

December 2001

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Virpi Kristiina
Helsinki School Economics

Anssi Oeoemi
Helsinki School Economics

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Recommended Citation

Kristiina, Virpi and Oeoemi, Anssi, "Consumer Preferences and Choice between Fixed and Non-Fixed Price Electronic Shopping Channels" (2001). *PACIS 2001 Proceedings*. 2.
<http://aisel.aisnet.org/pacis2001/2>

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Consumer preferences and choice between fixed and non-fixed price electronic shopping channels

Virpi Kristiina Tuunainen and Anssi Öörni
Helsinki School Economics

Abstract:

The central premise of this paper is that information search on the Internet is increasingly difficult, and price comparisons are next to impossible in many cases. Consumer decision making is a complex process with a great array of influencing factors, price being one of them. We look into the consumer decision making process and identify the factors affecting consumers' shopping behavior and choices on the Internet. Based on existing literature on consumer behavior, these factors are grouped into personal characteristics, task and context characteristics and social context.

We also look into the existing business models on the Internet. We offer a framework, based on consumer behavior literature, which provides some guidelines for building business models with regard of selecting appropriate pricing-model depending on the position of business in its role in the chain of distribution. While our model may lack in detail, we feel that it provides a viable approach to both study and construction of business models for electronic commerce.

Keywords: Electronic Commerce, Consumer Behavior, Business models, Pricing

1. Introduction

Electronic commerce is driven on both buyer and supplier sides by a number of factors: access to an affluent customer base; lower information dissemination costs; lower transaction costs; broader market reach; increased service; additional channels for customer feedback; consumer and market research (Auger and Callaughar, 1997). Given its relatively low-cost service and non-hierarchical architecture, many believe that the Internet will lower barriers to entry and level the economic playing field (Garcia, 1997). The proliferation of virtual storefronts is believed to support the proposition that the Internet enables vendors and customers to leap over intermediaries and that it potentially reduces the prices of goods (Lee, 1998). Consumers are claimed to be empowered to make an almost infinite number of choices in the evolving electronic marketplace (Sherman and Topol, 1996).

How do the consumers choose what and whom to buy from on the Internet? Economic literature suggests that consumer choice is driven by price. Information systems scientists have shown the Internet to make information on prices more transparent as well as lowering the information search costs. Dynamic pricing is one of the propositions often related to business models of electronic commerce. It could be, in principle, a viable venue for business to business as well as business to consumer models. Dynamic pricing has gained in popularity in relation to electronic commerce, since low menu costs, that is, the costs accrued from changing prices, could be radically decreased in computer based businesses (Brynjolfsson and Smith 2000). Some of the harbingers of electronic consumer business, like Amazon, have attempted to adopt dynamic pricing as part of their business model. Yet, many of these experiments have been dropped, since customers have thwarted them. At the same

time some of the most profitable businesses, like eBay, have based their entire business based on a business model that includes dynamic pricing as an inherent component.

The purpose of this paper is twofold: Firstly, through understanding the consumer decision making process, the aim is to identify the factors affecting consumers' shopping behavior and choices on the Internet. The second purpose is to map these factors with different, generic business models available for the sellers, in order to see what the choice determinants can mean for different types of business models. Based on consumer behavior literature, we offer a framework, which provides some guidelines for building business models with regard of selecting appropriate pricing-model depending on the position of business in its role in the chain of distribution.

2. Information Search on the Internet

2.1 *Electronic markets*

Malone et. al. (1987b) argue that computer-aided buying and selling, i.e. electronic markets, will profoundly affect the conventional marketing and distribution. In electronic markets information systems facilitate transactions. These systems may lead to diminished transactions costs of information dissemination and negotiation. Moreover, customers can use electronic markets to find sellers best meeting their needs. Low transaction costs will increase the appeal of markets compared to hierarchies as the organizational structure of economic activity (Malone et al., 1987b, 1989).

Bakos (1991a; 1991b) investigated the intermediating role of inter-organizational information systems in vertical markets. He establishes that electronic market systems, or electronic marketplaces, will substantially reduce the search costs buyers incur in both differentiated and commodity markets. Lower search costs will encourage buyers to perform more extensive product information search, and procurement decisions made by better-informed buyers will lead to allocational efficiencies. He maintains that sellers will face increasingly fierce competition in commodity markets, since buyers are consistently able to find the option with the lowest price. Thus, excessive profits extracted by sellers will be wiped off in zero search cost commodity markets where the equilibrium price equals the marginal production costs. Bakos argues, that allocational efficiencies derived from enhanced dissemination of product information will also affect differentiated markets, yet the changes will be more gradual.

