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Examining importers' perspective on containerised cargo handling delays at Dar es Salaam port

REVELIAN ELIAS *

Maritime Transport Department, Dar es Salaam Maritime Institute, Tanzania.

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Abstract

This study aimed to explore importers' views on delays in handling containerised cargo at the Dar es Salaam port. It sought to understand why, despite the growing importance of cargo handling for economic growth and port performance, countries like Tanzania still make limited efforts to address the issue. The underlying assumption was that cargo handling is crucial to a port's success, and improving it directly impacts economic growth, development, and overall performance. To investigate this, the study adopted a mixed-methods approach combining quantitative and qualitative research, utilising a descriptive research design to collect data. Data were gathered through questionnaires, in-depth interviews, observation, and documentary reviews targeting a population comprising various port users, including importers, Dar es Salaam Port staff, clearing and forwarding agents and shipping lines. The collected data were analysed using SPSS software.

The findings highlight several issues related to containerised cargo handling at Tanzania's ports, notably bureaucracy, cargo clearance, and logistics management. These challenges are said to hinder port performance and negatively affect economic growth and customers' perspectives. Additionally, the study revealed that delays are partly caused by insufficient technological equipment used in cargo handling. As a result, some countries have opted to avoid using Tanzania's ports due to these challenges. The study concluded by recommending that improving cargo handling is essential for boosting the performance of Tanzania's ports, increasing revenue, and supporting economic growth, development and customers' perspectives.

Keywords: Containerised Cargo; Delay; Perspective; Port Performance

1. Introduction

Tanzania's ports serve as vital gateways for the nation's trade and economic growth, acting as critical hubs that connect the country to global markets (Tanzania Ports Authority, 2018). Among these, the Dar es Salaam port stands out as the largest and busiest, holding a position of paramount importance in the nation's maritime infrastructure. This port is not only a lifeline for Tanzania's import and export activities but also a key facilitator of international trade and commerce across the East African region. Its strategic location along the Indian Ocean makes it an essential transit point for goods destined for neighbouring landlocked countries such as Zambia, Malawi, and the Democratic Republic of Congo, thereby enhancing its significance beyond Tanzania's borders (Tanzania Ports Authority, 2018). The efficiency and capacity of the Dar es Salaam port directly impact the economic performance of the region, influencing trade flows, business operations, and overall economic development. As the primary entry and exit point for the majority of Tanzania's goods, the port's role in fostering economic growth and integration with the global economy cannot be overstated (Tanzania Ports Authority, 2018).

* Corresponding author: REVELIAN ELIAS

Previously, cargo handling at Dar es Salaam port was plagued by considerable inefficiencies and challenges, significantly hindering its operational effectiveness. These issues were primarily driven by a combination of factors, including infrastructure limitations that constrained the port's ability to accommodate increasing volumes of cargo, shortages of essential equipment that delayed loading and unloading processes, and inefficient procedures that led to extended turnaround times and congestion. These factors collectively contributed to a less-than-optimal performance, affecting both the port's reputation and the economic activities dependent on its operations.

However, in recent years, there have been notable improvements aimed at addressing these long-standing issues. Investments in infrastructure upgrades, the acquisition of modern equipment, and the streamlining of operational processes have begun to transform the port's efficiency and capacity. These enhancements have resulted in a more reliable and faster handling of cargo, contributing to better service delivery and increased satisfaction among port users.

Despite these advancements, the onset of the Coronavirus disease (COVID-19) pandemic brought new challenges. The global health crisis triggered restrictive measures such as lockdowns, border closures, and disruptions in supply chains, which had a profound impact on port operations worldwide. Dar es Salaam port, like many others, experienced a significant reduction in cargo volumes as a direct consequence of these measures. The shortage of cargo not only strained the port's operations but also underscored the vulnerability of global trade networks to such unprecedented disruptions. The pandemic period highlighted the need for further resilience and adaptability in port operations to cope with future crises, ensuring that the gains made in recent years are not lost (Tanzania Ports Authority, 2018).

