Volunteering Personal Information on the Internet: Effects of Reputation, Privacy Initiatives, and Reward on Online Consumer Behavior

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Abstract

Internet has made it easier for firms to collect consumer information. However, consumers are reluctant to provide personal information or tend to provide false information online because of their concern of the privacy violation risks. Researchers have proposed several instruments to assuage consumers' privacy concern, and to induce them to provide personal information. However, the effectiveness and applicability of these instruments regarding firm's reputation have yet been sufficiently assessed. This study employed a 2*2*2 experimental design to examine the effects of reputation, fair information practices, and reward on the online consumer behavior of volunteering two types of personal information - demographic and personal identifiable information - on the Internet. Theoretical and practical Implications of findings were drawn.

1. Introduction

Accurate consumer personal information is one of the most strategic assets to a firm. Without accurate consumer personal information, firms cannot effectively perform direct marketing, customerrelationship management, and strategic production of goods and services [15, 19]. While the use of Internet has made it easier for firms to collect consumer information, many firms, especially new start-ups with relatively little or no reputation, continue to experience significant difficulty in collecting consumer information. Indeed, even if the firms had managed to collect consumer information, they are unclear as to whether the information collected is accurate and reliable enough for them to make use of for strategic purposes [12].

Consumers' unwillingness to provide information or the tendency to provide false information could stem from their concerns about their privacy being violated [22], and their resentment that firms only use the information to create value for themselves without providing satisfactory benefits in return [13]. Privacy concerns may be especially salient for consumers when they interact with new start-ups with little or no reputation because these start-ups may operate on a fly-by-night basis, and sell the collected information when they experience financial difficulties.

To assuage consumers' privacy concerns and to induce them to provide their personal information, several researchers and privacy advocates have proposed that firms adopt initiatives such as privacy statements, privacy seals from third-parties, and Platform for Privacy Protection (P3P) that are consistent with fair information practices (FIP)[3]. Yet, there are others who suggest that firms should offer direct and immediate rewards in the form of discounts, coupons, and/or bonus points to encourage consumers to register and provide personal information besides providing privacy mechanisms. However, findings concerning the relative effectiveness of these instruments to address consumers' privacy concerns and resentment sufficiently enough to induce them to provide accurate personal information are inconsistent and debatable. Moreover, the extent to which these findings are applicable for reputable and non-reputable firms has never been empirically examined.

This study hence draws on the utility and social exchange theories to examine the effects of reputation, FIP, and reward on the online consumer behavior of volunteering personal information on the Internet. In particular, we employed a 2*2*2 experimental design to investigate how these variables affect online consumer behavior in volunteering two types of personal information: demographic and personal identifiable information.

Our study has several implications. First, it contributes to social exchange theories by demonstrating its applicability in a business-toconsumer relationship. Second, our findings could allow both reputable and non-reputable firms to assess the relative effectiveness of FIP and reward in inducing consumers to volunteer personal information, and hence make the necessary investments in these instruments.

2. Theoretical Perspectives and Hypotheses

2.1. Utility-based Perspective of Information Provision

Utility theory-based studies suggest consumers may relinquish some privacy in return of one-time rewards in the form of tangible payments. In several studies [28], tangible rewards, such as discounts coupons and bonus points were identified as one of the main reasons for consumers to answer data collection questions and to engage their services. This utility perspective was named as the "privacy calculus" in some privacy studies, which states that individuals perform assessment of the cost and benefit of contemplated behavior (e.g., providing accurate information). Utility theory posits that people maximize their total utility in making choices, and they are willing to disclose personal information in exchange for some economic or social benefit subject to the "privacy calculus" [22, 5] In line with these studies, we hypothesize that providing reward should increase the consumer's utility, which would in turn motivate them to provide accurate information online. Hence, we hypothesize:

H1: Reward is positively related to the online user's provision of accurate personal information.

