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An Investigation of Consumer-perceived Risk on Electronic Commerce Transactions: The Role of Institutional Trust and Economic Incentive in a Social Exchange Framework

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Introduction

Social exchange has been proposed by a number of marketing scholars as a fundamental framework for viewing marketing (Bagozzi, 1974). Bagozzi (1974) further argued that at its most basic level, the social exchange model simply states that people and organizations interact in such a manner so as to maximize their rewards and minimize their costs. Hence, the use of the social exchange framework in gaining insights into the emerging market model of the Internet is appropriate.

Social Exchange Framework

One way in which the transactions that make up social exchange differ from those of the classical model of a perfect market lies in the role of time (Coleman, 1990). In the model of a perfect market, transactions are both costless and instantaneous. Even though the Internet or the World Wide Web do compress the time for some form of transactions (such as buying software, or digital products) from initiation to completion, most real world transactions require some form of movement of goods or services from various geographic locations thereby introducing time asymmetries in the process of exchange of assets between transacting parties. Time asymmetries in delivery introduce risk (perceived or real) into a unilateral transaction for the party or parties who must invest resources before receiving a return. The incorporation of risk into the decision can be treated under a general heading that can be described by the single word "trust" (Coleman, 1990).

Trust and Exchange Process

The placement of trust by one party on another in a transaction specific situation entails that it allows an action on the part of the trustee that would not have been possible otherwise. Placement of trust involves putting resources in the hands of parties who will use them to their own benefit, to the trustee's benefit, or both. Deutsch (1962) defined trusting behavior as actions that increase one's vulnerability to another whose behavior is not under one's control in a specific type of situation, a situation in which the loss one suffers if the other (the trustee) abuses that vulnerability is greater than the gain one receives if the other does not abuse that vulnerability.

In a market with costless transactions, if two actors offer the same goods with promises of future delivery under the same terms but one actor is more trustworthy of future delivery under the same terms, it is clear that rational actors will trade with the more trustworthy of the two. Coleman (1990) argues that it is to the trustor's interest to create social structures in which it is to the potential trustee's interest to be trustworthy, rather than untrustworthy.

Institutional Structures As Intermediaries in Trust in Exchange Process

It is useful to distinguish three different kinds of intermediaries in trust that can be found in economic and noneconomic exchanges such as in political and social systems. These intermediaries in trust can be described as advisors, guarantors, or entrepreneurs. In the context of electronic commerce and especially from the consumers' perspective, the intermediary as guarantor is the most important one. The guarantor stands out as an intermediary in that even if he experiences a loss of resources if the final trustee violates trust (such as a vendor refuses to give refunds for defective products), but his own trustworthiness in the eyes of the trustor is not diminished (such as credit card companies will refund should a customer face fraudulent charges on his or her card). For the guarantor as intermediary, the trustor places trust in the performance capability and integrity of the intermediary (Coleman, 1990).

Financial institutions such as banks, credit card companies, etc. have largely played the role of guarantors in economic exchange. Without these and other similar social and economic institutions, most modern economies and their economic efficiencies would soon disappear and Bok (1978: 26) went even further and claimed that "when trust is destroyed, societies falter and collapse.". Hence, these institutions create and foster a kind of trust that we define as "Institutional Trust" both among

consumers and businesses alike. According to BusinessWeek (May 12 1997, pp. 151): "Many of the consumers who have resisted cyberbanking thus far are worried ... But banks are trying to assuage these fears... Wells Fargo, for example, guarantees your losses if funds vanish from your accounts." This role of banks and other financial and social institutions to assuage the fears of consumers by creating 'institutional trust' to facilitate engagement in transactions over the Internet represents the much needed foundation of "trust" in electronic economic exchange. This institutional trust is one of the fundamental requirements for electronic commerce to flourish at least in the consumer market. Hence we theorize that the development of "institutional trust" will lead to a decrease in the consumer-perceived level of risk of transactions over the Internet.