In the aftermath of the decline of the Coronavirus disease (COVID-19) pandemic, the global volume of international trade in goods carried by sea has experienced a rapid and robust increase. This resurgence reflects the recovery and growth of global trade networks as economies around the world reopen and adapt to post-pandemic conditions. The maritime industry, being the backbone of global trade, has seen a significant uptick in activity, with the percentage of goods transported by sea reaching new heights. This trend is even more pronounced in developing countries, where seaborne trade is a crucial driver of economic development, enabling these nations to connect with international markets and bolster their economic growth (Smith, 2023)

Among the ports which reduced the average arrival times during 2021-2022, Dar es Salaam port comes first on the Container Port Performance Index (CPPI) (UNCTAD, 2023). The improved performances of some African and Asian ports have benefited from expanding port capacity and upgrading technology, including investments in trade facilitation reforms. As an example, the government of the United Republic of Tanzania has invested heavily in the Dar es Salaam port facilities. It improved clearance procedures with the goal of making the port the entry point of the Central Corridor and the route to Southern Africa. As a result, port performance has improved not only regarding container capacity but also the overall position of Dar es Salaam in maritime transport networks, with an increase in the LSCI of 50 per cent since 2006.

However, despite the overall positive trajectory of global maritime trade, many ports, including Dar es Salaam, have faced persistent challenges in recent years. Among the most significant of these challenges are delays in cargo handling, which have had far-reaching consequences for the port's operational efficiency. These delays, often caused by a combination of factors such as inadequate infrastructure, equipment breakdowns, and logistical inefficiencies, have led to longer wait times for vessels, increased congestion, and higher operational costs and as a result negative impact to customers' perspectives. Such inefficiencies not only slow down the movement of goods but also undermine the competitiveness of the port on the global stage.

The impact of these challenges is further exacerbated by the fact that they have occurred despite notable advancements in technology aimed at improving port operations. Innovations in automation, digitalization, and data analytics have been introduced with the goal of streamlining processes and enhancing overall efficiency. However, the benefits of these technological advancements have not been fully realized due to ongoing issues such as insufficient infrastructure, outdated equipment, and the complexities of integrating new technologies into existing systems. As a result, customer satisfaction has been negatively affected, with businesses facing delays in receiving their goods, leading to disruptions in supply chains and increased costs (Smith, 2023)

2. Conceptual framework

In this study, customer satisfaction is influenced by factors such as cargo handling, the bureaucracy involved in cargo handling, and the technology used in cargo handling equipment. As a result, customer satisfaction serves as the dependent variable, with its outcomes being determined by the aforementioned independent variables.