In his more recent works on electronic markets, Bakos (1997; 1998) treats the Internet as the most important incarnation of the electronic markets. He reflects his previous theoretical investigations on these markets and argues that the Internet-based electronic marketplaces leverage information technology to perform the main functions of the markets with increased efficiency. These functions include matching buyers and sellers; facilitating the exchange of information, goods, services and payments associated with market transactions; and providing an institutional infrastructure.

2.2 *Theoretical foundation of previous research*

Malone et. al. (1987a) ground their hypotheses regarding electronic markets on transaction cost economics. Transaction cost economics (Williamson, 1975, 1979, 1981) provides a framework to explain when economic actions organize into hierarchies and when markets are

the preferred structure. In short either hierarchy or markets can be the desirable structure of economics activity: the one with lower costs should prevail. Williamson's theory builds heavily on Coase's (1937) work on the boundaries of the firm as well as on bounded rationality developed by Simon (1955).

The theory of search costs is well established in econometric literature. In his seminal paper, Stigler (1961) related high information search costs to price dispersion, which is rather a norm than an exception in most markets today. He maintains that consumers would select the lowest priced product among the competing homogeneous offerings. However, consumers do not engage in exhaustive product search if they perceive that the expected costs of search exceed the benefits. Thus, high search costs will lead consumers to accept sub-optimal offerings and allow sellers to extract excessive economic rents. Rotschild (1974) has shown that under some quite general assumptions consumers are able to judge the amount of feasible search even though they don't have prior distributions of prices.

2.3 Limitations of previous research

We argue that the previous analyses of electronic consumer markets fail on the account that they rely on the increasing performance gains of information technology. These assumptions are misleading for at least two reasons. Firstly, the analyses are based on the dwindling costs of information technology. The technological advances in semiconductor industry has diminished the cost of hardware. However, electronic markets are not based on hardware alone. On the contrary, the infrastructure of electronic markets comprises hardware, software, information content, and people who develop and operate the systems. The costs of information systems as a whole have not appreciably declined. It is more likely that the cost of new systems is going to increase as information systems are integrated into true inter-organizational systems.

Secondly, from the consumer's point of view, diminishing hardware costs do not enhance the search process as much as one could assume. While more efficient telecommunications technology certainly diminishes the time consumers have to wait for Web pages to download, this time is only a fraction of the total time employed to a search. The computing power of the current personal computers exceeds the information processing capabilities of most consumers. Thus, we suggest that more time is employed to the mental effort of evaluating the information acquired than waiting for the information to arrive.

Little empirical evidence exists in support of the hypothesized efficient electronic markets. Brynjolfsson and Smith (2000) have compared traditional and electronic markets for CDs and books. They found that the average price level of electronic markets was lower. They also found less price dispersion when the prices were weighed with market shares, yet the prices varied substantially in electronic markets as well. Clemons et. al. (1999) have studied the electronic markets of air travel services. They observed considerable price dispersion as well. Some of the variation could be attributed to the quality of the service. However, they concluded that considerable part of the variation could not be explained, and they associated this to random market inefficiencies. Lee (1998) has investigated AucNet, the electronic auction system for second hand cars. He reported, that cars sold through the AucNet system were, on average, more expensive than cars traded in traditional auctions. He attributed his finding to higher quality of the cars in the AucNet. These cars in the AucNet were relatively young, since they had to pass an inspection before sale.

Lastly, as Herbert Simon has established, the capacity of the human mind does not only limit the solution of problems; it also constrains their formulation. The assumption that information technology could drive the search costs to near zero level, relies heavily on technology that would enable consumers to engage in simultaneous information search (see e.g. Whinston et al., 1997). Simultaneous searches consist of multiple parallel comparison operations that are based on a set of criteria. Thus, the consumer should be able to formulate his problem to be able to run a simultaneous search.

3. The Consumer Information Environment

Consumer decisions range from fairly simple routine decisions made on a daily basis to very complex ones made few times in a lifetime. The difficulty of consumer decisions is influenced by both the elements of the task and by how information is provided in the environment (Bettman et al., 1990). Information is often available from many channels like advertisements, brochures, and consumer reports. These sources diverge on the amount and quality of information displayed. Advertisements, for example, typically highlight the strong points of the product while the weaknesses are not discussed. The amount and quality of information have strong impact on consumer's ability to choose. While fairly complete information on multiple choices promote attribute based decision strategies, low quality or missing information may force consumers to make inferences and possibly to resort to decision strategies that require less complete information, like brand based choice. High amount and quality of information are related to decision quality. Attribute based choices, involving fairly complete and detailed information, lead to more precise decisions, yet they require more processing capacity and effort than brand based strategies.

