Developing a competitive edge in electronic markets via institutional and social based quality signaling mechanisms

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A B S T R A C T

Much recent effort has been put into developing effective electronic markets. However, the research has mainly focused on institutional trust-building mechanisms. Practically, sellers lack guidelines in shaping competitive edges in electronic markets where institutional mechanisms have been applied to all sellers. In order to fill this gap, we examine the impacts of institutional and social mechanisms on seller differentiation, drawing from quality signaling theories in economics. Hierarchical regression analysis of the objective data crawled from TaoBao.com reveals these two competing categories of quality signal mechanisms result in interesting seller differentiation. Findings, implications and future research are discussed.

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1. Introduction

The technological advancement in information systems has led to the rapid maturing of electronic markets in the last decade. The electronic market pioneer, eBay, reported approximately 116 million active users globally [7]. TaoBao, the leading electronic market in China, reported more than 370 million registered users as of the end of 2010 and is currently hosting more than 800 million product listings [33]. Among those registered users, there are more than 1.5 million store-owners [5].

To facilitate the development of effective electronic markets, much investigation has been made to help build buyer trust. The huge population of buyers and sellers in the world-wide electronic markets nowadays is a testimony to the effectiveness of the mechanisms developed to ensure the trustworthiness between buyers and sellers. As these markets have gradually matured, the latest challenge for the participants of many electronic markets, especially for the sellers, is to stand out from the crowd. This is considered much more difficult than in traditional offline markets because such information as price and customer feedback is essentially transparent to both online buyers and sellers in electronic markets. Unfortunately, compared to the abundant

literature in building buyers' general trust in electronic markets (e.g., [13,19,26]), relatively little work has been done to explain how online sellers can stand out in the intensive competition in electronic markets. Investigation into how sellers can differentiate themselves and build competitive edges remains under-explored.

In order to fill in this research gap, we investigate the problem of seller differentiation based on quality signaling theories [1,31,16], combined with institutional based [26] and social based [22] mechanisms. Specifically, quality signaling theories [1,31] suggest that sellers' and products' quality information can influence buyers' decisions. Furthermore, Li et al. [16] identified a typology of Internet auction features as quality signals and investigated how these signals help alleviate uncertainty in eBay. Since the emergence of electronic markets, many transaction platforms have devised innovative features in order to enable sellers to provide more quality-related information so as to attract more buyers. Given that the availability of many such quality signaling features are at the discretion of the sellers, their effectiveness in materializing transactions warrants an examination.

Following these quality signaling theories related to seller and product characteristics (e.g., [16]), in this study we classify the quality signals into institutional and social based quality signaling mechanisms and examine their effectiveness in differentiating sellers in electronic markets. We argue that the characteristics of sellers and products affect buyers' purchasing behavior such as where to buy in the electronic markets because seller

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differentiation occurs when sellers and products have better quality signals. Specifically, we take individual sellers' *sales volume* of one particular product as the proxy of seller differentiation. We argue that seller differentiation can be measured by both the process (such as product/shop popularity) and the end results (such as sales volume). In this study, we focus on the end results of seller differentiation, i.e., achieving high sales volume. This focus is consistent with quality signaling theories in Internet auctions (e.g., [16]) that emphasize the impacts of quality indicators on consumers' decisions regarding where to bid (i.e., which sellers to purchase from).

Institutional mechanisms, such as reputation system, escrow services, credit card guarantees, and intermediary protection, have been proven to be effective in building consumer trust [26]. These mechanisms are actually applicable to all sellers in an electronic market. While institutional mechanisms function in an electronic market as a whole and are unlikely to be effective in differentiating sellers, it should be noted that some emerging voluntary institutional mechanisms have been well utilized in practice. For example, in an attempt to develop some unique mechanisms, TaoBao permits sellers to voluntarily subscribe to a consumer protection scheme, a 7-day-no-condition product return policy and a 30-day free repair scheme. Considering that sellers' subscription to these schemes is on a voluntary basis and that it induces more costs for "bad sellers" with low quality products than for "good" sellers with high-quality products, such emerging institutional mechanisms appear to be able to render online sellers a differentiating position in the focal electronic market.

