ISSN: 1391-8796
Proceedings of 10th Ruhuna International Science & Technology Conference
University of Ruhuna, Matara, Sri Lanka
January 18, 2023

A novel procedure for identifying an initial feasible solution to the transportation problem

Niluminda K.P.O.[1*], Ekanayake E.M.U.S.B.[1]

[1]*Department of Physical Sciences, Faculty of Applied Sciences, Rajarata University of Sri Lanka, Mihinthale, Sri Lanka.*

The problem with transportation is figuring out how much has to be carried from each source to each destination to maintain the total cost of transportation as minimal as possible while still satisfying supply and demand constraints. The Transportation Problem (TP) is concerned with choosing routes to distribute the goods to the various destinations to either minimize the overall transportation cost or maximize the overall revenue of the problem by satisfying the needs of the various destinations and supplying quantities from various sources. Many approaches to solving TP have been developed in the literature. In TP, two-step procedures are possible, including an Initial Feasible Solution (IFS) and an Optimal Solution (OS). For the TP, an OS may be found using the Modified Distribution (MODI) Method or the Stepping Stone Method, and an IFS can be found using the North-West Corner Method (NWCM), the Least Cost Method (LCM), and Vogel's Approximation Method (VAM), and so on. In this study, a novel procedure for identifying an initial feasible solution to both balanced and unbalanced TP is examined using the penalty cost method. To determine the optimal or near-optimal solution for TP, the suggested method could be used. The results can be compared to those of other current algorithms.

Keywords: Demand, Initial feasible solution, Optimal solution, Penalty cost, Transportation cost

*Corresponding author: kponiluminda@gmail.com