People have a variety of subjective needs and wants they are trying to satisfy with the decisions they make. In economic context it is assumed that no matter what the decision objective is, the consumer is in the best position to know what he wants. The economic theory of markets in large, is grounded on this very perception. Consumers are expected to always maximize their personal utility. Since the objectives of decisions cannot be meaningfully questioned in economic context, the focus has settled on the means of the decisions: how to maximize utility. A good decision leads the decision maker to choose the option that will leave him better off than any other choice would. Rational choice, then, is said to maximize the decision maker's utility.

Human cognitive abilities have often found to be lacking in comparison to the real-life problems people have to make (Simon 1982). This position promotes the importance of information environments. Since mental processing capacity is a scarce resource (Simon 1978), people tend increase information processing if the mental effort of processing can be reduced (Bettman et al. 1990). The organization of information affects the difficulty of consumer choice. In advertisements, for example, product information is typically displayed one brand at a time, and only a subset of attribute information relevant to choice is revealed. Consumers are effectively forced to retrieve information sequentially rather than simultaneously, which results in some decision strategies becoming very difficult (Bettman 1982). If information content is changed constantly, it will effectively amount to increase in mental effort, less accurate decision strategies, and lower quality decisions. Since price information is often among the most important decision criteria, due to budget constraints, constantly fluctuating prices may profoundly affect the difficulty of consumer decisions.

The critical problem dimensions in decision making are the factors that determine how much effort the problem solving takes: number of criteria, nature and number of attributes, and availability of attribute information.

Criteria are aspirations related to problem. People relate often several criteria to a decision. For instance, a car should be as safe as possible yet it should not cost more than \$10,000. The former criterion is called an objective since no aspiration level is associated to it. The latter criterion with an aspiration level is a goal. These criteria also exemplify conflicting aspirations. While some criteria are easy to express in numerical format some are quite abstract. Price is one of the most important criteria related to consumer decisions, and one of the easiest to express in monetary terms. On the other hand, things like need for safety are highly abstract aspirations that are also very difficult to express in monetary terms. Yet some mechanism of trade-off has to be developed for a decision, since usually price and safety are conflicting decision criteria: both cannot be satisfied simultaneously.

3.1 Decision criteria in electronic markets

Consumers are often faced with difficult tradeoffs while comparing products or services. Most consumer products are heterogeneous and typically the quality of services differ even more. If the quality of the product varies, it is usually negatively related to the price of the product. Likewise, the risk consumers perceive in buying from unfamiliar sellers, or sellers the consumer has no prior experience of, is reflected by the relatively low prices of the small Internet shops.

Brynjolfsson and Smith (2000) maintain that price, brand, and customer loyalty, are the three most prominent consumer decision making criteria in the Internet. They further point out, that the importance of brands and customer loyalty may increase in the Internet, since consumers are less capable of assuring the quality of the product prior purchase. Likewise there is often few cues to deduce the reliability of the seller in the Internet. Brynjolfsson and Smith (2000) observed surprisingly high levels of price dispersion in electronic markets for books and CDs. These come quite close to being homogeneous products and, thus, their price should have been the only differentiating product characteristic. Since noteworthy levels of price dispersion were observed, the authors concluded that consumers had other decision criteria beside the price they factored into their buying decision. Consumers are, thus, more prone to use the brand as a proxy for quality and they may be more reluctant to patronize shops they are unfamiliar with.

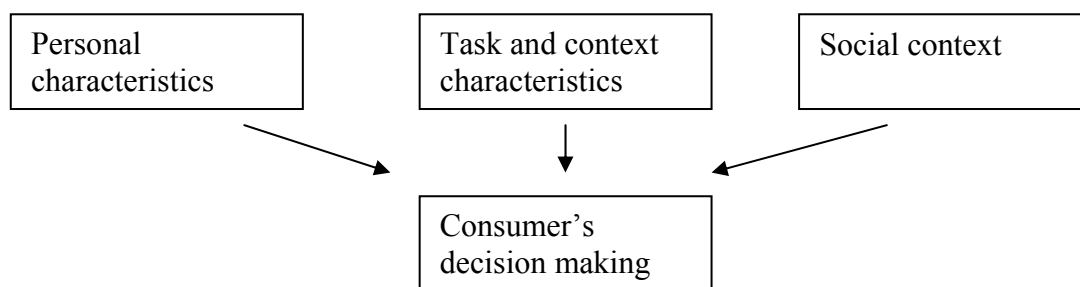
We interpret the importance of brands and customer loyalty as signs of the risks that consumers perceive in electronic markets. The sellers may vary on how they execute transactions such as payments and delivery. Thus, the consumers are willing to pay a risk premium to avoid the risks and, hence, some highly regarded sellers are able extract higher prices than others. A consumer, who has no previous experience he could relate to products or sellers, must rely on secondary sources in his decision. Any previous knowledge, even if it's a mere belief, can affect the choice. Thus, brand, the consumer's perceived image of a product or a seller, may serve as a decision criterion for a consumer with little experience. Experienced consumers have often quite intricate knowledge of some products and sellers in the markets. They may not know all available options, and may be unwilling to test them, since, switching either the product or the supplier could leave them worse off. In other words, customer loyalty is an expression of experienced consumers paying a risk premium for not having to test a new offer.

