EFFECT OF PORT LOGISTICS ON JOB/EMPLOYMENT CREATION IN THE MARITIME INDUSTRY IN NIGERIA

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ABSTRACT

The study examined the effect of port logistics on job/employment creation in maritime industry in Nigeria. The predictor variable's (port logistics') dimensions included: port administration, port operations, procurement, warehousing, and intermodal transport. The criterion variable was job/employment creation. The theories that underpinned the study included: stakeholders' theory, and Planed Behaviour. Cross-sectional survey research design was used for the study. Primary and secondary sources of data were used as the main data collection methods. Primary data for this study were collected through structured questionnaire. The population of the study consisted of all the seven (6) ports in Nigeria. The study used descriptive and inferential statistical tools to analyse the data. Specifically, multiple regression analiysis of ordinary least square estimation was used to test the hypotheses with the aid of SPSS 25.0. The reliability of the research instrument was validated with Cronbach Alpha threshold at 0 .70. The study revealed that seaports collect data on vessel performance, environmental conditions, and cargo status, enabling predictive maintenance and timely interventions to prevent equipment failures and accidents and that seaports significantly reduce human error and exposure to hazardous environments. The study revealed that seaports significantly reduce labour costs and minimize human error and that they have service operators to carry out maintenance in a way that reduces unexpected

breakdowns and prolongs the lifespan of assets, thereby lowering maintenance and repair costs. The study concluded that: Port administration, port operation, procurement, warehousing and intermodal transport have insignificant effect on job/employment creation. This study, therefore, recommended that: Governments, ports and maritime industry stakeholders should promote intermodal transport links - rail, inland waterways, efficient road networks to distribute cargo quickly with hubs / dry ports to reduce congestion and distribute jobs more broadly. They should also, encourage the development of bonded warehouses, cold chain storage, value-added services and encourage logistics parks near ports to cluster warehousing and distribution, resulting in more jobs.

KEYWORDS: Port Logistics, Job Employment/Creation, Port Administration, Port Operations, Procurement, Warehousing, Intermodal Transport.

INTRODUCTION

Port logistics encapsulates a wide range of activities. Some of these activities includes the reception of goods, which involves the unloading of vessels and the verification of customs documentation. Secondly, the storage and handling of goods in ports, which involves sorting, labeling and organizing them in specific storage area. Finally, port logistics is responsible for coordinating through any transport unit i.e truck, rail or intermodal systems, to bring goods to and from the port. Its worthy of note that all these activities are intentional aids to trade global which in turn triggers job/employment creation in maritime industry (Adelaja et al., 2021).

In the past decades, the whole world businesses environment has been very dynamically affected by the new wave of globalization which have triggered international trade and businesses between countries and hastened the growth of multinational operations. Globalized businesses have brought about the belief that globally dispersed operations need to be coordinated and organized in the most efficient and effective way by enhancing port logistics to achieve job/employment creation. In this regards, proper administration of the world-wide linked activities of port and logistics that is maritime port logistics orientation is one of the most significant consideration of international blue economy development and performance. Port logistics embodies the entire activities involved in the logistic flow (ie, all the relevant activities of the flow of goods from the origin to the destination, including transportation, warehousing, purchasing, distribution and other relevant port activities etc).

that facilitate job/employment creation in maritime industry globally (Okpara & Enyioko, 2022, UNCTAD, 2022).

A port is a landing place for ships on a coast, river, or lake. Ships dock at port to load and unload their cargo and passengers" ports are the main industrial and commercial tools for economic and social development of the country (Haralambides & Gouvernal, 2020). According to them the port sector is affected by the socio economic and social development of the countries, via commitment made by countries concerning free trade and the new context of globalization considering the new constraints technological environmental and maritime transport development.

Therefore, in this study we consider port logistics as a blend of port facilities, operations and administration with logistics facilities operation and administration to achieve effective and efficient job/employment creation in maritime sector. According to Fernie and Sparks (2020) port logistics is a fundamental component in the fabric of international trade. While seaport is seen as a key connection point (mode) between different ports in different countries, and their efficient operation is vital for constraint flow of goods and services globally.

There is a developing unanimity to fulfill the sustainability and performance objective inside seaports based on the triple bottom line (TBL), Nigerian ports operations have not been aligned to such specific sustainability framework, including economic, social and environmental sustainability (Okpara & Enyioko, 2022), which encapsulates port administration and operations, warehousing, procurement and intermodal transport coordination. Lack of implementation of sustainable growth-led port policies is a problem in the maritime industry in Nigeria. similarly, the Nigerian blue economic lack the merit of fulfilling some specific performance frontier or framework such as shipping, food production, energy production and employment or job creation. Therefore, this is the reason why the focus of this study is the effect of port logistics on job/employment creation in maritime industry in Nigeria.

Objectives of the Study

The main purpose of this study is to examine the effect of port logistics on job/employment creation in maritime industry in Nigeria. Therefore, the following are the specific objectives examined in the study:

1. To examine how port administration affects job/employment creation in maritime industry in Nigeria.
2. To examine how port operations affect job/employment creation in maritime industry in Nigeria.
3. To evaluate the effect of procurement on job/employment creation in maritime industry in Nigeria.
4. To evaluate the effect of warehousing on job/employment creation in maritime industry in Nigeria.
5. To determine the effect of intermodal transport on job/employment creation in maritime industry in Nigeria.

Research Questions

The study answered to the following research questions based on the objectives of the study:

1. To what extent does port administration affect job/employment creation in maritime industry in Nigeria?
2. ii. To what extent do port operations affect job/employment creation in maritime industry in Nigeria?
3. iii. To what extent does procurement affect job/employment creation in maritime industry in Nigeria?
4. To what extent does warehousing affect job/employment creation in maritime industry in Nigeria?
5. To what extent does intermodal transport affect job/employment creation in maritime industry in Nigeria?

Research Hypotheses

The following hypotheses relating to the problem, aim and objectives were formulated investigated and tested in this study:

1. Port administration has no significant effect on job/employment creation in maritime industry in Nigeria.
2. Port operations have no significant effect on job/employment creation in maritime industry in Nigeria
3. Procurement has no significant effect on job/employment creation in maritime industry in
4. Nigeria Warehousing has no significant effect on job/employment creation in maritime industry in Nigeria

5. Intermodal transport has no significant effect on job/employment creation in maritime industry in Nigeria.

LITERATURE REVIEW

Theoretical Framework

The study is anchored on Stakeholder's Theory and Planed Behaviour Theory.

Stakeholder's Theory

One of the theories considered to be very relevant for the explanation of the topic is the stake holders' theory. In his work extending the stakeholder theory, Jensen (2001) recognizes the multiplicity of stakeholders. He concurs with John and Senbet that certain actions of management might have conflicting effects on various classes of stakeholders. This implies that the managers have multiplicity of objective functions to optimize, something that Jensen sees as an important weakness of the stakeholder theory "because it violates the proposition that a single-valued objective is a prerequisite for purposeful or rational behaviour by any organization (Jensen, 2001). In search of a single valued objective function that conforms with rationality, Jensen suggests a refinement of the stakeholder theory-the enlightened stakeholder theory. For him, the enlightened stakeholder theory offers at least two advantages.