Consumer-Perceived Risk

Perception of risk is one pivotal aspect of consumer behavior because risk is often perceived to be painful in that it may produce anxiety which must be dealt with in some manner. Any consumer choice situation always involves two aspects of risk: uncertainty about outcome and uncertainty about consequences (Taylor, 1974). In the context of the social exchange theory, participants tend to maximize rewards and to minimize costs associated with the transaction. If for some reason, in a transaction if the perceived risk (potential loss of resources) are higher, consumers are likely to 'delay' the transaction until some form of institutional mechanism is in place to mitigate or reduce the associated risks or use different avenues that provide the desired level of protection (using telephone or fax to complete electronic commerce transactions).

Nonetheless, the consumers' perception of risk associated with the transaction will tend to predominate his or her decision to engage in a transaction as is the case with transactions over the Internet. In the context of Internet transactions, we define risk as a subjective expectation of loss or negative consequences in buying behavior and especially focused on the financial dimension (Peter and Ryan, 1976). Anecdotal literature points toward a substantial perceived risk felt by consumers related specifically to that of sharing credit or debit card information over the Internet.

Economic Incentive

Despite the risks involved with transactions over the Internet, we do observe a fraction of Internet users engage in economic transactions and do provide financial information (credit card information, etc.) over the World Wide Web. We theorize that these users do perceive the risk associated with electronic commerce transactions over the Web, but their perceived level of risk may be lower due to economic incentives such as lower priced goods, reduced search cost, better quality product or reliable vendor, etc.

The perceptual change may occur from loss to gain as the price differential between products advertised over the Web increases in favor of products available over the Internet. As consumers find low priced goods of comparable quality on the Internet, the difference in price of the product from a traditional shopping outlet is perceived as a gain. As this perceived gain increases coupled with factors such as convenience and low search cost (afforded by the Web), the perceived gain may be substantial so as to reduce the perceived risk of the transaction over the Internet. Vendors on the Web are sometimes able to offer low priced goods due to low start up cost, low advertising cost, low order processing cost as well as almost no inventory costs.

Hence, we propose that economic incentives that increase the potential for gain given a certain level of risk tend to reduce the perceived level of risk so that consumers tend to engage in economic transactions.

The A Priori Research Model

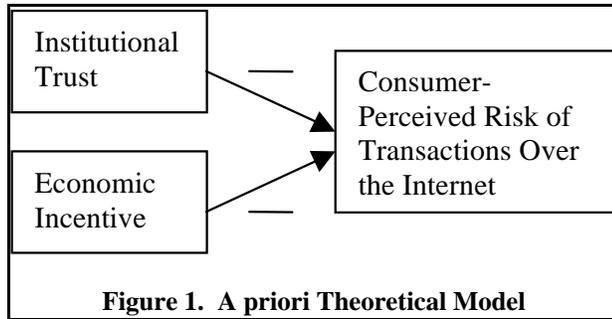
According to the anecdotal literature, consumers perceive substantial risk in terms of sharing financial information over the Internet or the World Wide Web fearing the disclosure of such information to 'untrustworthy' parties and subsequent loss of financial assets. This perceived risk among consumers translates into their reluctance to share their debit and or credit card information over the Internet resulting in their disengagement from electronic transactions.

Even though reliable encryption and authentication methods are already in place to some extent, we believe that secure 'technological' infrastructure is only a necessary but not a sufficient condition for creating the level of trust required for spontaneous electronic transactions over the Internet. What is probably required are the emergence of institutional intermediaries in trust in the exchange process specifically those of the guarantor category. The familiar 'trustworthy' institutions such as banks and other financial and social institutions are likely to be the best candidates for such a role as consumers in the larger social and economic setting have already come to recognize and trust these institutions.

It is our contention that the net effect of the role of banks and other financial and social institutions as intermediaries in trust reduces the level of perceived risk experienced by consumers. Hence, we hypothesize that the increased level of 'institutional trust' will reduce the perceived level of risk associated with electronic commerce transactions over the Internet or the World Wide Web.

