

Enhancing the information sharing with e-vendors: the different role of trust and incentives

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Working paper

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Abstract

The smooth functioning of e-commerce requires that consumers be willing to share critical information with companies having no local off-line retail presence. Using an experimental methodology in which we systematically vary trust and compensation for information disclosure on a Web site, we observe the actual behaviour of providing (or not) sensitive information, such as phone number and credit card numbers, to a fictional cellular phone company selling its products over the Internet. Contrary to our expectations, findings indicate that compensation policies have a marginal impact on consumers' behaviour, while trust plays a central role in affecting information disclosure.

Introduction

Internet and Web-based technologies have enabled marketers to customize their product and service offerings, and build one-to-one relationships with customers through the use of databases. Indeed, the technological evolution has enabled firms to acquire a huge quantity and variety of data from web sites visitors. For instance, in the online environment consumers are often asked to share both sensitive personal (such as mailing address and telephone number) and financial information (such as credit card number) in order to be allowed to conclude online transactions.

The ease with which the data in such databases can be acquired and disseminated across the Internet and the peculiarities of the online setting have led to growing concerns about whether consumers can safeguard their personal data and protect their privacy. On-line transactions by definition involve spatial and temporal separation between the parties. Furthermore, due the fierce competition in electronic markets, on-line consumers are inundated with a multitude of similar offerings and by conflicting marketing messages. At the same time they cannot know what the on-line retailer will do with their personal information that is collected during the e-shopping process. Therefore, Internet shopping creates uncertainty and increases risk through the delay between payment and delivery (Hee-Woong, Xu, Koh, 2004) and information asymmetry between the parties (Hee-Woong, Xu, Koh, 2004).

The objective of the study presented here is to examine the effects of trust and compensation for information disclosure on consumer privacy concerns and consumers' willingness to share information.

This study differs from previous research in some aspects which represent its main contributions. Firstly, none of prior studies on privacy has combined the factors of trust, compensation, and privacy protection in a single empirical investigation. Indeed previous literature focused on a variety of issues different from the one inquired here. Some of them include: the definitions of privacy (Sheehan 2005), dimensions of consumer concerns regarding privacy (Smith, Milberg and Burke 1996), and identification of ways in which consumers respond to requests for information (Phelps, Nowak and Ferrell 2000). Research has also individually examined the effects of Internet seals of approval (Miyazaki and Krishnamurthy 2002), trust in the organization (Grabner-Krauter 2002), and compensation for information (Sheehan and Hoy 2000) on the consumer's willingness to provide information.

A second contribution of this study is the use of a controlled experimental setting that allows the measurement of respondents' actual behavior as opposed to attitudes and perceived intentions or past behavior. Indeed, a common element to many researches on behavioral responses to privacy

invasion has been the use of surveys. Some exceptions include a series of experiments by Miyazaki and Krishnamurthy (2002) that indicate that the presence of seals of approval (e.g., TRUSTe, BBBOnline) can make consumers feel more favorable about a web site's privacy policy. The problem of a research design using surveys is twofold. On one hand, this methodology tends to heighten the concern for privacy because respondents are sensitized to the topic since forced to focus on it. On the other hand, some research suggests that many consumers ignore the implications of privacy invasion either because of denial (Raman and Pashupati 2005), or because of the manner in which choices are presented to them (Johnson, Bellman and Lohse 2002). According to this view, consumers may not be aware of the implications of sharing their information with an on-line website. The use of the experimental approach allows avoiding both the sensitizing effects and the lack of awareness of survey. We use a fictional on-line company that offers cell phone services. The manipulated variables are trust in the company and compensation offered for information. The measured outcomes are the amount of actual information provided and subjects' level of privacy concern. Details of the experiment are outlined in subsequent sections.

The remaining of the paper is structured as follows. We first provide a perspective of the literature on the impact of trust and compensation on willingness to share information. We use this literature to develop the hypotheses tested in this paper. Following this, we describe our experimental methodology and the results. Finally, implications for practitioners and direction for future research are derived.