First, unlike the earlier version with multiple objectives, the modified form of the theory proposes only one objective that managers should pursue: the maximization of the long-run value of the firm. If the interest of any major stakeholder was not protected, the objective of long-run value maximization would not be achieved (Martine, 2019). A second, related, appeal of the enlightened stakeholder theory is that it offers a simple criterion to enable managers to decide whether they are protecting the interests of all stakeholders: invest the firm's resources as long as that will increase by at least one dollar the long-term value of the firm. The first, already alluded to, concerns the prevalence of externalities and monopoly situation. The second is the problem of measurement, especially in view of the problems associated with getting an accurate measure of the long-term value of the firm (Hussein et al., 2017).

The causal relationship between the implemented methods, their development and expansions are viewed through the scope of competitive advantage and serve as differentiating factors for the enhancement of the maritime logistics performance. Hence, the leading companies of the

shipping industry turn into a more collaborative spirit for the relationship with the regulators for uncovering between viable solutions (Hussein et al., 2017). The development of the normative behaviour in the inner/competitive environment of the firm is the one that will aid in the formation of an appropriate green supply chain management. The importance of such an implication lies on the fact that ship-owner bear the responsibility of ownership of the vessel, thus sustain the responsibility of being the central actor that will affect the market mostly in the maritime industry.

Planed Behaviour Theory

Theory of planed behaviour poses that the adoption or the performance of seaport sustainability practices is correlated with the company's attitude, where attitude is the reflection of the firm's beliefs on the outcome of the selection (Yuan et al., 2017). The notion firms have towards sustainability is aligned to what academia poses and is reflected around the triple bottom line of people-planet-profit (Antoine, 2008). In this context the people (social orientation) aspect is reflected with the provision of safety, while the planet (environmental orientation) aspect relates to the environmental integrity and resource preservation. Lastly the profit (economic orientation) aspect is an operational derivative under the two previous lenses through a dynamic relationship among them, along with the reciprocal relationship coming from the outer environment of the firm.

The proactive approach that was showed by the seaports, along with the perception that there will be no field for conducting business unless it is secured, preserved and sustainable if aligned with Hong et al. (2011) and Yuan et al. (2017). Yuan et al. (2017) extended it to the shipping context by posing stakeholders as the outer environment that approved or reject a certain behaviour. The position as a central actor showed by seaports, combined with the proactive strategy towards regulation compliance and the development of normative behaviour when referring to the outer environment contradicts the notion of approval or disapproval. This theory addresses the issue of resource sustainability with regards to organizations attitude or beaviour, this is very important to this study because resource sustainability in all ramification is a trigger to efficient port logistics operations and activities which helps to rejuvenate job/employment creation.

Conceptual Review
Conceptual Framework

This study examined the effect of port logistics on job/employment creation in maritime industry in Nigeria. This study conceptualized port logistics (independent or predictor variable) into five namely, port operation, port administration, procurement, warehousing and intermodal transport. From preliminary studies, it is revealed that these dimensions have been used by Song and Lee (2009) Olowu & Adeyemo (2020), Drury (2020).
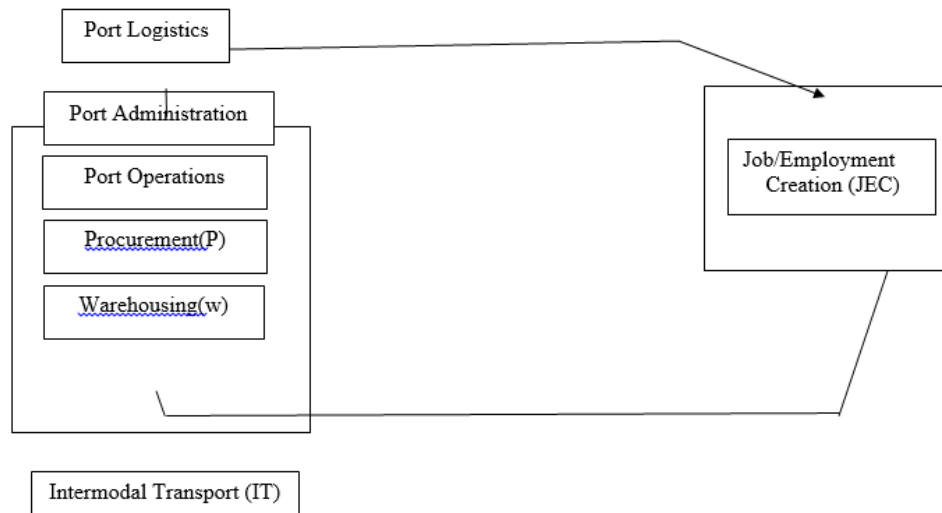

Figure 1:   The Conceptual Framework of the effect of Port Logistics on Job/Employment Creation in Maritime Industry in Nigeria

Sources**:** Author design **(**Song and Lee (2009), Okpara and Enyioko (2022), Emergent Cold (2024), UN Common Wealth Action Group (2023), Sinay (2023))

The concept of Port Logistics. (PL)

According to Cullinane (2020) Port logistics is a fundamental component in the fabric of international trade. Seaports are key connection points between different countries and continents, and their efficient operation is vital to ensure a constant flow of goods and services globally. In this sense, port logistics plays an essential role in managing and coordinating the various activities related to the reception, storage, handling and transportation and delivery cargo. He explored in detail what port logistics is, its distinctive characteristics and the key functionalities that define it. From the unloading and loading of goods onto ships, to warehousing and inland transportation, it becomes obvious how logistics discipline is responsible for optimizing the flow of goods at seaports, boosting international trade and fostering economic growth.

Port logistics covers a wide range of activities. First, it deals with the reception of goods, including the unloading of vessels and the verification of customs documentation. This is followed by the storage and handling of goods in ports, which is involves sorting, labeling and organizing them in specific storage areas. In addition, port logistics is responsible for coordinating, whether by truck, rail or intermodal systems, to bring goods to and from the ports (Enueshike & Anyanwu, 2025).

Port logistics is a fundamental link in the global logistics chain. The logistics chain refers to the set of interconnected processes that involve the planning, implementation and control of the management of materials, information and financial flows along the entire supply route (Collins Dictionary, 2025). Port logistics is inserted in this chain, facilitating the efficient transition of goods between different modes of transport and points in the chain. Being located at strategic maritime access points, ports play a vital role as nodes of interconnection and redistribution of cargo in international trade. Port logistics encompasses a set of strategic and operational activities related to the planning, control and execution of the transportation of goods through ports. With well-structured logistics, it is possible to optimize the movement of goods, reduce waste and improve competitiveness in the market (Young et al., 2024).

Port Administration (PA)

Port administration means the appropriate authority of the country in the port of which the ship is loading or unloading. (Lambert & Cooper, 2020). The Port of Hamburg (2019) Defined port administration to be concerned with contracting for all labor, supervision, materials, equipment, and skills necessary to provide comprehensive lawn care and landscaping services at various locations. Notteboom and Pallis (2020) posited that, Port administration involves the coordination, management, and oversight of all activities within a port, encompassing areas like cargo handling, vessel traffic, safety, security, and environmental protection.

