SOCIAL COMMERCE BEYOND WORD OF MOUTH: ROLE OF SOCIAL DISTANCE AND SOCIAL NORMS IN ONLINE REFERRAL INCENTIVE SYSTEMS

Completed Research Paper

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Abstract

Online social referral incentive systems help attract new customers to commercial websites by leveraging existing customers' social networks. Designing an appropriate referral incentive system allows websites to increase their customer base and enhance sales. This study integrates ultimatum game (fairness) theory with construal level theory to investigate the impacts of social distance, social norms, and monetary incentives on the performance of different designs of online social referral incentive systems. Incentivized controlled lab experiments and randomized field experiments with an online ticketing company were conducted to test hypotheses on the effects of social distance, social norms, and the split of the referral bonus (monetary incentive) between a proposer and a responder on the performance of online social referral incentive systems. Results show that with small social distance (friends), the success of a referral is determined by the social norms between friends but not by the split of the referral bonus; with a large social distance (acquaintances), the success of the referral is determined by a fair split of the bonus between acquaintances. By studying the dynamics of social networking, our research stresses the role of social elements in e-commerce when rational economic rules can be potentially harmful.

Keywords: Electronic commerce, online social referral incentive systems, social distance, social norms, social commerce, incentive design, ultimatum game, construal level theory

Introduction

Recently, online social referral incentive systems are burgeoning as e-commerce penetrates people's everyday life. These systems offer monetary incentives to motivate existing customers not only to spread positive word of mouth (WOM), but also to directly invite people who are networked with them via email, instant messaging, or other social networking tools (such as Twitter or Facebook) to register on a website and purchase products or services. Referral incentive systems are one of the many common practices companies employ to attract potential customers. Companies are increasingly focusing on leveraging the social network of existing customers using monetary incentives to increase their customer base (Dellarocas 2006). However, although online referral incentive systems may be a cost-effective way to recruit new customers, they could be a costly and unnecessary expense if not designed and implemented properly. For example, aiming at current customers' sending the referral, the firm initiates an online social referral incentive system by spending a great deal of money on advertising in an effort to attract current customers' attention. Current customers aim to gain rewards from online social referral incentive systems for inviting their friends to be new customers by involving their social networks. Friends have certain social relationships that involve social norms determining their behavior rules. Negative emotion can be aroused when the split of bonus goes against customers' social behavior rules, and this can decrease the effectiveness of online social referral incentive systems. Without a careful approach to design, the online social referral incentive systems not only waste money spent on advertising, but also decrease current customers' future intention to purchase. Therefore, a proper design of the social elements related to referral incentive systems is crucial to companies, particular start-up websites that aim to expand their online business by relying on their existing customers to reach new customers.

Over the past decade, the Internet has changed peoples' communication style (Lamb et al. 2003). Now people can use Instant Messaging (IM) services such as Skype to communicate with their friends anytime, anywhere. These conversations underlie online social networks, which are based on peoples' real-life social relationships (Aral et al. 2013; Ganley et al. 2009). Facebook is a successful example of a social network that offers customers a chance to find their friends' social relationships online and to make new friends through their friends' social networks. The transformative nature of communication on social networks has attracted the attention of practitioners, and we witness companies earnestly hoping their existing customers will send WOM through their social networks.

As an important measure of performance, new customer acquisition is crucial for online businesses, especially for start-up firms. For example, the emerging "star" in e-commerce – Groupon - tries to recruit new customers by relying on the social networks of the existing customers and paying for their referrals. Besides "Groupon-type" group-buy websites, online retailers such as Rulala.com also actively use referral incentive systems. Referral bonuses are usually $10 in different splits (reward only the proposer, only the responder, or divide the reward between the two). Referral, in the conventional wisdom, is a type of WOM occurring among close friends. With the development of the Internet, customers use IM and other social networking services (SNS) for communication, and they can easily connect with a stranger or an acquaintance more frequently than ever before (Ganley et al. 2009). Without Internet, the net-friends similar as strangers would not become the potential customers for online companies. Accordingly, the Internet and corresponding online communication tools have made social referrals simpler, faster, and more pervasive.

Online social referral is distinct from electronic WOM such as seller feedback and online product reviews, which attracted a lot of attention both from academic scholars (Archak et al. 2011; Ba et al. 2006; Dellarocas 2006; Sun 2012) and companies (such as Amazon and Yelp). On the one hand, social referrals are more intimate than seller feedback systems and online product reviews that are usually posted publicly. Online social referrals involve a direct and active communication between an existing customer and her "friends". On the other hand, online product reviews and seller feedback systems take a long time to develop, and their effect is not necessarily positive (existing customers may post negative reviews for the company or its products, which will be detrimental to their success). Start-up electronic retailers, in particular, cannot afford a long wait, and they may be willing to sacrifice some upfront costs (referral fees) to quickly acquire a sizeable customer base. This makes social referrals particularly valuable to them.

Online social referral systems typically involve a monetary incentive, which means that they should conform to the economic consumer utility theory to leverage proper monetary incentives. The monetary

incentive might govern customers' behavior because of the *homo economicus* assumption, that every individual is economically rational and utility-maximizing (Persky 1995). Although this assumption has been testified not to be severely violated (Henrich et al. 2001), the extent to which human beings are rational is bounded (Persky 1995). Therefore, the effect of monetary incentives may be bounded by social norms. The concept of social norms is at the core of sociological theory. Coleman (1994) proposed this concept as "a norm concerning a specific action [that] exists when the socially defined right to control the action is held not by the actor but by the others." The authority of the others "is not voluntarily vested in them, either unilaterally or as a part of an exchange, but is created by the social consensus". Finally, social norms are enforced by an external sanctioning system or, if the norm is internalized, by an internal sanctioning system. Therefore, if monetary incentives are not complementary or compatible with the social norms, they may be harmful to the effectiveness of a social referral.

Only focusing on the monetary incentive in a networked "social" relationship may render the referral message confusing (referral for a profit or referral to truly recommend a product/service/merchant), which may be harmful for friendships and lowering the effectiveness of referral systems (Heyman et al. 2004). If the split of bonus in online social referral incentive systems is harmful to the social relationship between proposers and responders, they tend to refuse to send or accept the referral. Therefore, a proper online social referral system should not solely rely on monetary incentives to attract new customers, but to take care of the social relationship between proposers and responders as well. Therefore, companies should pay special attention to both social norms and economic norms in designing their incentive systems. Specifically, online social referral incentive systems attract potential customers by introducing a monetary incentive. However, a monetary incentive alone does not determine the success of online social referral incentive systems. The split of bonus should be designed on the basis of a certain social distance between proposer and responder, which can take full advantage of social networks (Hevner et al. 2004).