4. Consumer Decisions Contingency

Elements such as alternatives, attributes of value, and uncertainty directly affect the difficulty of a consumer's choice (Bettman et al. 1990). Choice difficulty generally increases 1) as the number of alternatives and attributes increases, 2) if at least one of the attribute values is difficult to process, 3) if there is high uncertainty concerning the attribute values, and 4) as the number of attributes shared by the options decrease. The effect of these elements on consumer decision strategy depends on a number of factors that are generally categorized into three classes: characteristics of the person, characteristics of the decision problem, and characteristics of the social context.

We next discuss the contingency of consumer decisions. To make the task of understanding decision making more manageable, consumer decision heuristics are typically seen in consumer research literature to be contingent to three categories of factors: individual differences, task characteristics, and environmental factors (Bettman et al., 1990) (see Figure 1).

[Figure 1] Factors affecting consumer's choice



4.1 *Personal characteristics*

The ability to acquire, store and process information determines to great extent the problem solving heuristic employed to a problem. Since people vary on their mental capabilities, their ability to formulate and solve problems is also diverse. The capacity of short term memory directly affects consumer's ability to acquire and process information. Long term memory determines one's ability to store information for future use. Education affects the ability to use formal methods to solve problems. The list of personal characteristics affecting the problem solving is very long.

Since people are different in their capability to solve problems, they also employ a wide range of decision strategies. These strategies, often termed heuristics, are decision rules that link the decision maker's needs to the attributes of the problem domain. The heuristic adopted depends on many other factors besides the capabilities of the decision maker, yet personal characteristics determine the strategies available to the decision maker. A person with a large short term memory capacity can factor more attributes into his decision and relate them with more complex rules to each other. A good long term memory capacity and extensive pre-purchase knowledge lessens the need for purchase related information search.

Risk-taking theory suggests that risk perception and risk propensity of individuals affect their risk behavior (Sitkin and Pablo, 1992). In managerial contexts approaches such as prospect theory provide frameworks for understanding the cognitive biases that influence human decision making under conditions of risk and uncertainty (Kahneman and Tversky, 1979). As such, prospect theory describes the heuristics that people use to evaluate risky choices. It posits that individuals exhibit risk-averse or risk-seeking behaviour depending on how a problem is framed. In short, prospect theory suggests that individuals will exhibit risk-seeking behavior in choosing between two negative alternatives (especially when the choice is between a sure loss--the initial loss on the investment--and the possibility of a larger loss combined with a chance to return to the reference point).

As previously noted, human cognitive abilities, in general, are wanting. It is also easy to observe that people differ a lot in their ability to accumulate and process information. It has been offered that decision-makers who lack skills needed for arithmetic operations tend to turn to decision strategies requiring qualitative reasoning more often than those apt with arithmetic (Bettman et al. 1990). A substantial amount of evidence exists in support of the notion that prior knowledge and expertise affect how information is processed (Brucks 1985), inferences (Ford and Smith 1987), and memory (Hutchinson 1983).

4.2 Task and context characteristics

Comparing homogeneous products is relatively easy. If all products are fully known, i.e. all relevant attribute values are available, it is often possible to rank the products with reasonable effort if 1) the number of options is limited, 2) the number of relevant product attributes does not exceed decision maker's information processing capability. However, more often than not, consumer products are heterogeneous to some extent. They may share only a subset of characteristics, and differ in both quality and price. As the complexity of the product increases, so does the effort needed to factor all relevant attributes into the choice. Consumers may not even know all relevant attributes beforehand.

Problem framing (e.g. Kahneman and Tversky, 1979) also affects the problem solution. If a consumer has already selected the book he wants to buy, and he is indifferent about the sellers, the problem can be described as being pure price comparison. In this setting, a rational consumer should buy from the seller with the lowest price, *ceteris paribus*. Often consumers don't know exactly which book they want to buy. A need for a book to learn Java programming language, is an example of a requirement that could be satisfied with a number of options. Hence, product homogeneity is often a relative concept.

Moreover, the consumer may not be indifferent about the seller. He may believe that sellers vary in their quality or speed of service. Thus, the consumer factors risk into the decision. If the consumer has previous experience about some of the sellers, he may be willing to pay more to a seller that has previously provided high quality service. The sellers with unknown service quality have to offer their product at a lower price to appeal the consumer, since he is tempted to add a risk premium to these prices. If the consumer has no pre-purchase experience of the sellers, he may use brand-related knowledge as a secondary source to determine the reliability of sellers.

