frequency are all positively related to multi-channel shopping.

It has been established that a firm's acquisition tactics affect the behavior of customers in terms of retention potential and their length of relationships. Verhoef and Donkers (2005) examined the nature of acquisition channels and their effectiveness on customer loyalty and cross-buying within the financial services industry by using probit models.

In this paper, we assess consumers' decisions across alternative shopping modes according to different drivers and inhibitors. Within this analysis, we examine the implications of Balasubramanian et al. (2005) for: 1.) consumers' goals that include their knowledge or the product and service 2.) consumers' search-costs and values of self-affirmation 3.) relation between search cost and symbolic meaning and 4.) the role of the shopping patterns in constructing consumers' schema. Further, we also include the framework of Kumar and Venkatesan (2005) for the "cost and benefits" of multi-channel shopping. As with Verhoef and Donkers (2005) we specify a probit model as a vehicle for testing the hypotheses in our study. A natural extension of our research will be the effects on cross-buying and repeat purchases. Consequently, our research has implications for how channels affect purchase calculations for a spectrum of customers, which in turn will affect their loyalty, cross-buying, and purchase frequency.

In order to explicitly link shopping patterns to consumer shopping decisions by examining the use of channels, we extend the work of previous studies by investigating the determinants that increase the *likelihood* of consumer use of *specific channel* mixes through a theoretical and empirical analysis of consumer behavior. We also relate our conceptual model to its potential empirical testability. Our econometric framework can be adopted for many types of data generated from a wide spectrum of consumers, and can identify consumer shopping patterns and behaviors as they relate to purchase selection within a given channel. In this sense, we integrate the concepts of e-tailing and brick and mortar retailing in a context where a consumer has access to multiple channels. Specifically, our conceptual framework incorporates important alternative consumer decision mechanisms using the *type of channel chosen* as a decision variable. The notions of transaction costs or search costs, distance, and utility maximization will form the basis of our model.

Our model can determine the comparative advantage of multi-channel communications that may be enjoyed by some retailers. In particular, if *all* retailers benefit from extending multi-channel options to their entire product line, then retailers must engage in active web management to obtain the benefits of a well-managed web-delivery system. However, these benefits may be balanced out by free-riding

and costs of switching.¹ Therefore, we take the advantages of consumer targeting into account based on their perceptions and responses to different multi-channel attributes. Our empirical framework will identify the different consumer characteristics that increase the *likelihood* of using *specific* multi-channel attributes. It will also help us to determine those retailers who are *most likely* to benefit from multi-channel retailing. Our framework has implications for “gains from trade” and the advantages of channel mixing.

Conceptual Framework

Our research design incorporates both economic and demographic factors as determinants of consumer shopping behavior. We characterize the different inhibitors and drivers of channel selection as the key factors for consumer purchase decisions. If the drivers of one type of channel, say the Internet, are more dominant than another, then economic factors would dictate a corresponding preference for the Internet. These selection possibilities can also vary across demographic groups as well.

Channel Selection and Integration. It is important to understand the notions of “channel selection” and “channel integration” in this context. “Channel selection” refers to the activities undertaken by consumers in their purchase process, ranging from information gathering to ultimate ordering. For instance, product selection, vendor selection, price comparisons, and the final purchase are all different phases in a consumer’s decision process. It is possible for a consumer to obtain vendor information from a catalog, from a related website, through word of mouth, or with a direct visit to the vendor’s location in an outlet mall or other brick and mortar location. By the same token, once the information is obtained from a vendor, the same consumer can purchase the product from any channel, presumably the one that is most convenient. Under this scenario, the consumer’s channel selections for vendor information and the final purchases are distinct phases in the decision process, and each of these decisions are driven by several considerations depending upon the type of product, vendor, and price. The framework provided in this paper incorporates all selection possibilities for all possible decisions into a unifying mechanism related to relevant drivers and inhibitors. We discuss some of the factors that influence a typical consumer’s channel selection, and in each case, we will identify the appropriate channel choice.

“Channel integration” refers to the situation where consumers may select more than one channel in their efforts leading to final purchase. This is a significant departure from the common definition that is almost always defined from the perspective of the retailers. However, without knowing the patterns of channel use on the part of the consumers, it is futile for retailers to embark on a channel integration strategy. As in the previous example, it is possible for a consumer to obtain product information through the web, and later purchase the product from a local store. We note that such integrative efforts are important because under such circumstances, consumers weigh the relative advantages of one channel over another. For some products, consumers may obtain product information, vendor information, and purchase requirements from a variety of

¹ For related research on switching costs and risk aversion see Dholakia, Zhao, and Dholakia (2005). Also see Baal and Dach (2005) for evidence of consumers free-riding, as a part of minimizing switch-costs.

channels. However, in situations such as the purchasing of experience goods, consumers may choose to obtain all relevant information and purchase the product within a single given channel. Once again, whether consumers “hop” channels depends upon the relative advantages of each competing choice. In this paper, we consider a consumer’s “channel integration” efforts to be separate and distinct from “channel selection.” It is possible that consumers may prefer to integrate some channels even as they undergo “selection”: going online for information and physically visiting a mall for the final purchase. We will not be concerned with the issues of purchase timing or selection in this paper, but we recognize that these are important considerations for consumer modeling. Our goal in this paper is to stress that the knowledge of channel integration by consumers is very crucial to retailers. If, for instance, web and e-services do not carry a lot of weight in the consumer’s scheme of channel selection for a given product category, then retailers are better off allocating their resources towards the profitability of their bricks and mortar operations, perhaps towards making their stores and outlets more consumer-friendly.

