

Evaluation of the Factors Affecting Participation of Tanzanian Ports On Global Trade a Case of Dar Es Salaam Port

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Abstract:

This study aimed to evaluate the factors affecting the participation of Tanzanian ports in global trade, with a specific focus on the Port of Dar es Salaam. The port plays a crucial role in facilitating the country's international trade and serves as a major gateway for several landlocked countries in the East and Central African region. However, despite its strategic importance, the port continues to face challenges that limit its efficiency and competitiveness in the global maritime industry.

The research sought to identify and analyse key factors influencing the performance of Tanzanian ports, including infrastructural capacity, operational efficiency, governance structures, technology adoption, and policy frameworks. The study employed a mixed-methods research design, integrating both quantitative and qualitative approaches to allow for a comprehensive understanding of the issues under investigation.

Data were collected from a total of 60 respondents, selected through purposive sampling to ensure that only individuals with relevant knowledge and experience in port operations and trade facilitation were included. The primary data were obtained using structured questionnaires, while qualitative insights were gathered through interviews and document reviews. This combination of quantitative and qualitative methods provided a balanced perspective and strengthened the validity of the findings.

The results revealed that several interrelated factors such as inadequate infrastructure, bureaucratic procedures, technological limitations, and policy inconsistencies significantly affect the competitiveness of Tanzanian ports in global trade. The study concludes that improving port infrastructure, streamlining customs procedures, enhancing governance, and adopting modern port technologies are critical steps toward increasing Tanzania's participation in international trade.

Keywords: Global Participation, Port Congestion, Tanzania

1.1 Introduction:

Ports are critical gateways linking national economies to the global trading system, serving as nodes where maritime, road, and rail networks converge to facilitate cross-border trade. In sub-Saharan Africa, more than 90% of international

commerce by volume depends on maritime transport, underscoring ports' vital role in regional economic development (UNCTAD, 2023). Tanzania's Port of Dar es Salaam the country's largest and most significant maritime hub handles over 75% of national cargo and provides global market access to several

landlocked countries, including Zambia, Malawi, Rwanda, Burundi, Uganda, and the Democratic Republic of Congo.

Despite its strategic geographic position and regional importance, Tanzania's participation in global maritime trade remains limited. Comparative studies show that Dar es Salaam lags behind competing ports such as Mombasa (Kenya) and Durban (South Africa) in efficiency, reliability, and throughput (World Bank, 2021). This underperformance stems less from geographic disadvantage and more from institutional inefficiencies, outdated infrastructure, and limited technological adoption.

Historically, Dar es Salaam has been managed under a state-centric model dominated by the Tanzania Ports Authority (TPA). While centralization aimed to ensure accountability, it has instead led to bureaucratic rigidity, slow decision-making, and overlapping mandates among agencies such as the TRA and TASAC. These inefficiencies, combined with limited automation and paper-based operations, have produced high transaction costs and long cargo dwell times averaging 9–12 days compared to the global benchmark of 3–5.

Although modernization projects like the Dar es Salaam Maritime Gateway Program (DMGP) have improved physical capacity, the absence of synchronized governance and digital systems continues to hinder sustained performance. In addition, weak hinterland connectivity particularly the underdeveloped Central Corridor and TAZARA Railway limits the port's ability to serve regional markets efficiently.

The Tanzanian government's partnership with DP World in 2023 marks a strategic attempt to inject private-sector expertise, capital, and technology into port operations. Early results suggest improvements in efficiency and cargo handling, but long-term success will depend on maintaining policy consistency, transparency, and inter-agency coordination.

In a rapidly globalizing and digitizing trade

environment, Tanzanian ports must evolve beyond traditional cargo handling toward becoming smart, sustainable logistics hubs. Achieving this requires holistic reform that integrates infrastructure modernization, governance accountability, and digital innovation. The case of Dar es Salaam thus illustrates a broader paradox: despite vast potential and an advantageous location, Tanzania's ports remain underutilized due to systemic institutional and operational challenges.

