2009 Russell Ackoff Fellowship Proposal

Advance Selling, Strategic Consumers and Competition

Pnina Feldman

The Wharton School, OPIM Department

pninaf@wharton.upenn.edu

Dissertation Advisor: Gerard P. Cachon

Should a firm advance sell when operating in a competitive environment?

Advance selling occurs when customers purchase at a time preceding the actual consumption, when they are uncertain of their valuation of the product or service. This comes in contrast to selling to consumers on the spot thereby allowing them to pay after the uncertainty in valuation is resolved. There exist many examples of firms who employ advance selling strategies: Ticketmaster sells concert tickets both in advance and on the day of the show; airlines sell discounted advance flight tickets; and advance registration to a conference usually costs less when purchased in advance, then if bought closer to the conference date.

By buying in advance, customers risk purchasing a product which they might not value in the future. Clearly, there must be an incentive for consumers to purchase in advance rather than on the spot market - such as a discounted price in the advance period or limited availability on the spot.

The main result of the advance-selling literature is that by selling in advance firms can earn more revenue than when selling on the spot market (e.g. Xie and Shugan 2001). When customers purchase in advance, they do not know their exact valuation and are willing to pay at most their expected value for the service. In contrast, when consumers purchase on the spot, they know their exact realized values, which are different across consumers, and they will naturally not be willing to pay more than their realized value. That is, in the spot period, consumers are less homogeneous relative to the advance period. It has been shown that a monopolistic firm can take advantage of customers' ex-ante homogeneity. A firm can earn higher revenue by selling in advance to all consumers (but, at a lower price) than by selling on the spot to only a portion of consumers (i.e., those with a high realized value).

The majority of research related to advance selling assumes that the market is operated by a monopolist. We examine the effect of competition on the advantage of advance selling. Two papers consider advance selling in an oligopolistic market. Shugan and Xie (2005) find that competition does not eliminate the superiority of advance selling and may even increase it. They show this result by assuming a few specific demand specifications--e.g., a market share model and a linear demand function. In our model, we do not assume a specific demand function. Rather, we assume that demand is fully determined by advance and spot period prices and the information available in each period. And in fact, in the case of identical firms and complete customer homogeneity in the advance period, we reach the opposite result. The second paper that considers advance selling in an oligopolistic market is Guo (2008), which investigates the profitability of partial refund policies in a competitive environment with capacity constraints. He finds that offering partial refunds for purchases made in advance intensifies the competition and lowers firms' profits compared to offering no refunds.

In this research, we would like to examine whether the advance selling result holds in a competitive environment. Moreover, customers are rarely entirely clueless about their firm preference, even in advance. Customers may have previous experience with products offered by the firm; they can read third-party reviews, or gather information from all types of advertisements. We investigate the value of information in the advance period. We find when, and for which type of firm, it is worthwhile to disclose (or, alternatively, conceal) information to consumers.

Additional questions which we would like to explore in this setting are: (i) how do limited capacities affect the benefits of using advance selling strategies in a competitive environment? And: (ii) what are the firms' optimal capacity choices? When capacity is limited and the firms cannot serve the entire market, consumers who think they would ultimately prefer one firm may decide to take a risk and purchase from the other firm in advance. Intuitively, this may happen if the information gathered in the advance period is noisy (i.e., there is a high enough probability that consumers who think they prefer one firm will actually end up preferring the other) and if the probability of obtaining these units in the spot period is low. DeGraba (1995) showed that a monopolist may want to induce intentional scarcity to make consumers purchase in advance. We would like to find out whether a firm would find it optimal to intentionally limit its supply when operating under competition.

References:

DeGraba, P. 1995. Buying frenzies and seller-induced excess demand. The RAND Journal of Economics 26(2) 331-342.

Guo, L. 2008. Service cancellation and competitive refund policy. Working paper, Hong Kong University of Science and Technology.

Shugan, S.M., J., Xie. 2005. Advance-selling as a competitive marketing tool. International Journal of Research in Marketing 22(3) 351-373.

Xie, J., S.M. Shugan. 2001. Electronic tickets, smart cards, and online prepayments: when and how to advance sell. Marketing Science 20(3) 219--243.