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Understanding the confluence of retailer characteristics, market characteristics and online pricing strategies

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Abstract

Theories from Information Systems, Marketing and Economics suggest that product, retailer, and market characteristics jointly serve as determinants of online retailers' ability to price differentiate. Until now, the empirical research has focused on examining the impact of these determinants in isolation. In this paper, we extend the prior online price dispersion literature by examining the interactions among product, retailer and market characteristics. We construct a multi-level hierarchical linear model to empirically test whether market level characteristics moderate retailer characteristics in explaining price dispersion. Our analysis is based on a dataset of 13,393 price quotes for 1880 best selling products across eight product categories from 194 online retailers. The analysis indicates that service quality has a positive effect on retailer price levels. We observe that the relationship between competitive intensity in a market and retailer price levels is inverted "U" shaped. In contrast, the influence of the interaction between a retailer's service quality and market level variables on retailer price levels is "U" shaped. These findings together provide the first known empirical evidence for the existence of mixed pricing strategies among online retailers. Contrary to conventional wisdom, we find that retailers providing quality service are able to charge higher prices as the competition increases.

Keywords: Electronic market efficiency; Price dispersion; Retailer service quality; Pricing strategy

1. Introduction

The growth in Internet based retailing[3] has been accompanied with equal interest amongst researchers examining the impact of the Internet-enabled business models. Central to online retailing is the informational transparency provided by third-party websites such as Pricescan.com for comparative product prices and number of competitors, and Bizrate.com, which also provides service quality ratings and consumer opinions of retailers. Such transparency, accompanied by ease of search, was predicted to provide gains in informational efficiency and reduce price dispersion in the marketplace [6,7]. It has been suggested that the increased availability of information accompanied with the ease of search will lead to *cost transparency* [35]. This will allow the consumers to clearly see through not just the prices but also the cost structures of sellers and

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[3] Bizrate.com and eMarketer.com indicate a 25% increase in sales, up to $56 billion, in 2003.

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suppliers. This, in turn, will lead to substantial erosion in sellers' ability to price differentiate and extract premiums, and lead to informationally efficient markets.

Yet, empirical evidence from a wide range of product markets and countries indicates that price dispersion is persistent in online markets and that the so-called "law of one price" does not hold [3,5,9,10,11,13,18]. The persistence of the price dispersion implies retailers' ability to sustain price differentiation even in the face of increased search efficiency and accessibility to a host of other relevant information. The question arises, what are the primary sources of differentiation that influence a retailer's ability to extract economic rents?

As can be expected with early work in an area, the vast majority of research has focused on isolated aspects of informational transparency and the resulting impact on price dispersion. Studies shedding light on what enables the retailer to price differentiate from its competition (*retailer characteristics*) have examined retailers' ability to service differentiate. For instance, in eBay auctions, sellers' premiums have been found to be increasing in seller reputation, a proxy for service quality offered [4]. Another retailer characteristic considered is the combination of transaction channels offered; for example, pure-play Internet versus brick-and-click retailers [28]. Another recent study in marketing considers *market characteristics* such as number of competitors, average price and product popularity [27]. *It is worth noting that none of the prior studies have examined the interactions between retailer, product and market characteristics towards explaining price dispersion*. Given the enhanced product and retailer rating information disseminated by online intermediaries, we wish to study the impact of this information richness on retailers' pricing strategies. Electronic markets enable volumes and speeds that human middlemen could not accomplish [20]. There has been limited research on the impact of intermediaries, such as price-comparison agents, on price levels and retailer's strategies. It has been shown analytically that the increasing numbers of price-comparison shoppers pull prices down, and the rate at which prices decrease is shaped by the diffusion curve and brand preference [23]. Given these theoretical expectations of the impact of widespread information availability, we empirically examine *when* and *how* in relation to competitive intensity does retailer service quality and choice of transaction channels shape an online retailer's ability to price differentiate. The key question we address is whether such information, accessible to both consumers and competitors, is being cross-fertilized and acted upon in a significant way.

To summarize, we seek to answer the following questions with regard to a retailer's ability to price differentiate:

1. *What* retailer characteristics matter?
2. *When*, in context of different market conditions, do they matter?
3. *How* do they enable different degrees of price differentiation?

The rest of the paper is organized as follows. The next section presents the conceptual model for our analysis. It includes five test hypotheses that examine how market and retailer characteristics interact, and in the process determine the scope of price differentiation available to a given retailer. We then describe our data collection from heterogeneous sources to capture the information that is widely available to consumers and retailers alike. We then present a hierarchical multi-level regression model that includes factors at different levels of measurement (product, retailer and market) to capture the richness of the conceptual framework. Subsequently, we report the results of the data analyses and analyze the implications. We conclude by discussing limitations of our study and directions for future research.

2. Conceptual model and hypotheses

Our research simultaneously analyzes the two forces that determine online retailers' competitive advantage on the sell-side [31]. These are a) buyers' bargaining power as a result of lowered search cost and access to widely-available information about the retailers and b) competitive intensity, where sellers can easily observe and assess their competition in terms of not only product and price offerings but also measures that were previously unobservable. Such measures include reputation as reflected in service quality and estimated total sales as measurable from traffic to the competitors' websites. Fig. 1 presents the conceptual model of our study.

The two forces are represented in the conceptual model as *Retailer* and *Market Characteristics*. We hypothesize that these forces and the interactions between them determine the scope of price differentiation available to a given retailer. Based on the conceptual model we formalize the hypotheses below. The hypo-