This study therefore seeks to evaluate the multifaceted factors constraining Tanzania's participation in global trade, with a view to proposing actionable strategies for transforming Dar es Salaam into a competitive maritime gateway for East and Central Africa

2.1 Methodology:

This section presents the research methodology employed in the study. It outlines the systematic approach used to investigate the Evaluation of The Factors Affecting Participation of Tanzanian Ports on Global Trade

The following subheadings provide detailed explanations of the research design, data collection methods, and analysis techniques employed to investigate the relationship between of the Factors affecting participation of Tanzanian ports on global Trade

The methodological choices were guided by the need to gain both quantitative insights and qualitative understanding of port operations and their implications on trade performance.

2.2 Research Approach and Design:

This study used a convergent mixed-methods case study to examine the role and performance of the Port of Dar es Salaam in global trade. Quantitative analysis assessed port performance trends from 2012–2023 using secondary data on cargo throughput, container traffic, vessel calls, dwell time, and turnaround time, benchmarked against global standards. Qualitative data were collected through interviews, focus groups, and field observations with key port and logistics

stakeholders to capture operational, governance, and infrastructure challenges. Focusing on Dar es Salaam enabled a detailed, context-rich assessment of Tanzania's main maritime gateway within regional and global trade dynamics.

2.3 Participants:

This study involved a diverse group of participants who are directly involved in or influenced by port operations and trade-related processes at the Port of Dar es Salaam. Participants were selected based on their roles, expertise, and relevance to the study's focus on factors affecting the participation of Tanzanian ports in global trade. These included staff from DP World (Dar es Salaam Terminal), responsible for day-to-day terminal operations and operational activities; Shipping Agents, who manage vessel scheduling and cargo documentation; Customs Officers from the Tanzania Revenue Authority (TRA), who supervise clearance procedures and regulatory compliance; and Traders (Importers and Exporters), who are the primary users of port services and are directly affected by operational delays. Their selection was guided by their practical experience, in-depth knowledge of port operations, and strategic positions within the port logistics chain, which are essential for understanding how operational efficiency influences trade flow and the integration of Tanzanian ports into global trade..

2.4 Data Collection Methods:

The study employed both primary and secondary data collection methods to assess the factors affecting the participation of Tanzanian ports in global trade, with particular focus on the Port of Dar es Salaam. Primary data were collected through questionnaires consisting of closed-ended questions and Likert scale items to generate quantitative information on port efficiency, operational performance, and service effectiveness. Secondary data were obtained through a review of official reports and statistical records from the Tanzania Ports Authority (TPA), the Controller and Auditor General

(CAG), and the Tanzania Shipping Agencies Corporation (TASAC), covering the period from 2019 to 2024. The use of these structured report-based data sources ensured a clear, reliable, and comprehensive understanding of the key factors influencing the participation of Tanzanian ports in global trade.

2.5 Data Analysis and Ethical Consideration:

The quantitative data collected for this study were coded and analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies and percentages, were used to summarize respondents' views, while cross-tabulations were applied to examine relationships among key port performance and operational variables relevant to global trade participation. This analytical approach provided clear insights into patterns and trends influencing the effectiveness and competitiveness of the Port of Dar es Salaam in the global trading system.

Ethical considerations were strictly observed throughout the research process. Participation in the study was voluntary, and respondents were clearly informed about the purpose of the study and assured of the confidentiality of their responses. No personal identifiers were collected, and all data were used solely for academic purposes. The study adhered to established ethical guidelines for research involving human subjects.

3.1 Findings and Discussions:

This section presents the key findings and discussion based on the quantitative data collected in relation to the factors affecting the participation of Tanzanian ports in global trade, with specific reference to the Port of Dar es Salaam. A total of 60 questionnaires were distributed to selected respondents, including terminal operators, customs officers, shipping agents, and traders.

3.1.2 Evaluation of the factors that affecting the participation of Tanzanian ports in global trade, with a focus on the Port of Dar es Salaam

The study shows that the Port of Dar es Salaam's role in global trade is influenced by infrastructure, operations, governance, and hinterland connectivity. Infrastructure remains a major constraint, as shallow berths and terminal congestion limit the handling of large vessels, despite ongoing modernization. Under DP World's management, investments in terminal upgrades, storage expansion, and modern cargo-handling equipment have improved efficiency. Operational performance is also improving through digitalization, streamlined clearance procedures, and reduced bureaucracy, lowering delays and costs. Institutionally, private-sector involvement has strengthened governance, although coordination among stakeholders remains weak. Poor road and rail links still hinder regional cargo flow and competitiveness.

