



Sum of Linear Ratios Multiobjective Programming Problem: A Fuzzy Goal Programming Approach

Pitam Singh¹ and D. Dutta^{2*}

¹ *Department of Mathematics, Motilal Nehru National Institute of Technology, Allahabad, India*

² *Department of Mathematics, National Institute of Technology, Warangal, India*

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Abstract: Sum of ratios optimization is an interesting field of research. This paper presents a solution method for sum of linear ratios multiobjective programming (SOLR – MOP) problem using the fuzzy goal programming technique. Each membership function of fuzzy objectives is approximated into linear function by using first order Taylor’s theorem about the vertex of the feasible region where the objective function has maximum value. Then the resulted approximated linearized membership functions may be used for the formulation of fuzzy goal programming. So the problem is solved using fuzzy goal programming technique. The efficiency of the method is measured by numerical examples.

Keywords: *multiobjective programming; fractional programming; fuzzy multiobjective fractional programming; sum of ratio fractional program; fuzzy goal programming.*

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1 Introduction

Ratio criteria are used to measure the efficiency of a system in any different fields of engineering and management sciences. The ratio optimization problem is called the fractional programming. These may be applied to different disciplines such as financial sector, inventory management, production planning, banking sector and others. Basically it is used for modeling real life problems with one or more objectives such as debt/equity, profit/cost, inventory/sales, actual cost/standard cost, output/employees, nurses/patients ratios etc. with respect to some constraints.

* Corresponding author: <mailto:ddutta@nitw.ac.in>