Literature review

Privacy is a complex concept that eludes easy definition. Numerous types of privacy have been identified. These include physical privacy (defence of one's physical environment), communication privacy (protection of personal communications from interception), psychology privacy (degree and type of probing in determining thoughts and attitudes), and information privacy. In this paper, we focus on information privacy, which has been heightened in the public consciousness with the increase in businesses' collection and the dissemination of personal awareness. Information privacy has been defined as a condition of limited access to individuals (Schoeman 1992). This implies that privacy protects individuals from control by other persons or entities. However, this also suggests that the concept of on-line privacy is dynamic as the context of privacy is subject to changing environmental and personal dimensions.

Privacy invasion may take different forms including credit card theft, identity fraud and inundation with trash e-mail. A subtler form of privacy invasion is the one in which information is requested

directly to the consumer and where s/he is unsure about how this information will be used. This kind of privacy manipulation has been relatively easy to overcome in offline transactions, while is becoming more and more threatening with the development of online environment, being the provision of information a required action to conclude transactions in such setting. As a consequence, one of the key questions concerning industry, academics, and policy makers is the response of consumers to the continuous invasion of their privacy they are facing. Indeed there is a growing debate on how they protect themselves, and how they have modified their online behaviors in response to these threats and their impact on information sharing behavior. Some of the behavioural responses emerged include: falsification of information, requests to remove names from e-mail lists, curtailing use of e-mail, relying only on reputable sites, and some use of filtering software (Milne and Boza 1999; Sheehan and Hoy 2000). Cognitive and affective responses to privacy invasion include limiting or avoiding use of the Internet, accepting the risk and using behavioural means of protecting oneself, and transferring the responsibility for protection to a more knowledgeable friend or family member (Raman and Pashupati 2005).

A detailed market research has shown that the information sharing behavior of an individual is shaped by the five dimensions of privacy: awareness, compensation, usage, type of information, and relationship (Sheehan and Hoy, 2000; Sheehan 2005). Awareness is the degree to which individuals know and understand that information is being collected. In current practice, awareness is dealt with in variety of ways. Some sites use permission marketing where a notice on a Web site may request that visitors provide information. Consumers may then give their permission to have the information collected, or decline to access the site requiring the information. In such cases, the consumer is unlikely to be very concerned about privacy since prior permission has been secured (Godin 1999; Nowak and Phelps 1995). Many Internet sites state their privacy policy in which they outline the type of information collected, who has access to the information, how the information is being used, and recourses the customer has for violation of privacy. All privacy policies do not contain all these elements. Consumers' privacy concerns are likely to increase as they become aware that marketers have obtained information about them without their awareness (Cespedes and Smith 1993).

Compensation is a factor that can work as an automatic announcement to users that information is being collected (Sheehan and Hoy, 2000). Furthermore, researched find that it eliminates some consumer privacy concerns up front (Milne and Gordon 1993). Due its relevance to our framework, this construct will be deeply investigated in a subsequent section.

Information usage (i.e., how marketers use consumer information) is another factor that has been addressed in privacy research (e.g. Foxman and Kilcoyne 1993; Godin 1999; Nowak and Phelps

1995). Increasingly, consumers feel a lack of control over how their personal information is used by companies (Equifax-Harris 1996). Internet users have indicated that they would be most willing to consider providing information when they are told how their information is going to be used (Kehoe et al. 1999).

Information sensitivity and has been defined as ‘the level of privacy concern an individual feels for a type of data in a specific situation’ (Weible 1993, p. 30). Previous studies reveal that some people view sensitive information as any information that, if released or shared, could cause harm to the subject of the information (Gandy, 1993). However, to differentiate between what is really harm and what is simply annoyance could be very difficult (Gandy, 1993) for people. This because there is variability in the range of information marketers collect and use in terms of offensiveness and threat to consumer privacy (Nowak and Phelps 1995). Although a consensus about what differentiates information that is sensitive from that which is not, has not yet be reached (Hill 1995), some guidelines are appears in literature (Sheehan and Hoy, 2000). Indeed according to Wacks (1989), information sensitivity can be seen in terms of the value of each piece of information and the ability to link the information to other pieces of information. Actually, consumers seem to be less concerned about the collection and usage of information regarding their product purchases and media habits and more concerned about the collection and usage of personal data such as medical records, social security numbers, and financial information (Cranor, Reagle, and Ackerman 1999; Nowak and Phelps 1992; Vidmar and Flaherty 1985). Finally sensitivity appears to be contextual; that is, what is considered sensitive differs by person and by situation (Cranor, Reagle, and Ackerman 1999; Jones 1991; Milne 1997; Weible 1993).