3.1.3 Key factors influencing the participation of Dar es Salaam Port in global trade.

The findings of this study indicate that the participation of the Port of Dar es Salaam in global trade is shaped by a combination of infrastructural, operational, institutional, and external factors. While the port has long been Tanzania's primary maritime gateway, the recent transition to management under DP World has introduced significant reforms aimed at improving efficiency, capacity, and competitiveness. The following factors were identified and analyzed as central to the port's global trade participation.

3.1.4 Factors Contributing to the Participation of Tanzanian Ports in Global Trade

This analysis is foundational to the rest of the study, as it unpacks the critical operational, infrastructural, and institutional dynamics that shape the competitiveness and effectiveness of Tanzanian ports in the global maritime trade system. Given the country's strategic location along the East African coast and the importance of Dar es Salaam Port as a gateway for landlocked nations such as Zambia, Rwanda, Malawi, and the Democratic Republic of Congo, a deeper understanding of these contributing factors is vital for enhancing port performance, trade volumes, and economic development.

This analysis is informed by empirical data collected from 60 respondents, as well as various reports from six strategic institutions involved in port operations: Tanzania Ports Authority (TPA),

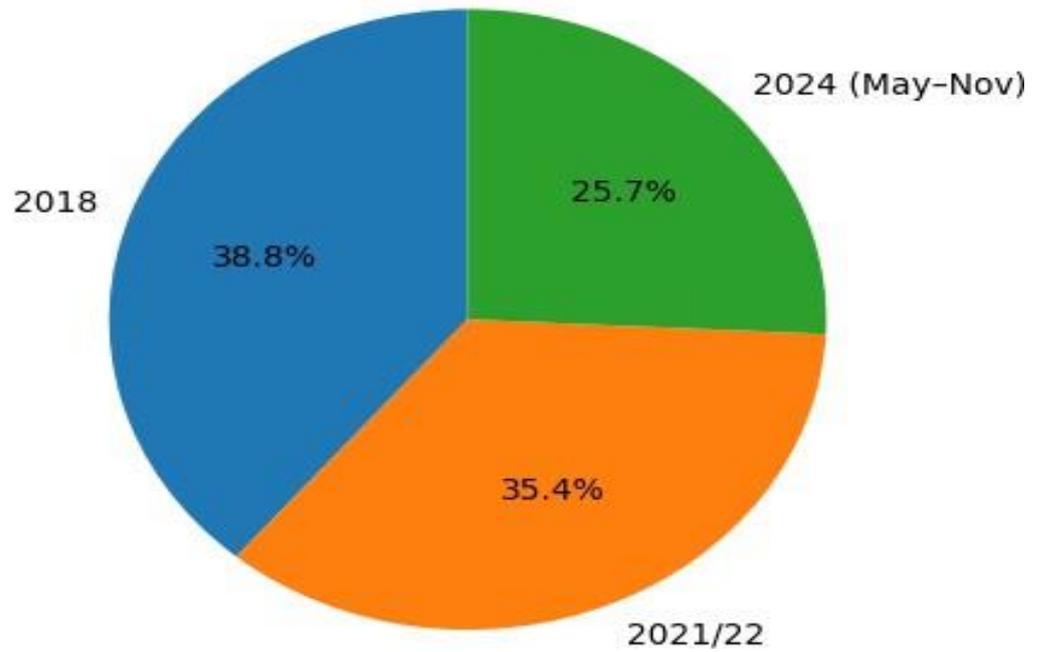
TASAC, TRA, shipping companies, freight forwarders and the Chamber of Commerce. The results include quantitative data from various reports and qualitative insights from questionnaires designed and focus group discussions, providing a multi-dimensional perspective. Furthermore, the interpretation is guided by the main theories of Port Systems Theory, Port Competitiveness Index, Port Efficiency Theory, Institutional Theory, and LPI Theory and is consistent with a conceptual framework, which positions port infrastructure, governance, technology, regional connectivity, and border management as independent variables affecting the participation of Tanzanian ports in international trade.

