



Research School for Operations
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Dynamic Pricing Strategies for Waste Management

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Statistics show that almost one third of the food produced for human consumption is wasted and the majority of this waste occurs before these foods reach to the consumers. Food waste at the retail level arises for a variety of reasons with expiry of use by date being the most common and serious one. As periodic replenishment practices give rise to the presence of units with different expiry dates but the same price on the shelves, the customers are inclined to select the fresher units which provide a higher perception of quality. In order to create an incentive for consumers who do not want to purchase the “about-to-expire” products, the practice of dynamic pricing is used to increase sales and as a consequence perhaps the profits gained by the retailer. Having said that, the practice that old and new inventory are sold together, with a discount on old inventory, deserves serious consideration. First, a good demand model which not only needs to reflect the effect of different product ages on the demand but also the substitution effect between the old and new inventory, since the discounted old product sales can cannibalize new product sales is a prerequisite for such models. We can provide quantitative models that emanates optimal pricing strategy as a function of the consumers' reaction and retailers' inventory policy. Particularly, in practice, this may introduce new dynamics and research questions like the best way to communicate the strategy with customers and operationalize policy at retailers in different scenarios or market structures.