2.1. Figure on Conceptual Framework

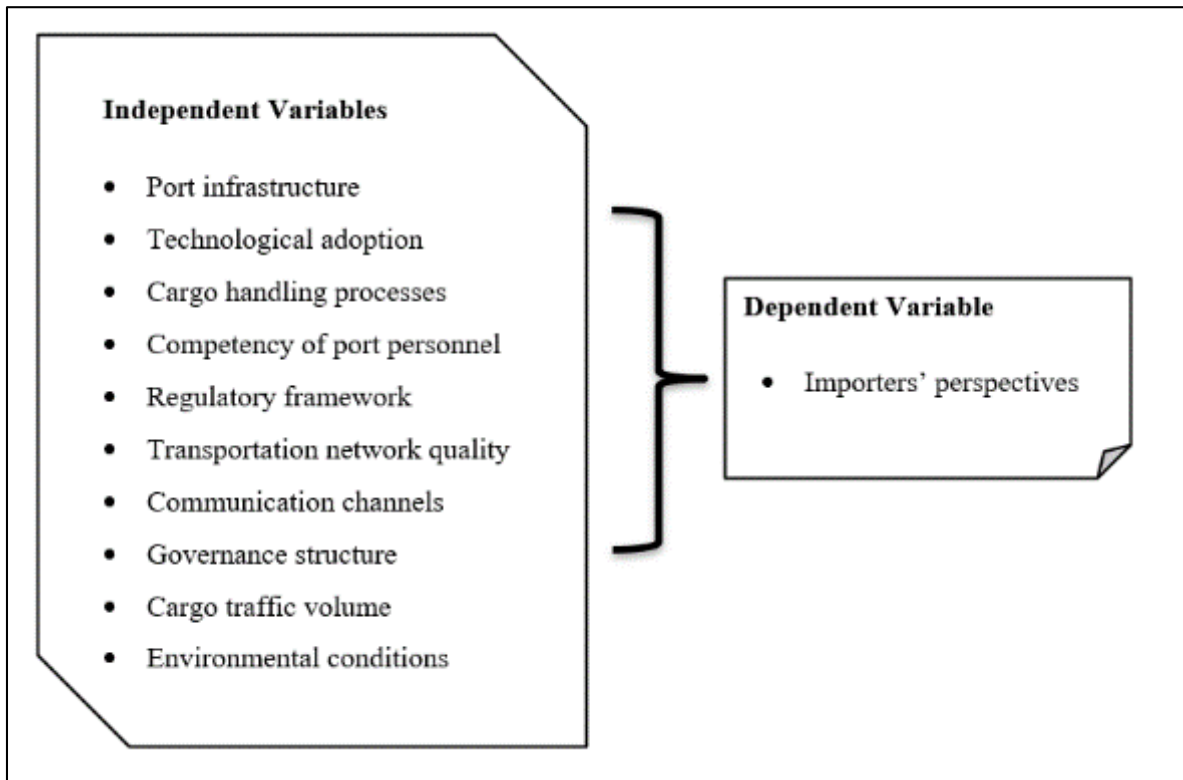


Figure 1 Relation between dependent and independent variable

3. Methodology

This section outlines the research methodology, beginning with the research paradigms, then the study design and how it was structured to answer research questions effectively. It then details the sampling framework, and data collection methods (e.g., surveys, interviews, observations), and explains their relevance to the research objectives.

According to (Wahyuni, 2012), social sciences are guided by a set of fundamental beliefs or assumptions that constitute a philosophical framework. These core beliefs form a foundational worldview that shapes how researchers approach their studies, influencing not only their choice of methods but also their fundamental ontological and epistemological perspectives. Ontology concerns the nature of reality and what can be known about it, while epistemology deals with the nature and scope of knowledge and how it can be acquired.

(Teddlie, 1998) further, emphasize that the selection of a research paradigm is closely linked to the ontological and epistemological characteristics of the study. In other words, the underlying beliefs about the nature of reality and knowledge dictate the research paradigm that is most appropriate for a given study.

(John D. Brown, 2003) emphasize that research design serves as the foundational framework that integrates and organizes a research project. It is essential for structuring the investigation, outlining how various components such as sample groups, measurement tools, treatments or interventions, and assignment methods interact to address the central research questions. This framework ensures that all elements of the study work cohesively to produce meaningful and relevant results.

In the context of this study, an exploratory research design was selected to analyse the effects of cargo handling on port performance. The decision to use an exploratory design was based on the fact that the problem under investigation was not yet clearly defined. Exploratory research is particularly beneficial in such scenarios, where the lack of clear conceptual distinctions or established explanatory relationships necessitates a preliminary examination. This approach helps in identifying the most appropriate research design, selecting suitable data collection methods, and determining the criteria for participant selection. It is important to note, as highlighted by (Rangarjan, 2013), that while exploratory

research can provide valuable insights, any definitive conclusions drawn should be approached with caution due to the preliminary nature of the findings.

The study adopted both quantitative and qualitative approaches to gain an in-depth understanding of the subject matter. (Rangarjan, 2013), defines qualitative research as a process aimed at understanding complex phenomena through a comprehensive, holistic lens. This approach relies on detailed verbal descriptions and observations within natural settings to build a nuanced understanding of the issue. Similarly, (John D. Brown, 2003) argue that qualitative research focuses on gaining insights by closely analysing individuals' words, actions, and records. By employing this approach, the study sought to explore how individuals perceive the effects of cargo handling on port performance, the terminology they use, and potential areas for improvement. Qualitative inquiry thus allows for a rich exploration of people's attitudes, opinions, and perceptions, offering a deeper understanding of the impact of cargo handling on port performance.

Population of the study is defined by (Kothari, 2004) as a group consisting of individuals, objects, or items from which samples are taken for measurement. He emphasizes that the population includes all elements that meet the criteria for inclusion in the study, and it is the aggregate of all the cases that conform to some designated set of specifications.

The study uses an interpretivist approach, focusing on participants' subjective experiences through qualitative methods, which are ideal for exploring complex social phenomena. An exploratory design was chosen due to the undefined nature of the problem, with Dar es Salaam Port as the study area. Purposive sampling selected 30 key participants involved in cargo handling, and data was gathered through surveys, interviews, documentary reviews, and observations. The study emphasizes the importance of reliability and validity, using Cronbach's alpha for consistency. Data was analysed using content analysis and descriptive statistics, and ethical standards, including informed consent and confidentiality, were strictly followed to ensure participant privacy and integrity of results.

Table 1 Representing Sampling Frame

S/N	Respondents	Population
1	Importers	17
2	Dar es Salaam Port Staff	5
3	Clearing and Forwarding Agent	5
4	Shipping line agents	3

Source: Field Data, 2024

The study incorporated a reliability assessment using Cronbach's alpha, a statistical measure of internal consistency. The result of 0.9 as shown under table below indicates a very good level of reliability for the data, signifying that the data collection instruments and methods used in the study were consistent and dependable.

