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Exploring Transshipment Dynamics: A Global Port Categorization

At the crossroads of East and West, Colombo connects far more than ships—it connects global trade



Figure 1: Global distribution of transshipment incidence, Source: Authors

Every day, millions of containers move through ports around the world. In 2024 alone, global container ports handled 937 million TEUs. Around 35% of these containers are rehandled at transshipment ports, where they are transferred from one vessel to another before continuing their journey to destinations across the globe. This process, known as transshipment, has become one of the defining features of modern container shipping. The growing use of hub-and-spoke shipping networks has further increased the importance of transshipment. Rather than calling at every port, large container vessels increasingly rely on strategically located hubs to consolidate cargo and distribute it efficiently through regional feeder services, improving both operational efficiency and network connectivity. However, not all ports depend on transshipment to the same extent. Understanding these differences provides valuable insight into how global port systems operate [1], [2].

To better understand the role of transshipment in global port systems, an analysis was conducted using the world's top 100 container ports based on container throughput [3]. The study examined transshipment incidence, which represents the proportion of a port's

container volume that consists of cargo transferred between vessels. The analysis revealed substantial differences in the extent to which ports rely on transshipment, leading to the identification of four distinct categories based on transshipment incidence. Figure 1 illustrates the global distribution of these categories, highlighting how transshipment activity varies significantly across major container ports.

Pure Transshipment Ports:

These are ports where transshipment accounts for more than 70% of container volume. They act primarily as international redistribution centers and depend heavily on shipping-line networks rather than domestic trade. Examples include Colombo, Singapore, Tanjung Pelepas, Salalah, Algeciras and Port Said. As these ports handle large volumes of container transfers between terminals and vessels, operational efficiency and connectivity are crucial to maintaining competitiveness.

Hub Ports:

Ports with transshipment incidences between 40% and 70% were categorized as hub ports. These ports combine transshipment activities with significant domestic cargo handling. Examples include Hong Kong, Busan, Jeddah and Abu Dhabi. Their dual role enables them to support both local economic activity and regional cargo redistribution.

Regional Gateways:

Ports with transshipment incidences between 15% and 40% were identified as regional gateway ports. These ports primarily serve domestic and regional markets but maintain moderate levels of transshipment due to favorable geographic locations and shipping network connections. Rotterdam, Hamburg, Shanghai, Ningbo-Zhoushan and Mundra fall into this category. These ports support both hinterland trade and selected transshipment operations.

Gateway or Feeder Ports:

Ports with transshipment incidences below 15% were classified as gateway or feeder ports. These are mostly concerned with serving local markets or functioning as feeders to larger hubs with minimal reliance on transshipment. Examples include Los Angeles, New York/New Jersey, Melbourne, Sydney, Ho Chi Minh City and Laem Chabang [4].

What Did the Analysis Reveal?

The analysis showed that most of the world's largest container ports function primarily as gateway or feeder ports serving domestic and regional markets with relatively low levels of transshipment. This highlights the continuing importance of local demand and hinterland connectivity in driving container throughput.

By contrast, pure transshipment hubs represent only a small share of the top 100 ports, yet they occupy a disproportionately important position within global shipping networks. Their success depends less on local cargo generation and more on strategic geographic location, efficient port operations and strong connectivity with major liner shipping services. Ports such as Colombo, Singapore, Salalah and Tanjung Pelepas illustrate how these characteristics enable transshipment hubs to facilitate cargo flows between regions and support global maritime trade. The findings further demonstrate that transshipment incidence provides a useful perspective for understanding the strategic role of ports beyond simple throughput rankings. Ports handling similar container volumes may perform very different functions depending on whether they primarily serve domestic markets or operate as international cargo redistribution centers.

Colombo's Strategic Position

Among the ports analysed, the Port of Colombo emerged as one of the clearest examples of a pure transshipment hub. Ranked 28th among the world's busiest container ports, the port handled 7.78 million TEUs in 2024, making it South Asia's leading transshipment hub. Unlike gateway ports, most containers handled at Colombo are not destined for Sri Lanka; instead, they are transferred between vessels before continuing to destinations across the globe [3].

Strategically located on the main East–West shipping corridor, east of the Suez Canal, Colombo serves as a vital transshipment hub connecting Europe,

the Middle East and Asia. This strategic location enables shipping lines to consolidate and redistribute cargo efficiently through an extensive network of regional feeder services, particularly to the Indian subcontinent. Together, these advantages have established Colombo as a critical node in the global maritime transport network. The port's deep-water terminals, modern handling facilities and well-established liner service connections have further strengthened its attractiveness to global shipping alliances. These capabilities enable Colombo to efficiently handle high volumes of transshipment cargo while maintaining frequent connections with both regional and intercontinental shipping services [5]. However, its heavy dependence on transshipment also makes the port particularly sensitive to changes in shipping-line strategies, regional competition and evolving global trade patterns.

Beyond the Numbers

The world's busiest container ports may appear similar when viewed through throughput statistics alone, but this analysis shows that they perform fundamentally different roles within global shipping networks. While most of the world's busiest ports function primarily as gateways serving domestic and regional markets, only a relatively small number operate as dedicated transshipment hubs that connect international shipping routes.

For ports such as Colombo, long-term competitiveness will depend on sustaining operational excellence, strengthening connectivity with global shipping services and continuously adapting to the evolving demands of international trade. As global supply chains continue to evolve, ports that efficiently connect major shipping routes with regional markets will become even more critical to the resilience and competitiveness of international trade.

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