The difficulty of decisions and, thus, choice of strategy is contingent to the elements of the task; number and qualities of alternatives and attributes as well as time constraints profoundly affect the difficulty of the decision. Increased time constraints have been found to lead the

decision-maker to simplify the task at hand (Wright 1974), to accelerate the information processing (Ben Zur and Breznitz 1981), to selectively focus on information (Miller 1960), and to change the decision strategy employed (Payne et al. 1988). Likewise increasing the number of alternatives may lead consumers to simplify their information processing. Number of alternatives as well as time constraints are task characteristics and, as such, do not depend on the information content of product attributes. Task characteristics, on the other hand, are related to the set of alternatives included in the decision problem. For example, Tversky et al. (1990) have shown that inclusion of a new alternative to the decision may reverse the prior preferences with regard the other options.

4.3 Social context

Multiple factors related to environment and social context may affect a decision. Most influential are time constraints and need to justify the decision to others. It has been demonstrated that high time pressure leads the decision maker to simplify the decision. He may adopt a less complicated method to compare options, or screen the options using a goal attribute values as a cut-off measure to weed out options that do not satisfy the goals.

The number of decision-makers as well as need to justify decisions to others has been found to affect the decision strategies employed (Bettman et al. 1990). As the number of decision-makers increase, typically the number of conflicting criteria is increased and decisions become more based on negotiation. Need to justify decisions to others lead the decision-maker to choose options that lend themselves for easy justification (Simonson 1989). It also increases the problem formulation effort – at least after the decision was made. Most people want to be seen acting rationally and, thus, are hard pressed to either behave rationally or at least rationalize their behavior when scrutinized by others.

5. Business Models in Electronic Commerce

Today's information and communications technology enables a wide range of business models. The capability of the state-of-the-art technology is just one criterion in model selection, rather, guidance to technology development can come from the definition of new models. (Timmers, 1999). Electronic commerce, or e-business, covers a wide array of business activities. It can include EC in marketing (e.g. Internet presence and World Wide Web –pages in promotion and advertising), ordering (e.g. EDI in business-to-business communications or Web-based systems for selling goods and/or services to consumers), financing (e.g. handling payments and other financial transactions through proprietary networks or the Internet) and transferring (e.g. distribution of computer software on the Internet). An organization serving different types of customers or consumers cannot succeed with one universal application of EC: dealing with different types of customers or consumers requires different business models of EC (Tuunainen, 1999).

We next relate the central factors of consumer decision-making contingency to various business models frequently observed in electronic commerce. We define the categories of business models by two dimensions, namely the role of business in chain of distribution and the pricing model used. The models are divided depending on whether the seller is a retailer or a middleman, and whether the prices for goods and services are fixed or not.

5.1 *Position in chain of distribution*

Electronic retailing, typically in form of eShops and eMalls, has been one of the dominant business models in electronic commerce. eShop is part of marketing of a company as in promoting the company and its goods or services (Web presence) or a shop with a possibility of ordering and possibly paying. eShop is often combined with traditional marketing channels. The seller revenues are generated from reduced cost, increased sales and possibly advertising. eMall is a collection of eShops, enhanced by a common umbrella. It might be enriched by a common (and guaranteed) payment method. When an eMall is specialized in a certain market segment, it becomes more of an industry marketplace or a portal. There are alternative roles for the e-mall operator, ranging from merely acting as “the umbrella” to providing a number of trusted third-party services. eMalls can generate revenues from membership fees, advertising and possibly a fee on transactions.

However, in addition to electronic retailing, various types of middlemen have also been erected in the chain of distribution. For instance, various players in the telecommunications field, for example ISPs, have realized that they are the first contact a consumer has to the information in the Internet. Accordingly, they have attempted to create consumer business based on their position in the chain of distribution. ISP initiated electronic market squares or electronic malls, are typical examples of this approach to base the business model on the middleman role between consumers and retailers.

Electronic auctions, like eBay, and virtual shopping communities (LetsBuyit.com) are also examples of middlemen in electronic consumer business. eAuctions offer an electronic implementation of bidding mechanisms. They can be accompanied by multimedia presentation of the goods, often with integration of the bidding process with contracting, payments and delivery. The sources of income for the auction provider come from selling the technology platform, transaction fees and advertising, and for the suppliers from reduced surplus stock, better utilization of production capacity, and lower sales overheads. Furthermore, the buyers are expected to benefit from reduced purchasing overhead cost and reduced cost of goods or services purchased. In eCommunities or virtual communities the value comes from its members, who add their information on to a basic environment provided by company operating the community. It can be an add-on to other marketing operations, and revenues are generated from membership fees and advertising. In co-shopping communities, such as Lesbuyit.com, the service provider acquires a selection of goods and services from different manufacturers or retailer, and the final is dependent on the number of participants willing to make the purchase.