2.2. Social Exchange Perspective of Information Provision

In social exchange theories, the past, present, and future interactions between the individual parties are hypothesized to be taken into account when the parties assess and forecast the benefits / costs balance of the involvement in a social relationship. The initiation and the sustenance of the social exchange are likely to occur only if the perceived overall benefits / costs balance is favorable. Because the interactions between the consumer and the online firms can be regarded as a social exchange process in which both sides try to develop a long-term trusting and beneficial relationships, social exchange theory provides a good context to examine the consumer behavior of volunteering personal information on the Internet. From the consumer perspective, privacy initiatives that address the long-term relationship building between the individuals and the firms also help to signal the commitment of the firms in protecting consumer privacy and lower the consumers' costs of providing information in a long run (e.g., frequent violations of privacy). Fair information practices are global rules for a self-regulatory regime. It is assumed that by exercising these practices, companies can derive value from consumers' information without hampering their privacy. Firms that follow FIP would be unlikely to violate the individuals' privacy for fear of negative legal consequences or sanctions by third-party authentication services like TRUSTe. Hence, FIP help engender consumers' trust to firms observing such procedural practices. In light of this, we believe that FIP would have a positive effect on individuals' information provision. Some theoretical and empirical studies have found FIP useful in alleviating consumers' privacy concerns [4, 22,18]. Hence, we hypothesize that:

H2: Fair Information Practices (FIP) adoption is positively related to the online user's provision of accurate personal information.

2.3. Reputational Perspective of Information Provision

In the marketing literature, reputation is defined as the extent to which firms and people in the industry believe a firm is honest to and concerned about its customers [6]. Reputation has been found to be the key factor for engendering trust in firms among consumers by researchers from the marketing discipline [6], the electronic commerce areas [17], and the economics discipline [27]. Mitchell and Vincent-Wayne (1999) suggest that reputation is an element of trust because it affects cognitive perceptions of quality. Moorman et al. (1992) make comparable comments regarding reputation as an indicator of reliability. Wilson (1995) in particular argues that "reputation for performance becomes a measure of trust when the partner is an untested commodity" Trust is believed to be one major issue in information provision in the traditional exchange, and it is more important in electronic commerce due to the lean nature of electronic environment relative to the traditional face-to-face market [4, 11, 22]. A high level of trust is needed to develop a transactional relationship online.

Because a firm's reputation is a strategic asset, takes time to build and requires significant investment, it is unlikely that a reputable firm will jeopardize its reputation by behaving opportunistically. Hence, from this standpoint, a good reputation serves as a means to reduce uncertainty and generate a feeling of trust among consumers to engage in the transaction. Empirical evidence supported the link between reputation and transactional activities in the field of industrial channel dyads [10] and in the electronic commerce environment [1]. Based on these observations, we hypothesize that:

H3: Reputation is positively related to online user's provision of accurate personal information.

In the absence of a good reputation, firms would normally employ other strategies to entice consumers to engage in transactional activities with them. In the electronic commerce world, several online firms have used the lure of rewards and the security of FIP to attract consumers to provide information online. To the extent that these instruments are effective, we believe that they should have a more significant effect on online information provision by consumers for nonreputable firms than for reputable firms. As noted above, a high reputation could engender trust in consumers about its services and practices with less need to invest in other instruments. Hence, we hypothesize that:

H3a: The effects of reward on online users' provision of accurate personal information are stronger for firms with low reputation than high reputation.

H3b: The effects of FIP on online users' provision of accurate personal information are stronger for firms with low reputation than high reputation.

3. Method

A 2*2*2 factorial design was used in the experiment to test the hypotheses. Table 1 depicts the eight treatment combinations as well as the number of cases of each combination collected from the experiment.

Table 1. Experiment Design

Treatr	nent	FIP	No FIP
High	Reward	20	17
Reputation No Reward		20	17
Low	Reward	17	20
Reputation	No Reward	18	18

3.1. Operationalization of Variables

The independent variables were operationalized using the vignette technique, which use short scenarios in written or pictorial form to elicit perceptions, opinions, beliefs, and attitude to typical situations [16]. Vignettes are particularly useful for eliciting actions or intentions for different situational contexts, clarifying individual judgment, especially in relation to moral dilemmas, and discussing sensitive experiences in comparison to the "norms" of the day [8]. With the use of vignettes, respondents can easily express their own perceptions on topics very familiar to them, but remain detached from them and safe from personal threat. The advantage that follows the use of this technique is that the respondents do not have to bias their responses, and give socially approved answers, since they do not perceive any danger of devaluing their personal image by giving sincere answers. In our study, we hope to elicit the online consumers' sensitive attitudes toward providing accurate information when confronted with a need to provide information before they could use the services of the online store. As improperly written or designed vignettes may allow subjects to guess the experiment intention, we took special care to write and test the vignettes in a pilot study involving twenty students before conducting our actual study. All but one was unable to guess our hypotheses correctly.