In this paper, we seek to extend understanding of the effectiveness of online social referral incentive systems by examining the interaction of various splits of bonus and different social norms, specifically social distance. One widely used view of social distance focuses on affectivity (Bogardus 1925). According to this approach, social distance is associated with affective distance, i.e. how much or little sympathy the members of a group feel for another group. In this paper, we rely on the "Bogardus social distance scale" to measure subjective-affective conceptions of social distance (Bogardus 1933).

In social distance studies the center of attention is on the feeling reactions of persons toward other persons and toward groups of people. Therefore, our research questions are:

- What are the effects of monetary incentives and social distance on the design of online social referral incentive systems?
- How does social distance impact the relative effectiveness of monetary incentives on the success of online social referral incentive systems?

In this paper, we leveraged ultimatum game theory and construal level theory to develop our testable hypotheses in the context of online social referrals. We conducted both a set of controlled lab experiments and a randomized field experiment to examine our research questions. Our results show that with small social distance, customers choose their behavior rule according to social norms. Social norms encourage customers to focus on the close social relationship rather than the benefit. With small social distance, proposers choose to deviate from the fair split of the monetary incentive, while responders intend to accept the unfair split of bonus. This is different from the results of ultimatum games among strangers. With large social distance, people choose their behavioral rules according to their own utility maximization. Proposers tend to offer a fair split of bonus and responders tend to refuse an unfair split of bonus. This is similar to the result of the ultimatum game in the economics literature (Güth et al. 1982; Güth et al. 1990).

Our paper makes several contributions to the IS literature on online WOM and social e-commerce. First, we leveraged theories from economics and psychology to understand the proper design of an IT artifact (online social referral system) that is increasingly important in e-commerce. We also introduce the social distance into our study. Different norms determine different behavioral rules of proposers and responders. This study also applies the ultimatum game in an IS context and extends the theory from strangers to acquaintances and friends. To achieve success for the online social referral incentive systems, companies should take social norms and individual rationality into consideration.

Before developing our hypotheses, we review the related literature on online social referral incentive systems and social commerce. Hypotheses development is followed by a description of the research setting, research design, and methods of analyses. Then, we report the results, conclusion and implications.

Literature Review

Online Social Networks and Influence

Online social networks create a virtual world based on people's own social relationships. Internet 2.0 has revealed peoples' concealed social relationships with various types of applications, such as SNS (Oinas-Kukkonen et al. 2010). The emergence of Internet-based social networks also has changed customers' communication style (Cheung et al. 2010; Jasperson et al. 2002). An average Facebook user has 130 friends.[1] Close friends, acquaintances or even strangers may share common interests through social networks. This collective and connected mass of humanity could be taken as a reservoir of social and economic influence. Social influence from online networks can have an impact on customers' behavior such as encouraging adoption of a system or purchase of a product (Aral et al. 2013). The impact of social networks has attracted the attention of many companies who have a perennial interest in leveraging social relationships to extend their customer base. Research has found that the connectedness of a social network's structure influences the effectiveness of "buzz" as a marketing instrument, with the network effect moderating the payoff from a company's investment to promote the social "buzz" (Amblee et al. 2011; Ganley et al. 2009).

Online social networks render online WOM more convenient than traditional WOM (Dellarocas 2003; Zhu et al. 2010). Online WOM spreads rapidly through social networks, which impacts potential customers' intention to purchase (Forman et al. 2008). The quality and price of products are also impacted by online WOM (Hu et al. 2006; Li et al. 2010). The large number of users in online social networks creates a large potential for online WOM. Improving the quality of online WOM is crucial for companies (Duan et al. 2008; Mudambi et al. 2010). Online WOM could help customers to find the appropriate products from a company (Clemons et al. 2006). At present, we should view users in online social networks as social actors (Lamb et al. 2003). Correctly treating customers in online social networks may entail taking full advantage of online social networks.

Online Social Referral

Online social referral incentive systems are important company strategies that use monetary incentives to leverage positive WOM of existing customers to attract new customers. When a company's current market penetration or the proposer's referral effectiveness is sufficiently high, the referral incentive system dominates advertising (Xiao et al. 2011). The advantage of monetary incentives lies in selecting only the positive WOM, as opposed to existing customers' true revelations of their feelings of the company/product. For example, in the case of online product reviews (Dellarocas et al. 2008; Li et al. 2008), customers will post either positive or negative experiences, which may not be effective in acquiring new customers.

Referral typically used to occur among offline friends and relatives. However, online social networks create a platform of communication among friends, distant acquaintances, and even strangers. This convenient communication style makes online social referrals possible between friends with different social distances. Although referral systems originated a long time ago, they go beyond simply gathering customer opinions, but they take steps to foster the opinions, such as establishing a customer recommendation system in managing social interactions (Awad et al. 2008; Hennig-Thurau et al. 2003; Li et al. 2011).

In the literature, experimental work on referral systems has largely focused on the proposers' response to referral incentives. Studies show that the referral incentive is an effective mechanism to increase the proposer's likelihood of spreading WOM in the form of referral (Wirtz et al. 2002) when the proposer is highly satisfied with the company's products. Ryu and Wirtz (2007) examined the impact of tie strength (the relationship between the proposer and the responder), brand strength, and the reward structure on the proposer's likelihood of making referrals to find that monetary incentives are effective in increasing

[1] http://www.facebook.com/Press/info.php?statistics

referrals to weak ties. On the other hand, Tuk (2009) examined the responder's responses to referral incentives to show that a proposer's reward might reduce the responder's likelihood of purchasing because the proposer's reward could be ill perceived by the responder and reduce the proposer's perceived sincerity.

There are also many studies focusing on referral incentive designs and their impacts. Existing studies of customer referral systems have provided substantial guidance on when rewards should be offered (Biyalogorsky et al. 2001), they have quantified the impact of rewards and tie strength on the proposer's referral likelihood (Ryu et al. 2007; Wirtz et al. 2002). The key unanswered questions are whether different types of split schemes (e.g., how to split the $10 incentive) would make a difference in terms of referral performance for different types of dyadic proposer-responder relationships (i.e., different social distances). We consider split of referral bonus and social distance between the proposer and responder to be the two key antecedents to referral performance.

