

# Author's Accepted Manuscript

Variable neighborhood descent heuristic for solving reverse logistics multi-item dynamic lot-sizing problems

Angelo Sifaleras, Ioannis Konstantaras



www.elsevier.com/locate/caor

PII: S0305-0548(15)00235-X  
DOI: <http://dx.doi.org/10.1016/j.cor.2015.10.004>  
Reference: CAOR3865

To appear in: *Computers and Operation Research*

Received date: 26 March 2015  
Revised date: 29 September 2015  
Accepted date: 7 October 2015

Cite this article as: Angelo Sifaleras and Ioannis Konstantaras, Variable neighborhood descent heuristic for solving reverse logistics multi-item dynamic lot-sizing problems, *Computers and Operation Research*, <http://dx.doi.org/10.1016/j.cor.2015.10.004>

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 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.

# Variable neighborhood descent heuristic for solving reverse logistics multi-item dynamic lot-sizing problems

Angelo Sifaleras\*

*Department of Applied Informatics, School of Information Sciences, University of Macedonia, 156 Egnatia Str., Thessaloniki 54636, Greece*

Ioannis Konstantaras\*

*Department of Business Administration, School of Business Administration, University of Macedonia, 156 Egnatia Str., Thessaloniki 54636, Greece*

---

## Abstract

The multi-product dynamic lot sizing problem with product returns and recovery is an important problem that appears in reverse logistics and is known to be NP-hard. In this paper we propose an efficient variable neighborhood descent heuristic algorithm for solving this problem. Furthermore, we present a new benchmark set with the largest instances in the literature. The computational results, demonstrate that our approach outperforms the state-of-the-art Gurobi optimizer.

*Keywords:* Inventory, Variable Neighborhood Search, Mathematical Programming, Lot Sizing, Reverse Logistics

*2010 MSC:* 90B05, 90C59, 65K05, 90-08

---

## 1. Introduction

Over the past two decades, reverse logistics and closed-loop supply chain have gained substantial interest in business and academia. Evidences can be found in the very recent review papers given by Srivastava [38], Guide and Van

---

\*Corresponding author. Tel: +302310 891884, Fax: +302310 891881  
*Email addresses:* [sifalera@uom.gr](mailto:sifalera@uom.gr) (Angelo Sifaleras), [ikonst@uom.gr](mailto:ikonst@uom.gr) (Ioannis Konstantaras)

Download English Version:

<https://daneshyari.com/en/article/4959136>

Download Persian Version:

<https://daneshyari.com/article/4959136>

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