Siegel (2004) points out that “consumers are fickle; their needs and wants can change in a flash. They often do not know what they want, or, sometimes, they do not know and are not truthful about it. Failing to try to understand them, however, can be a fatal marketing mistake.” The relevance of consumer channel integration to retailers is equally applicable. Many retailers that are trying to take consumers’ decisions into account may find it profitable to allocate their resources and products across many channels depending upon product quality and type. Retailers who provide complementary services in at least two channels can be considered multi-channel retailers. Since retailers’ decisions are based upon consumers’ choices, it is important, to characterize the motivating factors behind consumers’ decisions.

Drivers and Inhibitors of Consumers’ Strategies. In the context of in-store or “mall shopping,” the role of the Internet as a channel has to be viewed as a separate phase that provides a distinct function for a consumer. We assume that a typical consumer uses the Internet to obtain general information about the product, stores, vendors and the dispersion of prices. Further, we also assume that a typical consumer can purchase a product from any competing e-tailers. When obtaining information or purchasing a product, the consumer can use e-services, or travel to a physical retail location. In this context, the Internet is a “channel” in a very general sense. E-services can be specifically organized around one product, or one store, or specific in-store offerings. On the other hand, there is no reason why Internet-based retailing cannot cover more general shopping expeditions, and many products, stores and prices. Therefore, we refer to Internet as a channel in this more general sense, because the Internet is first viewed as increasing the level of competition among retailers, and we prefer to examine retailer competition at the most general level.

We also extend the standard neo-classical assumption that consumer choice is based on individual rationality and that consumers makes choices based on their objective functions and budget constraints. Following Zeithaml (1988), McDougall and Levesque (2000), and Parasuraman (1997) we define *perceived customer value* as the main determinant of consumers’ purchase intentions and purchase. Perceived customer value is defined as the results or benefits customers receive in relation to

total costs (McDougall and Levesque, 2000). This represents a customer's overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given (Zeithaml, 1988). We extend these consumer motivation models to e-commerce and e-services (Han and Han, 2001; Anckar and D'Incau, 2002; and Anckar, 2003).

We also extend the standard neo-classical assumption of consumer behavior to include non-monetary considerations that are so common within e-services. In this context, Anckar (2003) argues that the traditional view of the value equation as a tradeoff between benefits and costs, "is too simplistic in terms of building an understanding of the primary motivators and inhibitors to e-commerce adoption" (see Anckar, 2003, page 3). As in Jensen (2001), Sweeney and Soutar (2001), Eggert and Ulaga (2002), and Anckar (2003), we interpret the value concept as a trade-off between "get-and-give" components described not only in monetary terms, but also in much broader costs and benefits that include non-monetary commitments.

As in Anckar (2003), the basic framework of our paper is that rational consumers make their channel adoption/rejection decisions based on their *perceived channel's net value*, which is seen as the tradeoff between the overall *benefits* that are likely to accrue by using one channel in comparison to existing alternatives, and the overall *barriers* encountered in using them. We present the conceptual development of our model in Figure 1.

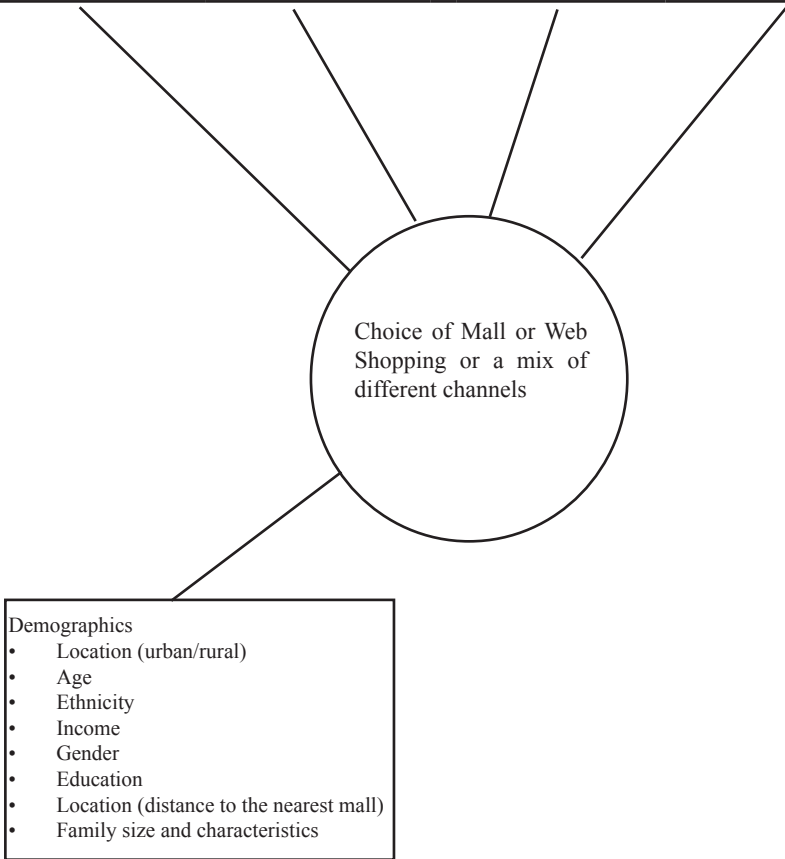
Figure 1 shows our framework for a consumer's selection criteria when faced with two different types of purchase channels within a multi-channel opportunity set, as might be provided by a typical retailer. This characterizes the drivers and inhibitors to the consumer under each channel and the consumer evaluates the relative merits of individual channels within a two-channel setting. Demographic covariates are also important as potential influences on consumer decision-making, as well. Following Anckar (2003), Tables 1 and 2 show the drivers and inhibitors, respectively, that are most commonly discussed in the literature, and these tables also include those we suggest can be included in an econometric specification of consumer decision-making.

