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Transportation outsourcing problems considering feasible probabilities under stochastic demands. (English)  

Summary: We consider the problem of transportation outsourcing under stochastic demands for a transshipment center for a home delivery service. The feasible probability of the outsourcing plan for each stochastic demand scenario is considered. A scenario-based stochastic model is developed by incorporating the statistical binomial distribution to formulate the feasible probability. The problem is first discomposed into three sub-problems and then a sequential heuristic method is developed to solve these sub-problems. Numerical tests show that the heuristic method can be applied to solve the problem and more importantly, demonstrate that our solution has advantages in terms of both feasibility and optimality compared to the solution obtained when the feasible probability is neglected.

MSC:  
90Bxx  Operations research and management science

Keywords:  
transportation outsourcing; home delivery industry; feasibility; stochastic model; probability distribution; heuristic method

Full Text: DOI

References:  
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