Dynamic pricing in declining demand: A case of duopoly

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Abstract: The purpose of this study is to investigate what a theory predicts about price dynamics. To this end, this paper constructs a dynamic duopoly model and simulates price paths. The study demonstrates that the price path is nonmonotonic and could be divided into three phases. The basic mechanism of generating the path is a tradeoff between two counteracting motives to set the price: pricing lower to delay the adoption of a new product, and pricing higher to exploit price-insensitive consumers. We explain, along with the number of consumers and the net surplus of the new product, how the two counteracting motives work in each phase. Our results imply that duopoly firms facing declining demand will change their pricing strategy over time according to their business environment.

Key words: declining demand, price-inelastic demand, dynamic pricing, duopoly, myopic consumers.