

# LOCATION OF INDUSTRIES IN INDIA : TRANSPORT COST MINIMISATION

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## I. Introduction

1. The main objective of the present exercise is to test a methodology based on input-output analysis and linear programming for determining the optimal location of industries in various regions from the point of view of transport costs. For simplicity, uniform production relations in all the regions have been assumed. Further, it has been assumed that no cost of transport is involved for intra-regional movement of commodities and that all the goods traffic is being catered to by the railways at the existing rates.<sup>1</sup> The analysis is conducted within the framework of a simple model involving four regions and five sectors.

## II. The Model

2. In this section we give a brief outline of the programming model used for obtaining optimal location of industries in different regions by minimizing transport costs. It proceeds later to analyse the results of the optimal solution. The notations used in the model are as under :

$X_i^{jk}$  = the amount of the  $i^{th}$  sector product ( commodity ) exported from  $j^{th}$  region to the  $k^{th}$  region;

$C_i^{jk}$  = money cost of transporting a unit of  $i^{th}$  commodity from the  $j^{th}$  region to the  $k^{th}$  region;

$P_i^j$  = upper limit to the production of the  $i^{th}$  commodity in the  $j^{th}$  region—only applicable for commodity 1 and 2 viz., agricultural and mining;

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<sup>1</sup> The reasons for taking the railway freight rates structure as the basis for transport costs are : (i) it accounted for more than 90% share in the long distance goods traffic till 1960-61; and (ii) absence of any data for the remaining modes of transport to serve as the basis.