Hypotheses Development

An important metric to understand the effectiveness of online referral incentive systems is to identify who will send the invitation, who will receive the invitation and what these two parties want to get from the invitation. It is important to know the intrinsic and extrinsic motivations of the proposer and the responder. Intrinsic motivation is driven by an interest or enjoyment in the task itself, and exists within the person rather than relying on external pressures or a desire for reward (Wigfield et al. 2004). Extrinsic motivation refers to the performance of an activity to attain an outcome (Lepper et al. 1973). The two aspects of motivation can be applied in our context of social referrals: (a) referral out of goodwill; (b) referral out of bonus. When two parties are friends, referral can be attributed to intrinsic motivation. On the other hand, referral due to the monetary incentive is attributed to extrinsic motivation. According to the analysis above, we focus on the relationship between the two parties (social distance) and the split of a given amount (e.g., $10) (monetary incentive) as the initial set up.

Effect of Social Distance on Referral Performance

Different social relationships mean different social distances. Close social relationship means small social distance while distant social relationship means large social distance. Our conception of social distance focuses on affectivity. Within this approach, social distance is associated with affective distance, i.e. how much or little sympathy the members of a group feel for another group. This is different from tie strength which uses the frequency of communication to classify social tie. The frequency of communication could not determine the affective distance, such as your classmates or co-workers are not all your close friends. They still have different affective distance. But classmates or co-works have the similar social tie. Social relationship involves affectivity that arouses different social norms. So this approach uses the affective distance as our social distance to reflect different social relationships.

Social relationship is a factor influencing friends' sharing behavior (Liang et al. 2011). Friends with a large social distance act as virtual strangers. An action outside what is in common between two parties would lead people to think about the underlying purpose of the action. In the context of social referral, if people cannot clearly understand the purpose of the referral, they tend to refuse to do what they are asked to. Close friends have a small social distance, and they share similar interests, knowledge and experience. They may also share similar values, have many topics to talk about, and know each other very well (Johar 2005). Therefore, when social distance is small, they have more common information and understand each other more easily. With a large social distance, it is difficult for people to communicate or understand the real purpose of a referral, leading them to hesitate in sending or accepting a referral. Also, responders want to know the "connotations" underlying the referral. For example, what is the purpose of referring them to the web retailer? Correctly understanding the purpose will enhance the chance of accepting a referral. For proposers, they tend to send referrals to friends who understand their real purpose easily with the consideration of social relationship. Responders tend to behave correspondingly. Therefore we hypothesize:

H1a: A proposer is more likely to send a referral to a responder with a small social distance than a responder with large social distance.

H1b: A responder is more likely to accept a referral from a proposer with a small social distance than a proposer with large social distance.

Proposers and responders with a strong social relationship are helpful for both sending and adopting the invitation. A successful invitation does not only depend on the proposer to send it out, but also its adoption by the responder as well. Therefore considering both sides of the referral, we hypothesize:

> *H1c: A successful referral is more likely to occur between friends with small social distance than friends with large social distance.*

Effect of Sense of Fairness on Referral Performance

In our context, the proposer has the right to send the social referral and would assume the risk that the responder would refuse the proposal due to perceived unfairness, which resembles the "ultimatum game". The ultimatum game (Güth et al. 1982; Güth et al. 1990) is a two-player game where Player 1, the proposer, can offer to divide a fixed total amount, say $10, by giving x amount to Player 2 and keeping $10-x for himself. Player 2 then decides whether to accept or reject the offer. In the unique sub-game perfect Nash equilibrium (Gibbons 1989), Player 1 takes the whole amount minus ε (ε-->0) and Player 2 accepts ε, with an equilibrium solution of (10- ε, ε). As a matter of fact, if ε is given to be 0, multiple equilibriums would emerge as (10, 0) and (0, 0), and there should be no noticeable difference in probability between these two equilibrium situations for Player 2. However, numerous experimental studies have shown that proposers offering less than 30% of the total amount are likely to be rejected, while a fair offer (i.e., 50/50 split) is most likely to be accepted by responders (Güth et al. 1982; Güth et al. 1990). Previous studies point that 50-50 split is a fair split, which is an 'obvious' and 'acceptable' compromise, and that "such considerations are easily displaced by calculations of strategic advantage, once players fully appreciate the structure of the game"(Binmore et al. 1985; Güth et al. 1990). We follow the definition of fairness in our study. In online social referral incentive systems, proposer and responder gain the same bonus (5$) from successful referral which is a fair split (50-50).

Although many referral incentive systems resemble the classic ultimatum game, they have their own unique features. In the traditional ultimatum game studied in prior literatures, the proposer and the responder are typically strangers and will not meet in the future. The online social referral incentive systems take place in situations where the proposer and responder are connected with social networks, albeit with different social distances. The purpose of an ultimatum game focuses on the split of bonus, but online social referral incentive systems are based on helping your friends by introducing something new and useful to them. Different purposes determine people's different behavior. Although some extant studies have taken the impact of social relationship into the ultimatum game (Charness et al. 2008; Macfarlan et al. 2008), based on helping friends, the impact of social relationship in online social referral incentive systems differs from an ultimatum game.

In this study we use the "Bogardus social distance scale" to measure subjective-affective conception of social distance (Bogardus 1925). In social distance studies, the center of attention is on the feeling reactions of people toward other people and toward groups of people. So we also ground our testable hypotheses based upon theories of social distance (Bogardus 1925), in addition to the sense of fairness in a quasi-ultimatum game (Güth et al. 1982). With large social distance, the proposer and the responder view each other as strangers. Therefore, in this respect, online social referral incentive systems resemble ultimatum games. Based on game theory, people are rational or selfish which means their aim focus on maximizing their own utility(Güth et al. 1982). Both sides of the referral take fairness into consideration; both want to maximize their own utility and proposers also fear the responder's rejection for getting nothing in the online social referral incentive systems. So fairness is crucial for the success of online social referral incentive systems with large social distance. Therefore, we propose:

> *H2: A successful referral is more likely to occur for a fair offer than an unfair offer when proposer and responder's social distance is large.*

Interaction Effect of Sense of Fairness and Social Distance

In online social referral incentive systems, sending a referral to friends is based on social norms, while the split of bonuses is based on individual rationality (Camerer et al. 2004). Therefore, the effectiveness of online social referral incentive systems might be affected by both individual rationality (maximizing monetary profits based on the fairness rule) and social norms (deriving utility from helping a friend). At this time, proposer and responder should be taken as social actors in online social referral incentive

systems rather than users (Lamb et al. 2003). Online social referral incentive systems should be designed in terms of a certain context involving social norms and individual rationality.