Table 2. Operationalization of Independent Variables

Reputation	Company Information on the Internet-based Experiment System
High	Established for over 50 years Publicly listed conglomerate of 200 shopping malls Dedicated to customer satisfaction
Low	Established for about 5 years Web site only delivers to one country No mention of customer satisfaction
Privacy Initiative	Company Information on the Internet-based Experiment System
Present	Secure connection to server Presence of a Privacy Policy TRUSTe certification
Absent	No secure connection to server No Privacy Policy No TRUSTe certification
Reward	Company Information on the Internet-based Experiment System
Present	\$20 gift voucher offered
Absent	No gift voucher offered

Table 2 presents the operationalization of the independent variables in a concise fashion. Each treatment was illustrated by a separate vignette presented via an Internet-based system developed using Active Server Pages (ASP). For the high reputation, reward, and FIP treatment, the Internet-based system presented to subjects a vignette that describes a firm with the following characteristics: The firm has been established for over 50 years, is a

publicly listed conglomerate of 200 shopping malls, and dedicated to customer satisfaction (high reputation); the firm has implemented a secure connection, has a privacy statement, and has a thirdparty authentication of its privacy statement by TRUSTe; and the firm offers a \$20 gift voucher for consumers who agree to provide accurate information.

After reading the vignette information, the subjects were asked to indicate whether they were willing to provide accurate information or not to a set of information items categorized by demographic and personal identifiable types (see appendix). The items were categorized based on categories used in the Federal Trade Commission (1998)survev: demographic information (e.g., hobbies) and personal identifiable information (e.g., social security number). The dependent variables of accurate information provision for demographic information and personal identifiable categories were then derived by computing the ratio of the number of items that the subject was willing to provide accurate information to the total number of items that were asked of the subjects in the respective category. To elaborate, the first dependent variable was computed as the ratio of the number of items the subject was willing to provide accurate information to the total number of demographic information items that were asked of the subjects. The second dependent variable was similarly computed.

The ASP used in our Internet-based system allows program logic and scripting logic to be included in standard HTML pages, and these capabilities allow us to generate the vignettes randomly to arriving subjects, ensure that each subject had viewed the treatment conditions before they are allowed to proceed, and ensure that the subjects had answered all the questions before leaving the experiment. These features allow us to be certain that the subjects had read the vignette completely before they gave their responses to those questions asking whether they would provide accurate information or not.

3.2. Subjects

The subjects were recruited from a customer database of a professional special interest website (miexchange.com) in Singapore. An electronic mail, containing our purpose of the study, was sent to 400 potential subjects to invite them to participate in our experiment. If the subjects were between the age of 13 and 40, and of Singaporean nationality, they were informed of their eligibility and given our Internetbased system website address, instructions, and password to access our system. Subjects were also told that they would be awarded a \$15 in compensation for their time and effort in participating in the study. Subjects in this range are more likely to be able to comprehend our instructions and also fulfill the profile of an average Internet user in the country. A total of 147 subjects were chosen. Our Internet-based system generated the firm vignette information randomly so that each respondent has an equal and independent chance of being put into any of the eight scenarios. Upon completion of the survey questions, a \$15 dollar cashier order was later sent to the addresses provided by the subject.

3.3. Experiment Procedure

After logging into our Internet-based system, the eligible subjects were asked to read the instructions carefully, and to read the descriptions in the vignette carefully. The Internet-based experiment system would log the activities of the subject on the website. For example, if the subjects had not read the privacy statement, the subject would not be able to complete the questionnaire. After having reading all the descriptions in the vignette, the subjects were then asked to indicate their decision to provide accurate information for every piece of information item that the users are supposed to provide online. The subjects were also asked to indicate how sensitive they perceive each piece of information item to be.

4. Results

4.1. Manipulation Checks

Several questions were asked in the questionnaire for the purpose of manipulation checks. Results show that all the treatments were manipulated correctly. Subjects in high reputation treatment perceive their firms to be more reliable, more trustworthy, and more financially sound than the subjects in low reputation treatment do (t-statistic = 11.034). Subjects in high reward treatment found their firms' incentive of soliciting information to be higher than for subjects in no reward treatment do (t-statistic = 6.596). Similarly, subjects in FIP treatment believe that their firms are less likely to violate their privacy and could protect their data better than the subjects (scale reversed) in no FIP treatment do (t-statistic = -5.419). A significant difference was also detected for demographic information and personal identifiable information in terms of information sensitivity, thus validating our categorization of the information (t-statistic = 16.754).

