

TRANSHIPMENT MODEL AND TRANSPORT PLANNING

ASHOK PARIKH*

THERE is a vast amount of literature on transportation models.¹ Empirically, however, not many attempts have been made in preparing a systematic transport plan on the basis of transportation models. In this paper, the usual transportation model is modified and its usefulness in transport planning is indicated. The objective is to apply the linear programming transportation model to the actual flows of commodities on different railway sections of the Eastern Region and compare the flows thus obtained with the actual flows. The exercise is ex post and as such is mechanical but it throws light on the applicability of a programming model for transport planning. A secondary importance is attached to the policy criterion. In all the exercises, total tonne-kilometres travelled by a commodity are minimized. There is a belief that the present freight structure is not adequate and therefore the freight rates² have not been used.

* This work is done at the Indian Institute of Management, Calcutta, during April-June 1966. Revisions have been made at the Gokhale Institute of Politics and Economics, Poona. The author wishes to thank Mr. C. G. Harral and Dr. J. K. Sengupta for helpful discussions. Mr. C. G. Harral provided his kind help at various stages of this work. I should also like to thank Mr. H. L. Verma, the Director, Regional Transport Survey Unit, for providing the expert Railway Assistants from his unit.

Messrs Rao and Shil assisted me in preparing the basic distance data. The Programme Evaluation Organization provided punching and programming assistance and Mr. Chanda carried out all these exercises on the IBM 1620 computer with the help of IBM 1620 Transportation Program with Indirect Addressing obtained from IBM Programme Library. I should also like to thank Dr. D. K. Paul for providing punching facilities at CMPO, Calcutta.

¹ DANTZIG, G. B., *Linear Programming and Extensions*, Chapters 14 to 17, Princeton, 1963.

² Committee on Transport Policy and Coordination, Final Report, Govt. of India, Planning Commission, New Delhi, Jan. 1966. Railway rates in India have been determined on the basis of the considerations, namely, value of service and cost of service, the latter indicating the floor to the extent practicable. The pattern of freight traffic on the railway has been changing considerably and the proportion of low-rate commodities has been increasing. This requires the adjustment of the existing rates to the cost basis.