Seaport administration according (Denzin & Lincoln, 2018) can be seen as the management of seaports by a body legally recognized by the Federal Government to take the responsibility of providing specific ports and harbour services for the country's maritime industry. Therefore, port administration is the entirety of human effort made to plan organize, coordinate and control activities and operation to achieve port and logistics goal, improve maritime business, enhance customers satisfaction and global economic performance. Port

administration refers to all the activities that takes place in the port (administrative and operational, direct and indirect) to achieve port, logistics and economic goal (Denzin & Lincoln, 2018).

Port Operation (PO)

Port operations are the direct operations that takes place in the port by the port employees, terminal operators, ship crew, stevedores and other relevant experts or professional linked with handling of cargoes and passengers. It includes loading, unloading, packaging, warehousing and vessel activities in the port.

SINAY (2023), Port operations refer to the range of activities involved in the management and handling of vessels, cargo, and passengers at a seaport. These operations are critical to the efficient functioning of seaports, which play a crucial role in global trade and commerce. The activities involved in port operations can be broadly classified into three categories: Vessel operations involve the handling of vessels, including navigation and maneuvering within the port, berthing, and unberthing of vessels, and anchorage management.

Effective port operations require a wide range of infrastructure, including berths, docks, cranes, and other cargo-handling equipment, as well as passenger terminals and related facilities. The efficient movement of goods and people through seaports requires careful coordination and planning, including the scheduling of vessels, the allocation of berths and cargo handling equipment, and the coordination of customs and immigration clearance procedures. Port operations are crucial to the success of businesses involved in global trade. Efficient and effective port operations can help businesses optimize their supply chain management, reduce transportation costs, and improve customer satisfaction (Oyetoa, 2024).

Song & Panayides, (2020) says that Port operations play a significant role in the supply chain as they facilitate the smooth movement of cargo. Seaport activities are increasingly streamlined to ensure instant communication between all parties involved in the logistics campaign. The essence of port operations: on arriving at the port, the vessel with cargo must go through a series of procedures between terminals.

Procurement (P)

Procurement is the process of locating and agreeing to terms and purchasing goods, services, or other works from an external source, often with the use of a tendering or competitive

bidding process. The term may also refer to a contractual obligation to "procure", i.e. to "ensure" that something is done. When a government agency buys goods or services through this practice, it is referred to as government procurement or public procurement. Kotler & Keller (2021)

Procurement as an organizational process is intended to ensure that the buyer receives goods, services, or works at the best possible price when aspects such as quality, quantity, time, and location are compared (Young et al., 2024). Organizations which have adopted a corporate social responsibility perspective are also likely to require their purchasing activity to take wider societal and ethical considerations into account. On the other hand, the introduction of external regulations concerning accounting practices can affect ongoing buyer-supplier relations in unforeseen manners (Cook & Zhu, 2014).

Procurement is the process a company uses to plan, source, purchase, and pay for goods and services. (Brauner et al., 2021). It is worthy to note that the value of any purchase made depends on the quality of the product, the amount of time it takes to be delivered to your doorstep, how much value you'll get out of your purchase, and many other factors. (Chen & Wang, 2020). According to Yang et al. (2021) Procurement is the process of buying or otherwise obtaining goods or services, typically for business or government purposes and usually on a relatively large scale. Often confused with purchasing, procurement represents a more strategic and less purely transactional process. Procurement is the start-to-finish process involved in obtaining, or "sourcing," something that the buyer, such as a business or government agency, needs to do its work.

Warehousing (W)

A ware house in this context is a facility in the port built for temporary storage, processing and handling of cargoes awaiting demand or request for further movement into the vessel or towards the hinterland via train, trucks (Williams, 2025).

Wang and Ducruet (2021) Defined warehousing as the process of storing goods until they're ready for transport to retailers, distributors or customers. Businesses can benefit from warehousing in several ways, including more efficiently managing inventory and optimizing the shipment process. Learning what warehousing is and exploring the different types available can help you decide if upgrading to a warehouse is worth the initial investment.

(Wang and Ducruet, 2021). Warehousing is the process of buying goods from a manufacturer and then storing them in a warehouse before fulfilling the orders.

Warehousing is the process of storing physical inventory for sale or distribution. Warehouses are used by all different types of businesses that need to temporarily store products in bulk before either shipping them to other locations or individually to end users or consumers. (Au Yong, 2018). According to Martin (2019) warehouse is a planned space for the efficient storage and handling of goods and materials, whilst warehousing is the process of storing and handling said goods. In that sense, we can use the words "warehouse" and "distribution centre" interchangeably, though a distribution centre will typically be more advanced.

Intermodal Transportation (IT)

Intermodal transportation is a transport system, arrangement or process that involves the use of more than one mode of transportation to complete a specific or agreed voyage. It combines modes, nodes, and transport units (ships, trains, truck and containers) to achieve efficient and effective logistics goals, thereby maximizing profit and enhancing business, industry and economic performance. Shipware (2023) Opined that Intermodal transportation is not as mysterious or complicated as the name would have it sound. The intermodal definition is transporting one set of goods in a steel container using two or more modes of transportation, such as rail and truck. An intermodal carrier using rail or truck is not the only means of transit that intermodal utilizes. Intermodal transportation falls into four general categories: Truck, rail, sea, and air. Trucks can easily transport steel freight containers (Oyetoa 2024).

Neely (2018) also describes intermodal transportation to mean the five pillars In international shipping, there are five main combinations of intermodal transportation linked to an ocean move: Direct truck: This method combines ships for ocean transport with trucks for inland transportation. It's a common choice for international shipping - when speed isn't a major concern, but cost-effectiveness is desired. Direct rail: It leverages trains for inland transportation and ships for overseas movement.

Sanders (2016) submits that Intermodal transport is a method of moving goods in the same load unit (containers, swap bodies, or semi-trailers) using two or more transport methods, without any direct handling of the goods during the course of the shipment. For example, in intermodal transport, a container (or other load unit) is transferred from one mode to another (ships, trucks, trains, planes) without removing and placing the contents in a different unit.

This method of transport provides a seamless, integrated, and flexible solution which is ideal for companies who want to improve the efficiency of their supply chain.

Job Creation/ (JC)

Coastal states with well-developed blue economy have the potency to create jobs and employment enhancing economic development. Some analysts report that the Blue Economy is estimated to be worth more than $1.5 trillion per year globally. It provides over 30 million jobs and supplies a vital source of protein to over 3 billion people.

Sulaimon (2023) it is important to first understand what the blue economy encompasses and the great potential that it holds for the country. Nigeria's exploration of the untapped potential within the blue economy must be established, with a clear understanding of the concept and the immense benefits it holds for the nation. By fully embracing the blue economy, coastal states stand to gain numerous advantages. First, it offers an opportunity for economic diversification, reducing the country's overreliance on crude oil. As the global demand for oil fluctuates and environmental concerns grow, coastal states must seek alternative sources of revenue. The blue economy presents a promising avenue for sustainable economic growth, creating new job opportunities and attracting foreign investments.

Port operation and Job/Employment Creation (JEC)

The term blue economy is becoming more common as it expands the concept of the sustainable use of the oceans and the increasing role of information technologies, for which ports logistics play the following roles: Harvesting of living resources. Fishing ports are important nodes in the collection of oceans living resources, including adjacent processing facilities (storage, freezing, canneries). This has further been expanded with the development of aquaculture, requiring servicing ports to act as input providers (feed and equipment).