Individual rationalitys are pervasive in interpersonal and inter-organizational relationships (Heyman et al. 2004). In most cases, especially in business contexts, people make decisions based on utility maximization and fairness. On the other hand, social norms capture the behavior of people with different social distances (Camerer et al. 2004). Therefore, with different social distances, the utility function can be different for the same person. In this study, we use social distance to determine the social context. Social distance is one dimension of psychological distance (Liberman et al. 2008). Construal level theory (CLT) links psychological distance from objects (events) to the mental construal of those objects (events), which offers an explanation as to why psychological distance would affect the impact of monetary incentive on the performance of social referrals (Trope et al. 2010). The general idea is that the more distant an object is from the individual, the more abstract it will seem to them, while the opposite relation between closeness and concreteness is true as well.

Any event or object can be represented at different levels of construal (high or low). High and low levels of construal influence people's different mental construal processes. Lower-level construals are concrete, relatively unstructured and contextualized representations that include subordinate and incidental features of events. Higher-level construals are abstract, schematic and decontextualized representations that extract the gist from the available information. They emphasize superordinate, core features of events and omit incidental features that may vary without significantly changing the meaning of events. Social distance as one dimension of psychological distance may influence prediction, evaluation, and action, inasmuch as these outcomes are mediated by the construal. High-level construal promotes attunement to what is consistent about an object across multiple contexts such as the split of bonus in the referral. As social distance increases, the effect of referral bonus split increases. With large social distance, people tend to care about the social relationship less; therefore extrinsic motivation such as monetary incentive may dominate the proposer's behavior. With small social distance, psychological proximity triggers low-level construal, which includes the concrete and contextualized aspects of a referral (the close social relationship between proposer and responder). Small social distance triggers the close social relationship context. Facing close friends, social norms determine the behavior of proposer and responder. Although different cultures have their own social norms (Fiske 1992), friendship is generally viewed similarly across cultures. A friend is someone sharing similar interests, helping when in need. Close friendship is even worth spending time and money to maintain. Seeking fairness from close friends would be taken as neglecting close social relationship and as harmful for a close social relationship. So with small social distance, proposer and responder would focus on the close social relationship to help friends rather than fairness of bonus split. At this time, helping friends is the real meaning of a referral, which is good for social relationship. Based on social norms, the intrinsic affective motivation dominates people's behavior. Therefore we propose:

H3a: The split of bonus offered by a proposer is more prone to be a fair offer (5,5) to a responder with a large social distance than with a small social distance.

H3b: A responder is more likely to refuse an unfair split of bonus offered by a proposer with a large social distance than with a small social distance.

Research Methodology

We use both a set of controlled laboratory experiments with real monetary incentives and a randomized field experiment to test our posted hypotheses. We first report the design, data collection, and analysis for the lab experiment. We corroborate our lab experiment results with a randomized field experiment.

Controlled Lab Experiment

The experiment is divided into two integral parts, one on the proposers and the other on the responders. Subjects participating in the experiment as proposers are different from those taking part as responders. To resemble a real-life online social referral system, proposers and responders take part in the experiment separately and are not allowed to see each other during the experiment. Subjects would be told that the referral coming from a normal online group-buy website. The online group-buy website contains many kinds of merchandises, which is shown on the screen for subjects. The seats are randomly assigned to

proposers or responders in the lab. Related concepts such as social distance(large, medium, small) were explained to all subjects before the experiment, which is based on the description of Bogardus social distance (Bogardus 1925); pretests were conducted to make sure subjects could correctly understand the meaning of the context, task and all questions. Demographics are shown in Table 1. Proposers are asked to send the referral with the website address to a friend with different social distances by email, IM, or other social networking website. Responders are asked to answer whether they would accept the referral coming from their friends with certain social distances. We recruited a total of 720 subjects, undergraduate students from a large public university. Each subject attending the experiment received $10 as the reward for participation. According to extant research in IS and marketing, students are active online shoppers and comprise a representative sample (Sia et al. 2009).

Table 1. Demographics

	Gender	Age	Online Shopping Experience
Proposer	Male 58.86%	21.35(1.414)	1.93(0.607)
Responder	Male 55.32%	21.26(1.343)	2.059(0.53)

The first factor in the design is social distance. The experiments for proposers had three groups ranging from large to small social distance as a trichotomy (Bogardus 1925; Bogardus 1933). For large social distance, subjects are asked to imagine friends meeting a few days ago by Internet. You have never met in reality. The Internet is the only way to communicate with your friends. For medium social distance, subjects are asked to imagine friends as your classmate or co-worker. You would meet every day, but your topics always focus on the business rather than a private party. For small social distance, subjects are asked to imagine friends having a familial relationship or intimate relationship with each other. You have your own private party every week, and your topics are quite private. Each group had 60 proposers. The second factor is split of referral bonus. We had three different split schemes: (0, 10), for which the proposer would receive $0 and the responder would receive $10; (5, 5), for which both the responder and proposer would receive $5; (10, 0), for which the responder would receive $0 and the proposer would receive $10. The proposer could choose one of the three splits of bonus under one of the three social distance scenarios. Since there are three levels of social distance, and three different referral bonus split schemes, we employed two 3*3 full factorial designs for the responders. Subjects were randomly selected into each group (60 subjects). We performed the analysis of statistical power (Cohen 1992), and our sample size is shown to have adequate statistical power (>80%) to detect an effect.

Table 2. 3*3 Full Factorial Experimental Design

(0, 10) Small social distance	(5, 5) Small social distance	(10, 0) Small social distance
(0, 10) Medium social distance	(5, 5) Medium social distance	(10, 0) Medium social distance
(0, 10) Large social distance	(5, 5) Large social distance	(10, 0) Large social distance

Before subjects received treatments, they were told the duty of the responder (register for a website and make a purchase) and the purpose of the referral with bonus, respectively within each group. Subjects in different groups were not allowed to communicate about the study. After respondents received treatments, they were asked to complete a questionnaire. Subjects in each treatment were also informed that the experiment was anonymous and they were not allowed to communicate in any form during the experiment.