3.1.5 Container traffic (TEUs handled):

The analysis of container traffic at Dar es Salaam Port between 2018 and 2024 shows both progress and persistent inefficiencies that limit competitiveness in global trade. In 2018, the port handled about 903,000 TEUs, marking it as an important maritime gateway for Tanzania and its landlocked neighbors. However, growth has been stagnant, with 823,404 TEUs in 2021/22 and 598,672 TEUs recorded between May and November 2024. Compared with total cargo throughput, which rose significantly from 23.1 million tons in 2022 to 27.7 million tons in 2024/25, container growth has lagged behind, revealing an imbalance between bulk and containerized trade.

Benchmarking against Mombasa Port further highlights this gap: Mombasa processed 1.35 million TEUs in 2024, nearly twice Dar es Salaam's performance, confirming stronger integration into global shipping networks. The findings link Dar es Salaam's weaker container growth to limited terminal capacity, bureaucratic clearance delays, and poor hinterland connectivity, as only 3 percent of cargo moves by rail. Although modernization efforts through partnerships with Adani Ports and DP World are underway, their impact is yet to be fully realized. Thus, while Dar es Salaam remains vital for regional trade, expanding container capacity, digitalizing clearance, and strengthening multimodal transport are crucial for global competitiveness. Figure 1 gives the presentation of the findings.

Share of Container Traffic (TEUs) at Dar es Salaam Port



2018: 38.8% of total TEUs (strongest performance)

2021/22: 35.4% (moderate decline)

2024 (May–Nov): 25.7% (sharp reduction)

Stakeholder Perceptions on Key Contributing Factors (N = 60)