Alternately, anecdotal literature reports that some consumers do engage in transactions over the Web, even though it may not be completely secure or the desired level of 'institutional trust' may not be present.. We theorize that these users do perceive the risk associated with electronic commerce transactions over the Web, but their perceived level of risk will be lowered due to economic incentives such as lower priced goods, reduced search cost, better quality product or reliable vendor, etc. Hence, we hypothesize that the economic incentive also reduces the perceived level of risk experienced by consumers in electronic transactions over the Web.

Hence, we propose the following apriori theoretical model (See Figure 1) of a consumer-perceived risk in the context of electronic commerce and the role institutional trust and economic incentive.



Sample Characteristics

The data was collected through World Wide Web surveys conducted by the Graphics, Visualization and Usability Center (GVU) and the Georgia Tech Research Center (GTRC). We thank and acknowledge GTRC and the GVU for making the survey data available. The sample consists of 3,987 unique respondents. The average age of the respondents is 36.7 years. Approximately 71.56% of the sample is male and 28.44% female. The income distribution of the people surveyed varied from \$10,000 to \$100,000 and the level of education varied from some college to doctorate and professional qualifications.

Some may argue that this data is biased in that only those who use the Web are included. Our contention is that if we are to understand the complex issues surrounding electronic commerce over the Internet then it makes every sense to survey those who use the Web and have a fair understanding of its possibilities. Hence, in our view, these people represent the population of interest. But we do agree that it would be interesting to investigate how the non-web users perceive the Web specifically how they might be induced to become participants in electronic commerce.

Research Methodology

Based on our theoretical model (See Figure 1), an apriori structural equation model representing the relationship between Institutional Trust, Economic Incentive and Consumers' Perceived Risk of Transactions over the Internet was developed. The model consisted of two exogenous latent constructs consisting of Institutional Trust and Economic Incentive and one endogenous latent construct: Consumer-Perceived Risk. The model implies that Institutional Trust and Economic Incentive are negatively related to Consumer-Perceived Risk of transactions over the Internet.

Analysis And Results

We have used structural equation modeling to test our apriori theoretical model using EQS program. The parameter estimate supports our hypotheses that both Institutional Trust and Economic Incentive reduce the Consumer-Perceived Risk of transactions over the Internet.

The path coefficient between Institutional Trust and Consumer-Perceived Risk is -0.25 (t= -13.862). This implies that increase in Institutional Trust significantly decreases Consumer-Perceived Risk of transactions over the World Wide Web.

The path coefficient between Economic Incentive and Consumer-Perceived Risk is -.26 (t = - 15.454). This indicates that increase in economic incentive significantly reduces Consumer-Perceived Risk. Both hypotheses have been supported in terms of statistical significance as well as in direction.

Discussion and Conclusion

This paper used the social exchange framework in order to understand some of the issues that are relevant to understanding the facilitation of electronic commerce over the Internet. The authors view the Internet as a complete transaction medium. This implies that consumers not only use the Internet to find product or service related information, they also engage in spontaneous transactions over the Web as is seen in the traditional marketplace. The technological infrastructure is in place to facilitate completion of transactions over the Internet where the consumer finds the relevant product, selects the relevant product of choice, transfers funds (assets) in exchange for products or goods (assets) from the vendor.

The transfer of assets and related issues are a central component of the social exchange framework. The strength of this framework is that it allows the inclusion of characteristics of the imperfect market which is not possible under the perfect market model of the economics literature. Additionally, prominent marketing and consumer behavior scholars have recognized the social exchange framework as an excellent model for understanding the mechanism of the marketing process and the behaviors of consumers in the marketplace. Hence, the use of the social exchange framework in gaining insights into the emerging market model of the Internet is appropriate.

The paper investigated the issue of consumer-perceived risk of transactions over the Internet which has been widely recognized in the anecdotal literature as a key obstacle to the full-fledged use of the Internet as a complete transaction medium. Alternate transaction completion methods and technologies such as telephone or fax are available but these alternate methods do not allow the consumers and most importantly the business firms from achieving the economic efficiency advantages that the Internet affords by automating the entire asset transfer process in transactions.

Reference

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