

Network Changes in the Italian Container Terminal Industry: A Stochastic Actor Oriented Model

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Ports are considered critical nodes of global supply chains, that facilitate the movement of goods and cargo and as a connection point linking the maritime mode to the hinterland (both the local regions and inland transportation) and contribute to economic development as well as employment opportunities at national level. Container terminal operator may adopt several strategies to boost the competitiveness of the entire port when faced with intense market competition. In a *coopetition* strategy, terminal operators in a port can have cooperative interactions with other transport and logistics stakeholders port, while simultaneously having competitive interactions with similar business operators to improve their position on the market. The co-operation agreements can take several forms such as alliances and mergers among shipping lines, conferences, involvement of shipping companies in terminal management, and extending interests in inland transport of shipping companies. However, maritime transport as a global industry was severely impacted by several external factors, such as the COVID-19, the block of Suez Canal and the Ukrainian war. These factors impact on the port and terminal network changes in terms of new alliances and merger and acquisition in the industry. This aim of this research is to explore the effects of these factors on the network changes in Italian container terminal industry [1]. Through the application of the Stochastic Actor Oriented Model [2], the changes in network structure of container terminal operators are analyzed in three waves (2011, 2015 and 2021) in terms of: size (number of equity ties), density (propensity to build equity ties) and functional direction of collaboration (homophily and heterophily). Results show the presence of few independent ego-networks (stars-shaped) and subgroups (or clusters) of connected terminals, where intermediary roles emerge, such as financial holdings. This raises crucial issues on the anti-competitive behaviors, such as market control and unfair price fixing, which deserve attention from the Port Authorities with reference to the terminals' concession policy and competition in the market.

Keywords: Market Competition, Network Dynamics, SAOM, Terminal Networks

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