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Study: "Intertemporal Price Discrimination With Forward-Looking Consumers"

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Summary: Setting high prices on products with the intention of lowering them later is a time-honored practice in many durable-goods markets. But a new paper finds that in the video game business—and others with super-price-savvy consumers—that's a good way to lose 30 percent of your profits.

Misjudge the intelligence of your customers when setting a pricing strategy, and you could lose significant revenues. That's the conclusion of research by Harikesh Nair, assistant professor of marketing, based on his examination of pricing tactics in the U.S. video game market.

As it turns out, video game manufacturers who set very high initial prices with the intention of gradually lowering them later as demand slows can actually risk significantly reducing profits by ignoring customers' savvy, forward-looking behavior.

"The problem for manufacturers is that rational consumers know that prices are going to decrease, so they have the incentive to wait," says Nair, who teaches an elective course on pricing strategy. "If firms incorrectly assume that consumers are myopic and not forward-looking, they will set their initial prices too high and demand will drop considerably." His paper examining this process recently won the prestigious Howard Dissertation Competition sponsored by the American Marketing Association.

The stakes are high. Video game companies not comprehending that consumers are indeed rational—that is, that they are sophisticated enough to anticipate future market
conditions—may realize profits that are nearly 30 percent lower than when games are priced appropriately.

Setting opening prices on products with the intention of lowering them later is a time-honored practice in many durable goods markets. Described by economists as intertemporal pricing discrimination, the practice means that manufacturers are attempting to segment their markets according to time. For example, in the video game industry, hard-core gamers are generally willing to pay a premium for getting the latest video games immediately upon release. Less avid consumers refuse to pay such high prices and wait until prices are reduced before purchasing. By setting different prices for different groups of consumers at different points in time, companies hope to maximize revenues by temporally appealing to the largest possible customer base over the life of a product.

The relevance of consumer behavior for this marketing strategy was first identified in an influential 1972 paper containing what is now widely referred to as the "Coase conjecture." The paper presented theoretical evidence that attempts by a durable-goods maker to increase profits by reducing product prices over time can be significantly affected if consumers are forward-looking and delay purchases strategically in anticipation of price cuts.

The challenge for companies is in deciding the optimal initial price as well as determining the best times to lower prices and by how much, while taking into account that consumers may behave strategically.

Although there is a rich body of theoretical literature on this subject, Nair’s work provides a real-world framework, creating a practical model that helps manufacturers of high-tech durable goods to actually calculate optimal prices.

Nair used aggregate retail sales and prices of all new video games developed for Sony’s PlayStation console released in the U.S. market between October 1998 and March 2000. He analyzed the initial prices set for each product as well as the timing of price reductions and the corresponding effect on sales.

One of Nair’s key findings is that optimal pricing strategies do indeed seem to include skimming, or setting an aggressive initial price followed by steep discounting over time. But in order to best gauge the extent of forward-looking consumer behavior, firms need to conduct market research that establishes consumer expectations of future prices. This research can be expensive, so Nair estimated how much a firm should spend on such activities. He established that because profits were nearly 30 percent lower when firms incorrectly set prices too high, a firm could spend up to that amount and still come out
ahead with its pricing policy.

This study is important because it puts a dollar figure on optimal pricing of games as well as on the market research that has to be done upfront to establish that pricing, says Steve Brown, the Bauer professor of marketing at the University of Houston, cochair of the Howard Dissertation Competition that singled out the paper. "In his research, Harikesh addressed a very important, substantive issue."

"It's important for firms to do market research in the form of focus groups and surveys before a game is launched," Nair says. "Our research shows that the maximum amount you should be willing to pay for market research is the additional profit associated with doing it right."

The results are relevant for many industries, including technology products, creative goods such as CDs and books, and apparel.

Nair's research shows that currently games are priced a bit high.

"Companies would actually make more money by offering lower prices upfront," he says. "They'd make less money on a per-unit basis but sell a lot more units."

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