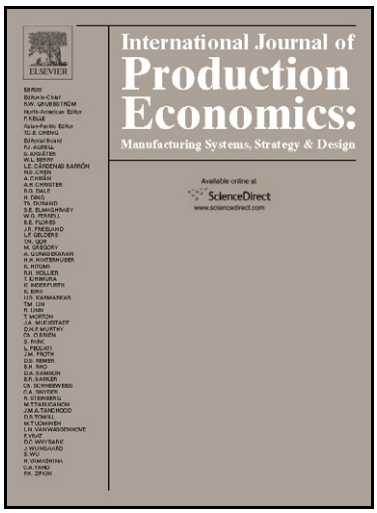

www.elsevier.com/locate/ijpe

A Supplier-Retailer Supply Chain with Intermediate Storage for Batch Ordering

Juhwen Hwang, Yat-wah Wan

PII: S0925-5273(12)00502-6
DOI: http://dx.doi.org/10.1016/j.ijpe.2012.12.010
Reference: PROECO5291

To appear in: *Int. J. Production Economics*

Received date: 22 October 2009
Revised date: 17 July 2012
Accepted date: 28 November 2012

Cite this article as: Juhwen Hwang and Yat-wah Wan, A Supplier-Retailer Supply Chain with Intermediate Storage for Batch Ordering, *Int. J. Production Economics,* http://dx.doi.org/10.1016/j.ijpe.2012.12.010

A Supplier-Retailer Supply Chain with Intermediate Storage for Batch Ordering

JuhwenHwang[a*1]Yat-wah Wan[b]

[a]Department of Business Administration, National Dong Hwa University, Hualien, Taiwan

[b]Graduate Institute of Logistics Management, National Dong Hwa University, Hualien, Taiwan

[*]Corresponding author. Tel.: +886 3 863 3021; fax: +886 3 863 3010.

hjw@mail.ndhu.edu.tw

Abstract

We consider a single-commodity production-inventory supply chain in a supplier- retailer setting with batch production for the supplier, batch ordering for the retailer, and intermediate storage between the supplier and the retailer. These features have been studied in the literature of supply chain management, and are common in practice, especially in retailing and convenience store industries. This study is innovative in changing the ownership of commodity at the intermediate storage to enable more flexible delivery, as well as in allowing for non-linear cost structures. The supplier determines the number of shipments to produce and the retailer determines the number of batches to order. In the paper we suggest algorithms to identify the optimal decisions for the integrated, retailer-led, and supplier-led supply chains, respectively. The algorithms gain efficiency from pertinent analytical *bounds*. Numerical experiments are reported to benchmark our results against those in the literature and to provide sensitivity analysis for the batch lot size and cost parameters. Insights are gained for the integration and the operations of the supply chain.

Keywords

Batch Production and Ordering; Intermediate Storage; Production-Inventory Supply Chains; Supply Chain Integration

[1] Address: No. 1, Section 2, Da Hsueh Rd., Shoufeng, Hualien 97401, Taiwan, R.O.C.