The Hong Kong Polytechnic University
Department of Logistics and Maritime Studies
Research Seminar

Pricing and return policies in a competitive market: A consumer-valuation based analysis with valuation uncertainties
by

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(Conducted in English)

Abstract:

In this study, we develop a series of consumer-valuation based models to investigate the pricing and return policies in a competitive market. A novel two-dimensional valuation structure is built, which considers the independent valuations of one consumer on two products. Additionally, this structure captures the valuation differentiation of all consumers on one product. Consumers face valuation uncertainties between their pre-purchase and post-purchase valuations. We consider both monopoly and duopoly (competitive) market environments. In each market, two models are respectively developed, one with and one without return policy. The two monopoly models are nonlinear programming models, while game theory is adopted to build the two duopoly models. The severity of return policy is measured by the refund proportion to the consumer if a product is returned. The lower the proportion is, the severer the return policy is.

We provide the optimal or Nash Equilibrium solutions for the four models and conduct some analytical and numerical studies. The results show that return policy of a partial refund is always chosen by the sellers in both monopoly and duopoly markets. Return policy benefits the seller in a monopoly market. However, in a duopoly market return policy may not bring more revenues to the sellers. In the duopoly market, the sellers' prices and revenues are both lower than those in the monopoly market. The equilibrium prices in the duopoly models cannot be below than 82% of the optimal price in the monopoly model, which indicates that a monopoly seller will reduce its price by no more than 18% when there comes a competitor. One more interesting result is that the severity of return policy is higher in a competitive market than in a monopoly market, which reveals that the benefit extracted from consumer return overweighs the negative influence on sales due to the severity of return policy.

Bio:

WANG Xuan received her Bachelor in Industrial Engineering from Nanjing University in 2014. She is currently pursuing her PhD under the supervision of Dr NG Chi To Daniel.

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All are welcome!