
Editorial: New features and inventory insights

Tsan-Ming Choi

Business Division, Institute of Textiles and Clothing,
The Hong Kong Polytechnic University,
Hung Hom, Kowloon, Hong Kong
Email: jason.choi@polyu.edu.hk

Biographical notes: Tsan-Ming Choi is currently a Professor of Fashion Business at The Hong Kong Polytechnic University. He has published extensively in leading journals such as *Automatica*, *IEEE Transactions on Automatic Control*, *IEEE Transactions on Engineering Management*, *IEEE Transactions on Industrial Informatics*, *Production and Operations Management*, *Naval Research Logistics*, *INFORMS Service Science*, and various IEEE transactions. He is currently the Editor-in-Chief of *International Journal of Inventory Research*, a Senior Editor of *Production and Operations Management*, and *Decision Support Systems*, an Associate Editor of *IEEE Transactions on Systems, Man and Cybernetics – Systems, and Information Sciences*, and an editorial board member of journals such as *INFORMS Service Science*, and *Transportation Research – Part E*.

1 New features

The *International Journal of Inventory Research (IJIR)* has started publishing since 2008. It publishes contemporary, non-trivial research on all aspects of inventory theory. Currently, it is the only academic journal which is solely devoted to scientific research in inventory management and control. It aims to be an important and authoritative source of information for inventory theory. The updated journal scope puts strong emphasis on topics pertaining to the interfaces between inventory management and other disciplines, such as marketing, information systems, supply chain management and finance.

Starting from 2016, we plan to include an editorial article for each journal issue. In particular, we will include a discussion of the ‘inventory insights’ developed by each paper. This editorial article provides an overview of the insights generated in the whole issue and lets readers have a clearer picture of the significance of the papers.

2 Special issues/sections

IJIR has organised several special issues/sections and will organise new special issues. Interested parties can come up with the special issue proposals and submit to me (jason.choi@polyu.edu.hk) or the assistant editor Dr. Hau-Ling Chan (itcling@yahoo.com.hk) directly. After receiving new special issue proposals, I will first consult my fellow editorial board members. If the comments are positive, the special

issues can be organised in due course. At the moment, we are having on-going special issues related to inventory management for the fashion industry, consumer behaviours related inventory management, active learning and teaching for inventory education, etc. New submissions are still welcome.

3 Review time

With the support of the new associate editors, assistant editor, and the editorial board members, *IJIR* has improved substantially in terms of the review time. Table 1 shows the statistics from the manuscript processing system.

Table 1 The average review time (from initial submission to acceptance/rejection)

<i>Year</i>	<i>Average time spent on the review process</i>
2014	359 days
2015	69 days

In fact, our current editorial team aims to achieve a first round review decision time to be within 45 days. For papers which only require minor revisions, the paper will be checked by the editor and a quicker final editorial decision can hence be made. I hope this efficient review cycle can enhance the publication experience of the contributors.

4 About this issue – inventory insights:

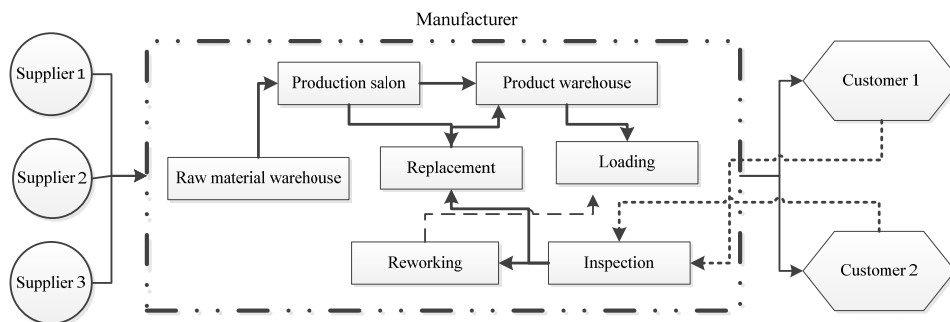
This issue of *IJIR* includes five research papers. The findings and insights generated them are summarised in the following.