Research Questions and Hypotheses

We now provide a few vignettes to illustrate how the drivers and inhibitors listed in the previous section play-out in the market. We use these vignettes to formulate our hypotheses, following Balasubramanian et al. (2005).

Vignette 1: *Rekha is looking for a nice dress for an upcoming party at her office. She checks out the online stores of Banana Republic, Structure, and Express. She noticed a few interesting dresses that she liked. However, she was not sure of the fit or the texture of the cloth. So, in the evening she ventures out to the local mall to try on the dresses that she had seen on the Internet at each one of these stores. She was not quite happy with any of the dresses that she had inspected earlier on the net. However, while walking through the mall, she chanced upon a new arrival*

Mall shopping		Internet shopping	
Inhibitors	Drivers	Inhibitors	Drivers
.Distance .Travel Time .Traffic .Weather .Limited Information on Rebates and Sales (prior to travel) .Gasoline and Food .Child care .Opportunity costs of time	.Shopping Experience (hang out) .Introduction of new goods .Serendipitous discovery .Bargains/sales .Quality/Service Certainty	.Tech awareness .Internet Access and Availability .Possible fraud .Limited information on quality/service .Shipping and delivery costs	.Wider Choice .Time saving .Tax advantages .Price Flexibility .New product information and research on quality ratings .Time flexibility .No incidental costs



The figure indicates that a typical consumer can integrate multiple channels for purchase decisions, or simply adopt a single channel. The drivers and inhibitors of these decisions, from a consumer standpoint, are related to the likelihood of a specific channel choice. Suppose consumers exhibit a preference for W2S for certain product categories, then the retailers of these products can invest in strategic positioning of their products online, and can effectively integrate product information, product availability, order tracking, preferences, purchase histories, and image.

Figure 1. *Drivers and Inhibitors of Alternative Multi-channels: A Conceptual Model.*

Table 1.
Drivers Of Online Shopping Versus Traditional Mall Shopping.

Drivers of online shopping
<ul style="list-style-type: none"> • Time savings: E-services create an enormous advantage in terms of time-saving and the opportunity costs of time (Anckar, 2003; Jarvenpaa and Todd, 1997; Kangis and Rankin, 1996; Wigand and Benjamin, 1995; Krause, 1998). • Time flexibility: The flexibility to order anything globally from locations within and outside of the consumer’s residency. • Wider choice: E-services enable consumers to reach out for newer, novel goods, and tap into new vendor-product e-aisles (Anckar, 2003; Benjamin and Wigand, 1995; Hoffman et al., 1995; Alba et al., 1997). • Tax advantages: Online sales of some products like cigarettes and liquor have substantial tax advantages based on the location of the service and the local area tax rates. • No incidental costs: Online shopping reduces or eliminates incidental costs associated with traditional shopping, such as driving in traffic congestion or inclement weather, or waiting in queues.
Drivers of traditional in-store or mall shopping
<ul style="list-style-type: none"> • Shopping Experience: The “mall shopping experience” can be a substantial driver; many consumers like to “hang out” in malls and check out games, food, excitement, entertainment, and other activities. • Introduction of new goods: Consumers like to check out the new stores, designs, and products encountered in their “hang out” experience. Many consumers find “hot deals” for new goods in outlet malls. • Serendipitous discovery: Many consumers like the mall experience because it brings about serendipitous discoveries of newer items, older and as yet unpurchased goods, and quick finds. • Bargains and sales: For many consumers, the opportunity to directly access various bargains and sales at neighboring stores in a mall all at once is a distinct driver of this channel. • Quality and service certainty: Goods are directly visible and the purchase is “feel-tangible” at a physical location, and returns and exchanges are obvious and well-known features of brick and mortar stores.

Table 2.
Inhibitors Of Online Shopping Versus Traditional Mall Shopping.

Inhibitors of online shopping

- **Technology literacy:** The lack of sufficient knowledge to operate and manipulate the web is still a major consideration for consumers. Many consumers can be intimidated and consequently, they shy away from online shopping.
- **Internet access and availability:** Consumers may face difficulty due to low-quality Internet access, especially in rural areas.
- **Fraud:** Many consumers are very wary of Internet fraud, and are not confident in the security measures available to be comfortable providing their personal information such as their names, addresses and credit card numbers.
- **Limited information on quality and service:** A website is still not the “real thing” when it comes to giving consumers the information about quality, feel and confidence that consumers are accustomed to. They are also inhibited by policies on returns and exchanges, and are often left with a nagging feeling about having missed the “fine print.”
- **Shipping, delivery and other sunk costs:** Consumers often hesitate to use e-services because of perceived time delays in shipping and delivery, and the costs of shipping and delivery compared to the price of the product. The sunk costs of computer purchases, Internet fees and the time spent in downloading and learning the necessary software may also be important for some consumers.

Inhibitors of a traditional in-store or mall shopping

- **Distance:** Inaccessibility to physical locations is a primary inhibitor for older and rural consumers.
 - **Traffic:** Many consumers are dissuaded by massive crowds, traffic jams and delays, especially during holidays and other busy periods.
 - **Weather:** Tied to traffic and distance, the unpredictability of weather is a major barrier for many consumers traveling to physical locations.
 - **Limited information on rebates and sales (prior to travel):** Consumers may be unaware of specific “sale” or rebates available at retailers in the mall. During their visit to the mall, they may find that the specific sales they were looking for is over. This may causes many consumers to leave with a bad shopping experience overall .
 - **Gasoline, food, and child care:** Many consumers have to consider other expenses such as gasoline, food, drinks beyond those incurred with purchasing a product on a shopping trip. Child care expenses are also a heavy burden to bear for single moms looking for a hassle-free shopping spree.
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at Anthropology. She absolutely adored the fit, feel and the look of the dress, and she bought it.