We used a 7-point Likert-type scale to measure the tendency of proposers to send referrals to friends. We were able to test the tendency of proposers to send referrals to friends with different social distances. Proposers were given three choices: give the total referral bonus of $10 to the responder, keep the whole referral bonus of $10, or divide it equally. Responders were asked whether they would accept the referral with a different split of bonus coming from friends with different social distance. A manipulation check is performed to ensure the respondents have received the treatments.

Controlled Lab Experiments Data Analyses

To test our hypotheses, independent sample *t*-tests, one- and two-way ANOVA analyses were employed.

We had three bonus split schemes in our lab experiment study (10,0), (5,5) and (0,10). A proposer's choice of (10,0) means $5 deviation from a fair offer (5,5), and the same goes for (0,10). To measure the deviation from a fair offer (5, 5), we treat (10,0) in the same way as (0,10). The choice (5,5) is marked as 5. The choice (10,0) (responder gets nothing) and (0,10) (responder gets the whole amount) are both marked as 10. The average amount offered by the proposer deviates from the fair offer (5,5) with decreasing social distance (F=14.343, p=0<0.05), supporting H3a.

The intention to send referrals to friends increases as social distance decreases (F=73.73, p<0.001), supporting H1a. Also, with decreasing social distance, the percentage of responders who accepted the referral increased, supporting H1b (F=19.94, p<0.05). We measured referral success by multiplying the value of proposers' intention to send referrals to friends with a given social distance (e.g., large) times the percentage of responders who accepted the referral with the same social distance, respectively. We observed that the successful referral with small social distance was higher than either large or medium social distance. All comparisons were statistically significant. Therefore Hypothesis H1c was supported.

We then calculated the percentage of responders who accepted the offer in all treatments. With small social distance, the average percentage of adoption of responders getting nothing (10, 0), $5 (5, 5) and $10 (0, 10) was 0.895, 0.912 and 0.933, respectively (Figure 1). The one-way ANOVA analysis revealed an insignificant effect (F=0.274, p=0.761>0.1). Therefore, a monetary incentive did not seem to enhance referral performance for friends with small social distance. The results indicate that close friends are more affected by social norms of accepting a close friend's recommendation (referral) than by individual rationality (monetary incentive).

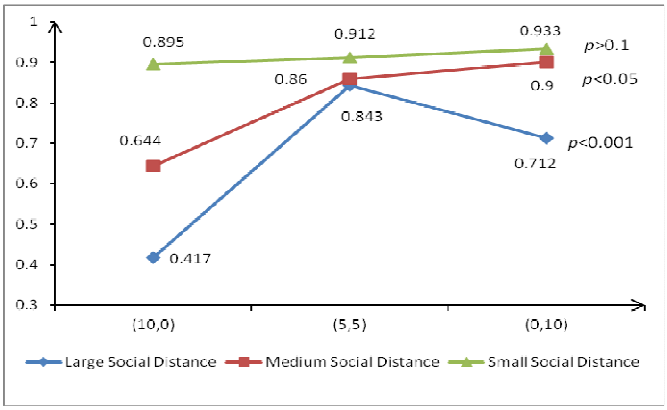

Figure 1. Adoption of Referrals with Different Referral Bonuses and Social Distances

With medium social distance, the average percentage of adoption of the responders getting nothing (10, 0), $5 (5, 5) and $10 (0, 10) was 0.64, 0.86 and 0.90, respectively (Figure 1). The percentage of adoption for responders who got nothing was lower than for responders who got $5 ($t$=-2.759, p=0.007<0.05). The percentage of adoption for the responders who got nothing was lower than for responders who got $10 ($t$=-3.458, p=0.001<0.05). The percentage of adoption for the responders who got $5 was not statistically significant in relation to the responders who got $10 ($t$=-0.668, p=0.506>0.1). The one-way ANOVA analysis showed F=7.5, p=0.001<0.05. Therefore, the effect of monetary incentive for medium social distance was stronger than the effect for small social distance.

With large social distance, the average percentage of adoption of the responders getting nothing (10, 0), $5 (5, 5) and $10 (0, 10) was 0.42, 0.84 and 0.71, respectively (Figure 1). Comparing the percentage of responders who accepted the referral, the group with a fair split (5, 5) was higher than the group that got nothing (t=-4.982, p=0.001<0.05). For the percentage of responders who accepted the referral, the group that got the whole pie (0, 10) was higher than the group that got nothing (t=-3.374, p=0.001<0.05). Surprisingly, the group with a fair split (5, 5) was higher than the group that got the whole pie, but

insignificant (t=1.441, p=0.152>0.1). The one-way ANOVA analysis showed F=12.947, p=0<0.05. In sum, H3b was supported.

The analysis of Hypothesis 3a implied that proposers are prone to choose a fair split of referral bonus when facing "friends" with a large social distance. To test this formally, we calculated the percentage of successful referrals based on the multiplication of the percentages of proposers who proposed a fair split of bonus (e.g., both get $5) with the percentage of adoption by responders with the same split. The result was statistically significant and pointed out that a fair split of referral bonus was the most successful incentive scheme for friends with large social distance. Therefore, we further support Hypothesis 2.

Additionally, using two-way ANOVA, we tested the interaction effect of social distance and bonus split on responder adoption, and detected a significant effect (F=4.3, p<0.01).

Randomized Field Experiment

According to the lab experimental study, the effect of split of bonus was impacted by social distance between proposers and responders in online social referral systems. Aiming at achieving external validity and gaining more insights, we corroborate our lab experiment with a randomized field experiment. We collaborated with 08ticket (http://www.08piao.com/), one of the world's largest online ticketing merchants to conduct the study. This online merchant is a company whose major business is online ticketing locating in various provinces of China. Multiple types of tickets are sold on the 08ticket website, with the major type being singers' solo vocal concerts tickets and scenic spot tickets. With the steady development of online ticketing business, they have recently extended their business to include mobile commerce. The company offered us access to their customer data, and assisted the randomized field experiment process.

Design and Process of the Randomized Field Experiment

Based on prior literatures, 30% is usually a cutting threshold at which offers are accepted by the responder in an ultimatum game (Güth et al. 1982; Güth et al. 1990). If responders are only able to obtain less than 30% of the whole amount, most responders tend to refuse offers as a way of punishing proposers' greed. So we changed our split of bonus from (10,0), (5,5) and (0,10) in our experimental study into (7,3), (5,5) and (3,7) in our field study. We had three different distributional splits: (7,3), for which proposers will receive $7 and responders will receive $3; (5,5), for which proposers and responders will receive $5 each (fair split); (3,7), for which proposers will receive $3 and responders will receive $7. Proposers and responders would not get the bonus until a responder accepts the referral and makes a purchase. We also set a control group as (0,0), for which proposer and responder will receive nothing.

