

Developing a Framework for Minimizing Logistics Costs in LCL Shipping

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Abstract—In the process of globalization, containerization is continuing to make a vital contribution to the rapidly growing international trade. It provides shippers with safe, easy and relatively cheap access to international markets in any part of the world through a highly integrated, efficient network of trunk routes and feeder services utilizing transshipment opportunities. If a shipper does not have enough goods to accommodate in a fully loaded container, he arrange with a consolidator to book his cargo. This study focused to the cost-effectiveness of the freight forwarding companies considering less than container load (LCL) shipments. There is a growing recognition of the role that transportation and logistics excellence plays in achieving a world-class supply chain and that transportation costs represent a substantial component of overall supply chain and corporate spend for many companies. The main goal of this research is to define optimal number of containers needed to transport of LCL shipments of various sizes and weight in order to minimize the overall transport costs and maximize the profits of the freight forwarding company. Firstly, it was formed appropriate mathematical model which is subsequently made implementation within Lingo programming environment and programming language C. The advantage of the mathematical model is that it can be applied to various “point to point” relations where the LCL shipment are transported by a combination of sea and land whose implementation of adequate input data can get reliable solutions of the observed problems. Furthermore, as a result of the study logistic companies could make quality analysis projecting ahead shipping costs based on which can form the final price for each of LCL shipment.

Key words—Costs, LCL shipping, Lingo, Mathematical model.

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