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New Seaport Development-Prospects and Challenges: Perspectives from Apapa and Calabar Seaports, Nigeria

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Abstract: Arising from the menace of city logistics problems in Lagos State with reference, in particular, to the Apapa and Tin Can Island seaport axis, the federal and state governments, in collaboration with private investors, seek to establish and/or develop some potential seaports to ease the burden of maritime logistics. Therefore, the objectives of this paper are to examine the prospects and challenges of the development of these proposed seaports and to analyze the efficiencies of the two selected seaports in order to determine the need for the required investment in seaport development. Descriptive analysis was used to examine the challenges of the selected seaports, while stochastic frontier analysis (SFA) was used to determine the efficiency of the selected seaports. The responses of the stakeholders and shipping companies to the various challenges were collected through a well-structured questionnaire, and the 2008–2017 cargo throughputs of the selected seaports were used as the secondary data for stochastic frontier analysis (SFA). It was discovered that the challenges associated with the Calabar Seaport were the draught level, cost of shipment, accessibility to industries, and condition of other modes of transport. From the stochastic frontier, the Lagos Apapa seaport is quite efficient, with an efficiency value of 0.9764921, while Calabar is slightly above average, with a mean efficiency value of 0.6086686. By implication, the congestion in the seaports in the Lagos seaport complex with the maximum level of efficiency creates the need for another seaport, which must be sited at a well-vetted location. In the case of the Calabar seaport, the efficiency level shows that the seaport is yet to be fully utilized. Hence, investment decisions regarding whether to build a new seaport or use dredging to upgrade the existing ones must be carefully analyzed, as the establishment of the proposed Ibom deep seaport may further affect the efficiency of the Calabar seaport(s). In conclusion, demand should be the driving force for port establishment: when a port cannot generate enough traffic, it may not yield returns on investment as expected.

Keywords: seaport; prospects; challenges; Apapa and Calabar

1. Introduction

This study used the efficiency level of two selected seaports (Apapa and Calabar) to examine the need for further seaport development in Western and Eastern Nigeria, respectively. Furthermore, the challenges and prospects of investment were analyzed. Seaports play a crucial role in global logistics trade. Historical records of seaport development in Nigeria suggest that there have been series of littoral drifts along the coast, which, in the past, made it difficult to enter the sea [1]. The exploration and trade-related activities of European missionaries and businesspeople necessitated the creation of seaports both in Lagos and Calabar, Nigeria. Nigeria has a few major seaports, namely, Apapa, Tincan Island, Onne, Rivers port, Calabar, and Warri. However, according to [2], Nigeria has close to 100 small, undeveloped seaports. Nevertheless, the functionality of a seaport depends on the demand and traffic it is able to generate. The seaport is the fulcrum where the exchange of goods and services and other international logistics and supply chain activities are executed.

Logistics and supply chain management is one of the means by which organizations tend to reduce costs and gain competitive advantages. In the process of global supply chain management, maritime transport plays a vital role. According to [3], maritime transport is the only mode of transport that carries 90% of goods across different geographical boundaries. It has been noted that ships transport what we eat, the clothes we wear, the vehicles we drive, and the fuel that propels these vehicles. Three factors are responsible for maritime trade for an individual country, as noted by [4]: That the country lacks the capacity to produce what is imported; that it can produce it, but the production is not enough to cater for the needs of the country; or that the foreign product is cheaper compared to locally-produced ones. Burns [5] expressed that to understand a nation's seaport is to sense the economic fundamentals, forecast the commodity market with a high level of precision, to visit the seaport, and to observe the average size of vessels present, with a view to finding out the type of cargo they carry.

