

# Analysis of Direct Sale Channel with Lead Time Sensitive Demand

Student : Wei-Fan Chu

Advisor : Dr. Chi-Yang Tsai

Institute of Industrial Engineering and Management  
Yuan-Ze University

## ABSTRACT

To many consumers, the direct sales channel is more convenient than the retail channel. Customers are also more willing to shop through web sites and TV because of the lower price and variety of products. One major factor that affects service quality of the direct sales channel is the delivery lead time. Therefore, this research constructs a direct sales channel model where customer demand is sensitive to both sales price and delivery lead time.

The aim of this research is to probe into the sales price and the sales duration decisions with the objective of maximizing total profit. By utilizing the developed model, numerical experiment and sensitivity analysis are conducted and we are able to gain insight into the behavior pattern of the direct sales channel. Our results reveal that when the sales price is set closer to be basic price level, the optimal sales duration is longer and the total profit higher. However, if the product is to be sold for shorter periods of time, then it is more beneficial to set lower sales prices. The outcome of the sensitivity analysis shows how various factors influence decision making and profits. Our findings may serve as a practical reference to decision makers in practice.

Keyword: Pricing, Lead Time Direct Sale Channel Maximum total profit