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RESEARCH ON SUPPLY CHAIN FUZZY-RANDOM MULTI-OBJECTIVE PROGRAMMING MODEL WITH CONSTRAINT OF CO_2 EMISSIONS

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Abstract

The uncertain phenomenon is very complex and using only fuzzy or random variable cannot describe it appropriate. In addition, low carbon is the requirement of the supply chain. In order to overcome those two issues, this paper describes the uncertain phenomenon in supply chain design under fuzzy random environment and constraints on CO_2 emission. It considers that the demand rate is a fuzzy random variety, and builds a mixed integer optimization models featuring multiple products, multiple stages and multiple objectives. In order to solve the model, a fuzzy random simulation is designed to turn it into a certainty model. In the end, a numerical analysis is provided to verify the effectiveness and validity of the model and algorithm. In addition, it testifies validity of the model by comparing it with traditional models.

Key words: cost control, fuzzy random, multiple objectives, supply chain design

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