

## عنوان مقاله:

A New Multi-Objective Inventory-Routing Problem by an Imperialist Competitive Algorithm

## محل انتشار:

نشریه بین المللی مهندسی حمل و نقل، دوره 8، شماره 1 (سال: 1399)

تعداد صفحات اصل مقاله: 28

## نویسندگان:

Rahmat Arab - *PhD Student, School of Industrial Engineering, College of Engineering, University of Tehran, Tehran, Iran*

Seyed Farid Ghaderi - *Professor, School of Industrial Engineering, College of Engineering, University of Tehran, Tehran, Iran*

Reza Tavakkoli-Moghaddam - *Professor, School of Industrial Engineering, College of Engineering, University of Tehran, Tehran, Iran*

## خلاصه مقاله:

One of the most important points in a supply chain is customer-driven modeling, which reduces the bullwhip effect in the supply chain, as well as the costs of investment on the inventory and efficient transshipment of the products. Their homogeneity is reflected in the inventory-routing problem, which is a combination of distribution and inventory management. This paper considers a multi objective IRP in a two-level supply chain consisting of a distributor and a set of retailer. This problem is modeled with the aim of minimizing bi-objectives, namely the total system cost and risk-based transportation cost. Products are delivered to customers by some heterogeneous vehicles with specific capacities through a direct delivery strategy. Additionally, storage capacities are limited and the shortage is assumed to be impermissible. To validate this model, the epsilon constraint method is used for solving the model. Since problems without distribution planning are very complex to solve optimally, the problem considered in this paper also belongs to a class of NP-hard ones. Therefore, a multi-objective imperialist competitive algorithm (MOICA) as a well-known multi-objective evolutionary algorithm is used and developed to solve a number of test problems. Furthermore, the computational results are compared to show the performance of the proposed MOICA.

## کلمات کلیدی:

Inventory-routing problem, Multi-Objective Optimization, Epsilon constraint method, Meta-heuristics algorithm

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1180680>

