

Transportation is a special kind of LPP. Transportation relates to LPP where goods are to be transported from 'm' production locations (factory) to 'n' sales locations (depots/warehouses).

Note:

Unlike assignment, there is no one to one relationship between factories and depots, it means a factory can supply to any no. of depots and similarly depots can receive from any no. of factories. (Many to many relation)

Procedure for solving Transportation problem:

Step 1: Objective of the Transportation problem is to minimise the total transportation cost. If the data relates to maximisation of profit, we need to convert it into minimisation by forming opportunity loss matrix.

Opportunity loss matrix can be obtained by identifying the highest element in the matrix and deducting all the elements from such highest element.

Step 2: Nature of the data:

Under transportation, there is no rule that no. of rows must be equal to no. of columns. However the given data is said to be balanced when the total availability is equal to total requirement:

If total availability not equal to requirement, it is said to be unbalanced and we have to balance it by inserting a dummy row or dummy column with the difference quantity.

Step 3: IBFS - Initial Basic Feasible Solution

IBFS can be ascertained using any of the following 3 methods -

1. North West Corner rule

2. Least Cost Method (L.C.M)

* 3. VOGEL'S APPROXIMATION METHOD [VAM] OR PENALTY UNIT COST METHOD

Step 4: Check for Degeneracy

After ascertaining IBFS and before checking ^{for} optimal solution we have to ascertain Degeneracy of the problem



NON-DEGENERACY



If no. of allocations = $m+n-1$



Procedure for Optimality test

Steps: Optimality Test

We have to obtain/ascertain optimal solution by making successive improvements to IBFS until no further decrease in transportation cost is possible.

It has to be calculated using MODI Method (Modified Distribution) or (Modified Iterations method)

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Repetition/cycle.

DEGENERACY



If no. of allocation $\neq m+n-1$



Adjustment is to be made



Optimality test