Extraction of non-living resources.: Conventionally, ports acted as resource and energy transformation platforms. For instance, the world's largest petrochemical hubs are all port complexes (e.g. Singapore, Ulsan, Houston, Rotterdam). Similar observations apply to mineral and coal complexes. The development of renewable energy led to new opportunities for ports as procurement and maintenance platforms, particularly with offshore wind farms. (Port economics, management and administration. 2025) Adenigbo, et al. (2023)

Ports have felt the imperatives of maritime shipping companies as they increasingly compete to attract traffic, particularly since hinterlands tend to be more contested. The industry expects lower tariffs and lower port times in the context of a highly competitive environment and low profit margins. Ports acting in a monopolistic fashion find themselves with less leverage, negatively impacting their activity and regional economies. (Port economics, management and administration.2024). Ports play a critical part in supporting the sustainable expansion of this ocean economy through many roles including landlord, operator, regulator and environmental steward. By playing these roles within a public-private partnership model, ports can help to drive sustainable development of the ocean economy. (Giffen, and Sylvia,.202)

Port Administration (PA) and Job/Employment Creation (JEC)

Effective port administration is important and very crucial for every thriving blue economy, as ports serve as hubs for trade, logistics, and economic development, supporting industries like maritime transport, fisheries, and tourism. These includes; Ports as Economic Catalysts: Trade and Logistics: Ports facilitate the movement of goods and people, acting as vital links in global supply chains. Supporting Industries: They support a range of blue economy sectors, including fisheries, aquaculture, maritime transport, tourism, and offshore renewable energy. Economic Development: Ports can attract investment, create jobs, and stimulate economic growth in surrounding regions.(IADC85,(2004, Eleagu, et al 2018)

Economic Growth: Measuring the contribution of the blue economy to GDP, employment, and investment. Trade Volume: Tracking the volume and value of goods transported through ports, indicating the health of trade flows. Industry Growth: Monitoring the performance of key blue economy sectors, such as fisheries, tourism, and maritime transport. Environmental Sustainability: Assessing the environmental impact of port operations and blue economy activities. Social Equity: Evaluating the impact of the blue economy on local communities and ensuring fair distribution of benefits (Eleagu, et al 2018)

Procurement(P) and Job/Employment Creation (JEC)

Procurement is the process of acquiring the right resources for use or operation. Blue economy development and operations requires a lot of resources which requires port logistics operations to make them achievable. Sustainable Development: Procurement can prioritize environmentally friendly and socially responsible practices, ensuring that blue economy activities do not harm the environment or local communities. Allison (2025) Blaney, (2025).

Economic Growth: Strategic procurement can support local businesses and industries, creating jobs and stimulating economic growth in coastal regions. Job Creation: Procurement can lead to the creation of new jobs in sectors like renewable energy, marine biotechnology, and sustainable tourism. Food Security: Procurement can play a role in ensuring the sustainable management of fisheries and aquaculture, contributing to food security in coastal communities. Innovation: Procurement can encourage the development and adoption of innovative technologies and practices that promote sustainable blue economy activities.

Procurement Support Job/employment creation in a number of ways such as: Prioritizing Local Suppliers: Procurement policies can favor local businesses and suppliers, supporting the development of local industries and creating jobs in coastal communities. Promoting Sustainable Practices: Procurement can incentivize suppliers to adopt environmentally friendly and socially responsible practices, reducing the environmental impact of blue economy activities. Ensuring Quality and Value: Procurement can ensure that goods and services meet high quality standards and provide good value for money, maximizing the efficiency of blue economy investments The procurement function is pivotal in supporting value creation processes. Protect the organization from risk by deploying risk management methodologies such as Failure Mode and Effects Analysis (FMEA). Contract management, and price shock mitigation and avoidance provide huge benefits to an organization, stakeholders and customers (Scullin, 2025).

Warehousing(W) and Job/Employment Creation (JEC)
Inbound logistics (2024) Warehousing plays a crucial role in modern business operations, offering numerous benefits and contributing significantly to the success of an organization. A primary advantage of warehousing is increased storage capacity, allowing businesses to safely and efficiently store excess inventory. Warehousing is an essential aspect of supply chain management that encompasses storing, maintaining, and handling goods in a centralized location. This process typically occurs in large physical buildings called warehouses or distribution centers, where businesses store their raw materials, finished products, or perishable items under optimal conditions, and manage various warehouse operations. Some of the primary functions of public warehouses which makes the vital for job/employment creation include: Receiving goods from suppliers; Efficiently managing inventory with tracking systems; Picking and packing customer orders for shipment; Ensuring quality control measures are met. Providing security against theft, damage, or

natural disasters Warehouse storage personnel play a vital role in executing these tasks to ensure business operations run smoothly while maintaining high levels of customer satisfaction. Small and large corporations can significantly improve their operational efficiency by investing in good warehousing practices. Inbound logistics (2024) Williams, (2025)

According to Inbound logistics (2024) Warehousing brings several benefits to businesses, including increased storage capacity, knowing how much inventory you have, efficient order fulfillment, reduced transportation costs, improved customer service, and enhanced supply chain flexibility. Effective warehousing also ensures visibility and synchronization across the entire supply chain, contributing to timely deliveries and overall operational efficiency. According to worldwide logistics group (2025) Warehousing helps companies satisfy the demands of their customers for fast and efficient order fulfillment, which has become more aggressive in the digital era. It also ensures maximum productivity and efficiency, reducing the risk of supply chain disruptions and inventory mishaps thereby improving job/employment creation.

Procurement(P) and job/employment creation (JEC)

Procurement is the process of acquiring the right resources for use or operation. Blue economy development and operations requires a lot of resources which requires port logistics operations to make them achievable. Sustainable Development: Procurement can prioritize environmentally friendly and socially responsible practices, ensuring that blue economy activities do not harm the environment or job creation (Christopher, 2016)

Procurement can play a role in ensuring the sustainable management of fisheries and aquaculture, contributing to food security in coastal communities. Innovation: Procurement can encourage the development and adoption of innovative technologies and practices that promote sustainable blue economy activities (DeVellis, 2016)

According to Garcia et al, (2019) A procurement department is mandated to performs the following 3 Main Functions: Manage the organization's spending. A good procurement function is pivotal in deploying an effective Annual Buying Plan, leveraging robust forecasting, market analysis, purchasing processes, and cost reduction methodologies. this is very important because blue economy is made up of organization engaged in employment generation.

Support operations by ensuring the timely acquisition of high quality, low cost, inputs and raw materials to be converted into products and services purchased by an organizations' internal customers. An organization exists to create value for its customers. The procurement function is pivotal in supporting value creation processes. Protect the organization from risk by deploying risk management methodologies such as Failure Mode and Effects Analysis (FMEA) (Levinson, 2019).

