

Liner Shipping and the Port Community – Modeling the Players' Relationships

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ABSTRACT

The dynamic nature of liner shipping has greatly influenced port community relationships during the last fifteen years. Understanding, simulating and quantifying these relationships is very important for strategic and tactical decision making at the port community level regarding the interests of the various players.

Based on the inter-organizational network approach for the players involved in the modern container terminal community, and taking into account the ongoing structural changes in liner shipping and their influence on port business environment, the traditional approach differentiating between shippers, carriers and infrastructure providers, is critically reviewed and refined.

The interrelationships of the various parties involved in the liner shipping and the container port community, vis-à-vis providers of port infrastructure and facilities, providers of cargo handling services, maritime transport operators, inland transport operators, and representatives of cargo, are approached by using game theoretic models.

A bi-level program is presented, which formulates and solves the Stackelberg game in the case of a landlord port, based on a price equilibrium approach. Various scenarios concerning the oligopolistic behavior of certain players are examined. The approach gives good insight to the oligopolistic market of the container liner industry, the associated behavior of players in the container port community and the relationship among these players in the transport chain.

Based on the modeling approach certain results are drawn regarding the relative behavior of players in the modern port community, which serves the container liner shipping. These results are considered and discussed, taking into account that the modern port community forms an integral part of the intermodal transportation system. The relative merits of this approach in the process of decision making at the strategic and tactical level are also discussed.