

# New analysis to boost port efficiency

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Container ports are important hubs in the global trade network. They have seen enormous growth in their roles over recent years and operational demands are always changing, especially as more sophisticated logistics systems emerge.

A new [study](#) published in the *International Journal of Shipping and Transport Logistics* sheds light on how the changes in this sector are affecting [port](#) efficiency. The focus is on the different types of container activities.

Fernando González-Laxe of the University Institute of Maritime Studies, A Coruña University and Xose Luis Fernández and Pablo Coto-Millán of the Universidad de Cantabria, Santander, Spain, explain that container ports handle cargo that is packed in standardized [shipping containers](#), the big metal boxes with which many people are familiar commonly transported en masse on vast sea-going vessels, unloaded port-side, and loaded on to trains and road transporters for their onward journey.

The increasing size of ships used for transporting these containers, some of which can carry up to 25,000 TEUs (twenty-foot equivalent units, the containers), means there is increasing pressure on ports to increase their capacity. As such, there is a lot of ongoing effort to automate processes and optimize port operations to allow the big container ports to remain viable and competitive.

The team used Data Envelopment Analysis (DEA) to evaluate the efficiency of container ports by comparing the input and output of their operations. They focused on 10 major Spanish container ports—among them the major ports of Algeciras, Barcelona, and Valencia—in order to understand how various types of container activities—import/export, transshipment, and cabotage (coastal shipping)—influence port performance.

One of the key findings from the study is the relationship between port efficiency and the types of container activities handled. The team found that there is an inverted U-shape relationship: ports that balanced transshipment (transferring containers between ships at intermediate points) with import/export activities tended to perform better than those

that specialized in only one type of activity. This suggests that a diversified approach to container activities may enhance port efficiency.

The work suggests that by adopting a balanced approach to their activities, container ports could boost efficiency and reinforce their role in the global supply chain.

**More information:** Fernando González Laxe et al, Transshipment: when movement matters in port efficiency, *International Journal of Shipping and Transport Logistics* (2024). [DOI: 10.1504/IJSTL.2024.140429](https://doi.org/10.1504/IJSTL.2024.140429)

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