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Designing online selling mechanisms: Transparency levels and prices

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Abstract

Sellers increasingly compete with innovative Internet-based selling mechanisms, revealing or concealing market information. *Transparency strategy* involves design choices by firms that influence the availability and accessibility of information about products and prices. We develop decision support models for suppliers to set prices for online mechanisms with different transparency levels. We then empirically analyze the price levels set by airlines across transparent and opaque online travel agencies. Our results suggest that airlines can increase profit by increasing price differentials or influencing OTA transparency differences. We also discuss application generality and limitations of our results.

Keywords: Airline industry; Analytical model; Decision support; Demand; Economics of information systems; Electronic commerce; Market transparency; Pricing; Online travel agencies

1. Introduction

The Internet revolution has brought about significant changes in the ability of firms to compete for consumers with market information. It has reduced the costs of information search, offering consumers multiple purchasing channels and product options. Sellers are increasingly able to use advanced technologies to reveal, conceal, bias, or distort market information. Prior to the advent of the Internet, a firm's market presence was defined by its product offerings and respective prices. Now, a firm can also strategically design and implement different types of selling mechanisms or participate in existing electronic markets to influence *market transparency*, or the availability and accessibility of market information.

E-commerce technology advances are transforming the rules of market information disclosure. In the current technological environment, firms can increasingly manipulate the information they provide to consumers, so they are in a position to strategize in ways that were not possible in the past. The May 10, 2004 issue of *Business Week* magazine identified key industries where electronic commerce rewrote the rules for trading: books, music, travel, real estate, telecommunications, and jewelry. A common thread in these markets is that the Internet has caused a structural increase in the levels of market transparency.

Generally, Internet-enabled increases in market transparency benefit consumers because they are able to better discern the product that best fits their needs at a

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better price. On the other hand, the Internet provides sellers with flexibility to strategically determine the information they will provide to consumers via their selling mechanism. Some organizations have defined their competitive strategy around the design of mechanisms that challenge an existing market transparency regime. For example, in 2001 major U.S. airlines launched an online travel agency (OTA) called Orbitz, claiming that it was the most transparent travel Web site in the market. The Progressive Companies (www.progressive.com), a transportation vehicle insurance company, not only provides information about its insurance products online, but it also provides comparative prices and product characteristics of its competitors. Blue Nile (www.bluenile.com), a prominent cybermediary for jewelry, bases its strategy on educating consumers on the quality characteristics of diamonds. The innovative *transparency strategies* of these firms have allowed them to become leaders in their respective online markets.

We also observe the opposite strategy, where some firms strategically design and implement *opaque* selling mechanisms. For example, based on a niche strategy, Priceline.com (www.priceline.com) introduced a patented "name-your-own-price" mechanism that only reveals product and price information after the consumer has committed to purchase at a certain price. Hotwire, a similarly opaque mechanism, was launched by U.S. major airlines a few years later to compete in this niche market.

Sellers can also influence market transparency by selling their products in existing market exchanges. For example, if a firm decides to participate in an exchange that offers products from competitors, it is providing market transparency because consumers are able to compare the firm's prices with those of the competition. Such is the case of most major airlines, which post their travel offers and prices on multiple reservation systems and OTAs, so travel agencies and travelers can make product and price comparisons. In contrast, Southwest Airlines sells its tickets only through its own airline portal (www.southwest.com) or phone-based reservation service.

In this paper, we provide a decision support approach that firms can use to develop a *transparency strategy* based on mechanism design and price setting. We capitalize on earlier work that models the impact of market transparency on consumers to provide a stepwise methodology which can lead to effective transparency strategies [19]. This approach will allow managers to make joint strategic decisions regarding the transparency levels and prices with which they will compete. The rest of this paper is organized as follows. In the next section, we provide a theoretical argumentation about the need for a methodology that supports the design of selling mechanisms based on the impact of market transparency on consumers. In the third section, we present our decision support approach. In the fourth section, we provide an illustrative example of how this approach can be used to set transparency levels and prices, by empirically analyzing historical sales and prices of transparent and opaque OTAs. We discuss and interpret our primary findings in the fifth section, and then conclude with contributions, limitations and opportunities for future research.

2. Literature review

In this section, we conceptualize market transparency and its impact on consumers, based on existing literature in the IS, marketing, finance, and economics literature. Then we discuss the implications for the design of Internet-based selling mechanisms.

2.1. What is market transparency?

Market transparency is defined as the level of availability and accessibility of information about products and market prices. Firms influence the potential for market transparency by investing in technologies for product distribution and information revelation. Market transparency is influenced by the underlying technological infrastructure of online and offline distribution channels and the degree to which data are integrated across channels [10,38]. Market transparency may also depend on the digital versus non-digital attributes of the product. Generally, the higher the digital attributes, the higher is the potential for market transparency in the Internet channel [20].

Existing IS research on data and information quality assumes that information completeness and accuracy are desired outcomes [27]. If this assumption is valid, we should observe a homogeneous and high level of market transparency across online markets, as sellers exploit the transparency potential of the Internet. However, many firms capitalize on their ability to distort, bias, and conceal information in their favor [22]. Therefore, in this paper we assume that market transparency is not necessarily the desired outcome. Rather, depending on a firm's strategy, it will set a desired level of *accuracy*, *bias*, and *completeness* of information and design its online selling mechanisms accordingly. Therefore, we depart from the notion that higher market transparency is better, and instead we assume that firms consider the trade-offs of revealing and concealing different types of market information.