Intermodal transportation (IT) and Job/Employment Creation (JEC)

Intermodal transportation, using multiple modes like sea, rail, and truck, is crucial for a thriving blue economy by enabling efficient and cost-effective movement of goods, supporting sustainable practices, and facilitating global trade, ultimately boosting economic performance. Intermodal transportation. The movements of passengers or freight from an origin to a destination relying on a sequence of transportation modes. Each carrier is issuing its own ticket (passengers) or contract (freight). Transfers from one mode of transport to another are commonly taking place at a specifically designed terminal. Intermodal transportation relies on an exchange of passengers or freight between two transportation modes. The term has become more commonly used for freight and container transportation across a sequence of modes. In North America, the term intermodal is also used to refer to containerized rail transportation. With intermodal transportation, what initially began as improving the productivity of shipping evolved into an integrated supply chain management system across modes and the development of multi-modal transportation networks (Oyetola, 2024)

Empirical Review

Lin-Miao, & Pan, (2022) carried out a study titled, Empirical Studies on the Dynamic Relationship between Port Logistics and Marine Economic Development in Fujian Province. The study discovered that marine economy in coastal areas has a great role in promoting social development, and efficient port logistics serves the high-quality development of the marine economy. They found out that there is a dynamic relationship of dependence, restriction, and mutual promotion between port logistics and marine economy, which has regional differences. Based on panel vector autoregressive model (PVAR model), the relevant panel data of Fujian Province from 2000 to 2020 were analyzed by using the Granger causality test, impulse response, and variance decomposition methods. The interactive relationship between port logistics and marine economic development was

discussed, and development suggestions were put forward. The results show that the development level of port logistics in Fujian Province is low, the logistics supply cannot meet the needs of marine economy, the effect of port logistics is not significant, and the support ability for the development of marine economy is insufficient. On the contrary, the development of marine economy promotes the development of port logistics industry and the economic growth of logistics related industries, and the strong market demand promotes the further improvement of logistics supply capacity.

Oyetola,(2024) studied Intermodal transportation, key component in unlocking full potential of Blue Economy –and found out that efficiently linking the ports with road, rail and inland waterways is key to optimizing the movement of goods and enhancing trade. Minister of Marine and Blue Economy, He stated said the integration of intermodal transportation is a critical component of unlocking the maritime sector's full potential.He went further to say that efficiently linking the ports with road, rail and inland waterways is key to optimising the movement of goods and enhancing trade. He said intermodal transportation also aligns with the broader objective of reducing congestion, lowering carbon emissions and enhancing the overall efficiency of our logistics chain. He highlighted that the blue economy extends beyond traditional sectors like fishing and shipping, encompassing tourism, maritime trade, aquaculture, and renewable energy. In an effort to diversify the economy and reduce dependence on oil, Oyetola stressed the importance of harnessing the potential of the nation's oceans and seas. He noted that the blue economy could significantly contribute to the GDP, enhance food security, and create millions of jobs.

Giffen,& Sylvia, (2024) on the World Maritime Day: presented a paper on the study titled How ports can catalyze blue economy innovation; Port of San Diego; blue economy, and says that Ports can play a key role in the blue economy through the sustainable development of ocean resources. Ports play a critical part in supporting the sustainable expansion of this ocean economy through many roles including landlord, operator, regulator and environmental steward. By playing these roles within a public-private partnership model, ports can help to drive sustainable development of the ocean economy.

Munim and Schramm (2018). The impacts of port infrastructure and logistics performance on economic growth: the mediating role of seaborne trade, this study conducted an empirical inquiry into the broader economic contribution of seaborne trade, from a port infrastructure quality and logistics performance perspective. Investment in quality improvement of port

infrastructure and its contribution to economy are often questioned by politicians, investors and general public. A structural equation model (SEM) is used to provide empirical evidence of significant economic impacts of port infrastructure quality and logistics performance. Furthermore, analysis of a multi-group SEM is performed by dividing countries into developed and developing economy groups. The results reveal that it is vital for developing countries to continuously improve the quality of port infrastructure as it contributes to better logistics performance, leading to higher seaborne trade, yielding higher economic growth. However, this association weakens as the developing countries become richer

Fratila et al,(2021)The Importance of Maritime Transport for Economic Growth in the European Union: A Panel Data Analysis Bucharest, Romania. Maritime transport is one of the main activities of the blue economy, which plays an important role in the EU. T5he study aim to assess the impact of maritime transport, related investment, and air pollution on economic growth within 20 countries of the European Union, using eight panel data regression models from 2007 to 2018. Our results confirm that maritime transport, air pollutants (NOx and SO2) from maritime transport, and investment in maritime port infrastructure are indeed positively correlated with economic growth. In other words, an increase of 10% in these factors has generated an associated increase in economic growth rate of around 1.6%, 0.4%, 0.8%, and 0.7% respectively.

Adenigbo et al. (2023) worked on the topic, Effect of job/employment creation on economic growth in Nigeria: The Vector Error Correction Model The maritime industry is significant to the growth and development of nations. The relationship between job/employment creation and economic growth in Nigeria is acknowledged in the literature. Still, the need to emphasize the role of shipping import and export volume and exchange rate volatility in Nigeria's economic growth remains a matter of contention. The economic growth and development level that a maritime nation will derive from its ocean depends on its import and export volumes in the face of exchange rate volatility. Using the Vector Error Correction Model, this study analyses the effect of job/employment creation on economic growth in Nigeria from 1970 to 2020. The study examines the effect of seaport imports, exports, and real exchange rates on GDP to determine if Nigeria's economic growth is sustainable, that is if the current pattern of shipping imports and exports for economic growth will not hamper future economic development. The cointegration test established a short- and long-term causality from import, export and exchange rates to GDP. The result showed that Nigeria's

economic growth is import-dependent and that, in the long run, import and exchange rates significantly affect GDP. The study further indicates that the present export volume does not significantly contribute to GDP growth. The results imply that building an economic system on an import-dominated trade system is not sustainable for future development.

MATERIALS AND METHODS

Research Design

The research design applied in this study is the cross-sectional survey research design.

Population of the Study

The population of the study consisted of 6 ports. The sample size of the study is the same as the target population which is 6 ports with 75 management and supervisory staff. Since the target population was small and also equal to the sample size, it was a census study. Questionnaire was the major research instrument used to elicit data from respondents in this study.

Methods of Data Analysis

Akuyuru and Enyioko (2018). defined analysis as the breaking and ordering of the quantitative information gathered for research purpose into their component parts to uncover their inter-relationships, understand their nature. in this study, percentages, ratio, frequency distribution; scaling, ranking and other statistical tools shall be used to analyzed and achieve te research purpose and objectives. Also, Regression Analyses (multiple) were used for testing the hypotheses generated in this study as it is one of the best statistical tools used for testing effect/relationships. The analyzes at all levels were carried out with the aid of the Statistical Package for Social Sciences (SPSS). Regression Analyses (multiple) equation is given: as

$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + e$……………………….

Model Specification

Port logistics (PL)=X   +   Job/Employment Generation (JEG)=Y

Port administration (PA) $=x_1$

Port Operation (PO) $=x_2$

Procurement (P) $=x_3$

Warehousing (W) $=x_4$

Intermodal Transport(IT) $=x_5$

Where $=(X_1, X_2, X_3, X_4, X_5) = (Y_1, Y_2, Y_3, Y_4)$

Therefore ;

$Y = bo + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + e$…….(i) { for testing H_1, H_2, H_3, H_4, H_5 }

$St = f(PA, PO, P, W, IT)$

Where:

JEG =, Job/Employment Generation, PA= Port Administration, PO= Port Operation, P= Procurement, W= Warehousing, IT= Intermodal Transportation.

e= Stochastic error term

a_0= Constants that are estimated which are not explained by the independentvariable.

a_1= is the estimate of the regression coefficients.

