Abstract
Knowing customers’ preferences enhances a firm’s ability to design and offer the right menu of products. Learning is not free, and companies must allocate valuable resources if they really want to know their customers better. In this paper, we investigate this trade-off between the value and cost of learning. We use an axiomatic approach to develop a learning model and investigate how pricing policies can be used to speed up the learning process while maximizing the firm’s financial performance.

Keywords: Dynamic pricing, demand learning, approximations, intensity control, nonhomogeneous Poisson process.

1 Introduction
The advent of the Internet has brought about technologies that enabled firms to have closer relationships with their customers, moving the focus of managerial decisions from transactions to relationships (Blattberg and Deighton 1996, Rust et al. 2004). Metrics of success have correspondingly shifted from optimizing transactional profits to maximizing customer lifetime value and customer equity, and managers of service firms have been putting increasing more emphasis on customer relationships than individual service encounters. As the managerial objective changes, optimal pricing policies must also change. But how exactly should prices change throughout the relationship? The answer is not obvious in light of the complex dynamics linking prices and customer lifetime value.

The central tenet behind most customer relationship management programs is that loyal customers are more profitable because they are willing to pay a price premium and they buy more (e.g., Reichheld 1996). Reichheld and Schefter (2000) report that this pattern of increasing profits during the customer lifetime has been is even more pronounced when the service is Internet-based. Services of higher quality lead to higher levels of customer satisfaction, which has been shown to be a strong driver of customer retention (e.g., Heskett et al 1994, Bolton 1998, Kamakura et al. 2002). Thus, the ability of firms to obtain increasingly higher profits from their most loyal customers is connected to the firms’ ability to provide services of increasingly higher value.

Internet-based firms are able to provide high-quality services through personalization and customization. Their ability to offer customized products and services depends not only on their