Table 2 Reliability test

Cronbach's Alpha	Cronbach's Alpha Based on standard deviation	Number of items
0.961	0.983	9

4. Results and discussion

This study aimed to investigate importers' views on containerised cargo handling delays at Tanzania's ports. Key questions were addressed through the research objectives as follows:

4.1. Determination of the average length of containerised cargo handling.

Responses from the questionnaires revealed mixed perspectives on the average time for handling containerized cargo at Dar es Salaam port. While some reported efficient handling, others experienced delays. These differences underscore the complexity of cargo operations, with the analysis focusing on the factors contributing to these varied experiences.

Table 3 Respondents' Experience with the Dar es Salaam Port Services

Year	Frequency	Percentage
1 - 5	6	24%
6 - 10	8	32%
More than 10	11	44%
TOTAL	25	100%

Source: Field Data, 2024

The analysis of respondents' experience showed a range from 1 to over 10 years. About 24% had 1 to 5 years of experience, 32% had 6 to 10 years, and 44% had more than 10 years. This suggests that most respondents were well-informed about the Dar es Salaam port.

4.2. Factors contributing most to the duration of containerised cargo handling at the port.

The analysis of factors affecting containerized cargo handling at the Dar es Salaam port shows that 40% of respondents identified all listed factors port congestion, documentation, customs clearance, equipment availability, and labour issues as contributing to delays. Port congestion was the most cited individual factor (28%), followed by equipment availability (12%), with documentation and labour each at 8%, and customs clearance at 4%. This highlights that while congestion is a key issue, multiple factors contribute to delays.

Table 4 Factors contributing to duration of handling containerised cargo

Response	Frequency	Percentage
Port congestion	7	28%
Documentation processes	2	8%
Customs clearance	1	4%
Availability of handling equipment	3	12%
Labour issues	2	8%
All of the above	10	40%
TOTAL	25	100%

Source: Field Data, 2024

4.3. Duration of handling containerised cargo.

The majority of respondents (44%) reported that handling containerized cargo at Dar es Salaam port took over 10 days, reflecting significant delays. Additionally, 28% experienced handling times between 8 to 14 days, while only 20% reported times between 3 to 7 days, and just 8% had handling times under 3 days. These findings indicate that most customers face delays exceeding a week, impacting satisfaction and operational efficiency, as shown in the table below.

Table 5 Average duration as per respondents' experience

Days	Frequency	Percentage
Less than 3	2	8%
3 - 7	5	20%
8 - 14	7	28%
More than 10	11	44%
TOTAL	25	100%

Source: Field Data, 2024

4.4. Impact on Customer Satisfaction and Loyalty.

Respondents shared their perspectives on their overall level of satisfaction with the various services provided by the port. Their feedback addressed multiple factors influencing their satisfaction, including how delays in cargo handling, customs clearance, and documentation processes impacted their experience. Some respondents noted that prolonged waiting times led to frustration and financial losses, while others emphasized the importance of timely communication from port authorities during such delays. Additionally, their comments touched on other key service aspects, such as the availability of equipment, the efficiency of labour, and the overall professionalism of the port staff. Collectively, these responses provide valuable insights into the specific elements that shape user satisfaction and highlight the areas in need of improvement to enhance service delivery at the port.

Table 6 Importers' satisfaction with current containerised cargo handling services

Level of satisfaction	Frequency	Percentage
Very satisfied	1	4%
Satisfied	3	12%
Neutral	6	24%
Dissatisfied	8	32%
Very dissatisfied	7	28%
TOTAL	25	100%

Source: Field Data, 2024

4.5. Frequency of containerised cargo handling delays.

The importers provided detailed feedback on how frequently they encountered delays in the handling of containerized cargo at the Dar es Salaam port. They shared their experiences with both the frequency and the severity of the delays, offering insights into how often these disruptions occur and the typical duration of the delays. Some importers reported that delays were a common occurrence, significantly affecting their operations and overall satisfaction with the port's services. In addition to discussing the frequency, they also specified the length of time the delays lasted during their experiences, with some indicating brief interruptions while others noted extended delays that had more serious operational and financial consequences. This feedback provides a comprehensive view of the importers' experiences with cargo handling delays and highlights the impact on their business processes.

Table 7 The frequency of delays experienced by customers

Response	Frequency	Percentage
Rarely (less than 10% of the time)	1	4%
Occasionally (10-30% of the time)	6	24%
Frequently (30-50% of the time)	8	32%
Very frequently (over 50% of the time)	10	40%
TOTAL	25	100%

Source: Field Data, 2024

The table above shows that most customers frequently face delays at the Dar es Salaam port, with 40% experiencing delays 'very frequently' (over 50% of the time) and 32% 'frequently' (30-50% of the time). Over 70% of respondents encounter delays in at least 30% of their interactions. Meanwhile, 24% experience delays 'occasionally' (10-30% of the time), and only 4% rarely face delays. These results underscore the widespread issue of delays, which could impact customer satisfaction and efficiency.