The business models of eAuctions and Ecommunities are based on creating the markets or sourcing products rather than acting like traditional retailers with inventories. eBay is one of the companies in electronic computer business showing profits using a business model with dynamic pricing. While the future of LetsBuyit.com is more uncertain, it has as well operated for a number of years with dynamic pricing based business model.

5.2 *Fixed and non-fixed prices*

Most retail business is based on fixed pricing. While economists may offer dynamic pricing as the market-driven mechanism to allocate resources, it has been found that changing prices is costly (menu costs) and consumers may be reluctant to accept the increased uncertainty resulting from prices fluctuating as a function of time and space. Retailers have traditionally

adopted the fixed prices disrupted with occasional sales as their preferred pricing mechanism, a compromise between totally fixed and dynamic pricing.

High menu costs is one reason frequently offered to explain the dominant role of fixed prices, while economic theory promote the merits of dynamic prices. If the price each customer pays equals his or hers marginal utility, the seller will be better off while consumers, on average, will not end up being worse off than before.

Price discrimination is viable on two conditions only: 1) customers differ on at least one characteristics that can be used as the basis of discrimination and 2) there is little chance on arbitrage. Moreover, discrimination will be feasible only if the discrimination goes unnoticed or customers consider it fair. While feeling of fairness has little room in economics literature, some evidence exist in support of consumers taking fairness into account in their actions (Kahneman et al. 1987).

In Figure 2 below we illustrate the division of business models based on the position in the chain of distribution the company holds and the pricing model chosen with some widely cited examples.

[Figure 2] Categories of business models with examples

		Position in chain of distribution	
		Retailer	Middleman
Pricing model	Fixed price	CDNow Amazon	Travelocity
	Non-fixed price	(Amazon)	LetsBuyit.com eBay

An interesting case of attempt to use non-fixed pricing model in addition to fixed prices is Amazon, that failed to recognize, that consumers may regard retailer initiated dynamic pricing model as unfair. Price discrimination, when becomes known to customers, may arouse negative feelings among those, who were discriminated against. Since people tend to weigh losses more heavily than gains, this will lead to loss of total utility.

Kahneman et al. (1987) have provided experimental evidence suggesting that consumers may thwart business they perceive as unfair. Furthermore, they posit that a realistic description of an economic transactor should include the following traits. 1) They care about being treated fairly and treating others fairly. 2) They are willing to resist unfair firms even at a positive cost. 3) They have systematic implicit rules that specify which actions of firms are considered unfair.

6. Characteristics affecting the consumer's choice between pricing models

We will next discuss what personal characteristics of the consumer, and task related and environmental factors can mean in the context of each of the generic business models. The discussion is not intended to be exhaustive, rather to point, in form of examples, to a number of characteristics affecting the consumers' choice between different types of shopping channels.

6.1 Fixed-price models

Personal characteristics, particularly the consumer's ability to process information and range of her decision strategies have a significant impact on the type of shopping channel she chooses. Consumers aiming to increase their decision quality may avoid sources offering dynamic information to lessen the mental strain of the decision. For instance, those with lower ability to process information are more likely to opt to buy from an eShop. eMalls typically offer a wider range of options, requiring more information processing from the shopper.

Of the task related factors problem framing is a central situational factor: if the consumer has a very clear idea of what he wants, he will merely search for the best price for the product or service among different sellers. Without that obvious goal, other aspects such as brand name can play very important role in addition to price in the decision making process. Particularly for eShops the significance of a brand name, either of the seller or the products and services offered, can be crucial. Furthermore, if the type of product or service the consumer is looking for is very heterogeneous, i.e. with a number of alternatives, without a brand name loyalty the consumer is likely to search for offerings in an eMall. We posit that fixed prices may increasingly alleviate the strain of decision making as the number of alternatives increases, and the time constraints become more severe.

Of social context or environmental factors time constraints are likely to have the greatest influence on the decision making. A consumer with stricter time constraints can be expected to use the same service provider that she has used before, when the brand name of a seller or a product is known to and trusted by the consumer. Moreover, a brand name shop can be more easily mentally justified than a non-brand name one. Since more complex social context is likely to increase the strain of decision-making, we posit that consumers are likely to increasingly avoid dynamically priced options as the social context of choice becomes more intricate.

6.2 Non-fixed price models

Although dynamic pricing is likely to increase the mental effort used, lessen the amount of information processing, and lead to lower quality decisions, a number of personal characteristics can lead the consumer to choose a non-fixed price model of EC to shop from. A consumer might participate in an eAuction or eCommunity for several reasons. He might be looking for a good deal, a lower price for a product or service, than can be found on fixed-price settings. An eAuction could also be offering a wide range of products and services not easily available anywhere else, for example, collectibles or antique. Or, the consumer might perceive the eAuction or eCommunity as a form of entertainment. However, highly intricate context may lessen the appeal of dynamic pricing, since each new option included in the decision may cause a number of preference reversals and, thus, further complicate the decision.