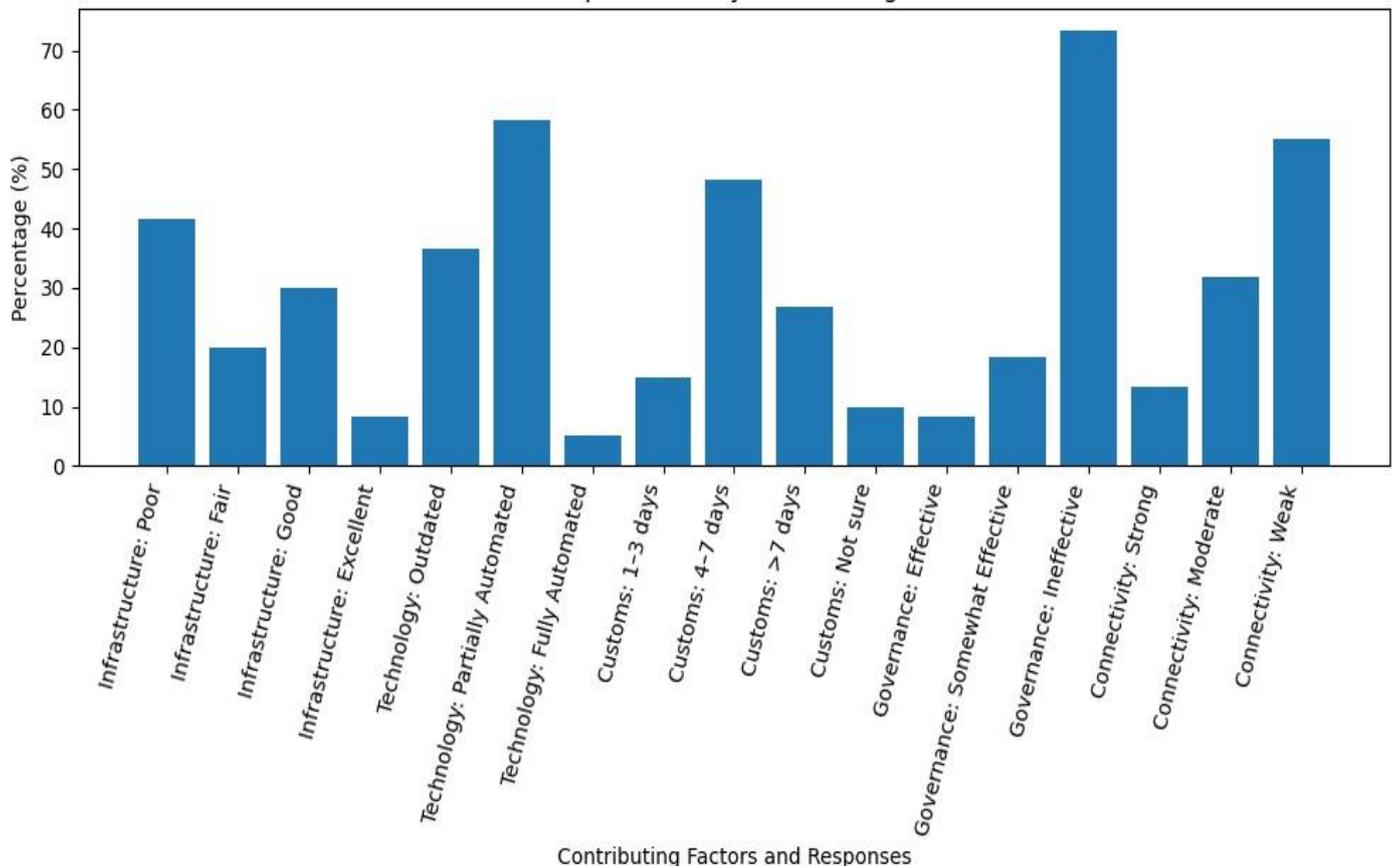


Figure 2: Type of cargo experiencing the most delays

The bar graph presents stakeholder perceptions of key factors influencing the performance of the Port of Dar es Salaam, based on responses from 60 participants.

Port infrastructure quality is largely viewed as inadequate, with 41.7% rating it as poor and only 8.3% describing it as excellent, indicating persistent capacity and quality challenges.

Technological advancement is perceived as limited, as 58.3% report only partial automation and 36.7% still rely on outdated or manual systems, while full automation remains rare (5%).

Customs and border clearance efficiency shows notable delays, with nearly half of respondents (48.3%) experiencing clearance times of 4–7 days, and a further 26.7% reporting delays exceeding one week.

Governance and institutional coordination emerges as the weakest area, with 73.3% of respondents rating it as ineffective, highlighting serious coordination and policy implementation gaps.

3.1.6 Exploration of Strategies to Improve Operational Efficiency and Infrastructure of Tanzanian Ports

This section synthesizes quantitative and qualitative insights from stakeholders while grounding the discussion in theoretical and empirical literature. The ultimate aim is to propose evidence-based recommendations that can help transform Tanzania's maritime gateways into globally competitive trade hubs.

The findings are presented with direct reference to the key independent variables in the conceptual framework port infrastructure, port governance, technological advancement, customs and border control, and regional connectivity and are supported by theoretical models including the Port Development and Growth Theory, Institutional Theory, and the LPI Framework. The strategies proposed reflect stakeholder priorities, operational realities at Dar es Salaam Port, and lessons from more efficient regional and international ports.

4.1 Conclusions:

This study critically examined the factors shaping the participation of Tanzanian ports in global trade, with particular emphasis on the Port of Dar

es Salaam. Anchored in Port Development and Growth Theory, Port Systems Theory, Institutional Theory, and the Logistics Performance Index (LPI), the research identified key structural and institutional barriers that constrain Tanzania's competitiveness in international maritime trade. The findings reveal that infrastructural limitations, fragmented governance arrangements, institutional inefficiencies, and slow adoption of modern port technologies continue to hinder the port's ability to function as an efficient global trade hub.

Empirical evidence shows that the Port of Dar es Salaam remains strategically important for both domestic and regional trade, especially as a gateway for landlocked countries such as Zambia, Rwanda, and Malawi. However, its overall performance is weakened by congestion, operational inefficiencies, and inadequate integration of digital systems across port stakeholders. While recent modernization initiatives, increased cargo throughput, and growing regional transit traffic signal positive progress, these improvements are uneven and insufficient to fully offset competitive pressures from more efficient regional ports, notably Mombasa and Durban. As a result, Dar es Salaam risks losing market share unless reforms are accelerated and better coordinated.