4.6. Length of delays experienced by importers

The data in Table 4.6 shows that the majority of customers experience significant delays when handling containerized cargo at the Dar es Salaam port. Over half of the respondents (52%) reported that delays lasted more than 7 days,

indicating that extended delays are a common occurrence. Additionally, 28% of respondents experienced delays lasting between 3 to 7 days, while 20% faced shorter delays of 1 to 3 days. These findings suggest that while some customers encounter relatively shorter delays, the majority experience prolonged disruptions, with more than 80% of respondents reporting delays of 3 days or longer. Such lengthy delays are likely to have a negative impact on importers' operations, increasing costs and reducing overall efficiency

Table 7 Length of delays

Days	Frequency	Percentage
1 – 3	5	20%
3 – 7	7	28%
More than 7	13	52%
TOTAL	25	100%

Source: Field Data, 2024

5. Conclusion

In evaluating how cargo handling factors impact port performance and as a result negative perspectives from customers, it is evident that the current containerised cargo handling practices at Dar es Salaam Port are contributing to subpar performance. The research findings highlight that delays in cargo clearance are a significant factor affecting the port's efficiency. These delays lead to poor performance outcomes, customer dissatisfaction, and increased congestion at the port. Consequently, this inefficiency results in diminished port revenues, a decline in overall performance, and fosters negative perceptions among customers. As a result, many customers are driven to seek alternative ports, such as the Port of Mombasa in Kenya, where they experience more timely and efficient services.

When examining the impact of bureaucracy on cargo handling and port performance, it becomes clear that bureaucratic procedures are harmful. Bureaucracy introduces unnecessary and often complex steps into the cargo clearance process, which results in significant delays and exacerbates port congestion. This congestion not only increases operational costs for exporters, importers, and port authorities but also impacts the overall efficiency of port operations. The dissatisfaction among customers due to these delays often leads them to redirect their business to other ports. For example, countries such as Rwanda, Burundi, and the Democratic Republic of Congo (DRC) have shifted their cargo operations to Mombasa Port to avoid the delays associated with Dar es Salaam Port.

The role of cargo handling equipment in port performance also has noteworthy implications. The effectiveness of cargo handling equipment can greatly influence port operations. Well-maintained and efficient equipment enhances the availability of services, speeds up service delivery, reduces waiting times for ships, and improves overall customer satisfaction. Conversely, Tanzanian ports, and many ports in developing countries, are currently facing a shortage of such crucial equipment. This shortage restricts the ports' capacity to effectively participate in international trade, leading to increased congestion and longer waiting times for ships at the docks. Addressing these equipment shortages is essential for improving port efficiency and competitiveness in the global market.

Recommendation

The study presents the following recommendations to enhance port performance:

- Simplifying and minimizing unnecessary procedures in the cargo clearance process will lead to improved port performance. This will result in greater customer satisfaction and reduced port congestion. Enhanced efficiency in cargo handling is expected to positively influence economic growth and development.
- The recommendation is for ports to implement berth specialization, which can lead to more efficient operations and better service delivery by allocating specific berths for certain types of cargo or vessels.
- Investing in state-of-the-art cargo handling equipment is essential for boosting port efficiency and capacity. Modern equipment will enable more timely and effective cargo operations.
- National port development strategies should encompass both the advancement of physical infrastructure and the implementation of necessary institutional and regulatory reforms. This includes the establishment of a Port Modernization Action Plan for Tanzania to guide these improvements.

- The Tanzania Port Authority and the government should consider expanding cargo handling operations through collaborations with private firms. This approach can enhance operational efficiency and overall port performance.
- Port modernization efforts should extend beyond port infrastructure to include enhancements in road and rail systems that connect ports with inland markets. Addressing these transport bottlenecks will reduce congestion and optimize the efficiency of integrated transport corridors.
- Modernizing cargo-handling systems is crucial, as reliance on outdated equipment, such as old cranes and container gantries, significantly hampers port productivity. Upgrading these systems will improve operational efficiency.
- Acquiring new equipment is not sufficient on its own; it must be integrated into a well-designed operational system that aims for peak performance. Additionally, adequate staff training is essential to maximize the effectiveness of the new equipment.

Compliance with ethical standards

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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