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COVID-19 impacts on the Italian container terminal industry: A Stochastic Actor Oriented Model

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One of the major issues of COVID-19 crisis on maritime shipping is the impact on the port and terminal network evolution and development of alliances which can affect the economic growth and financial investments. Some issues such as reduction in seaborne trade, a decrease in ship calls, delay in supplying necessary items such as food, medical instruments, and disruption in shipping activities are reported related to the impacts of COVID-19 on the maritime shipping, however, to the best of knowledge of the authors, there is no or a few research on the effects of COVID-19 pandemic on the network structure of the ports and on the formation of new partnerships in terminal container operators. Thus, this research as a novel study aims to recognize the strategic and behavioural reactions and changes of organizational structures of some terminal operators based on the creation of brand-new relationships among the network of terminal operators due to the impacts of COVID-19 crisis. From a methodological point of view, the study adopts the Social Network Analysis (SNA) and Stochastic Actor-Based Models (SABM). SABMs are models for network dynamics that can represent a wide variety of influences on network change, and allow to estimate parameters expressing such influences, and test corresponding hypotheses (Snijders et al. 2010). The case study focuses on container terminal operators in Italy and their networks (De Martino and Giordano, 2021). Through the application of the Stochastic Actor-Based Model, the changes in network structure of container terminal operators will be analysed in two waves (before COVID-19) and 2021 (after COVID-19) in terms of size (number of equity ties), density (propensity to build equity ties) and functional direction of collaboration (homophily and heterophily).

Keywords

maritime transport, SIENA model, terminal network, transport market,

Topics

- Trade and Transport networks

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