Research Note: Price Discrimination as an Adverse Signal: Why an Offer to Spread Payments May Hurt Demand

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Abstract
Firms often search enthusiastically for distinguishing traits that they may use to price discriminate between segments. Yet there are occasions in which firms forgo the opportunity to price discriminate and instead charge a single price. Traditional explanations for why retailers forgo the opportunity to price discriminate focus on the cost of discriminating, including operational costs, explicit discrimination costs, and implicit discrimination costs. In this paper we identify an additional reason for why firms may forgo an opportunity to price discriminate. By revealing that a product is being sold to a broad range of segments, a retailer implicitly claims that the product is suitable for each segment. However, claiming that a premium-quality product is suitable for price-sensitive consumers undermines the credibility of a retailer’s quality claim.

The signaling explanation was motivated by extensive discussions over more than a year with a major catalog retailer that sells premium-quality jewelry and gifts. Discussions with managers revealed that they were reluctant to use any price-discrimination mechanism that signals their products are targeted at price-sensitive customers. For example, the catalog does not include sale or clearance sections and does not target more price-sensitive customers by using separate items. However, management was under some pressure to consider installment-billing offers, which allow customers to pay over a series of periods rather than in a lump sum. Management feared that offering installment billing may adversely affect customers’ quality perceptions and demand.

To investigate this issue, we develop a general game-theoretic model, illustrate how the model extends to installment billing, and conduct a large-scale field test. The general model illustrates how selling to multiple segments may lead to an adverse quality signal. We illustrate how the model extends to installment-billing offers in a direct-mail catalog. Installment-billing offers allow customers to pay over a series of payments. All customers have the option of using installment billing, and customers who use the plan receive an economic benefit (an interest-free loan).

We would normally expect this type of offer to increase demand or, at a minimum, leave demand unchanged. However, because installment-billing offers target credit-constrained customers, we predicted that the introduction of installment billing would prompt an unfavorable quality inference and reduce demand among quality-sensitive customers.

We empirically investigated this prediction in a large-scale field test with a catalog that offers premium-quality jewelry and gifts. Two versions of the catalog were created: a test version that contained an installment-billing offer, and a control version in which installment billing was not offered. Importantly, the prices in both the test version and control version were identical. Approximately 240,000 catalogs were mailed, and customers were randomly assigned to either the test version or control version. Results show that the installment-billing offer (test version) was associated with both a reduction in the number of orders received and a reduction in aggregate revenue. Offering installment billing resulted in approximately $15,000 in lost revenue. The only plausible explanation for this counterintuitive finding appears to be the signaling theory.

To investigate the long-term effects, the catalog agreed to survey their customers to measure how an offer of installment billing affects their customers’ quality perceptions. Similar to the field test, two versions of a catalog were created, and customers were randomly mailed a catalog, along with a short survey. Respondents were asked to browse through the catalog and return their responses in a reply-paid envelope. The findings are consistent with customer beliefs in the signaling model: Offering installment billing lowers the perceived quality of the items in the catalog.

The field test and survey findings were both statistically significant and managerially relevant. Together, the results convinced the catalog not to include installment-billing offers in future catalogs.

(Signaling; Price Discrimination; Installment Billing; Promotions; Quality Perceptions; Retailing)