Such behavior – browsing for information on one channel and purchasing through another – is an increasingly common phenomenon (Balasubramanian et al. 2005). There are numerous benefits to such behavior, such as the potential for unexpected discoveries and the general shopping experience.

Vignette 2: *Dan is looking for a good book to read for his upcoming mountaineering expedition to Everest. The trip is still a year away, but his friends have warned him that too much planning is never a handicap. He has recently developed a liking for mountaineering and so, he makes his way to the mountaineering section at the local bookstore, and discovers Anatoli Boukreev's best-selling book *The Climb*. Later, he orders it from *Half.com* for half the price.*

In the two vignettes, we notice that the information-provision channels and the purchase channel are exactly the opposite. The inhibitors and drivers for Rekha and Dan suggest that consumers often examine the relative costs of different channels in their decision process. This leads us to propose the following hypotheses:

H1: For a consumer, the likelihood of using channel A for information while purchasing the same product in channel B increases as the relative benefits from such a switch increase.

H2: For a consumer, the likelihood of selecting a particular information-seeking-channel, say A, and using the same channel for the final purchase decreases as the cost of remaining with the channel increases.

Vignette 3: *Diego's wife gave him a digital camcorder for his birthday that she had bought online through Best Buy. However, after about a month of use the camcorder had some mechanical problems, and the flash stopped working. Diego's wife took the camera to the nearby store and exchanged it for a new one.*

This vignette illustrates the confidence of Diego's wife in buying goods online, because the store's return policy and its distance were not dominant inhibitors. This vignette highlights that integration of channels is an important factor tipping the scale toward online shopping for stores that are integrated across the various channels.

H3: For a consumer, more unified multi-channel systems will increase the likelihood of selecting any channel-type.

Considerations of barriers and drivers of online and in-store shopping are included in many other types of situations. The following additional scenarios help to capture these additional influences:

Vignette 4: *Doug is a jazz aficionado. He loves to browse on eBay and other sites to find rare and esoteric collections, albums, and composers. He visits the regular music stores to check out the offerings, but is very rarely impressed by mainstream retail supply.*

Vignette 5: *Mary is a biographer who loves to read new fiction and non-fiction, and keep up with children's books and feminist literature. However, she works in a rural area and cannot easily access a major bookstore such as Borders or Barnes & Noble. This problem is even greater in the winter because of unpredictable weather and road conditions. Therefore, she frequently visits Amazon.com and other web sites to check out best-seller lists and order books online. She has accumulated a lot of customer loyalty points from these stores and receives additional discounts. She also orders enough books in each transaction to avoid shipping charges.*

Vignette 6: *Hansa has three kids that are different ages, all with different preferences for clothing, haircuts, food, toys, games, DVDs, books, shoes, make-up and so on. They all like to hang-out in the outlet malls and visit big name stores like Hollister, Aeropostale, Top Gun, Pac Sun, Olympia, Journeys, and Ecstatic. They also eat at Aunt Annies, OrangeJulius, the Starbucks cart and other places in the food court. Hansa can rarely get what she and her kids want by browsing products online. However, a day at the mall gets the job done for her.*

Again, these scenarios represent the barriers and drivers experienced by consumers. Notice that in the case of Doug, information content in the web ranks as a prime driver for his shopping online. That is, Doug seeks variety and newness in goods, and his online shopping experience depends upon the availability of this information. With Mary, the simple economics of distance and time are major drivers to web-shopping. In Hansa's case, the cost of browsing to satisfy her family's diverse needs greatly outweigh the benefits of going to the mall. In Hansa's case, accessibility to products and services and the general "mall experience" rank as primary drivers. Our objective with this research is to apply these ideas into our proposed model structure to assess certain assumptions about efforts in multi-channel retailing. Furthermore, it is also important to understand how the implications of each hypothesis differ across the population by examining the interactions between economic factors and demographic covariates. Our empirical framework can be extended to include such interactions. Figure 1 presents the various drivers and inhibitors of at least two channels within the consumer's shopping domain. The vignettes can shed light on how the relative differentials can be brought into the consumers' shopping perceptions, patterns, and behavior. We present the empirical framework in the next section that will enable us to quantify the model's predictions.

Data and the Empirical Framework

In order to estimate the model and test our hypotheses, we administered surveys to collect individual-level data from a spectrum of consumer groups covering

randomly selected consumers across age, gender, family size, residence (urban/rural), income, and issues regarding purchases. A detailed survey was provided to 350 shoppers in Pennsylvania and Florida ($n = 350$). The survey was administered to randomly selected students enrolled in two public universities in these two states as well as residents residing around the universities. The residents chosen for survey were located around the greater Bradford area in Pennsylvania and the greater West Palm Beach area in Florida. The survey contained many important features that capture the main variables required in our model: shopping benefits and costs, and demographic information (see drivers and inhibitors in tables 1 and 2).

Table 3 summarizes the main features of our sample. Fifty-two percent of the respondents are female, and about 66% of all respondents are less than fifty years old. Strikingly, about 20% of the respondents have very high income levels (\$80,000 to \$90,000). About 54% are single or never married, with about 34% living with a partner, while the remaining were either separated, widowed, or divorced.

