

SOLVING GENERALIZED TRAPESIUM NUMBER LINEAR PROGRAMMING PROBLEMS AND THE POST OPTIMUM ANALYSIS

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ABSTRACT

There are many methods for solving Fuzzy Linear Programming problems that have been obtained by previous researchers. One of the researchers was carried out by Karyati, et al (2015), (2017) and Tedi & Karyati (2022). In their research, a fuzzy simplex method has been introduced, utilizing the properties of the fuzzy ranking function. There are several ranking functions that have been utilized, namely Maleki, Yager, Magnitude, and modified Khumar, in this case called Karyati-Tedi. Based on this ranking function, a solution method has been built which is called the fuzzy simplex method. The Maleki ranking function is best for solving various MPLF cases, whether they have one solution or many solutions. Both standard and non-standard minimal forms. The minimally non-standard case was successfully resolved using the M and two-phase techniques. Even post-optimum analysis can also be done well.

This research aims to determine the optimal solution of a dual problem and sensitivity analysis based on the Karyati_Tedi ranking function. MPLF Generalized Trapezoidal Fuzzy Numbers (MPLFBTT) in this research, only the objective function coefficients are in the form of generalized trapezoidal fuzzy numbers, while the technical coefficients of the constraint function and the right-hand side constants are in the form of real numbers. The research stages carried out were problem identification, data collection, determining variables and parameters, formulating a generalized trapezoidal fuzzy number linear program model, solving using the generalized fuzzy simplex method, analysing results, and conclusions.

The results obtained show that the optimum value can be achieved if certain conditions are met. Post optimum analysis can be carried out in certain cases. This means that not all MPLFBTT cases can be subjected to post-optimum analysis.

Kata Kunci : *Generalized Fuzzy Trapezoidal Numbers, MPLF, fuzzy ranking, MPLF Dual*