To highlight the impact of social distance, we used two levels of social distance (large and small). Large social distance means the friends only have contact information or the friends are similar as the workmates only communicate for business. Small social distance means the friends have a familial relationship or intimate relationship with each other. Our social distance was based on social distance of Bogardus (Bogardus 1933). So our field study had eight treatment and control groups (Table 2).

Table 3. Factorial Design of Field Study

(7,3) Large social distance	(5,5) Large social distance	(3,7) Large social distance	(0,0) Large social distance
(7,3) Small social distance	(5,5) Small social distance	(3,7) Small social distance	(0,0) Small social distance

The process of the field study was as follows:

(1) We randomly selected current customers from the online ticketing company (*o8ticket*) as proposers.

(2) On behalf of the online ticketing company, we randomly assigned a current customer to one of our eight treatment or control groups (the proposers) by sending an email including explanations of the company's online social referral incentive system and the intended split of bonus given a certain social distance.

(3) If the proposer agreed to send the referral to his friend, he would click a URL to complete the online questionnaire designed for the proposer. The proposer gave us their email address and that of the responder who would receive the referral. Proposers were also asked two questions about the desired split of bonus and the social distance between them and their friends (the responders). These questions determined whether the proposer correctly understood our explanations of bonus and social distance. If the proposer's answers were different from the expected ones, we would treat that proposer as an invalid proposer. This procedure served as a screening mechanism for our study.

(4) We kept running Steps 1-3 till there were 20 valid proposers in each of the eight scenarios for proposers.

(5) The responders (email address provided by the proposers) received emails with explanations of the online social referral incentive system, split of bonus, and the email address of the proposer (inform responders who is the proposers).

(6) Interested responders were asked to click a URL to complete the online questionnaire designed for the responder. The responder gave us their answer to the referral (acceptance or refusal) and their email address to receive the registration information from the online ticketing company. Responders were also asked to answer two questions about the split of the bonus and social distance between them and their friend (the proposer), which determined whether the responder correctly understood our explanations about the bonus split scheme and whether they perceived a social distance similar to that of the proposer. If the responder's answer differed from the expected ones (the correct split of bonus and similar social distance), we treated the responder as an invalid responder (screening mechanism for the responders).

(7) We kept running Steps 1-6 till there were 20 valid responders in each of the eight groups for responders.

(8) The online ticketing company would send an email with registration information to responders who accepted the referral. The company also distributed the bonus between the proposers and the responders.

The process of our field study took about two months. Each of six scenes with bonus contained 20 valid pairs of proposer and responder. All of them had the same perception of social distance in each pair of proposer and responder. The responder had become a new customer of the online ticketing company. Proposer and responder received the bonus according to the split of bonus in a certain scenario. Unfortunately, the two scenarios without bonus only had two valid pairs of proposer and responder attending our online social referral incentive system; and irrespective of social distance, no responder accepted a referral without a bonus.

Results of the Field Study

Screening of social distance was built into the process of field study. Proposers and responders who gave the wrong answer regarding social distance in a particular scenario would be treated as invalid subjects.

After using the 1,474 email addresses of current customers of an online ticketing company (123 valid pairs of proposers and responders (21.2% response rate) and 156 invalid pairs of proposers and responders (1,195 proposers did not participate in our field study after receiving the email), we got 20 valid pairs of proposers and responders taking part in our field study in six scenarios with bonus. However, two control groups without bonus failed to attract 20 pairs of proposers and responders. Each of the two scenarios without bonus only attracted two pairs of proposers and responders after 329 proposers were sent the email, and all responders refused the invitation from proposers. We did not take these into account in our final data analysis and only analyzed data from the six treatment groups with bonus. Five hundred eighty nine proposers refused to take part in the six treatment groups with bonus in the field study. Based on our field study of the two scenes without bonus, the bonus is crucial for online social referral incentive systems.

According to the design of the field study, proposers would be impacted by many stochastic factors before taking part in the field study. By looking at the early and late responders, non-response bias tests (Armstrong et al. 1977) showed no statistical differences between respondents versus non-respondents.

With large social distance, proposers' rejection rate was smallest for the fair split of bonus (5,5). With small social distance, proposers' rejection rate was highest for the fair split of bonus (5,5) treatment group. The data support the lab experimental study (Hypothesis H3a) as well.

To test the results of responders, independent sample *t* statistics and two-way ANOVA were used. We compared the responders' adoption between large social distance and small social distance. With large social distance, the average percentage of responders' adoption was 0.52. With small social distance, the average percentage of responders' adoption was 0.8. The average percentage of responders' adoption with small social distance was higher than with large social distance (t=3.4, p=0.001). The results fully support the lab experimental study (Hypothesis 1b).

We compared adoption by responders using different bonus splits. With large social distance, the average percentage of responders receiving \$3 (7,3), \$5 (5,5) and \$7 (3,7) was 0.25, 0,75 and 0.55, respectively (Figure 2). The percentage of adoption for responders who got \$3 was statistically significant in comparison with responders who got \$5 (t=-3.559, p=0.001). The percentage of adoption for responders who got \$3 was marginally significant in comparison with responders who got \$7 (t=-1.983, p=0.055). The percentage of adoption for responders who got \$5 was statistically insignificant in relation to responders who got \$7 (t=1.322, p=0.194). The one-way ANOVA analysis revealed a significant effect (F=5.799, p=0.005). The effect of the bonus split on percentage of adoption is significant. The results support the lab experimental study (Hypothesis 3b).

With small social distance, the average percentage of responders receiving \$3 (7,3), \$5 (5,5) and \$7 (3,7) was 0.9, 0.65 and 0.85, respectively (Figure 2). Percentage of adoption for responders who got \$3 was only marginally significant in comparison with the percentage of those who got \$5 (t=1.934, p=0.062). The percentage of adoption for responders who got \$3 was not statistically significant in relation to responders who got \$7 (t=0.467, p=0.643). The percentage of adoption for responders who got \$5 was not statistically significant in relation to responders who got \$7 (t=-1.463, p=0.152). The one-way ANOVA analysis revealed an insignificant effect (F=2.242, p=0.116). The effect of the bonus split on percentage of adoption is insignificant. The results support the lab experiment study (Hypothesis 3b). Additionally, using two-way ANOVA, we tested the interaction effect of social distance and bonus split on responder adoption, and detected a significant effect (F=7.52, p<0.001).