Statistical model specification

This study used job/employment creation, marine food production, job creation and marine energy production as the dependent or (criterion variables), while port administration, port operation, procurement, warehousing and intermodal transportation were used as independent (predictor variables). The model is therefore specified as follows;

$Y1 = bo + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + e;$

$Y_{1ST} = bo + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 z + e;$

$Y_2 = bo + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + b_{10}x_{10} + e;$

$Y_{2mfp} = bo + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + b_{10}x_{10} z + e;$

$Y_3 = bo + b_{11}x_{11} + b_{12}x_{12} + b_{13}x_{13} + b_{14}x_{14} + b_{15}x_{15} + e;$

$Y_{3jc} = bo + b_{11}x_{11} + b_{12}x_{12} + b_{13}x_{13} + b_{14}x_{14} + b_{15}x_{15} z + e;$

$Y_4 = bo + b_{16}x_{16} + b_{17}x_{17} + b_{18}x_{18} + {}_{b19}x_{19} + b_{20}x_{20} + e;$

$Y_{4mep} = bo + b_{16}x_{16} + b_{17}x_{17} + b_{18}x_{18} + {}_{b19}x_{19} + b_{20}x_{20} z + e;$

$Y5 = bo + b_1x^1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_1y_1 + b_2y_2 + b_3y_3 + b_4y_4$

Where

$Y =$ Job/Employment Generation,

$x_1, x_6, x_{11}, x_{16} =$ Port Administration (PA)

x_2, x_7, x_{12}, x_{17} = Port Operation (PO)

$x_3, x_8, x_{13}, x_{18} =$ Procurement (P)

$x_4, x_9, x_{14}, x_{19} =$ Warehousing (W)

RESULTS

Port Administration as a predictor variable of Port logistics

Table 1 gives the detailed analysis on how port administration as a predictor variable of port logistics has been examined to determine its effect on job/employment creation in the maritime industry in Nigeria.

Table 1: Port Administration as a predictor variable of Port logistics

	QUESTION ITEMS ON PORT ADMINISTRATION	MEAN	Standard Deviation
1	To what extent does your vessel inspection improve safety and security and affect job/employment creation?	3.8496	1.0480
2	To what extent do port communication enhance job/employment creation activities?	3.7744	0.91797
3	To what extent does efficient administration such as documentation influence business activities in port?	3.9474	1.0023
4	To what extent do booking and recording in port improve logistic activities and enhances performance?	3.8271	1.0262

Source: Survey Data, 2025, and IBM SPSS Statistics 25 Window Output

Table 1 shows that revealed that with the mean and standard deviation scores of 3.9474 ± 1.0023, the respondents agreed that to a large extent vessel inspection improve safety and security and affect job/employment creation. This is followed by the mean and standard deviation scores of 3.8496 ± 1.0480, implying that to a large extent, port communication enhances job/employment creation activities. With the mean and standard deviation scores of 3.7744 ± 0.91797 the respondents indicated that to a large extent efficient administration such as documentation influence business activities in port. The data also revealed that to a large extent booking and recording in port improve logistic activities and enhances   performance; the mean and standard deviation scores of 3.8271 ± 1.0262 confirm statistically the respondents' agreement.

Port operation as a predictor variable of Port logistics

Table 2 shows the descriptive statistical results on the effect of port operation as a predictor variable of port logistics on job/employment creation in the maritime industry in Nigeria.

Table 2: Port operation as a predictor variable of Port logistics

	QUESTION ITEMS	MEAN	Standard Deviation
1	To what extent does cargo and material handling activities vital elements of port logistics?	3.7895	1.13520

2	To what extent does your efficient loading of transport units improve port logistics productivity?	3.4962	1.14564
3	To what extent mooring reduce congestion and improve cargo flow in port and within the logistic system?	3.3008	1.36507
4	To what extent does your berthing of vessels influence vessel turnaround time and improve port business and economic activities within and outside the port?	3.6015	1.16085
		3.4762	1.14567

Source: Survey Data, 2025, and IBM SPSS Statistics 25 Window Output

Table 2 shows that the mean and standard deviation scores of 3.7895±1.13520 as indicated by the respondents implying that to a large extent cargo and material handling activities vital elements of port logistics. Also, the mean and standard deviation scores of 3.6015±1.16085 imply that the respondents were favorable to the large extent option that efficient loading of transport units improve port logistics productivity. The data revealed that the mean and standard deviation scores of 3.4962±1.14564 as indicated by the respondents confirm moderately that mooring reduce congestion and improve cargo flow in port and within the logistic system. The mean and standard deviation scores of 3.4211±1.23221 depict moderate agreement by the respondents regarding the extent to which berthing of vessels influence vessel turnaround time and improve port business and economic activities within and outside the port.

Procurement(P) as a predictor variable of Port Logistics

Table 3 shows the descriptive statistical results on the effect of procurement as a predictor variable of port logistics on job/employment creation in the maritime industry in Nigeria.

Table 3: Descriptive Statistics of Procurement as a predictor variable of Port logistics

	N	Sum	Mean	Std. Deviation	Variance
To what extent is acquiring resources for operation vital for blue economic activities?	68	299	4.75	.538	.289
To what extent is buying of handling equipment in port in ports beneficial for easy, fast and safe operation?	68	288	4.57	.689	.475
To what extent does leasing of some water crafts and marine offshore operational platform enhance logistics and improve job/employment creation?	68	250	3.97	1.107	1.225
To what extent does hiring of vessel and other marine craft improve logistics operation and enhance blue economy business activities?	68	275	4.37	.809	.655

Survey Data, 2025

Table 3 shows results of a descriptive analysis and question 1 which sought to ascertain the extent to which seaports in Nigeria *'buying of handling equipment in port in ports beneficial for easy, fast and safe operation?'* has the highest sum - which is 299, and hence the highest mean score of 4.75. This result indicates that among the four questions posed, respondents revealed that this is the aspect in which technology is predominantly applied. However, question 3 has the highest standard deviation and variance of 1.107 and 1.225 respectively. This means that, question 3 has the most data variations.

Warehousing as a predictor variable of Port logistics

In order to ascertain the extent to which warehousing as a predictor variable or component of port logistics affects job/employment creation in the maritime industry in Nigeria, the study used 4 question items on the 5-point scale as shown in Table 4.