4.2. Multi-Linear Regression Model

Multi-linear regression was performed on both demographic information sample and personal identifiable information sample. A 5% significance level was used for all statistical tests. The regression model is as follows:

 $\begin{aligned} Action = \beta_0 + \beta_1 Rew + \beta_2 FIP + \beta_3 Rep + \\ \beta_4 Rep * Rew + \beta_5 Rep * FIP \end{aligned}$

Action is the subjects' overall choice in providing accurate personal information to the questions that were asked of them. *Rew*, *FIP* and *Rep* are monetary reward, fair information practices and reputation respectively. All three are categorical variables. *Rew* equals to one if the firm offers reward in exchange of personal information, and zero otherwise. Likewise, *FIP* equals to one if the firm observe FIP and zero otherwise. *Rep* equals to one if the firm has a high reputation, and zero otherwise.

Tables 3.1 and 3.2 show the descriptive statistics of *Action* in different treatment cells. In both the demographic information sample and the personal identifiable information sample, on average, the proportion of questions that elicited accurate information provision is higher when reward, or reputation, or fair information practices is present. The difference between *Action* in treatment cells with and without the three conditions is more evident when subjects were requested to provide personal identifiable information.

Table 3.1 Descriptive Statistics for Demographic Information Sample

Treatment		FIP		No FIP			
			Mean	Std. Dev		Mean	Std. Dev
	Reward	Action	0.8770	0.0910	Action	0.6905	0.2272
High Reputation	No Reward	Action	0.9370	0.0709	Action	0.7976	0.1593
	Reward	Action	0.8496	0.1812	Action	0.6325	0.1954
Low Reputation	No Reward	Action	0.8884	0.0824	Action	0.7643	0.1884

Table 3.2 Descriptive Statistics for Personal Identifiable Information Sample

Treatm	Treatment		FIP			No FIP		
			Mean	Std. Dev		Mean	Std. Dev	
	Reward	Action	0.6364	0.1208	Action	0.4697	0.0643	
High Reputation	No Reward	Action	0.6952	0.1361	Action	0.2888	0.2278	
	Reward	Action	0.4091	0.1782	Action	0.3262	0.1930	
Low Reputation	No Reward	Action	0.3102	0.2251	Action	0.0496	0.0475	

The regression estimation results were presented in Table 4, and the hypotheses test results were summarized in Table 5. The overall regression model was statistically significant for the two samples. The independent variables account for a sizeable 46.30% and 37.40% of the variance in accurate personal information provision in personal identifiable information sample and demographic information sample respectively. An assessment of the variance inflation factor values for all independent variables showed that none of the values was greater than 3. No support for the existence of multi-collinearity was found.

Table 4 Estimation Results for Personal Identifiable Information Sample and Demographic Information Sample

Dependent Variable	Action of Persona Identifiab Informatio Question	l le on	Action On Demographic Information Questions		
Independent	Question	0			
Variable	Coef	T-Value	Coef	T-Value	
Monetary Reward	0.181**	4.11	-0.057	-1.45	
Fair Information Practice	0.128**	2.90	0.228**	6.55	
Reputation	0.190**	3.41	0.117**	2.75	
Reputation*Re ward	-0.136**	- 2.55	0.014	0.28	
Reputation*FIP	Reputation*FIP 0.158**		-0.066	-1.36	
R-square	46.30%		37.40%		

**: Significant at 5%-level

Table 5. Summary of Hypotheses Tests Results

Sample Hypothesis	Personal Identifiable Information	Demographic Information
H1: Reward->Action	Supported	Not Supported
H2:FIP->Action	Supported	Supported
H3:Reputation ->Action	Supported	Supported
H3a: Reputation*Reward ->Action	Supported	Not Supported
H3b: Reputation*FIP ->Action	Not Supported	Not Supported

When personal identifiable information were requested, the offer of reward, adoption of FIP and firm's reputation all significantly affect consumer's decision to provide accurate personal information in the positive direction. For the questions on demographic information, the offer of reward and the reputation of the company do not exert any significant effect on consumer's accurate information provision, while the effects of FIP adoption on information provision is significant.

