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How the Offer of 'Free Shipping' Affects On-line Shopping

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The phrase "free shipping" is like a siren song to many who shop on the Internet.

For whatever reason, a free shipping offer that saves a customer $6.99 is more appealing to many than a discount that cuts the purchase price by $10, says Wharton marketing professor David Bell. Bell noticed this phenomenon a few years ago while doing research for an online grocery store, and the observation prompted him to look more closely at the ways Internet retailers use shipping charges -- or the lack thereof -- as a promotional tool.

The result is a model that can help managers set shipping fees in ways that both appeal to customers and drive them to buy in quantities that can be efficiently processed. "There is no direct analog to this in the traditional retail world," Bell says. "It seemed to us that firms had not figured out the 'right' shipping policy, so there's a lot of experimentation going on without clear guidelines."

Internet-based shopping is the fastest growing sector of retailing in the U.S., Bell says, with sales exceeding $110 billion during 2004. Approximately 60% of online retailers cite "free shipping with conditions" as their most successful marketing tool.

Consumers like free shipping offers, perhaps because it makes the online retail transaction more comparable with that at the neighborhood store. Whatever the reason, it's clear that consumer behavior changes when shipping fees are imposed. With fees, shoppers will make fewer shopping trips and purchase more goods at a time -- not unlike shoppers who drive great distances to a particular store, Bell says, and decide they had better stock up while they're there. Alternately, fees can prompt consumers to simply walk away. A survey from 2004 found that shipping and handling costs triggered 52% of the abandonment of online shopping carts, Bell says.

While some might argue that shipping fees are merely a substitute for the time and travel costs involved with visiting a bricks-and-mortar retailer, consumers may not buy that argument, Bell notes, adding that the link might not be so clear in the minds of many because travel costs are not collected at the traditional retailer's point of sale.

Some companies have struck a middle ground by waving shipping costs when customers exceed a threshold -- a strategy that can indeed make customers think differently about price, Bell says. Whereas higher prices always are bad for consumers in traditional retailing, customers of online retailers can benefit from higher prices because they push the total closer to the free shipping threshold.

Setting Thresholds -- and Prices

In a recent paper titled, "Free Shipping and Repeat Buying on the Internet: Theory and Evidence," Bell and two colleagues -- Skander Essegaier, a professor at Koc University in Istanbul, and Yinghui Yang, a professor at the University of California at Davis -- developed a model that shows how firms can use this dynamic to their advantage, while not putting customers at a disadvantage.

Bell gives an example of a firm that lowers its free-shipping threshold to induce customers to purchase smaller quantities with greater frequency. If the company's goal is to leave consumers equally well off in terms of their long run costs, should the threshold change be accompanied by price increases or decreases? Bell's model shows that the answer depends on where the firm's prices currently stand.

A firm with already low prices, relative to the model, should drop prices further when lowering the threshold. A failure to do so would give consumers a benefit at the firm's expense, Bell said, because consumers would hit the free shipping threshold more often. Conversely, a firm with high prices should increase them further when lowering the free shipping threshold, since the company is likely to be paying shipping costs more often. "In the latter case, people pay more for the products, but they will more often get free shipping. In the other case, they will pay less for the products, but more for shipping," Bell says. "So, the total cost of products and shipping cost will net out to be the same in both cases. ... Ultimately, the rational consumer is indifferent."

If consumers are indifferent, why should managers care? Because a firm might be able to more efficiently deliver the same quantity of products to a customer in, for example, four purchases over a period of time than the same quantity all at once or in eight smaller purchases.

Bell cites the example of Net Grocer, an online grocery firm that calculates shipping costs based on the size and location of particular orders. The company uses shipping fees to push consumers away from ordering either tiny or massive quantities of goods, both of which can be more costly for the company to fill. Companies that want to fill relatively few orders will raise their free shipping threshold; firms that want customers to visit regularly -- perhaps so they can sell ads on their site -- might prefer low shipping thresholds.

Bell points out that Amazon.com has experimented with free shipping thresholds since 2002. Initially, Amazon offered consumers free shipping if they spent $99, and then lowered the bar twice during 2002 -- first to $49, then to $25. Data from comScore, a firm that tracks Internet browsing and purchasing behavior for academic research, documented the impact of the changes. When a $49 purchase triggered free shipping, the average purchase quantity of products per order was 3.31. When the threshold fell to $25, the average purchase quantity dropped to 2.53. The comScore data included 45 purchasers who bought from Amazon.com when both thresholds were in place. Those consumers spent $17 less per "free-shipping" order under the lower threshold, and purchased 1.82 fewer items.

In addition, the Amazon case shows that lower thresholds for free shipping also lead to greater variation in prices for the same goods. It makes sense, Bell says, because as free shipping thresholds drop, consumers have less reason to make purchasing decisions on price alone. A similar dynamic explains why there is less price dispersion -- a smaller gap between the minimum and maximum price at a specific point in time -- for pharmaceutical products used chronically, rather than episodically. In an extreme world where price information about a particular good can be obtained from many sellers at zero cost, there should be no price dispersion. This is because there is no effort or search cost for consumers that make it possible for different sellers to charge different prices for the same item. In the pharmaceutical example, users should be more willing to shop around for drugs that are used repeatedly for longer periods. "The more incentive there is to search on price, the less dispersion there should be," he says.

As Internet retailing grows, there likely will be more opportunities for research on trends in free shipping. Bell's model, for example, is based on consumption patterns in which the purchaser shops, stores the inventory and then replenishes once the inventory is depleted. So, while the model works for describing how people buy groceries or even books, it's not applicable to durable goods, such as household appliances, automobiles, or other large ticket, infrequently purchased items. Even in the world of non-durable goods, there's room for more research as companies innovate.

Amazon.com, for example, now offers what Bell calls an "all you can eat" express shipping option, called Amazon Prime, for an annual fee of $79. "While we do not consider this variation explicitly, our research is a first attempt at an analytical framework for understanding the effect of such policies," Bell and colleagues write. "Future work might also consider different classes of shipping service defined by delivery speed."

The researchers do note, however, that it is unlikely the "all you can eat" policy will be valued by Amazon users who purchase sufficient volumes of products. These customers can "strategically" time the placement and volume of orders in order to always hit the free-shipping threshold and avoid such fees altogether. From a purely rational perspective, Bell says, these strategic and/or heavy use customers, therefore, have little to gain from paying $79 to avoid shipping fees when they can already avoid them through judicious purchasing strategies. On the other hand, if this kind of annual fee leads consumers to make purchases that are truly incremental, it could be worthwhile.