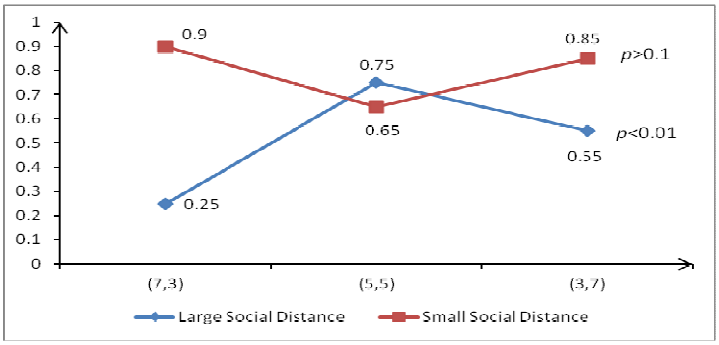

Figure 2. Adoption by Responders with Different Referral Bonus and Social Distances

According to our study, social distance and split of bonus have a significant effect on the success of online social referral systems. Because responder adoption is a binary variable, after transforming the social distance and splitting the bonus into a binary variable, we were able to use a logistic regression to quantify the effect of the two variables in social referral systems. The logistic regression model is:

$$logit(accept=1)=\beta_0+\beta_1*Social\_Distance+\beta_2*Fairness+\beta_3*Social\_Distance\times Fairness+\varepsilon \quad (1)$$

Table 4 reports the estimates for the logistic model. We found significant main and interaction effects. We use odds ratio to interpret the results. Under conditions of large social distance (acquaintance), a fair offer will be 3.66 times more likely to be accepted by a responder, while under conditions of small social distance (close friends), a fair offer will be 2.77 times less likely to be accepted by a responder.

Table 4. Results from Logistic Regression Model

VARIABLES	Responder Accept
Social distance	**-2.351***** (0.579)
Fairness	**-1.327**** (0.672)
Social Distance × Fairness	**2.831***** (0.909)

Constant	1.946*** (0.480)
Pseudo Likelihood	0.141
Observations	120

Key Findings and Discussions

In this lab experiment study, overall we found support for all the theoretical hypotheses. Based on our analysis results of the lab experiment and field studies, the impact of social distance is significant.

First, proposers tend to send referrals with bonus to friends with small social distance, whether in the lab or the field. With small social distance, people know each other very well. Proposers in this scenario are able to obtain much information about the responders' requirements, which increases the likelihood of the referral being accepted. Responders have a higher tendency to accept referrals from close friends; a social relationship between proposer and responder is crucial in online social referral incentive systems. People know each other very well in a close social relationship (small social distance), which makes referral much more targeted than in a distant social relationship where people know little about each other (large social distance). Responders believe referrals coming from their close friends are more reliable.

Second, with small social distance, proposers tend to send referrals in the unfair split of bonus (10,0) and (0, 10) in the lab experiment study, (7,3) and (3,7) in the field study. Small social distance triggers low-level construal, which causes proposers to focus on concrete and contextualized factors such as close social relationship. Proposers choose their behavior rule based on social norms. They pay more attention to close social relationship than to fairness of the bonus split. Indeed, the results confirm the intuition that close friends do not really care about the split of referral bonus when deciding whether to accept a referral. In many cultures, with close social relationships, people view monetary incentives as harmful for the relationship. Even talking about money may be perceived as negative or embarrassing among friends with small social distance. If proposers choose to divide the referral bonuses fairly, responders might think proposers view them as strangers. With large social distance, proposers tend to send referrals in the fair split of bonus (5,5), behavior that is similar in the lab and the field. Facing friends with large social distance, the proposers were not familiar with the responders; hence, they could not figure out whether the proposer was trying to profit from the referral or genuinely recommending a retailer or product. At this time, large social distance triggers high-level construal, which leads proposers to focus on the abstract and decontextualized factors such as the split of bonus. Proposers pay more attention to the fairness of the bonus split than to the social relationship. Proposers' behavioral rule is based on individual rationality. So the referral bonus, as an extrinsic motivation, becomes an important incentive. Similar to an ultimatum game, a fair split of referral bonus is a choice to benefit each other fairly. So proposers tend to choose a fair split of referral bonus, which gives a signal about maximizing each other's profit.

Third, with small social distance, the split of bonus does not significantly impact responders' adoption. We get similar results in the lab and the field, except the adoption that the fair split of bonus (5,5) is the lowest in small social distance in the field study. Being treated as a stranger causes some responders to refuse to accept the referral as a way of punishing proposers. In the lab experiment study, the adoption of responders is similar. The possible reason for this is that in the lab experiment study, proposers and responders were required to imagine friends with small social distance. In reality, a real referral coming from a close friend with a fair split of bonus makes the responder feel uncomfortable about being treated as a stranger. This feeling is much stronger in reality than in the mind. Responders believe the referral is a friend's genuine recommendation, to which they are bound to respond. At this time, low-level construal makes people focus on concrete and contextualized factors such as the close social relationship. In a close social relationship context, social norms become the most influential factor, suggests the split of referral bonus is trivial. Based on social norms, helping friends is the intrinsic motivation guiding proposers and responders' behavior rather than an extrinsic motivation such as the bonus amount. With large social distance, the split of bonus impacts responders' adoption significantly, which is also similar in the lab and the field. High-level construal causes individual rationality to play the leading role. Responders pay more attention to the fairness of the bonus split than to the social relationship. But the acceptance by responders getting $10 is insignificantly higher than those getting $5 in the field study and the acceptance by responders getting $7 is insignificantly higher than those getting $5 in the field study. With large social distance, proposers offering to give much larger bonuses to responders than to themselves in reality raised responders' wariness about proposers' real purpose, which could explain why the adoption by responders

getting $5 is higher than those getting $10 and the adoption by responders getting $5 is higher than those getting $7.

Fourth, the impact of the bonus is crucial in online social referral incentive systems. Without offering a bonus, we could not get enough proposers to send invitations in our field study. Without proposers' sending referrals, the success of online social referral incentive systems is negligible. The bonus is the reason proposers and responders take part in online social referral incentive systems. Without bonuses, proposers seem inclined to think there is no reason to send a referral.