‘Lead time uncertainty and supply chain coordination in lost sales inventory models’ (by Barry Cobb): For the two-level supply chain, a limited number of approaches to achieving supply chain coordination through optimal selection of order quantity, reorder point, and a coordination incentive have been proposed for the case of a continuous review inventory system with uncertain demand and/or lead time. In prior studies, demand during lead time was assumed to be normally distributed. In this paper, Cobb specifically addresses a case where lead time takes on two or more discrete values and is not well-approximated by a normal distribution. In absence of an accurate distribution for lead time demand, the buyer and seller are likely to implement a reorder point policy that is consistently too low and does not provide the best trade-off between holding and shortage costs. The estimation of a sales discount coordination mechanism also improves slightly. The author derives analytical findings and proposes that the results can be implemented in modelling software that contains an optimisation routine.

‘Analysing a fuzzy integrated inventory-production-distribution planning problem with maximum NPV of cash flows in a closed-loop supply chain’ (by Nobil and Taleizadeh): In this paper, Taleizadeh and Nobil develop an integrated inventory control, production planning and distribution system framework to maximise the net present value of cash flows under a fuzzy environment. A continuous linear programming model for the proposed framework in a closed-loop supply chain network consisting of three echelons of suppliers, factories, and customers is constructed. In this supply chain, in

addition to forward goods' movement (from suppliers to customers), there is a backward movement (from customers to factories). The aim of this study is to determine the order quantity of raw materials and production quantity of final items such that the net present value is maximised. All demand rate and cost parameters are fuzzy variables. An example of a closed-loop supply chain problem with three suppliers, a single manufacturing plant (i.e., the manufacturer), and two customers is shown in Figure 1.

Figure 1 A graphical illustrative example for the closed loop supply chain explored by Taleizadeh and Nabil



'Coordinating inventory decisions in a two-echelon supply chain through the target sales rebate contract' (by Heydari and Asl-Najafi): In multi-echelon inventory systems, finding practical solutions to encourage supply chain members to make optimal inventory decisions as good as the centralised system's is a challenging issue. An appropriate coordination mechanism should be designed to align the interests of all members to globally optimise the respective inventory decisions. In this paper, Heydari and Asl-Najafi propose an analytical solution to coordinate a decentralised two-echelon newsvendor model-based supply chain with uncertain market demand through the target sales rebate contract in which the supplier pays the retailer a certain rebate for each unit sold beyond the sales target level. In this study, the authors explore the impact of 'paid rebate' on the retailer's behaviour in optimising its inventory decisions. Both members' viewpoints are integrated in designing the target sales rebate contract. Among several insights generated regarding contract optimisation, the authors reveal that the proposed approach is able to yield a higher sales quantity and at the same time reduce the inventory shortage amount for the supply chain.

'Manufacturing newsvendors and inventory pooling with nonlinear production costs' (by Yigal Gerchak): Motivated by the fact that nonlinear production costs are critical and practical, and there is a lack of related studies in the newsvendor problem, Gerchak explores in this paper the situation of a manufacturing newsvendor when the production costs are convex (not linear). Specific examples are developed and explored. This paper lays the foundation for further studies on the important newsvendor problem with the consideration of nonlinear production cost.

'An integrated production-inventory model with preservation technology investment for time-varying deteriorating item under time and price sensitive demand' (by Shah, Chaudhari and Jani): The food industry is complex and globalised. In this paper, Shah, Chaudhari, and Jani investigate the optimal total profit of the food supply chain with respect to selling price, cycle time and investment for the critical preservation

technology. The authors consider the case when the manufacturer's production process is not perfectly trustworthy, i.e., it may shift from an in-control state to an out of control state at any random time during a production run. This leads to some imperfect items. The goal of this paper is to reveal insights on how an integrated production-inventory model can help to increase profit of the supply chain with the help of preservation.