Our key dependent variable is the consumer's channel choice for shopping. We realize that no consumer shops online one hundred percent of the time. We asked consumers to indicate what percentage of times they shopped on the Internet as opposed to the malls. About 44% of the respondents have purchased products online 10% to 25% of the time. However, a full 22% of the respondents, on the other hand, have never purchased anything through the Internet. Since we are interested in applying a binary probit model to estimate the likelihood of web-purchases, we need a dummy dependent variable, which takes the value of 0 if the consumer is a mall shopper, and receives a value equal to 1 if the consumer is a web-shopper. However, our survey responses, on the other hand, contain only the percentage of times a typical respondent purchased on the web. Therefore, since we do not have a dummy variable with explicit information on purchase-selection, we transform the responses to construct our needed dependent variable as follows. We assume that our respondents can be divided into two groups: those who rarely purchased products online, or 0 to 25% of the time, and those who purchased online more frequently (more than 25% of the time). We then arrive at the dummy variable with the value of 0 for the first group of infrequent users, and 1 for more avid web-users. We thus transform the choice of buying on the Internet versus the mall to a 0-1 decision for each consumer: the dependent variable is assigned a value of 1 if the consumer shopped via the Internet relatively more frequently, while it is assigned a value of 0 if the consumer never or infrequently shopped on the Internet. We realize that it would have been possible to give the dependent variable different values as opposed to being binary. However, given that our goal here is to explore the drivers and inhibitors of mall versus Internet shopping, a binary characterization seems intuitive and heuristic.

The descriptive statistical information about the synergy between drivers and inhibitors of respondents' shopping behavior is given in Table 4. In this case, a limited-dependent variable analysis to estimate our model, using the standard procedures outlined in Greene (2001), is the most suitable. Given the individual-level data from our survey, it is important to adopt appropriate techniques to assess the decision-making process across demographic groups. Following Greene (2001), we use a binary probit analysis to assess the probabilities of channel selection.

Table 3.
Respondents' Characteristics: Demographic and Shopping.

	Frequency	Percent
Gender		
Female	183	52.29
Male	167	47.71
Age		
10 to 19	69	19.71
20 to 29	130	37.14
30 to 39	40	11.43
40 to 49	62	17.71
50 to 59	30	8.57
60 to 69	19	5.43
Income		
Under or equal to \$ 10,000	58	16.57
\$ 11,000 - \$ 19,000	38	10.86
\$ 20,000 - \$ 29,000	29	8.29
\$ 30,000 - \$ 39,000	45	12.86
\$ 40,000 - \$ 49,000	41	11.71
\$ 50,000 - \$ 59,000	27	7.71
\$ 60,000 - \$ 69,000	19	5.43
\$ 70,000 - \$ 79,000	23	6.57
\$ 80,000 - \$ 90,000	70	20.00
Marital		
Single, never married	190	54.29
Married, living with partner	122	34.86
Separated, widowed, divorced	38	10.86
Child		
None	207	59.14
1 to 2	92	26.29
3 to 4	45	12.86
5 or more	6	1.71
Internet Shopping frequency		
Never	77	22.00
10 to 25% of the time	154	44.00
25 to 50% of the time	62	17.71
about 50% of the time	47	13.43
Greater than 75% of the time	10	2.86

Table 4
Descriptive Statistics of Drivers and Inhibitors from Respondents (in percent).

Drivers of Internet Shopping	Highly Disagree	Somewhat Disagree	Midway	Somewhat Agree	Highly Agree
Can access a variety of same kind of goods	2.00	3.43	17.43	21.14	56.00
Can access a variety of different goods	1.43	2.57	13.14	23.43	59.43
Convenience	3.71	5.14	13.14	21.43	56.57
Availability of designer and national brands	3.71	5.71	17.14	24.29	49.14
Can search for the lowest price	2.57	6.00	16.00	23.43	52.00
Can save on time	6.00	9.14	16.57	18.29	50.00
Website information about the product	3.71	6.86	27.14	26.29	36.00
Inhibitors of Internet Shopping	Highly Disagree	Somewhat Disagree	Midway	Somewhat Agree	Highly Agree
Security issues (credit card fraud etc)	5.71	14.00	24.86	22.86	32.57
Privacy (hackers playing around etc)	4.00	14.29	25.43	24.57	31.71
Too much time in searching	15.14	20.57	22.86	23.14	18.29
I am not computer savvy	41.14	17.14	13.71	10.57	17.43
Real slow connections	31.43	22.00	21.14	11.43	14.00
Cannot trust the information posted	15.43	25.71	31.71	17.43	9.71
Not clear on "returns" or "small print"	8.29	17.43	28.29	29.71	16.29
Not clear on "hidden charges"	10.86	17.43	30.57	27.14	14.00
Drivers of Mall Shopping	Highly Disagree	Somewhat Disagree	Midway	Somewhat Agree	Highly Agree
Can see a variety of same kind of goods	8.29	12.29	29.71	24.29	25.43
Can actually see the goods	1.43	2.86	10.86	26.29	58.57
Convenience	10.29	21.71	34.57	19.71	13.71
Check out the designer and national brands	5.71	14.57	36.00	28.00	15.71
Can search for the lowest price	11.14	30.29	24.57	18.86	15.14
Can save on time	28.29	26.57	24.86	12.57	7.71
I get all the information about the product	12.86	20.00	29.43	20.00	17.71
No difficulty with "returns" or small print	4.29	11.43	26.57	28.57	29.14
No hidden charges	1.14	5.71	18.57	31.71	42.86
No shipping costs	2.00	2.29	7.43	20.57	67.71
Can hangout and get a shopping experience	10.86	9.14	23.14	23.14	33.71
Can get all my things in one mall visit	15.71	20.00	25.43	21.14	17.71
Family time and quality	14.00	13.43	28.00	21.71	22.86

Table 4. (continued)

