Purchasing policy for automotive parts industry

Yu-Chung Tsao *
Min-Tsung Tai

Department of Business Management
Tatung University
Taipei 104
Taiwan, R.O.C.

Abstract

For the automotive industry, the material purchasing policy is one of the most important management decisions. Availability, lead time and demand uncertainties are three significant phenomena in this industry. In this paper we incorporate the purchasing risks such as availability, lead time and demand uncertainties into the inventory model. The objective is to determine the optimal ordering quantity to minimize the total related cost. A practical case in the automotive parts industry is used to verify the model. It predicts a 6.42% to 10.38% decrease in total related cost on the real application if the solution of our model is implemented. From numerical analysis, we discuss the influences of system parameters on decisions and point out several managerial insights.

Keywords and phrases: Automotive parts industry, purchasing risk, availability uncertainty, demand uncertainty, lead time, case study.

1. Introduction

The history of the automotive industry is more than one century. But people's understanding about this industry is as few as the manufacturing of trains and planes. However, supply chain management is more and more important in the automotive industry recently. Due to appearance of the global logistics, the automotive industry expands from the centers of the North America and Europe to other countries.

Because the management system of each automotive parts supplier is different, there exist different problems among suppliers. The quality

*E-mail: yctsao@ttu.edu.tw