Exploring the Effectiveness of Seller Reputation Mechanism Using Online Sales Data

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ABSTRACT

This paper attempts to explore the effectiveness of the seller reputation mechanism by an empirical study using online sales data collected from TaoBao.com. A comparison analysis of seller reputation metrics of TaoBao, Amazon, and jd are carried out before the selection of the seller reputation metrics. The seller reputation metrics of small appliances are used as the input for the study considering the quality homogeneity among different sellers of the market, and the sales performance is measured by the sales amount of the recent month. The univariate analysis are performed to find out the effect of different seller reputation metrics on the sales performance, and the attribute selection technique is then applied to reveal the most significant factors contributing to the sales performance. The result indicates the significance of the user subjective assessment on the sales performance.

Keywords: Attribute Selection, e-Commerce, Reputation Metrics, Sales Performance, Seller Reputation, Univariate Analysis

INTRODUCTION

With the explosive growth of online sales in today’s global economy, the Internet has offered a much broader market space for the sellers as well as for the buyers. For example, TaoBao, the top Chinese online mall, announced that its sales reached 35 billion RMB in a single day, November 11, the “double sticks” day in China in 2013.

However, unlike the traditional markets where sales are conducted face-to-face between the sellers and the buyers, the online sales tend to be rather ‘anonymous’ with little personal interaction (Cabral & Hortacsu, 2010; Ye, Li, Kiang, & Wu, 2009). This may result in intensified information asymmetry leading to potential risks for the buyers (Valentin Andrei, 2011). As the key stakeholders in online sales, the buyers have the ultimate rights for decisions concerning whether to buy, what to buy and where to buy. To
mitigate the risks and uncertainties confronted by the buyers within an online sales context, trust in the sellers is a necessity for the buyers to accept any risk associated with the online sales (Gefen & Straub, 2004; McCole, Ramsey, & Williams, 2010). As a result, it has been well recognized that the lack of trust between the buyers and the sellers explains numerous failures of online transactions (Grabner-Kräuter & Kaluscha, 2003). Establishing an effective trust system is crucial for the development of e-commerce to reach its full potential.

To this end, the seller reputation mechanism has been built for collecting information from the seller’s transaction history (Resnick, Zeckhauser, Swanson, & Lockwood, 2006). This seller reputation information is available to potential buyers, thus has a considerable effect on the buying decision. For the online sales market with a high degree of uncertainties for the buyers, seller reputation is an important asset for the sellers as the basis of the buyer’s choice for the sellers. Therefore, the seller reputation mechanism plays a key role in the sellers’ effort to build and maintain a good reputation as well as in the online sites’ endeavor for the online sales prosperity (Bar-Isaac & Tadelis, 2008).

The dominant online sales site TaoBao, for example, has set up a buyer feedback system for all the sellers. After the completion of each transaction, the buyer is asked to grade the seller reputation in terms of the truth of the goods description, the service quality, the goods delivery speed, and so on. In addition, the buyers can give a subjective evaluation about the transaction using comments in text. A potential buyer is able to access the seller reputation information before the buying decision can be made. Thus, the seller reputation mechanism plays a crucial role in the context of online market where each buyer may be faced with mushrooming number of possible sellers (Resnick et al., 2006). However, it has been noted that the reliability of such seller reputation mechanism may be compromised due to potential fraudulent behaviors of the buyers as well as few feedbacks from the consumers (Dellarocas, 2000). This poses an interesting and very important question: how well do these seller reputation systems work?

This paper attempts to investigate the effectiveness of seller reputation mechanism by an empirical study using data collected from TaoBao.com, which is the largest online market in China. After an extensive analysis of the seller reputation metrics for the TaoBao seller reputation system, the small appliances are selected as the input for the empirical study, which are normally standardized products with a fairly good product homogeneity among different sellers of the market. In order to investigate the effectiveness of various seller reputation metrics, the univariate analysis is carried out for revealing the impact of various seller reputation metrics on the buyers’ decision. In addition, the attribute selection technique is applied for finding out the most significant factors contributing to the sales performance. The results of this study will provide empirical evidence for improving the seller reputation systems.

The paper is structured as follows: The next section provides the state of the art of the research on seller reputation mechanism, including a comparison analysis of seller reputation metrics of several Chinese online sites such as TaoBao, Amazon, and jd. After a thorough literature review, two research questions are presented in terms of the significance of the seller reputation metrics and the effectiveness of a specific seller reputation mechanism for the buyers’ decision support. The research methodology is then presented, including product information collection, seller reputation information collection, seller reputation and sales profile generation, univariate analysis, and attribute selection. For the empirical study, the sales data about two types of small appliances including an air purifier and a dust cleaner are collected from TaoBao.com as the input of the empirical study. An extensive elaboration on the results of the empirical study is provided, including the statistical description, the univariate analysis and attribute selection. Finally, the paper is concluded and the future work is discussed.
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