Inhibitors of mall shopping	Highly Disagree	Somewhat Disagree	Midway	Somewhat Agree	Highly Agree
A good outlet mall is too far	14.00	13.71	17.71	16.57	38.00
Crowds and queues are too much for me	13.43	16.29	25.14	20.57	24.57
Too far away	20.86	15.43	20.57	19.14	24.00
Traffic to and fro is unmanageable	21.43	27.43	24.57	12.00	14.57
I don't like to drive in snow or rain	20.86	17.14	25.43	16.29	20.29
Can't get the best price	10.86	18.86	37.43	20.29	12.57
Can't always get the best deal	10.29	12.29	38.29	26.86	12.29
Can't always find what you exactly want	7.43	11.71	30.29	30.00	20.57
Too much variety is confusing	29.14	24.86	24.00	11.14	10.86
Time consuming	10.86	9.43	24.29	25.14	30.29

In this case, consider a model of multi-channel participation. The dichotomous dependent variable Y indicates whether the respondent in the survey shops in a traditional brick and mortar setting ($Y = 0$) or online ($Y = 1$) for a particular item. In theory, this is based on maximizing an utility index I_i , that can be estimated in part using a set of factors x_i such as age, income, education, distance to the nearest mall, Internet services available, family size and so on:

$$I_i = \beta'x_i + U_i \quad (1)$$

where β is a vector of parameters that assess the impact of changes of x on utility, and U_i represents the unobservable components of utility. It is reasonable to assume that for a threshold level of I_i in our model, the respondent will choose to use the Internet for shopping over a traditional store or the mall. Since I_i is not observable, however, the probit model assumes that the unobserved components of utility are distributed according to a standard normal distribution (Gujarati, 2003, page 609):

$$P(Y = 1 | \mathbf{x}) = \Phi(\beta'\mathbf{x}) \quad (2)$$

where $P(Y=1 | \mathbf{x})$ equals the expected probability that the respondent is a web-shopper given the observed \mathbf{x} , and Φ is the probit function. The probit model provides for a systematic empirical analysis, which is complete and unified, and is a logical treatment of channel-shopping behavior for a cross-section of individuals. Notice that we will interpret the coefficients slightly differently, given the manner in which our dependent variable has been constructed.

Since $\beta'\mathbf{x}$ has a normal distribution, interpreting probit coefficients requires thinking in terms z (normal quantile) metric. For instance, if we estimated the probit equation:

$$P(Y = 1 | \mathbf{x}) = \Phi(0.08233 x_1 + 1.529 x_2 - 3.139) \quad (3)$$

Interpreting the x_1 coefficient we see that each one unit increase in x_1 increases the probit index by 0.08233 standard deviations. We will keep this interpretation in mind in the next section where we discuss the results.

We performed the following transformations on all the other variables for empirical implementation. For example, the variable gender was coded as a dummy variable (with males = 1 and females = 0), Age was coded into multiple categories (ages 10-19 = 1, 20-29 = 2 and so on). Similarly, we created categories for the variable income (incomes under \$10,000 = 1, incomes between \$11,000-\$19,000 = 2, and so on) Marital status was set to three categories (Single or never married = 1; married or living with a partner = 2; separated, widowed or divorced = 3). The remaining independent variables were measured in Likert scale (ranging in values from disagree = 1 to agree = 5).

Consider the extension of this probit model that includes the type of consumer channel choice (mail, in-store, online, other venues, or a mix) as a dependent variable, with several independent variables covering economic and demographic aspects.² Studies in the literature do not consider factors that increase the likelihood of specific channel usage or a specific channel-mix configuration. Extending shopping decision models to measure channel selection likelihood under alternative channel structure arrangements for individual shopping data across a spectrum of consumers can indicate the relative advantages of alternative channels based on different consumer attributes. That is, our framework identifies the different consumer characteristics that increase the likelihood of using specific multi-channel attributes. We can thus derive implications for “gains from trade” and the advantages of channel-mixing.

Results

We now evaluate the hypotheses presented in Section 4, based on our econometric estimation. The likelihood ratio chi-square of 108.35 with a p -value of 0.0001 tells us that our model as a whole is statistically significant, as compared to model with no predictors.³

Recall that our first hypothesis stated that for a consumer, the likelihood of using channel A for information while purchasing the same product in channel B increases as the relative benefits from such a switch increase. While we cannot directly test this hypothesis in terms of the switching of channels by consumers during distinct purchasing events, we can identify and estimate the relative benefits from the potential drivers in our data set and assess their implications.

From Table 5 we note that as consumers perceive an increase in the variety of same kinds of goods and the accessibility of product information, they are more likely to shop online. “Convenience” and the ability to “search for the lowest price” also appear to be important factors that influence online purchasing by consumers. We note

² Except for Youn-Kyung et al, (2002), such individual data had never been applied to examine this issue.

³ The pseudo- R^2 is also given (0.24), which indicates the overall goodness of fit. We have to examine the pseudo- R^2 because there is no direct equivalent of an R^2 (from OLS regression) in non-linear models.

Table 5.
Probit Estimation Results.

