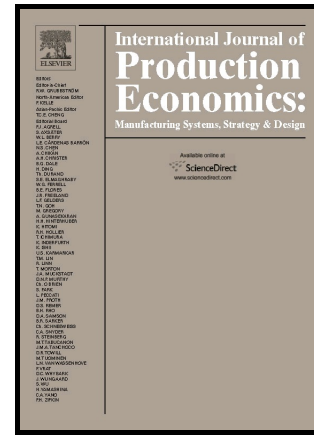


# Author's Accepted Manuscript

## Reverse Channel Selection under Remanufacturing Risks: Balancing Profitability and Robustness

Xiaohua Han, Haiyan Wu, Qianxia Yang, Jennifer Shang



[www.elsevier.com/locate/ijpe](http://www.elsevier.com/locate/ijpe)

PII: S0925-5273(16)30192-X  
DOI: <http://dx.doi.org/10.1016/j.ijpe.2016.08.013>  
Reference: PROECO6496

To appear in: *Intern. Journal of Production Economics*

Received date: 26 December 2015  
Revised date: 19 July 2016  
Accepted date: 12 August 2016

Cite this article as: Xiaohua Han, Haiyan Wu, Qianxia Yang and Jennifer Shang Reverse Channel Selection under Remanufacturing Risks: Balancing Profitability and Robustness, *Intern. Journal of Production Economics* <http://dx.doi.org/10.1016/j.ijpe.2016.08.013>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and a review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

# Reverse Channel Selection under Remanufacturing Risks: Balancing Profitability and Robustness

Xiaohua Han<sup>a,b</sup>, Haiyan Wu<sup>a</sup>, Qianxia Yang<sup>a</sup>, Jennifer Shang<sup>b\*</sup>

<sup>a</sup>School of Management, Guangdong University of Technology, Guangzhou 510520, China

<sup>b</sup>Katz Graduate School of Business, University of Pittsburgh, Pittsburgh, PA 15260, United States  
xih52@katz.pitt.edu

shang@katz.pitt.edu

\*Corresponding author.

## Abstract

Remanufacturing, by taking back used products, can help firms meet environmental regulations and improve economic benefits, but in the meantime it is subject to vulnerability due to operational and disruption risks. In this paper, we investigate manufacturer's reverse channel selection (i.e., how to collect used products from consumers) in a closed-loop supply chain (CLSC) with one dominant retailer when remanufacturing cost is uncertain and subject to disruption. Different from the literature, in this research we study reverse channels from the perspectives of profitability and robustness. We find that on profitability, the direct channel outperforms indirect channel under a favorable operational environment (i.e., static cost or lower cost); while the indirect channel performs better in an adverse environment (i.e., cost rise). Defining infrequent need to change production plan as robustness, we find the indirect channel has higher robustness than the direct channel under remanufacturing risks. Our findings enrich the literature and practice by developing insights into the reverse channel selection and enhance the performance of CLSC.

**Keywords:** Closed-Loop Supply Chain; Reverse channel; Dominant retailer; Remanufacturing; Supply chain risk management; Game theory

## 1. Introduction

Remanufacturing is an industrial process by which used products are repaired, replaced, or restored to like new conditions (Agrawal et al., 2015). Due to environmental, financial, and marketing benefits, remanufacturing is becoming an integral part of many manufacturing firms. Remanufacturing is touted as the next great opportunity for boosting US productivity (Giutini and Gaudette, 2003). Thanks to

Download English Version:

<https://daneshyari.com/en/article/5079209>

Download Persian Version:

<https://daneshyari.com/article/5079209>

[Daneshyari.com](https://daneshyari.com)