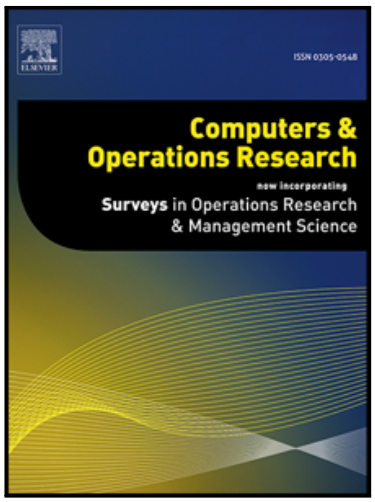

ADVANCES IN STOCHASTIC PROGRAMMING AND ROBUST OPTIMIZATION FOR SUPPLY CHAIN PLANNING

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PII: S0305-0548(18)30219-3
DOI: https://doi.org/10.1016/j.cor.2018.07.027
Reference: CAOR 4536

To appear in: *Computers and Operations Research*

Please cite this article as: Kannan Govindan , T.C.E. Cheng , ADVANCES IN STOCHASTIC PROGRAMMING AND ROBUST OPTIMIZATION FOR SUPPLY CHAIN PLANNING, *Computers and Operations Research* (2018), doi: https://doi.org/10.1016/j.cor.2018.07.027

ADVANCES IN STOCHASTIC PROGRAMMING AND ROBUST OPTIMIZATION FOR SUPPLY CHAIN PLANNING

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Abstract:

This special issue addresses the advances in stochastic programming and robust optimization for supply chain planning by examining novel methods, practices, and opportunities. The articles present and analyze opportunities to improve supply chain planning through exploring various uncertainty situations and problems, sustainability assessment, vendor selection, risk mitigation, retail supply chain planning, and supply chain coordination. This editorial note summarizes the discussions on the stochastic models, algorithms, and methodologies developed for the evaluation and effective implementation of supply chain planning under various concerns. A dominant finding is that supply chain planning through the advancement of stochastic programming and robust optimization should be explored in a variety of ways and within different fields of applications.

Keywords: Supply chain planning, stochastic programming, robust optimization, uncertainties

1. Introduction:

In most manufacturing and service organizations, supply chain planning (SCP) can be considered as the forefront of business functions from procurement of raw materials to fulfillment of customer demands. SCP can be categorized into strategic, tactical, and operational decisions according to the time horizon that is taken into account. Today's complex business environment is characterized with high uncertainty, frequent disruption, and great variability, so maintaining an efficient and viable supply chain becomes a major challenge for many companies. A supply chain operating in such a hostile environment has to cope with planning parameters such as cost, demand, and supply that have inherent uncertainty. In addition, a supply chain can be affected by major natural or man-made disruptions such as earthquakes, floods, terrorist attacks, and economic crises.

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