Table 4: Warehousing as a predictor variable of Port logistics

	QUESTION ITEMS	MEAN	Standard Deviation
1	To what extent does storage of goods in the warehouse vital in the logistics and supply chain system in the maritime industry?	3.5188	1.16516
2	To what extent do storage of goods in the warehouse vital in the logistics and supply chain system in the maritime industry?	3.3910	1.34747
3	To what extent do efficient packaging of cargoes in the warehouse enhance, safety, improve handling and make delivery easy?	3.6992	1.10086
4	To what extent do your warehousing engender changes in custom and vendor compliance issues with greater emphasis on supply chain visibility and customer satisfaction in ports especially as distribution centres?	3.7820	1.06641
5		3.3610	1.34745

Source: Survey Data, 2025, and IBM SPSS Statistics 25 Window Output

As shown in Table 4 above, the responses of the respondents have indicated the mean and standard deviation scores of 3.7820±1.06641, showing that the respondents collectively agreed that to a large extent storage of goods in the warehouse vital in the logistics and supply chain system in the maritime industry. Also, with the mean and standard deviation scores of 3.6992±1.10086 it is quite obvious that the respondents indicated on the aggregate that to large extent storage of goods in the warehouse vital in the logistics and supply chain system in the maritime industry. As to the extent to which efficient packaging of cargoes in the warehouse enhance, safety, improve handling and make delivery easy 3.6316±1.06936 indicate aggregately that efficient packaging of cargoes in the warehouse enhance, safety,

improve handling and make delivery easy. The data additionally revealed that to large extent warehousing engender changes in custom and vendor compliance issues with greater emphasis on supply chain visibility and customer satisfaction in ports especially as distribution centres; this is shown by mean and standard deviation scores of 3.5188±1.16516.

Intermodal Transport (IT) as a Dimension of Port Logistics

Intermodal transport as a dimension of port logistics in Nigeria was examined and empirically expressed in table 5.

Table 5: Intermodal transport as a Dimension of Port logistics

	QUESTION ITEMS	MEAN	Standard Deviation
1	To what extent does your intermodal transport which is the flow of transport activities between two or more transportation modes to complete a voyage improve business profitability?	3.5489	1.13128
2	To what extent is marine transportation a very cardinal to logistics and supply chain systems and also blue economy development in the maritime industry?	3.6692	1.22302
3	To what extent are your hinterland and water world link created by intermodal transport vital for port logistics and beneficial to global trade and economic performance?	3.5639	1.04703
4	To what extent does your intermodal terminal and transshipment hubs promote logistics and trade?	3.8120	1.00866

Source: Survey Data, 2024, and IBM SPSS Statistics 25 Window Output

Table 5 shows that the respondents through their responses aggregated on the mean and standard deviation scores of 4.0752±0.90975 proving that to a large extent, intermodal transport which is the flow of transport activities between two or more transportation modes to complete a voyage improve business profitability. Also, the mean and standard deviation scores of 3.8120±1.00866 indicate that to a large extent marine transportation is very cardinal to logistics and supply chain systems and also blue economy development in the maritime industry. The mean and standard deviation scores of 3.6692±1.22302 indicate the respondents' agreement that to a large extent hinterland and water world link created by intermodal transport is vital for port logistics and beneficial to global trade and economic performance. The mean and standard deviation scores of 3.5639±1.04703 indicate that to a large extent intermodal terminal and transshipment hubs promote logistics and trade.

Job/Employment Creation in the maritime industry in Nigeria

Table 6 shows how job/employment creation as a measure of job/employment creation in the maritime industry in Nigeria was examined and empirically expressed through the raising descriptive statistical analysis of 4 question items.

Table 6: Job/Employment Creation in the maritime industry in Nigeria

	QUESTION ITEMS	MEAN	Standard Deviation
1	To what extent is your job creation and employment enhancing economy development?	3.7519	1.06689
2	To what extent is your Blue economy provides over 30 million jobs and supplies a vital source of protein to over 3 billion people?	3.7744	1.04166
3	To what extent is desalination development creating self-employment and boast economy. ?	3.8496	0.93336
4	To what extent do maritime offshore operation create considerable amount of jobs for the youth and reduces youth restiveness?	3.9323	1.05310
5		3.7467	1.04134

Source: Survey Data, 2025, and IBM SPSS Statistics 25 Window Output

As shown in Table 4.13 above, the responses of the respondents have indicated the mean and standard deviation scores of 3.9323 ± 1.05310 showing that to large extent job creation and employment enhance economy development Also, the mean and standard deviation scores of 3.8496 ± 0.93336 imply that to a large extent blue economy provides over 30 million jobs and supplies a vital source of protein to over 3 billion people. With the mean and standard deviation scores of 3.7744 ± 1.04166, the respondents have indicated that to a large extent desalination development create self-employment and boast economy. Table 4.13 shows the mean and standard deviation scores of 3.7519 ± 1.06689 proving that the respondents indicated that to a large extent maritime offshore operation create considerable number of jobs for the youth and reduces youth restiveness.

Statistical Test of Hypotheses and their Interpretations (Multivariate Analysis)

As a result, four research objectives, four research questions and four multiple hypotheses were raised to that effect. The next step of the study analysis tested the outcomes on the examined dimensions and measures of the variables in terms of relationship. Therefore, this section tested and interpreted the hypotheses formulated in this study.

Effect of Port logistics (Port Administration, Port operation, Procurement, Warehousing, and Intermodal transport) on Job/Employment Creation

This subsection was used to critically examine the effect of port logistics on job/employment creation.

To test the effect of port logistics on energy production, the study formulated this hypothesis:

Ho_3: Port Logistics (Port Administration, port operation, procurement, warehousing, and intermodal transport) has no significant effect on job/employment creation

Model 4: $Y_4 = b_o + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + e$ ------------(4) {for testing Ho_4}

For Objective 4, Research Question 4 and Hypothesis 4 (Ho_4)

Table 7:   Results of Port Logistics and Job/Employment Creation JEC)

Port Logistics	Unstandardized Coefficients		Standardized Coefficients		Significance / Probability Value	
	B	Std. Error	Beta	t-value	Value	Decision
(Constant)	3.402	0.387		8.798	0.000	
Port Administration (PA)	0.104	0.162	0.130	0.639	0.525	Positive and Insignificant
Port Operation (PO)	0.46	0.161	0.061	0.286	0.776	Positive and Insignificant
Procurement (P)	0.182	0.124	0.305	1.464	0.148	Positive and Insignificant
Warehousing (W)	-0.120	0.127	-0.186	-0.945	0.348	Negative and Insignificant
Intermodal (IT) Transport	0.066	0.047	0.176	1.436	0.156	Positive and Insignificant
a. Dependent Variable: Job Employment Creation						
b. Predictors: (Constant), Port administration, Port operation, Procurement, Warehousing, Intermodal transport,						
Source: Survey Data, 2025, and IBM SPSS Statistics 25 Window Output (Appendix I)						

$Y_4 = b_o + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + e$ ------------(1) {for testing H_{o4}}

$Y_3(JEC) =$ $3.402 + 0.104PA + 0.46PO + 0.182P - 0.120W + 0.066IT + e$

$t =$ (0.639) (0.286)   (1.464)   (-0.120)   (0.066)

Table 7 shows the results of the test of hypothesized statement – Ho4. The results of the hypothesis 4 tested, show positive and insignificant effect of port administration on job/employment creation with t- value outcome of 0.639@ p0.525 > 0.05, port operation has insignificant effect on job/employment creation with t- value outcome of 0.286 @ p0.776> 0.05; the effect of procurement on job/employment creation is negative and insignificant with t-value of 1.464@ p 0.148> 0.05; warehousing has negative and insignificant effect on

job/employment creation as revealed by t-value of -0.945@ p0.348 > 0.05; and intermodal transport has negative and insignificant effect on job/employment creation as the t-value is 1.436@ p 0.156>0.05.

