

ABSTRACT

Antonio Rodríguez-Chía Universidad de Cádiz (Spain)

A further study of single allocation hub location problem.

(Joint work with Inmaculada Espejo, Alfredo Marín, Juan M. Muñoz-Ocaña and Antonio M. Rodríguez-Chía.)

A new compact formulation for uncapacitated single-allocation hub location problems with fewer variables than the previous Integer Linear Programming formulations in the literature is introduced. Our formulation works even with costs not based on distances and not satisfying triangle inequality. Moreover, costs can be given in aggregated or disaggregated way. Different families of valid inequalities that strengthen the formulation are developed and a branch-and-cut algorithm based on a relaxed version of the formulation is designed, whose restrictions are inserted in a cut generation procedure together with two sets of valid inequalities. The performance of the proposed methodology is tested on well-known hub location data sets and compared to the most recent and efficient exact algorithms for single-allocation hub location problems. Extensive computational results prove the efficiency of our methodology, that solves large-scale instances in very competitive times.