Parameter	Estimate	Std error
Demographics		
Intercept	-1.01	1.97
Sex (1 if male, 0 if male)	0.23*	0.17
Age	0.001	0.02
Income	1.00*	0.01
Marital status (1 if married, 0 single)	-0.44*	0.27
Number of children	0.04	0.16
Drivers of Internet shopping		
Can access a variety of same kind of goods	10.38*	6.05
Can access a variety of different goods	-2.89	7.54
Convenience	15.76*	8.90
Availability of designer and national brands	-2.59	10.34
Can search for the lowest price	16.29*	8.80
Can save on time	-7.15	11.03
Website information about the product	9.42*	2.59
Inhibitors of Internet shopping		
Security issues (credit card fraud etc)	-20.11*	8.37
Privacy (hackers playing around etc)	-10.06*	1.89
Too much time in searching	5.83	9.61
I am not computer savvy	10.86	14.73
Real slow connections	8.73	14.95
Cannot trust the information posted	-9.07*	5.39
Not clear on "returns" or "small print"	-5.24*	2.00
Not clear on "hidden charges"	7.43	10.79

Table 5. (continued)

	Estimate	Std error
Drivers of mall shopping		
Can see a variety of same kind of goods	-0.81	15.26
Can actually see the goods	-12.08*	4.23
Convenience	6.82	7.21
Check out the designer and national brands	-7.36*	0.46
Can search for the lowest price	-12.46	6.81
Can save on time	0.01	3.54
I get all the information about the product	-6.44*	1.48
No difficulty with “Returns” or small print	5.73	16.67
No hidden charges	2.37	5.99
No shipping costs	1.10	3.86
Can hangout and get a shopping experience	8.32	15.12
Can get all my things in one mall visit	11.58*	8.92
Family time and quality	4.57	10.74
Inhibitors of mall shopping		
A good outlet mall is too far	-5.48*	1.73
Crowds and queues are too much for me	12.71	13.17
Traffic to and fro is unmanageable	-1.17	5.14
I don’t like to drive in snow or rain	2.69	7.16
Can’t get the best price	-0.95	7.21
Can’t always get the best deal	0.60	7.26
Can’t always find what you exactly want	-17.77*	11.31
Too much variety is confusing	-4.74*	2.81
Time consuming	1.50	17.98

*indicates 95% confidence,
 $n = 348$,
 LR Chi-Sq. = 108.35;
 Prob. > Chi-Sq. = 0.00
 Pseudo $R^2 = 0.24$,
 Log-Likelihood = -168.69.

in Table 4 that 56% of the respondents are in “high agreement” that “convenience” is important in their selection of channels. Also, about 52% of the respondents are in “high agreement” that the web has distinct advantages in terms of price searches. Thus a one-unit increase in “convenience” (consumers agree more) increases the probit index by 15.76 standard deviations, and hence an increment of the convenience factor will have a large impact on the probability of online shopping preference. The interpretation of the coefficients from the probit model is not very direct. However, we can use the coefficients and predict the likelihood of Internet shopping, for specific values of our independent. That is, the probit model allows us to obtain the predicted probabilities of shopping on the Internet when any particular variable such as “convenience” is set to specific values: 2, 3, etc. For example, when one’s convenience level is 4, the predicted probability of shopping on the Internet is 0.26. If the convenience level is increased to level 5, the probability of shopping on the Internet increases to 0.32 in our model. In addition, the model can also predict changes in probability of Internet shopping for specific combinations of variable values. For example, when income is at level 1 (i.e. under \$10,000) and convenience is at level 1 (lowest), the probability of shopping on the Internet is 0.16. However, interestingly, this probability more than doubles to 0.38 if convenience level is set at the highest level of 5, keeping income fixed at level 1.

Recall, that our dummy dependent variable indicates directly the likelihood of a consumer to be a frequent web-shopper. Consequently, a positive coefficient sign of a particular variable implies, that a one-unit change in the variable will affect the consumer’s likelihood in the same direction. We also note similar behavioral responses to other variables. For instance, as Income increases by one-unit, or if the consumer’s income jumps to a new income bracket, in our data, we find that the likelihood of being a frequent web-shopper also increases by 1 standard deviation. In other words, increases in income have a positive effect on web shopping. Among the “Drivers of Internet shopping” we find that “can access a variety of same kind of goods,” “can search for the lowest price,” and “website information about the product” all have positive effects on increasing the likelihood of a consumer being a frequent web-shopper.

Hypothesis 2 states that the *likelihood* of selecting a particular information-seeking channel and sticking with the same channel through to the final purchase will decrease as the cost of staying with the channel increases. To test this hypothesis, we need information on switching costs between channels. However, these costs are not directly observed in the market, and hence, only an implicit value of these costs can be obtained. In this study, the exact imputation of these costs is not needed, so long as we are able to infer how these factors can direct consumers to alternative channels. This, in turn, enables us to examine the role of inhibitors in our estimation. Once again, we have to be careful when we interpret the results of our probit analysis. Our hypothesis 2 indicates that as the value of the inhibitors of web-shopping increases, the frequency of web-purchases will decline, or in other words, the coefficients associated with “inhibitors” are hypothesized to be negative. The foremost inhibitor of web shopping appears to be “security issues,” as the coefficient in the probit model is significant and negative, as well as “privacy” issues. The other two important inhibitors deal with the trustworthiness of the information posted on the web; however, the lack of consumers’ technical knowledge, and browser quality and speed do not show up as statistically

significant independent variables in our data. For example, for every 1 unit increase in “security issues,” the likelihood that a respondent will be a frequent web-shopper declines by 20 standard deviations.

With mall shopping we find that the negative externalities that are usually associated with mega-outlet malls (crowds, traffic, driving conditions, time, timing of sales) are not statistically significant inhibitors. The only other perceived inhibitors of mall shopping, aside from the “distance to a mega-mall” are: “too much variety is confusing” and “can’t always find what you exactly want.” Consequently, we can state that while, “shopping experience” is not a significant inhibitor, “information overload” at the mall can be overwhelming for the respondents in our data. In all likelihood, “shopping” in our data still has credibility as an “experience good.”