Table 8: Summary of the Results on Test of the Research Hypotheses

Research Hypotheses (Finally Recognized)	t-value	Sig/ Prob Value	Decision
Ho4			
Port administration has a positive and insignificant effect on job/employment creation	0.639	0.525	Accepted
Port operation has positive and insignificant effect on job/employment creation	0.286	0.776	Accepted
Procurement has positive and insignificant effect on job/employment creation	1.464	0.148	Accepted
Warehousing has negative and insignificant effect on job/employment creation	-0.945	0.348	Accepted
Intermodal transport has positive and insignificant effect on job/employment creation	1.436	0.156	Accepted
Source: Research Data 2025, and IBM SPSS Statistics 25 Window Output			

Table 8 has revealed in summary that the study accepted majority of the null hypotheses and rejected 20% of all the hypotheses plus the moderating variable. The details are contained in Table 4.20 above.

DISCUSSION

Effect of Port Logistics (Port Administration, Port Operations, Procurement, Warehousing, and Intermodal Transport) on Job/Employment Creation in Maritime Industry in Nigeria

The study revealed that port administration entails regulatory oversight, planning, policy, licensing, safety, environment, customs, port authority governance, concessioning etc. Physical handling of cargo: loading/unloading, berth operations, terminal operations, ship turnaround, traffic management, maintenance etc. Acquisition of equipment, spare parts, servicing contracts, materials, bidding/tenders et. Movement of goods between sea, road, rail, inland waterways, transfer hubs, connecting ports to hinterlands. Storage of imported/exported goods, customs bonded warehouses, cold storage, inventory management etc.

Port Administration creates jobs direct employment by employing staff at port authorities, customs, regulation, safety inspectors, administrative tasks. *Indirect / induced employment is done through b*etter administration (policy, regulation, efficiency) improves the attractiveness

of ports as business locations; firms expand, investing in support services, shipping agencies, forwarders, etc. The m*ultiplier effects* include efficient administration can cut delays/corruption, reduce operating costs, thereby increasing throughput — which in turn generates more activity and need for labour throughout the chain.

Port Operations are where the biggest chunk of direct jobs is: stevedores, longshore workers, crane operators, terminal staff, vessel handlers. Maintenance, repair, ship services, pilotage, tugboat operations. As operations scale up, there's demand for more skilled labour (engineers, technicians), supervisory roles, safety & compliance staff. When ports procure equipment, machinery, spare parts, services, this creates work in manufacturing, importing, distributorship, maintenance. Tenders bring in contractors and subcontractors. Procurement also often spurs technology transfers, skills training (if local capacity is built).

Warehouses require staff: inventory control, handling, quality control, security. Specialised storage (cold chain, hazardous goods, bonded warehouses) brings in more specialized jobs. Logistics firms managing supply chain, packaging, labelling etc. Drivers, transport companies, maintenance of trucks/rail wagons/other vehicles. Infrastructure development (rail, roads, inland waterways) creates construction jobs, then ongoing maintenance. Transfer hubs, yards, freight forwarding and customs clearing.

Giffen and Sylvia (2024) found a positive and significant relationship between functional (i.e. well-run) port operations and maritime transportation in Nigeria. It reported that **82.36%** of respondents agreed functional port operations create employment opportunities. Also, Allison (2025) agreed that seaport operations (including container throughput, infrastructure) significantly positively impact trade & growth. More trade & growth typically correlate with more jobs.

The study *"Analysis of the Effects of Maritime Logistics on Berth Efficiency of Nigerian Ports"* for ports like Lagos-Apapa and Onne found that inefficiencies (waiting times, dwell times) reduce berth productivity. Lower efficiency tends to limit the scale of operations, which suppresses job creation (Blaney, 2025).

Expansion of deep-sea ports is seen to create "thousands of direct and indirect jobs, from construction and port operations to logistics, warehousing, and ancillary services," and to help human capital development via associated training. Decaying port infrastructure, inadequate cargo handling equipment, poor port access roads. These reduce efficiency. When operations are constrained, volume stays low, limiting job creation. Poor intermodal linkages (e.g. roads and rail) lead to delays, high costs, warehousing losses. This discourages firms from expanding or locating there. If procurement processes are opaque or inefficient,

investment is delayed or costs rise. That can choke off job growth, or encourage contract leakage/additional cost reducing scale of employment. (Various reports/learnings point to such issues.)

Modernization (automation) can improve efficiency, but sometimes reduces requirement for manual labour. If not balanced with strategies to re-skill, this can displace some jobs, especially low-skilled ones. (While studies in Nigeria don't always highlight this sharply, it is a global trend to be aware of.).

Delays in regulatory processes, customs, licensing, inefficient admin increase cost and reduce attractiveness of investment. Lower investment means fewer new jobs. Also, if operations are underperforming, sometimes capacity is underutilized.

Efficiency vs. employment volume: Improving efficiency (turnaround times, automation) may reduce labour requirement per unit of cargo, so although operations can scale, the speed or technology may reduce some manual jobs. But typically, more throughput still leads to net job growth, especially in supporting sectors.

Quality vs. quantity of jobs: Without investment in skills training, many of the jobs might be low-skilled, precarious, or poorly paid. The nature of jobs created depends on how much capacity-building, regulation, oversight, and institutional governance there is.

Short-term vs long-term jobs: Construction phases (for port expansion, infrastructure upgrading) create lots of temporary jobs. Sustaining them through ongoing operations, maintenance, and ancillary services is more challenging. Port logistics (administration, operations, procurement, warehousing, intermodal transport) **can** be powerful engines of employment in Nigeria's maritime industry — both directly through port jobs and indirectly through related industries (transport, warehousing, customs, forwarding, ancillary services).

However, much of the potential remains unrealized because of inefficiencies, infrastructure deficits, regulatory/logistical bottlenecks, and sometimes lack of investment in skills. If policy reforms, investment and institutional strengthening are prioritized, the sector could generate **tens or** even hundreds of thousands more jobs over the coming years.

CONCLUSION

Based on the findings of the study concludes that: Port administration, port operation, procurement, warehousing and intermodal transport have positive and insignificant effect on job/employment creation

RECOMMENDATIONS

This study empirically examined the effect of port logistics on job/employment creation in the maritime industry in Nigeria. Based on the findings, the conclusions and implications of the study, the following recommendations have been made:

1. Seaport managers should use port administration, warehousing, port operation and intermodal transport to their advantage by encouraging seaport staff to use in port logistics to enhance the job/employment creation in the maritime industry in Nigeria.

2. Por Managers should set up proactive and workable port logistics platforms by adopting effective port operations in order to maintain food production (Marine) optimization for optimum job/employment creation in the maritime industry in Nigeria.

3. Seaports should update their knowledge with respect to port logistics by adopting very operative procurement facilities provided by digital measurement solutions so as to be able to sustain energy production   in all port operations in order to achieve efficient port performance in Nigeria.

4. Governments, ports and maritime industry stakeholders should also, encourage the development of bonded warehouses, cold chain storage, value-added services. Encourage logistics parks near ports to cluster warehousing distribution, resulting in more jobs

5. Governments, ports and maritime industry stakeholders should promote intermodal transport links - rail, inland waterways, efficient road networks to distribute cargo quickly with hubs / dry ports to reduce congestion and distribute jobs more broadly.

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