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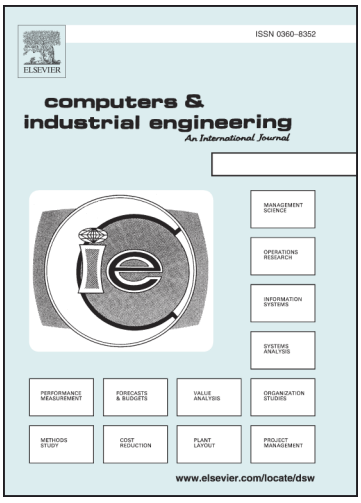

An Arc Interdiction Vehicle Routing Problem with Information Asymmetry

Masume Messi Bidgoli, AmirSaman kheirkhah

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Title page

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Authors:

Corresponding author:

Masume Messi Bidgoli

Industrial Engineering Dept., Golpayegan Faculty of Engineering and Technology, Golpayegan, Isfahan, Iran

E-mail address: Bidgoli_m2000@yahoo.com

Postal code: 87417-69131

Tel. number: 00989138809544

AmirSaman kheirkhah

Industrial Engineering Dept, Bu-Ali Sina University, Hamedan, Iran

E-mail address: Amirsamankheirkhah@yahoo.com

Abstract

In some cases, due to security, sensitivity or high value, it is possible that shipments are interrupted by some adversary decision makers. The vehicle routing problem (VRP) for these kinds of shipments is some more complicated in comparison with classical VRPs, and it has been considered recently by researchers.

In reality, two decision makers may have different perceptions or asymmetric information about the network. We study vehicle routing network interdiction problem with information asymmetry and investigate the benefits and risks of considering this assumption. By taking the average of benefits and risks over some network instances, it is observed that when more budgets is assigned to interdiction and the distributor estimates the interdictor's parameters with less accuracy, Network Interdiction Vehicle Routing Problem (NIVRP) with information asymmetry is able to formulate the real cases, more effectively.

Keywords: Network interdiction, Vehicle routing problem, Information asymmetry, Bi-level programming

1. Introduction