Price and Delay Competition between Two Service Providers

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Abstract

In this paper we study situations in which two firms offer identical service for possibly different prices and response times. Customers' choice between firms is based on their *full price*, which includes the service fee plus (expected) waiting costs. We consider a two level game. The first game is a non-cooperative game among customers who observe the prices (but not the queue sizes) and then decide if to give up the service (balk) or to join a queue. In the latter case, they need to decide which service provider to seek service from. The second game is played between the firms, who choose what prices to charge. In making their price selections, firms take into consideration the game played among customers.

The new assumption here in contrast with existing literature is that customers belong to one of two classes, each of which is characterized by a waiting cost parameter. For this model, we propose a procedure for solving the former game analytically and the latter numerically. Various special cases are encountered, such as asymmetric price equilibria, continuum price equilibria, and cases in which demand for service increases with the service fee.