Inventory Management System For Retailers

LITERATURE SURVEY

1)

PAPER : Inventory management for retail companies: A literature review and current trends

AUTHOR : Cinthya Vanessa Munoz Macas,

Jorge Andres Espinoza Aguirre,

Rodrigo Arcentales-Carrion,

Mario Pena

YEAR : 2021

DESCRIPTION :

To analyze and present an extensive literature concerning inventory management, containing multiple definitions and fundamental concepts for the retail sector. The primary outcomes of this study are the leading inventory management systems and models, the Key Performance Indicators (KPIs) for their correct management, and the benefits and challenges for choosing or adopting an efficient inventory control and management system.

FUTURE WORK AND ANALYSIS :

To reduce the cost and maintenance and make available for all the companies.The need to analyze their KPIs becomes highly significant, as well as their different systems, methodologies, and tools used within inventory management and optimization.

2)PAPER : Retail inventory management with stock-out based dynamic demand substitution

AUTHOR : Baris Tan

Selcuk Karabati

YEAR : 2013

DESCRIPTION : To study an inventory management problem in a retail setting with stock-out based substitutions and multiple items in a product category and propose an approximate solution to determine the order-up-to levels to maximize the expected profit subject to service level constraints. The method uses demand parameters including the substitution probabilities estimated from the point-of-sales data. The method provides a practical tool for retailers to manage their inventory.

FUTURE WORK AND ANALYSIS : Through a computational study, by explicitly accounting for substitutions, the performance of the inventory system can be improved. The amount of improvement depends on the minimum direct service level requirement as well as the correlation between the market share and the profit margin of the products. By combining the method we presented in an earlier study to estimate the demand and customer choice parameters, the method we presented in this study can be used to manage inventory in a better way in retailing.

3)PAPER : Robust inventory management with stock-out substitution

AUTHOR : Zhaolin Li

Grace Fu

YEAR : 2017

DESCRIPTION : Stock-out substitution is a well-documented phenomenon that occurs when customers seek a different product as a substitute for their first-choice item if it runs out of stock. We consider a single-period inventory model with limited information regarding the external demands (i.e., mean, variance, and covariance) and focus on identifying the inventory levels that maximize the worst-case expected profit. We formulate a two-stage optimization model: the second stage characterizes the worst-case joint demand distribution by treating the inventory levels as input parameters, and the first stage identifies the optimal inventory levels based on the results of the second stage.

FUTURE WORK AND ANALYSIS : Our approach makes use of the limited information on product demands and is suitable for the circumstance in which exact demand distributions can not be accurately estimated. After formulating the optimization model as a two-stage model, we find that the closed-form solution of the second stage is intractable except for two special cases. We develop a heuristic solution based on these two special cases. An extensive numerical study indicates that the performance of the heuristic solution is nearly optimal over a wide range of parameters. Investigating the effects of robust decision rule changes could offer interesting future research

4)PAPER : Managing demand uncertainty: Probabilistic selling versus inventory substitution

AUTHOR : Yi Zhang

Guowei Hua

Shoyang Wang

Juliang Zhang

Vicenc Fernandez

YEAR : 2018

DESCRIPTION : To combat demand uncertainty, both strategies of inventory substitution and probabilistic selling can be used. Although the two strategies differ in operation, we believe that they share a common feature in combating demand uncertainty by encouraging some customers to give up some specific demand for the product to enable demand substitution. It is interesting to explore which strategy is more advantageous to the retailer.

FUTURE WORK AND ANALYSIS : inventory substitution is the better choice for the retailer when the product similarity is higher.The price of the probabilistic product is an exogenous variable. Future research may extend our work by combining the pricing and inventory decisions. It is also worth considering PS in a supply chain setting. For example, it is interesting to explore the conditions under which a retailer's probabilistic selling will benefit the supplier, the retailer, and both.

5)PAPER : A joint model for cash and inventory management for a retailer under delay in payments

AUTHOR : Lama Moussawi-Haidar

Mohamad Y. Jaber

YEAR : 2013

DESCRIPTION : The problem of finding the optimal operational (how much to order and when to pay the supplier) and financial decisions (maximum cash level and loan amount) by integrating the cash management and inventory lot sizing problems.As retail companies continue to navigate through the economy downturn, it becomes critical to find innovative cost reduction methods. Cash management is a cost-intensive process for retailers, who are currently focusing on effective cash management, such as deciding on the maximum cash level to keep in their business accounts and how much to borrow to finance inventories and pay suppliers.

FUTURE WORK AND ANALYSIS : Results indicate that as the percentage margin increases, the order quantity and maximum cash level increase for a given credit period, and that they both increase with the credit period. Increasing the holding and storage cost, the order quantity and cash level decrease given the retailer’s return on cash. Further research should be done in the credit period to show that the cash management model reduces the retailer’s cost.