

## Port Miami in the Caribbean and Mesoamerica: Data, Spatial Networks and Trends

**Authors :** Richard Grant, Landolf Rhode-Barbarigos, Shouraseni Sen Roy, Lucas Brittan, Change Li, Aiden Rowe

**Abstract :** Ports are critical for the US economy, connecting farmers, manufacturers, retailers, consumers and an array of transport and storage operators. Port facilities vary widely in terms of their productivity, footprint, specializations, and governance. In this context, Port Miami is considered as one of the busiest ports providing both cargo and cruise services in connecting the wider region of the Caribbean and Mesoamerica to the global networks. It is considered as the “Cruise Capital of the World and Global Gateway of the Americas” and “leading container port in Florida.” Furthermore, it has also been ranked as one of the top container ports in the world and the second most efficient port in North America. In this regard, Port Miami has made significant investments in the strategic and capital infrastructure of about US\$1 billion, including increasing the channel depth and other onshore infrastructural enhancements. Therefore, this study involves a detailed analysis of Port Miami’s network, using publicly available multiple years of data about marine vessel traffic, cargo, and connectivity and performance indices from 2015-2021. Through the analysis of cargo and cruise vessels to and from Port Miami and its relative performance at the global scale from 2015 to 2021, this study examines the port’s long-term resilience and future growth potential. The main results of the analyses indicate that the top category for both inbound and outbound cargo is manufactured products and textiles. In addition, there are a lot of fresh fruits, vegetables, and produce for inbound and processed food for outbound cargo. Furthermore, the top ten port connections for Port Miami are all located in the Caribbean region, the Gulf of Mexico, and the Southeast USA. About half of the inbound cargo comes from Savannah, Saint Thomas, and Puerto Plata, while outbound cargo is from Puerto Cortes, Freeport, and Kingston. Additionally, for cruise vessels, a significantly large number of vessels originate from Nassau, followed by Freeport. The number of passenger's vessels pre-COVID was almost 1,000 per year, which dropped substantially in 2020 and 2021 to around 300 vessels. Finally, the resilience and competitiveness of Port Miami were also assessed in terms of its network connectivity by examining the inbound and outbound maritime vessel traffic. It is noteworthy that the most frequent port connections for Port Miami were Freeport and Savannah, followed by Kingston, Nassau, and New Orleans. However, several of these ports, Puerto Cortes, Veracruz, Puerto Plata, and Santo Thomas, have low resilience and are highly vulnerable, which needs to be taken into consideration for the long-term resilience of Port Miami in the future.

**Keywords :** port, Miami, network, cargo, cruise

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