As expected, reputation has a negative moderating influence on the effects of reward on accurate information provision for personal identifiable information, and has no moderating effects on demographic information provision. In the case of personal identifiable information, the effect of rewards on accurate information provision was stronger for low reputation firms than for high reputation firms. Interestingly, contrary to our hypothesis, reputation has a positive moderating influence on the effects of FIP on accurate personal identifiable information provision. FIP in our sample has a greater positive impact on accurate personal identifiable information provision for high reputable firms than it does for low reputable firms.

5. Discussions, Implications, and Limitations

This study seeks to examine the factors affecting the consumer behavior of providing personal information online from the utility, social exchange and reputational perspectives. Findings from our experiment reveal that reward, fair information practices, and reputation greatly influence consumers' intention to provide accurate personal information over Internet, and such effects vary according to the sensitivity of the requested information.

Reward, in the form of a monetary voucher, was found to have a positive impact on online consumers' decision to provide accurate personal information for personal identifiable data but not for demographic data. In line with utility-based studies, it appears that consumers were willing to risk privacy invasion in revealing their personal identifiable information in exchange of tangible rewards. For demographic information, the ratio of accurate information the subject was willing to provide in relation to the total number of questions is quite high (ranges from 0.76 to 0.94) in treatment cells with no reward in our experiment. One plausible explanation is that since the demographic information is not specific to an individual, possession of such general personal information by firms does not equip them with the ability to trace or contact the individual, and thus the risk of privacy invasion is quite low. Hence, online consumers might not resent providing such information, even without reward, in exchange of better services. This finding suggests that online stores should only offer monetary rewards when they intend to solicit personal identifiable information.

FIP significantly boosts consumers' decision to provide accurate responses for both demographic information and personal identifiable information. Consistent with other studies (e.g., Milne and Gordon 1993, Joseph and Glen 2000), it appears that adoption of FIP is a basic pre-requisite for firms interested in soliciting information from their online consumers. Regardless of the sensitivity of information, FIP is instrumental to the solicitation of accurate information from the online consumers.

Our study also revealed a highly positive relationship between the reputation of a company and the online consumers' decision to reveal their accurate personal information. This finding is in line with several empirical studies, such as Cheskin Research's 1999 ecommerce Trust Study, which reported that "The most trusted web brands are well-known brands and the least trusted sites aren't well-known" and Gary and Cheryl's 1998 study on privacy of financial information in cyberspace, which states that "It's the messenger, not necessarily the message, that people trust". To be effective in the electronic marketplace in general, and information solicitation in particular, an online firm should judiciously build and guard its reputation over time through consistent honest behavior or affiliation with more established firms. Again, our study shows that online consumers are willing to provide accurate demographic information regardless of the reputation of the online firm.

Our findings on the moderating influence of reputation on the effects of reward and FIP on accurate information provision are interesting and counterintuitive. As expected, reward plays a more important role for low reputable firms than high reputable firms when soliciting accurate personal identifiable information. This finding suggests that new online firms that have no reputation should offer some monetary incentives to induce or attract online consumers to provide some accurate information about them.

Interestingly, FIP plays a more significant role for high reputable firms than for low reputable firms when soliciting accurate personal identifiable information. This counter-intuitive finding could be attributed to consumers' awareness of privacy violations by online reputable firms such as Microsoft [21], Doubleclick.com [25], and Yahoo.com [14], all of which attracted extensive media coverage. Online consumers may also believe that highly reputable firms might have more capabilities to track and analyze their online behavior compared to low reputable firms. This finding suggests that reputable firms should not be complacent and should do more to assure online consumers that their information would not be misused and abused.

While our study makes use of real Internet users, care and caution should still be exercised when interpreting the results because privacy concerns and attitudes toward providing information online may vary according to political, economic, legal, and cultural contexts. Where possible, this study should be replicated in other countries to ascertain the impact of FIP and reward on online consumers' information provision behavior. Other second order factors such as trust in the firm should also be explored as a mediating factor in our research model.

6. Conclusions

Accurate information provision is a pillar of foundation for electronic commerce success. This study provides strong evidence on the effects of reward, FIP, and reputation on the provision of accurate personal identifiable information. Our study is novel to the extent that few studies have examined the issue of providing accurate personal identifiable and demographic information. Moreover, very few studies have examined the relative effectiveness of the reward and FIP instruments for different firm types. Our findings suggest that online firms should employ different strategies to solicit information according to their firm nature.

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