Relevant task related factors are largely dependant on the reason for participation, as with different reasons the problem framing of the situation is different. Also, with non-fixed price models the trust of the consumer is not necessarily on the actual seller, especially in consumer-to-consumer eAuctions, but on the eAuction or eCommunity provider.

Environmental factors are likely to play lesser role for those opting for non-fixed price shopping. Need to justify the decision to others is low or does not really exist for the consumers shopping from these types of virtual shopping places. In addition, time constraints do not often play a role in the decision making for those participating in eAuction or a co-shopping community.

7. Summary and Conclusions

In this paper we have added to the existing knowledge on consumer behavior on the Internet. By looking into the consumer decision making process, we have identified the factors affecting consumers' shopping behavior and choices on the Internet. Based on existing literature on consumer behavior, these factors were grouped into personal characteristics, task and context characteristics and social context. The central premises of this paper are that information search on the Internet increasingly difficult and price comparisons are next to impossible in many cases; and that consumer decision making is a complex process with a great array of influencing factors, including issues such as trust and (perceived) security.

We also looked into the existing business models on the Internet. We defined the categories of business models by two dimensions, namely the role of business in chain of distribution and the pricing model used. The models were divided depending on whether the seller is a retailer or a middleman, and whether the prices for goods and services are fixed or not. We do realize, nevertheless, that this kind of rough, simple classification of business models is not sufficient alone. A number of other factors define any given model in more detail. First choice for a customer is to decide whether to make the desired purchase from a traditional, physical retail outlet (or using other traditional means, such as TV or mail order catalogues). There are situations when this is basically the only choice the consumer has to make, for instance when shopping for groceries; for a given region (particularly in smaller cities) there might be only one EGS (electronic grocery shop) delivering to the consumer's home. For most product or service groups, however, there exists a number of choices for a customer wishing to buy online. Take airline tickets, for example: through a portal or directly from airline, travel agent (supported with traditional operations or virtual only), tour operator, b-to-c online auction, "travel community. For the purpose of this paper, we have, however, restricted our analysis to the division between fixed and non-fixed price models.

We will next The discussion is not intended to be exhaustive, rather to point, in form of examples, to a number of characteristics affecting the consumers' choice between different types of shopping channels.

We then offered an discussion on what personal characteristics of the consumer, and task related and social context or environmental factors can mean in the context of each of the generic business models. We do not claim our discussion on different business models covers a comprehensive list of all important factors, but rather it highlights some critical issues. The practical implication of this kind of analysis on the consumers is that it can offer a seller on the Internet some tools for considering the alternatives for Web-presence. We feel that it can provide a viable approach to both study and construction of business models for electronic commerce.

8. References

Auger, P. and Callaugh, J.M. "Factors affecting the adoption of an Internet-based sales presence for small businesses," *The Information Society* (13:1) , pp. 55-74, 1997.

Bakos, J.Y. "Information Links and Electronic Marketplaces: The Role of Interorganizational Information Systems in Vertical Market," *Journal of Management Information Systems* (8:2), pp. 31-52, 1991a.

Bakos, J.Y. "A Strategic Analysis of Electronic Marketplaces," *MIS Quarterly* (15:3), pp. 295-311, 1991b.

Bakos, J.Y. "Reducing buyer search costs: Implications for electronic marketplaces," *Management Science* (43:12) , pp. 1676-1692, 1997.

Bakos, J.Y. "The emerging role of electronic marketplaces on the Internet," *Communications of the ACM* (41:8) , pp. 35-42, 1998.

Ben Zur, H. and Breznitz, S. J.. "The effects of time pressure on risky choice behavior." *Acta Psychologica* 47: 89-104, 1981.

Bettman, J. R. A functional analysis of the role of overall evaluation of alternatives in choice processes. *Advances in Consumer Research*. A. Mitchell. Ann Arbor, MI, Association for Consumer Research. 9: 87-93, 1982.

Bettman, J.R., Johnson, E.J., and Payne, J.W. "Consumer Decision Making," In *Handbook of Consumer Behavior*, T. S. Robertson and H. H. Kassarian (Ed.), Prentice-Hall, Englewood Cliffs, N.J., 1990.

Brucks, M. "The Effects of Product Class Knowledge on Information Search Behavior." *Journal of Consumer Research* 12(1): 1-16, 1985.

Brynjolfsson, E. and Smith, M.D. "Frictionless Commerce? A comparison of Internet and conventional retailers," *Management Science* (46:4), pp. 563-586, 2000.