Closely related to people's willingness to disclose sensitive information is the degree to which they are familiar with the data-gathering entity (Vidmar and Flaherty 1985, Sheehan and Hoy, 2000). Studies show that people are more likely to look at and respond to mail sent by businesses they know and with whom they have done business (Rogers, 1996).

In the two following sections we will focus on the two factors we identified as the ones having the most relevant impact on information disclosure: trust and compensation.

Trust in the Relationship

Research indicates that individuals’ familiarity with entities (such as a Web site) collecting information will influence privacy concern and willingness to share information (Sheehan 2005). Individuals interacting with Web sites they know and are familiar with tend to be less concerned about privacy. Their familiarity also gives them a chance to see how their information is being used or misused, as the case may be. Critical to the definition of online relationship and information

exchange is the element of trust, that can be seen as a shortcut which can serve as a mechanism to reduce the complexity of human conduct in situations where people have to cope with uncertainty (Luhmann, 1989). Actually, lack of trust has been identified as one of the greatest barriers inhibiting Internet transactions (Hoffman, Novak and Peralta, 1999). Looking at the opposite side of the coin, trust in the firm has been found to increase consumers' willingness to disclose information (Grabner-Krauter 2002).

Coming back to privacy concern and information disclosure, since the marketer has access to consumers' personal information, there is an inherent risk that the information may be misused or shared inappropriately. However, if the consumer trusts the entity collecting information, privacy concerns are likely to be lessened (Milne and Boza 1999). Indeed, it has also been found that trust maximizes the willingness to disclose information (Grabner-Krauter 2002). Therefore our first hypothesis is the following:

H₁: Subjects will provide more information under conditions of high trust than in conditions of low trust.

Much of prior research on trust and privacy concerns has not defined neither the type nor quantity of personal information requested (Schoenbachler and Gordon 2002). By measuring actual behaviour, we are trying to overcome this limitation.

Compensation

As we have already seen, compensating the user can change a clandestine approach to information collection to a declared one (Sheehan and Hoy, 2000). Furthermore, compensation indicates an exchange of benefits from the information providing situation (Sheehan and Hoy, 2000). Indeed, Westin (1997) states that people often consider the nature of the benefit being offered in exchange for information when deciding whether an activity violates their personal privacy. This because interactivity involves exchange, and consumers often weigh the benefits of the exchange when sharing information with firms. This benefit could have a specific financial value (such as a cash payment, product, or service), and in some cases, the value could be information based (such as access to information that is of interest). Receiving some form of compensation also supports Milne and Gordon's (1993) position that some people are willing to give up a degree of privacy to obtain products and services they want. This because, as Sheehan and Hoy (2000) point out, consumers may not mind receiving unsolicited marketing communications about products and services in

which they are interested, even if some of their personal information is used to identify them as prospects.

Finally, the strategy of compensating consumers in exchange for divulging personal attitudes or behaviors is well documented in the survey methodology literature as a means of increasing response rates (e.g., Barker 1989; Chebat and Cohen 1993).

Hence, on-line consumers' willingness to concede a certain amount of privacy could also be increased by providing them with some sort of compensation which can take several forms, monetary or non-monetary. Empirical evidence shows that consumers receiving tangible benefits such as discounts, access to web sites, future savings, and rewards may be lesser concerned with privacy because they feel an equal exchange has been established (Goodwin 1991). As in the case of trust we expect that that the quantity of information will be highest when there is compensation, our second hypothesis being the following:

H2: Subjects will provide more information when compensation is offered than when no compensation is offered.