Social mechanisms in this study refer to the influence of trends [28] and virtual presence [22] on buyer behavior. Although social mechanisms have received little attention in the literature on electronic markets [3,21], we argue that they are important in persuading buyers to choose one particular seller over others. For example, TaoBao can display the number of people tagging a specific product web page as a favorite item, or the number of people tagging a specific seller as a favorite seller. In addition, sellers can also utilize a platform-embedded instant messaging (IM) tool, namely WangWang, to communicate with buyers. We argue that these factors can influence buying decisions because they require sellers to devote time and efforts to obtain high numbers of product and seller taggings or be online for instant communication with buyers. Therefore, the impact of such social mechanisms on seller differentiation is worthy of investigation from both theoretical and practical aspects.

Based on the above observations, we propose to integrate two perspectives, viz., institutional mechanisms and social based mechanisms, to examine their impacts on seller differentiation in electronic markets. Following this introduction, we detail the theoretical development based on the quality signaling theories [1,16,31] and justify the hypotheses in the next section. We then explain how we collect objective data using a web crawler, tailored to TaoBao's website structure, in this study. In the data analysis section, we present the results of statistical analysis based on 16,994 distinct records of product web pages crawled from TaoBao. We then discuss the key findings and conclude this paper with implications and future research.

2. Theoretical development

2.1. Building a theoretical framework based on the quality signaling theories

Electronic markets are characterized by the separation of buyers and sellers and thus high uncertainty. In order to help the buyers identify "good" from "bad" products and sellers, electronic markets have developed quality signaling mechanisms to promote online transactions, while researchers have contributed to the empirical tests of these mechanisms. Notably, the auction and quality signaling theories in economics [1,31] provided a typology of auction quality and credibility indicators, which has been adapted in the research on Internet auctions (e.g., [16,24]). Specifically, Spence [31], as well as Kirmani and Rao [12], noted that two conditions need to be met before a mechanism can serve as a signaling device. First, the mechanism needs to induce costs for the seller to adopt. Second, the signaling costs must fulfill the single-crossing property that "such costs are higher for bad sellers than for good sellers so that a separating equilibrium occurs" ([16], p. 78). Furthermore, Li et al. [16] classified the Internet auction features into the types of product quality and seller credibility and used a hierarchical Bayesian framework to examine consumers' bidding behavior in eBay.

In parallel with the quality signaling theories found in the economics discipline, IS researchers also suggest the effectiveness of institutional based mechanisms, such as reputation system, escrow services, credit card guarantees and intermediary protection, in building consumer trust (e.g., [26]). We argue that although those institutional mechanisms are effective to signal the quality of seller community as a whole, differentiation from "good" from "bad" sellers demands more than the community-wide institutional mechanisms. On this aspect, we suggest that social based quality signaling mechanisms plays an important role in differentiating sellers in electronic markets.

Therefore, this study made use of quality signaling theories to classify the quality signaling mechanisms in electronic markets into those related to seller characteristics and product characteristics. In addition, the perspective of institutional and social based quality signaling mechanisms for trust building provides sellers with different quality indicators to opt in or disclose more quality information. In the combination of quality signaling theories and trust-building mechanisms, we propose a typology of seller credibility and product quality indicators from institutional and social perspectives (as shown in Table 1). In this study, we attempt to examine their effectiveness in influencing the seller differentiation in terms of sales volume. We establish and justify the theoretical hypotheses related to this typology in the following section.

2.2. Institutional mechanisms

In order to attract buyers to engage in transactions with "unknown" online vendors in electronic marketplaces, much effort has been put into the study of how effective electronic markets can be designed. In particular, trust and trust building mechanisms have received great attention (e.g., [8,19]). Typically, institutional structures, such as the reputation systems, escrow services, credit card guarantees, and intermediary protections, are considered to be effective trust-building mechanisms (e.g., [25,26]). These institutional mechanisms have been commonly adopted in electronic markets such as eBay and TaoBao.

Table 1
A typology of institutional and social based quality signaling mechanisms.

Quality signaling mechanisms	Institutional-based	Social-based
Seller characteristics	• Reputation score • Rating scores • Consumer protection scheme	• Virtual presence • Shop tagging
Product characteristics	• Seven-day return policy • Repairing service	• Product tagging