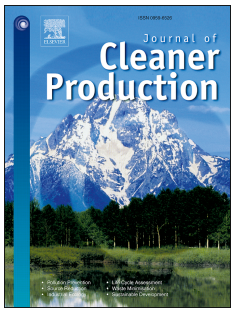
Accepted Manuscript



A comparison between just-in-time and economic order quantity models with carbon emissions

Shijin Wang, Benyan Ye

PII: S0959-6526(18)30895-3

DOI: 10.1016/j.jclepro.2018.03.218

Reference: JCLP 12476

To appear in: *Journal of Cleaner Production*

Received Date: 12 April 2017

Revised Date: 5 March 2018

Accepted Date: 21 March 2018

Please cite this article as: Wang S, Ye B, A comparison between just-in-time and economic order quantity models with carbon emissions, *Journal of Cleaner Production* (2018), doi: 10.1016/j.jclepro.2018.03.218.

A Comparison Between Just-in-time and Economic Order Quantity Models with Carbon Emissions

Shijin Wang, Benyan Ye

[a]*School of Economics & Management, Tongji University, Shanghai 710049, China*

Abstract

Just in time (JIT) and Economic order quantity (EOQ) are two basic inventory modes in supply chains. Many researchers have conducted a lot of studies on JIT and EOQ. However, environmental issues are worth to be considered in these two modes. This paper studied the JIT and EOQ models with carbon emissions in a two-echelon supply chain with one manufacturer and n retailers. The manufacturer and retailers can adopt either (1) a JIT mode in which the manufacturer and all retailers have long-term coordination and have a uniform delivery, or (2) an EOQ mode in which every retailer could decide its own optimal lot size and their deliveries are separated. For a retailer, the question is how to make the most appropriate decisions on the inventory model. Firstly, the basic models of JIT and EOQ without carbon emissions are presented separately. Then, the extended models with carbon emissions are considered. The comparisons between two models are conducted and cost-indifference points are obtained. Numerical examples are given to illustrate the models. Finally, some managerial insights are given.

Keywords:
Carbon emissions, Just in time (JIT), Economic order quantity (EOQ), Inventory

1. Introduction

This paper studied the comparisons between Economic order quantity (EOQ) and Just in time (JIT) in a sustainable perspective by adding carbon

Email address: shijinwang@tongji.edu.cn (Shijin Wang)