In our experiment we considered two types of compensation (monetary or gift) to verify whether the reward typology can have an impact on consumers' behaviour.

Furthermore, we identify trust as a moderating variable affecting the relationship between compensation and information disclosure. In particular, we suggest that by offering compensation or incentives, in addition to high trust, individuals will be more inclined to part with information online:

H3: In the high trust condition, subjects will provide more information when offered compensation than when offered no compensation. In comparison, the impact of compensation will be less in the low trust condition.

In the next section, we describe the details of the experiment, and the measures used.

Methodology

The objective of this experiment is to provide a direct test of the impact of trust and compensation on the information disclosure. Subjects were recruited under the pretext of participating in market research for a UK company that was considering expanding its cell phone services to Italy. In line with such a company target, respondents were undergraduate students. They were recruited through

a professor who posed as a university representative coordinating the company's efforts. Another confederate posed as the Vice President of Marketing for the fictitious cellular phone company and ran the experiments.

Design

The experiment was a 2 x 3 design with trust (high vs. low) and compensation (no compensation, 500 Euro cash lottery or 500 Euro Phone lottery) as the between-subjects factors that were randomly assigned. One hundred and twenty-five students from our university were recruited from marketing and retailing sections. Students received a symbolic gift for their participation. The experiments were conducted on-campus in a controlled laboratory setting, and the experiment lasted approximately 45 minutes. Subjects were randomly assigned to one of the six conditions, with each group counting at least 18 respondents.

Stimuli and Procedure

Participants were told that they would be asked to evaluate the offering of a foreign company providing cell phone services and that was about to enter the national market. After the fictional Vice Presidents introduced and the company's objectives discussed, subjects were first exposed to the fictional company with two short articles purportedly published in the Wall Street Journal. To encourage reading of the materials, students were instructed that they may useful for "educational purposes." These articles were aimed at manipulating the trust level in the company. In the high trust condition, the company was described as delivering the "best ever network performance," having the highest JD Power customer satisfaction rating and the highest mobile connection success rate; in addition, the company was described as being upgraded by Standard & Poor's Ratings Services with a 'stable outlook'. In contrast, in the in low trust condition the company was described as delivering inadequate customer service, having the lowest JD Power customer satisfaction rating, having stagnating sales growth; in addition, the company was described as being downgraded by Standard & Poor's Ratings Services.

To further the cover of conducting marketing, after reading the trust manipulation subjects answered a questionnaire about their cellular usage, ownership, involvement, and attitudes. Subjects were then instructed to visit and thoroughly view a beta-test website for the fictional company which was designed to contain online features one might expect in a cellular services company (e.g., containing pages devoted to plans, services, models, accessories, etc.). At the end of their visit they were required to register with the firm's website in order to receive the firm newsletter. At the beginning of the registration form the compensation manipulation occurred, with different groups of

subjects receiving one of the three different compensation manipulations. The measured outcomes are subjects' level of privacy concern and the amount of actual information they provided. Unknown to the subjects, there were four different URLs provided to the subjects, each reflecting one of the privacy protection or compensation conditions. After subjects had thoroughly viewed the pages at the site, they were instructed to proceed to checkout and provide information in the event the company might want to contact them. To access the site, participants were required to enter a password that had been provided by the experimenter. The checkout page requested six personally identifying information items from subjects. At this moment the compensation manipulation occurred. In one compensation condition, subjects were offered the chance to participate in a lottery to win 500 Euro if they provided information. In the other compensation condition, they were offered the chance to participate in a lottery to win a Phone of the value of 500 Euro if they provided information. Finally the no compensation condition contained no mention of a compensation. The information provided by subjects was registered and matched back to the hardcopy surveys with coding embedded in the surveys and the corresponding password that was required to use for entering the website.