Clemons, E.K., Hann, I.-H. and Hitt, L.M. "The Nature of Competition in Electronic Markets: An Empirical Investigation of Online Travel Agent Offerings," Working paper, Wharton School of the University of Pennsylvania, 1999.

Coase, R.H. "The Nature of the Firm," *Economica* (IV), pp. 331-351, 1937.

Ford, G. T. and Smith, R. A.. "Inferential beliefs in consumer evaluations: An assessment of alternative processing strategies." *Journal of Consumer Research* 14(3): 363-371, 1987.

Garcia, D.L. "Networked commerce: public policy issues in a deregulated communication environment," *The Information Society* (13:1) , pp. 17-32, 1997.

Hutchinson, J. W. Expertise and the structure of free recall. *Advances in Consumer Research*. R. P. Bagozzi and A. M. Tybout. Ann Arbor, MI, Association for Consumer Research. 10: 585-589, 1983.

Kahneman, D., J. L. Knetsch, and Thaler, R.H. Fairness and the Assumptions of Economics. Rational Choice. The Contrast between Economics and Psychology. R. M. Hogarth and M. W. Reder. Chicago and London, The University of Chicago Press. 1: 101-116, 1987.

Kahneman, D. and Tversky, A. "Prospect Theory: An Analysis of Decisions Under Risk," *Econometrica* (47:2), pp. 263-291, 1979.

Lee, H.G. "Do Electronic Marketplaces Lower the Price of Goods?," *Communications of the ACM* (41:1), pp. 73-80, 1998.

Malone, T.W., Yates, J. and Benjamin, R.I. "Electronic Markets and Electronic Hierarchies," *Communications of The ACM* (30:6), pp. 484-497, 1987a.

Malone, T.W., Yates, J. and Benjamin, R.I. "Electronic Markets and Electronic Hierarchies," *Communications of the ACM*, (30:2), pp. 484-497, 1987b.

Malone, T.W., Yates, J. and Benjamin, R.I. "The Logic of Electronic Markets," *Harvard Business Review* (67:3), pp. 166-172, 1989.

Miller, J. G. "Information input overload and psychopathology." *American Journal of Psychiatry* 116: 695-704, 1960.

Payne, J. W., Bettman, J. R and Johnson, E.J. "Adaptive strategy selection in decision making." *Journal of Experimental Psychology: Learning, Memory, and Cognition* 14: 534-552, 1988.

Rotschild, M. "Searching for the Lowest Price When the Distribution Price is Unknown," *Journal of Political Economy* (82) , pp. 689-711, 1974.

Sherman, E. and Topol, M.T. "Anticipating the impact of new technologies on retailing," *Journal of Retailing and Consumer Services* (3:2) , pp. 107-111, 1996.

Simon, H. "A Behavioral Model of Rational Choice," *Quarterly Journal of Economics* (69), 1955.

Simon, H. A.. "Rationality as a process and product of thought." *American Economic Review* 68: 1-16, 1978.

Simon, H. A. Models of Bounded Rationality. Cambridge, Mass., MIT Press, 1982.

Simonson, I. "Choice based on reasons: The case of attraction and compromise effects." *Journal of Consumer Research* 16(2): 158-174, 1989.

Sitkin, S.B. and Pablo, A.L. "Reconceptualizing the Determinants of Risk Behavior," *Academy of Management Review* (17:1) , , pp. 9-38 1992.

Stigler, G.J. "The Economics of Information," *The Journal of Political Economy* (69:3), 1961.

Timmers, P. *Electronic Commerce, Strategies and Models for Business-to-Business Trading*, John Wiles & Sons, Ltd, Chishester, New York, Wienham, Brisbane, Singapore, Toronto, 1999.

Tuunainen, V.K. "Different Models of Electronic Commerce - Integration of Value Chains and Business Processes," Doctoral Dissertation, A-153, Helsinki School of Economics and Business Administration, 1999.

Tversky, A., Slovic, P. and Kahneman, D. "The Causes Of Preference Reversal." *The American Economic Review* 80(1): 204-217, 1990.

Whinston, A.B., Stahl, D.O. and Choi, S.-Y. *The Economics of Electronic Commerce*, Macmillan Technical Publishing, Indianapolis, 1997.

Williamson, O.E. *Markets and Hierarchies, Analysis and Antitrust Implications*, The Free Press, New York, 1975.

Williamson, O.E. "Transaction-cost Economics: The Governance of Contractual Relations," *The Journal of Law & Economics* (22:2), 1979, pp. 233-261.

Williamson, O.E. "The Economics of Organization: Transaction Cost Approach," *American Journal of Sociology* (87:3), 1981, pp. 548-577.

Wright, P. L. "The harassed decision maker: Time pressures, distractions, and the use of evidence." *Journal of Applied Psychology* 59: 555-561, 1974.