Contributions and Implications

First, our study focuses on an important IT-enabled business phenomenon: online social referral design. Our study examines online social referral systems as a more active form of WOM; specifically, we look at how proposers share their referral bonuses when they face the possibility of responders' refusal (similar to the ultimatum game). The results of our experiments reveal that when social distance decreases, proposers' offers deviate from the fair offer of referral bonuses. When both sides are friends with a small social distance, people pay more attention to social norms to help each other and foster the friendship than to individual rationality to make money from the referral. Small social distance triggers low-level construal, which makes proposers and responders focus on concrete and contextualized factors such as their close social relationship. Social norms take the leading role, while individual rationality are harmful for successful referrals and responses. Proposers and responders do not seem to care about the split of referral bonus in small social distance contexts. With large social distance, both sides pay attention to their own benefit, which raises concerns about fairness. Large social distance triggers a high-level construal, which makes proposers and responders focus on the abstract and decontextualized factor such as the split of the bonus. Individual rationality take the leading role and people focus on how to share the bonus according to individual rationality rather than social norms. Considering the influence of social distance without the split of referral bonus, our research reveals that both proposers and responders prefer referrals from friends with a small social distance. As social distance increases, people tend to take fairness into their consideration as individual rationality. Based on individual rationality, both parties maximize their own utility. So the fair split of referral bonus will gain as many successful referrals as possible between friends with a large social distance. Our results provide additional empirical support for ultimatum games that strangers tend to focus on the fairness of an offer, herein extended to the context of social commerce referrals.

Theoretical Implications

First, previous research relied on theories of tie strength and brand in understanding the optimal design of referral mechanisms. Our research brings the split of referral bonus (fair split versus an unfair split) and social distance to the forefront, extending extant research on incentive design for social e-commerce. Social distance is one dimension of psychological distance. Social distance determines the construal level. Large social distance triggers a high-level construal, which focuses on the abstract and decontextualized factor such as the split of bonus. With large social distance, proposers and responders' behavior rule is based on individual rationality. Small social distance triggers low-level construal, which focuses on the concrete and contextualized factor such as close social relationship. With small social distance, proposers and responders' behavior rule is based on social norms.

Referral coming from your friends is not just an invitation, but it also involves affectivity, which is the signal of social relationship between proposer and responder. So our research incorporates social distance focusing on the affectivity, which is different from tie strength. The tie strength includes neighbors or co-workers (Marsden et al. 1984). When social distance is small, tie strength is usually strong. However, when tie strength is strong, social distance is not necessarily small (for example, a co-worker may be closely tied to a person but may not have a small social distance). Based on the affectivity of social relationship, our research reveals the crucial impact of social distance on success of online social referral incentive systems. With small social distance, proposers and responders focus on the close social relationship rather than bonus of online social referral incentive systems. With large social distance, proposers and responders focus on the bonus of online social referral incentive systems rather than social relationship.

Second, while extant research focuses on the proposer, we find that the referral is not only about the proposer sending the invitation; adoption by the responder is equally crucial. Our research takes proposers and responders as two sides of the same coin. Proposers' sending the referral is only the first step in successful online social referral incentive systems. Without the adoption by responders, online social referral incentive systems fail. So we take the responders' behavior into consideration to build successful online social referral incentive systems. Our research sheds light on how to divide the referral bonuses between proposers and responders with different social distances. The online social referral incentive systems look like an ultimatum game, which is dividing the bonus between complete strangers. But online social referral incentive systems work among friends rather than complete strangers. Our subjects are in friendship scenarios with different social distances in a social network; therefore we also extend empirical research on the ultimatum game from complete strangers to friends. Based on helping friends, the impact of social relationship in online social referral incentive systems is different from an ultimatum game, which only focuses on the split of bonus, so we extend empirical research on the impact of social relationship in the ultimatum game.

Third, most of the IS research on WOM only cares about an existing customer's reporting their true feelings, which may either be good or bad for a company. Our research looks at the proposer's positive and active WOM on the responders in social networks. Online social referral incentive systems have accurate responders, which is different from common online WOM without targeted audiences. Online social referral incentive systems also involve split of bonus; therefore our research extends the current literature of WOM to online active WOM with incentives.

Our research reveals bounded rationality. In our study, not everyone is a rational person aiming at maximizing his own profit. The norm is social norms which request that people focus on the profit of the whole group rather than personal profit based on the social relationship. The rationality is bounded by the factor of social distance.

Managerial Implications for Information Systems Design

Online social referral incentive systems are common tools used by companies to extend their business in social networks. If companies are unable to respect the social behavioral rule in social networks, their investment in social referrals may be a waste. Online social referral incentive systems have their own features, which are different from traditional WOM such as online product reviews. Existing customers voluntarily submit online product reviews to a third party purveyor, not directly to other customers. But online social referral incentive systems actively target potential customers. Proposer and responder act as social beings in online social referral incentive systems as they are users in an information system (Lamb et al. 2003). Both sides of the referral could refuse to take part in the online social referral incentive systems to punish companies' inappropriate split of a bonus that does not respect their social relationship. Aiming at finding the suitable split of referral bonus, our lab experiment study gives the right to choose one of three splits ((10,0); (5,5); (0,10)). In reality, the company could set the bonus split according to certain social distance rather than provide detailed instructions to customers on how to split incentives based on social distance. To take full advantage of social networks, companies need to devote attention to properly designing incentives to account for different social distances between proposers and responders. Because the social relationship between proposer and responder is unlikely to be known before the adoption by the responder, the company could ask a proposer to send a referral to friends with certain social distance with given certain bonus split. For example, in our field study, the company set the bonus split ((7,3); (5,5); (3,7)) rather than giving the right to proposer. The company asks a proposer to send a referral with an unfair split of bonus to their close friends and one with a fair split of bonus to socially distant acquaintances.

The implication for practice of our research is that commercial websites aiming at gaining as many successful referrals as possible should take the dynamics of social norms and individual rationality into consideration. We show that in some cases, offering a monetary incentive, something that is presumably costly for the company, may not be effective. The bonus of online social referral incentive systems could attract people's attention, but this does not mean they will become new customers. Online social referral incentive systems involve social distances between proposer and responder. Different social distances require different behavior rules. With small social distance, retail websites should consider the social norms. With large social distance, retail websites should consider the monetary incentive. Retail websites

should profile their customers into different segments based on different types of social relationships. Appropriate online social referral incentive systems could be chosen by the dominant norm that governs the proposers' and responders' behavior rules.

By studying the expansion customer base in eCommerce through social networks, our research calls for the attention on the social elements of e-commerce, when rational economic rules can be harmful to social relationships.

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