Measures

Dependent Variable

The dependent variable information disclosure was measured as a synthesis of the number of information provided by subjects and the matching of the latter with his/her own data. The number of information provided is the sum of the number of identifying information items (name, address, phone, email, SSN, and credit card) provided by each subject. A dummy variable matching has been created to identify whether the information provided corresponds to the real one. The sum of the number of matching information is the match variable. Information disclosure is the mean between the two variables. The higher is the mean, than the higher the disclosure.

Covariate

Previous research suggests that the level of an individual's privacy concern influences their willingness to share information (Phelps, Nowak and Ferrell 2000; Sheehan and Hoy 2000). As a result, level of privacy concern was treated as a within subjects factor and was used as a covariate in this analysis. Privacy concern was measured using an eleven-item index with each item comprising a seven-point (1 = strongly disagree, 7 = strongly agree) scale. The index was adapted¹ from the

¹ Every scale used in the questionnaire has been translated in Italian and back translate in English by two different persons to check the validity of the translation.

Concern for Information Privacy (CFIP) Instrument (Smith, Milberg and Burke 1996). The eleven items are shown in *Table 1*. The items were factorized to create a single measure of privacy concern where high scores indicate a higher level of privacy concern (Cronbach alpha = 0.859).

Insert Table 1 about here.

We introduced two other covariates we believed could have an impact on the results: the behaviour toward online shopping and the commitment toward mobile phone services. *Table 2* shows the scales used to measure these variables. Also in this case the item were factorized resulting in a single measure for each variable with an alpha = 0.727 for behaviour toward online shopping and alpha = 0.814 for commitment.

Insert Table 2 about here.

Manipulation Check

A one-tailed t-test was used to assess the trust manipulation. Subjects rated their agreement using a seven-point item scale (1 = strongly disagree, 7 = strongly agree) illustrated in *Table 3*. The mean was higher for the high trust condition than the low trust condition (4.29 vs. 3.47, $p < 0.01$).

Insert Table 3 about here.

Assumptions

Several tests were conducted to ensure that statistical assumptions associated with ANOVA and ANCOVA were met. Levene's test of equality of error variance was not rejected, suggesting that the error variance of the dependent variable is equal across the six conditions.

In addition, tests were conducted to ensure that there was not an interaction effect between the covariate and each of the three factors, which indicated that the assumption of homogeneity of regression coefficients had not been violated.

Results

An univariate GLM was conducted using trust (high/low) and compensation (no compensation, 500 Euro cash lottery or 500 Euro Phone lottery) as independent variables. Privacy concern, behaviour toward online shopping and commitment toward mobile phone services were used as a covariate, and information provided was used as the dependent variables. The only significant covariate

emerged to be the behaviour toward online shopping. We therefore run again the analysis with just one covariate. *Table 4* shows the means of the dependent variable for each of the six conditions. *Table 5* shows the GLM results.

Insert Table 4 about here.

Insert Table 5 about here.

The results show that only one of the two predicted main effects was significant. Indeed, only H₁ was confirmed, while H₂ was rejected. Also H₃ was rejected; trust emerged as the only variable influencing the level of information disclosure, as can be inferred also by looking at *Figure 1*

Insert Figure 1 about here.

Discussion

The results of our experiments clearly show that trust is the key driving element of information providing in an online context. This is consistent with studies on e-trust which identified the construct as the factor enabling online transactions (Hoffman, Novak and Peralta, 1999) and increasing consumers' willingness to disclose information (Grabner-Krauter 2002).

Surprisingly compensation had no significant impact on consumers' information disclosure. This appears as an important result for practitioners. Indeed, while many online operators are investing their resources in creating more and more innovative compensation systems in order to increase their relationship with Web sites visitors, this strategy beyond being costly could also be useless. Firms' effort should be directed toward enhancing consumers' trust, hence on leveraging e-trust antecedents such as: perceived reputation (Jarvenpaa et al. 2000; Yoon 2002; Pavlou 2003; Hee-Woong, Xu and Cho. 2004; Koufaris and Hampton-Sosa 2004), navigation and user-friendliness (Koufaris and Hampton-Sosa 2004; Newholm et al. 2004; Bart et al. 2005), error-freeness (Newholm et al. 2004; Bart et al. 2005), site design (Shneiderman 2000), presence of a virtual advisor (Urban et al. 2000, Hee-Woong et al. 2004, Bart et al. 2005) and of a community (Smith et al. 2000, Luo 2002, Newholm et al. 2004)

