Pricing Strategy for Product Reuse with Multiple Quality Levels and Price- and Availability-Dependent Demand

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Abstract

The study deals with optimal pricing model for recycling products, which are returned, recovered, and shipped into a secondary market for resale. The selling probability of recycling products is sensitive to their price and availability. This assumption is rational because price and availability often influence customer demand. The study also assumes that the three quality levels of collected returns exist, which affect the price they are sold for. This paper determines optimal selling prices for re-manufacturers. The exact closed-form solution is then derived and total profit is maximized to create the remanufacturing model. A numerical example and sensitivity analysis are conducted to demonstrate the model. The study provides managerial insights on the benefits of revenue management for product reuse. For example, if manager can develop an incentive return-subsidy policy to encourage consumer to offer better or more returns, the profits will increase more.

Keywords: Product reuse, optimal pricing model, price and availability sensitive demand, reversed logistics.