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Information technology–enhanced pricing strategies: managerial and public policy implications

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Abstract

The Internet and related technologies have created opportunities for enhanced pricing strategies. The consequences of these pricing strategies have important managerial and public policy implications. Here, we identify five technology-enhanced pricing strategies that have come to prominence. Each strategy is introduced by one or two (short) case studies that are used as examples to illustrate key public policy and legal issues. We outline the benefits and potential problems of each strategy with respect to social welfare and competition.

Keywords: Pricing strategies; Internet; Technology; Public policy; Social welfare

1. Introduction

Information technology and the Internet have the potential to bring about fundamental changes in pricing strategies (Bakos and Brynjolfsson, 2000; Soman and Gourville, 2001). The availability of massive databases and real-time computational ability and the emergence of computer system networks have opened up a vast array of pricing possibilities. These possibilities have been brought about through increased information, improved communication and reach, and reduced transaction costs. We label them as "information technology–enhanced pricing strategies" (ITEPS). Increased search capabilities, for example, have led to the growth of price agents and related technologies; and a larger database of information has led to greater opportunities for price segmentation. Reduction in transaction and distribution costs has resulted in enhancement of price-bundling strategies. Increased reach and better demand forecasting abilities have led to strategies such as revenue management.

Despite the beneficial effects of ITEPS, concerns about the potential drawbacks are on the rise. That is, notwithstanding the indisputable favorable consequences of these improved approaches, potential problems such as consumer perceptions of unfairness (Bolton et al., 2003) or consumer backlash may prove to be major hindrances for firms trying to use the emerging pricing opportunities to enhance their profitability. Specific examples of firms that had to deal with such problems include Coke, Amazon.com, and Microsoft. Coke, for example, experimented with smart vending machines that could increase the price of a bottle of Coke on hot days and vice versa, but had to terminate it due to consumer resistance (Streitfeld, 2000). Likewise, Amazon.com's Jeff Bezos appeared on a TV show justifying his random price-testing scheme for CDs, but customers perceived this as unfair (Melillo, 2000). Lastly, Fisher (2000) accused Microsoft of predatory pricing for providing Internet

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Explorer to consumers free of charge. These examples illustrate that firms using ITEPS need to recognize the potential problem areas not just as they relate to consumer perceptions of fairness but also to legal issues, for example, allegations of predatory pricing, and monopolization.

ITEPS thus resemble a two-sided coin with both positive and negative faces. A key strategic question, however, is not whether to deploy ITEPS. Firms have no choice if they want to stay competitive; however, the question is how ITEPS should be deployed. Managers using these strategies need to be careful when dealing with "gray" areas because the launch of the Internet is fairly recent and these advancements have no point of reference in previous price-related legislation and there is no precedent against which to compare them. Therefore, the objectives of this research are twofold: (1) To identify ethical, legal, and public policy issues resulting from pricing strategies in the context of internet technology and (2) to provide managerial guidance for potential problem areas associated with these pricing strategies.

Our research makes several contributions to the extant literature. First, we use real-life case studies to gain insights into each of the technology-enhanced pricing strategies and to illustrate potential problem areas. Second, we discuss the relevant and prospective laws and regulations for dealing with these potential problems or "gray" areas. Third, we extend previous research on customer perceptions of pricing fairness (cf. Bolton et al., 2003; Kahneman et al., 1986) in the specific context of ITEPS. Specifically, we discuss theories of justice to extend the earlier research that primarily emphasizes the principle of dual entitlement. Fourth, we discuss implications for managers and public policy makers (see Table 1).

2. ITEPS: uses and alternative interpretations

We now examine five relevant case studies that depict both advantageous usage of the ITEPS and their alternative interpretations. We discuss the relevant regulations and the increased complexities associated with the usage of each pricing strategy in the modern high-technology marketplace.

2.1. Price bundling: uses and alternative interpretations

Price bundling, a strategy that offers two or more products in a single package for a special price, has the ability to create "economies of aggregation," which may provide a competitive advantage for firms. Bundling has resurfaced specifically for information goods, as the Internet has provided for free distribution of such goods and the configuration of such bundles has become very efficient using the advanced computing resources available today. It has been shown that the infinite bundle ultimately leads to highest profitability (Bakos and Brynjolfsson, 2000). This effect could be more pronounced in modern network industries, as it is difficult for consumers to switch once they adopt one standard.

Conversely, critics point out that if not done with caution bundling has the potential to stifle competition and harm social welfare in the long run. Fisher (2000), for example, accuses Microsoft of predatory bundling. Considering that Microsoft had 90% market share with its Windows 95 software, any application development was potentially dependent on the use of this operating system. The introduction of Netscape and the Java programming language provided alternative avenues for application software development. To overcome this threat from its competition, Microsoft bundled its Internet Explorer with

Table 1
ITEPS: economic performance and potential problem areas

Economic performance	Pricing possibilities	Potential major problem area(s)	Law/Regulations	Case study	Social welfare
Profit maximization for firm, reduced price for customer	1. Price bundling of information goods	Illegal tying, predatory pricing	Schedule II of Sherman Act, Robinson Patman Act, Clayton Act, State Laws	US vs. Microsoft	Not considered unfair when well managed, however, may harm social welfare
Better inventory and customer management, profit maximization	2. Price customization	Violation of information privacy, unfair pricing	Privacy Act of 1974, Data privacy act of 1997 (H.R. 2368)	DoubleClick, Netscape	Considered unfair in certain circumstances, serious concern under violation of privacy
Collaboration leading to better efficiencies	3. Price agents	Collusion, price fixing, price signaling, parallel pricing	Sherman Act Section 1, FTC Act Section 5	Sabre and Apollo	Considered unfair in certain circumstances
Better demand management, specially in case of perishable products and services	4. Revenue management	Unfair pricing	Customer criticism	Airline pricing, Coca Cola	Opportunistic increases in prices are considered unfair
Profit maximization	5. Price testing	Violation of information privacy, unfair pricing	Customer criticism, Consumer Internet Privacy Protection Act of 1997	Amazon.com	Price testing is considered unfair if loyal customers being charged more under its garb