Finally, our third hypothesis states that for a consumer, the *likelihood* of selecting any channel-type will be higher if the multiple channels of a firm are more integrated. Once again, “unification” within a specific channel can only be observed indirectly, given that consumers’ opinions regarding what constitutes unification are varied and subjective. However, we can make inferences about the effect of perceived channel unification on channel selection from the results of our estimation. From Table 5, we note that the statistically significant drivers of Internet transactions are those that posit information about specific products, and not for an array of a diverse product portfolio. That is, information about a single product in fullest detail, such as in “can access a variety of same kind of goods,” “can search for the lowest price,” and “website information about the product” turn out to be the significant drivers. However, Internet information concerning a variety of products, such as “can access a variety of different goods,” “availability of designer and national brands,” are not significant drivers. Consequently, we can make at least two inferences regarding channel unification. First, consumers are more likely to respond favorably to web-shopping so long as the website posts information about a particular product exhaustively. Secondly, consumers are less likely to become web-shoppers, if a website posts too much information about an array of different products. There are perhaps many reasons as to why these behavioral patterns are observed in our data. Consumers are probably savvy and browse only for specific information and ignore other distractions, or that companies have not yet taken full advantage of their website in providing comprehensive information without confusing the browser.

Issues concerning security are some of the most statistically significant inhibitors of web-based purchasing. Unification in this context indicates the extent to which a particular web site integrates information about a specific product, and assures the consumer about security, theft detection, and fraud prevention. For example, a good website that unifies such information about a specific product might include all the varieties and offerings of a specific product available, along with all final purchase prices including various taxes, shipping and handling, alongside posts of ten best competing prices in the retail sector. Additionally, a thoroughly unified website instills confidence in the consumer about receiving credit-card information. An immediate email verification and acknowledgement as with Amazon.com is one of the many ways in which such concerns are addressed. For our data, we find that the web-unification is

a subtle combination of the major significant drivers in conjunction with statistically significant inhibitors.⁴

In the context of mall shopping, such a finding does not arise. Indeed, in this case we find that consumers look not just for specific products, but also to experience the subjective physical and tangible attributes of these products.

Once again, recall that our dummy dependent variable indicates the likelihood that a particular respondent belongs to the group of frequent web-shoppers. Consequently, a positive driver of mall-shopping is likely to reduce the respondent's likelihood of becoming a web-shopper. In other words, "drivers of mall shopping" are hypothesized to have a negative sign according to our hypotheses. We note from Table 5 that all positive drivers of mall shopping that are statistically significant and negative suggest these tendencies ("can actually see the goods," "check out the designer and national brands," "I get all the information about the product," "can get all my things in one mall visit"). However, when we examine the inhibitors, we find that a statistically significant inhibitor is "distance to the mall." Obviously, it is not possible to offer brick and mortar shopping as a unified channel without reducing distance which defeats economic rationalization dealing with location issues. Similarly, other statistically significant inhibitors include the opinions: "cannot find exactly what you want" and "too much variety is confusing." Once again, it is not possible to enhance the drivers without reducing the negative externalities of these specific inhibitors. In other words, our data indicate that unification under "mall shopping" is a complex phenomenon, vindicating the problems observed under "experience goods." However, improvements to web-service is a more direct, tangible and an achievable process, which has the potential to increase profitability of web-tailers.

Summary and Conclusions

In this paper, we extended the current literature on e-services and multichannel shopping behavior with a framework that includes a consumer's perceptions, expectations and behavior, that is rooted in both economic and non-monetary considerations. In this context, our conceptual framework defines a unified, logical treatment of multi-channel shopping determinants and trends.

Our results suggest that as consumers perceive an increase in inter-brand variety and the availability of product information, they are likely to increase their purchases through the Internet. Interestingly, in our data set intra-brand variety does not appear to be a statistically significant determinant in channel choice. Consumers also perceive "convenience" and the ability to "search for the lowest price" as reliable factors that influence their web-purchases. Conversely, the foremost inhibitors to online shopping are "security issues" and issues related to "privacy." The other two important inhibitors deal with the trustworthiness of the information posted on the web. Interestingly, consumers' technical knowledge and browser quality and speed do not show up as statistically significant in our data. Consumers do not place a significant

⁴ From Table 5 we note that the unification drivers are "can access a variety of same kind of goods," "convenience," "can search for the lowest price," "website information about the product" with statistically significant inhibitors being, "security," "hackability," "trustworthiness" and "hidden charges."

value on the negative externalities that are usually associated with mega-outlet malls (crowds, traffic, driving conditions, time, timing of sales). Thus, in all likelihood, “shopping” in our data is still perceived as an “experience good.” Consequently, we can state that while, “shopping experience” is not a significant inhibitor, “information overload” at the mall, can become overwhelming for the respondents in our data. Statistically significant drivers of web purchases for the consumers in our data are those that posit information about specific products, and not for an array of diverse products. In our data, web unification is a subtle combination of the major significant drivers (such as “convenience”) in conjunction with statistically significant inhibitors (“security”). We also find in our data that unification under “mall shopping” is a complex phenomenon, vindicating the problems observed under “experience goods.” However, web-unification is a more direct, tangible and an achievable process, which has the potential to increase profitability of e-tailers.

The approach presented in this paper can be used directly to measure the extent of the growth potential of different channels. Retailers can adopt smart-sales techniques by strategically positioning their products and investing in smart-channel activities, based upon consumer-driven estimates of this potential. In addition, so long as the inhibitors of shopping in a channel are lower than their benefits for only a few product categories, the traditional mall or in-store environment can still operate efficiently, especially if newer strategies in sales promotion are incorporated, such as web-to-store (W2S) approaches. A major limitation of our research is the lack of a operational definition for channel-unification. We have made inferences about channel-unification only indirectly, based on our probit estimates. Future research should focus on defining and collecting comprehensive data to test the implications of our model, especially with respect to issues surrounding channel-unification.

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