

Optimization of Transportation Costs Using Linear Programming

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Abstract

Transportation is an important operational problem involving the movement of goods from several sources to multiple destinations at minimum possible cost. This paper studies the application of Linear Programming to optimize transportation costs while satisfying supply and demand constraints. A mathematical model is formulated by considering transportation quantities as decision variables, transportation costs as coefficients of the objective function, and supply and demand requirements as constraints. The resulting transportation problem can be solved using suitable Linear Programming techniques to determine an optimal shipping plan. The study demonstrates how mathematical optimization can reduce transportation expenses and improve the efficient utilization of available resources. The proposed approach can be applied to logistics, distribution, manufacturing, and supply-chain management.

Keywords: Transportation Problem, Linear Programming, Optimization, Transportation Cost, Supply and Demand, Logistics.