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Appendix

Table 1: Privacy Concern Measure

Dimension	Items
<i>Collection</i>	<ul style="list-style-type: none"> ▪ When companies ask me for personal information, I sometimes think twice before providing it. ▪ It bothers me to give personal information to so many companies. ▪ I am concerned that companies are collecting too much personal information about me.
<i>Access</i>	<ul style="list-style-type: none"> ▪ Companies should devote more time and effort to preventing unauthorized access to personal information. ▪ Companies should take more steps to make sure that unauthorized people cannot access personal information in their computers.
<i>Commitment toward mobile phone services</i>	<ul style="list-style-type: none"> ▪ Companies should take more steps to make sure that the personal information in their files is accurate. ▪ Companies should have better procedures to correct errors in personal information. ▪ Companies should devote more time and effort to verifying the accuracy of the personal information in their databases.
<i>Use</i>	<ul style="list-style-type: none"> ▪ When people give personal information to a company for some reason, the company should never use the information for any other purpose. ▪ Companies should never sell the personal information in their computer databases to other companies. ▪ Companies should never share personal information with other companies unless it has been authorized by the individuals who provided the information.

Table 2: Other covariates measure

Variable	Items
<i>Behavior toward online shopping</i>	<p>Please indicate your agreement with the following statements about online shopping (1=strongly disagree, 7 strongly agree). Online shopping...</p> <ul style="list-style-type: none"> ▪ ...results in lower prices for the consumer ▪ ... is convenient for the consumer ▪ ... stimulates the development of new products & services ▪ ... helps save the consumer time ▪ ... allows for comparative shopping ▪ ... is a fun way to shop ▪ ... is hassle free ▪ ... provides wider selection
<i>Commitment toward mobile phone services</i>	<p>Please, indicate your feelings about cell phone service:</p> <ul style="list-style-type: none"> ▪ Important to me 1 2 3 4 5 6 7 non important to me ▪ Of no concern to me 1 2 3 4 5 6 7 of concern to me ▪ Irrelevant 1 2 3 4 5 6 7 relevant ▪ Very meaningful to me 1 2 3 4 5 6 7 means nothing to me ▪ Matters to me 1 2 3 4 5 6 7 doesn't matter ▪ Interesting 1 2 3 4 5 6 7 not interesting ▪ Significant 1 2 3 4 5 6 7 insignificant ▪ Boring 1 2 3 4 5 6 7 am concerned that companies are collecting too much personal information about me.

Table 3: Trust measure

Trust Items (Alpha = 0.892)
<p>Based on what you have read, how strongly do you agree or disagree with the following?</p> <ul style="list-style-type: none"> ▪ I feel I can trust the Azimuth company ▪ The Azimuth company makes truthful claims ▪ The Azimuth company is honest ▪ I do not believe what the Azimuth company tells me ▪ I can rely on Azimuth ▪ The Azimuth brand is safe ▪ I will feel secure when I buy from Azimuth because I know it will never let me down ▪ Azimuth can not be counted on to do its job

Table 4: Means of Information Provided by Condition

CONDITION	no compensation	500 Euro Cash	500 Euro Phone	Tot.
Trust - high	2.05 (n=20)	2.25 (n=20)	2.28 (n=18)	2.19 (n=58)
Trust-low	1.57 (n=23)	1.26 (n=23)	2.07 (n=21)	1.49 (n=67)
Tot.	1.79 (n=43)	1.72 (n=43)	1.95 (n=39)	1.82 (n=125)

Table 5: GLM results

Source	df	Mean Square	F-value	P-value
Trust (T)	1	10.808	7.630	0.007
Compensation (C)	2	0.277	0.196	0.823
T X C	2	0.801	0.565	0.570
Error	118	1.417		

Figure 1: Effect of Privacy Protection and Compensation on Information Provided