The study concludes that transforming the port into a globally competitive maritime hub requires sustained investment in port infrastructure, harmonization of digital and logistics systems, institutional and regulatory reforms, and stronger public-private partnerships to enhance efficiency and accountability. Nonetheless, the research acknowledges several limitations. Its focus on a single port restricts the generalizability of the findings, while reliance on a purposive sample of 60 institutional respondents may underrepresent private sector and shipping line perspectives. Additionally, broader geopolitical dynamics and global supply chain disruptions were not examined in depth.

Future research should adopt comparative approaches across multiple Tanzanian ports, integrate more diverse stakeholder perspectives through robust mixed-methods designs, and explore the role of emerging technologies, green logistics, and regional trade agreements in strengthening the long-term competitiveness of Tanzanian ports.

5.1 Recommendations:

Dar es Salaam Port into a competitive regional and international maritime trade hub requires an integrated, long-term strategy that simultaneously addresses infrastructure gaps, operational inefficiencies, governance weaknesses, technological limitations, and regional connectivity challenges. The recommendations emphasize that isolated reforms are insufficient; instead, coordinated and sequenced interventions are essential to achieve sustainable competitiveness.

At the core of the transformation agenda is **infrastructure modernization and strategic capacity investment**. The port must overcome constraints caused by shallow berths, outdated cargo-handling equipment, and limited storage space. A long-term Port Infrastructure Master Plan led by the Tanzania Ports Authority should guide phased investments aligned with projected cargo growth and global shipping trends. Priority actions include berth deepening to accommodate post-Panamax vessels, acquisition of modern cranes and handling equipment, rehabilitation of quay walls, and expansion of container terminals, dry ports, bonded warehouses, and access corridors. These upgrades should be closely linked to performance indicators and regional transit demand.

Operational efficiency and digital transformation form the second pillar. Manual procedures and fragmented systems remain major bottlenecks. Full port automation is required through integrated Terminal Operating Systems, automated scanning and weighing, RFID and GPS-based cargo tracking, and secure digital documentation using blockchain. These systems should be interoperable with customs and regulatory agencies under a Single Window framework, enabling faster clearance, reduced dwell times, and greater predictability. Investment in ICT infrastructure and workforce digital skills is critical to sustain these reforms and improve Tanzania's logistics performance.

The third pillar is **institutional harmonization and governance reform**. Fragmented mandates among port and border agencies have created duplication, delays, and limited transparency. Transitioning fully to a Landlord Port Model will clarify regulatory and operational roles, reduce bureaucratic interference, and strengthen accountability. Establishing a National Ports

Governance Council, supported by clear service-level agreements, time-bound clearance standards, and risk-based inspections, will enhance coordination, investor confidence, and institutional credibility.

Regional connectivity and trade integration are equally vital. The competitiveness of Dar es Salaam Port depends on efficient hinterland links, particularly along the Central Corridor serving Zambia, Rwanda, Burundi, Malawi, and the DRC. Modernization of rail and road networks, including Standard Gauge Rail and upgraded inland dry ports, will reduce congestion and logistics costs. Aligning procedures with regional frameworks such as the East African Community and the African Continental Free Trade Area will help harmonize customs processes, remove non-tariff barriers, and strengthen Dar es Salaam's role as a regional gateway.

Finally, **expanding well-regulated Public-Private Partnerships (PPPs)** is essential to mobilize capital, expertise, and innovation beyond public sector capacity. A transparent port sector investment framework, supported by a dedicated PPP coordination unit, can attract global investors while safeguarding public interests. Strong regulatory oversight, performance monitoring, and a National Port Master Plan with real-time dashboards will ensure accountability and alignment with national development goals.

Overall, the success of these strategies depends on strong political commitment, institutional leadership, and coordinated stakeholder engagement. By synchronizing infrastructure, technology, governance, regional integration, and investment, Tanzania can reposition Dar es Salaam Port as a competitive, resilient, and sustainable maritime hub in Africa's evolving logistics landscape.

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