There are many factors that need to be considered apart from the availability of water when it comes to deciding where to site a seaport. Firstly, it has generally been pointed out that it is need that warrants logistics or a supply chain, and that is why need is sometimes referred to as the demand chain. In other words, there must be demand for different types of oceanic-voyage-bound cargoes in an area to attempt to site a seaport there. Bird [6] opined that ports are responsible for serving ships, and access to navigable water has been historically the most important site consideration. Before the industrial revolution, ships were the most efficient means of transporting goods, and thus, port sites were frequently chosen at the head of water navigation, i.e., the most upstream site. Secondly, the type of product demand, for example, wet cargo, dry cargo, bulk, break bulk, containerized, or dangerous goods, and the potential demand for other products must be considered. The author of [7] expressed that accessibility and connectivity to a seaport is a critical factor in locating a transport facility. His findings confirmed that accessibility and connectivity can be linked to the cost of transportation. Again, he noted that the security of a seaport is very important. Bivbere [8] expressed that challenges facing the shipping business in the Eastern ports can be attributed to militancy and security issues. Thirdly, seaports require constant dredging to create a draft that can accommodate bigger vessels that can be used to facilitate economies of scale. Fourthly, the infrastructures needed for the operations of modern seaports and the capital investment to create one are enormous, considering the access road for trucks, rail transport, cargo handling equipment, and large areas of space for storage.

The port access roads for both Tincan and Apapa in Lagos, where serious grid traffic is occasioned by too many vehicles competing for road space, with a number of trucks parked on both sides, has created the need for other seaport. According to [9], congestion brings surcharges, and the infrastructure usually cannot cope with an increasing volume of cargo, resulting in a diversion of goods to neighboring countries even though Nigeria is the final destination of such goods. Many scholars have examined port productivity and efficiency using metrics such as cargo throughput, turnaround time, berth occupancy rate, human capacity development, etc. to assess the performance of port systems. In this research, an attempt has been made to appraise the proposed new seaport development with a view to understanding the prospects and likely challenges that may be involved. An effective seaport is one that generates the volume of cargo traffic required for the country, equipped with all of the necessary facilities for cargo processing, with personnel competent in handling all shipping transactions, which usually results in maximum ship turn around, cargo loading and offloading, and resultant income attributable to international trade. Moreover, port operations should be safe for both operators and cargo and environmentally friendly [10]. Some of the accrued benefits of new port development can be in the form of employment and other services such as insurance, haulage, custom, industrialization, and general economic development. The kind of people who will be working at a seaport range from customs officers, ship agents, ship brokers, chandlers, repairers, surveyors, stevedores, auditors, and marine officers or seafarers [5].

Statement of Problems

A port requires a huge amount of investment for construction and reflects the global evolution, economic growth and innovation that will cut across centuries. The strength and civil engineering infrastructure must be strong, based on the weight that must be carried on the quay ship side and to warehouses [9]. Regrettably, most civil construction in Nigeria cannot be said to meet the test of time. The kind of technology we still make use of in cargo handling operations are of middle level. A system of rapid response to the challenges of modern seaport operations and administration at most of our seaports cannot be guaranteed. One critical issue affecting seaports in Nigeria are inadequate repair and maintenance facilities. It contributes to a number of vessels being abandoned, especially when the costs of transporting such vessels for maintenance or repair plus the actual repair is more than expected. According to Burns [5], port development is coming to the stage where some bigger seaports will serve as hubs to feed smaller seaports. If the seaport has not been strategically developed to meet the demands and the purpose of its establishment, but is based on political aspirations or sentiments, then a huge capital investment that could have been used in other sectors will be wasted. The exportation of agricultural produce from various part of Nigeria has not been fully harnessed [7]. One critical factor to achieving that objective is rail transport connectivity and accessibility to Nigerian seaports [11]. Nigerian seaports are increasingly more import dependent than export dependent, according to the cargo throughput statistics of [12]. The current efforts of the Nigerian Ports Authority management have been yielding rapid transformation in seaport developments, however; more effort is required for terminal operations and management, leasing, contract and ship repairs. The port system needs to consider variables like the market cycle (short term or long term), partnership with oil major marketers, terminal operators, shippers, cruise lines, and major liner companies, among others [5]. The World Bank [13] expressed concern for a new port development strategy. In the paper, the Port of Damettia was made reference to regarding its strength among other seaports in Egypt. The terminal was constructed based on the anticipated traffic for container shipment and, unfortunately, the terminal could initially not receive traffic for years. After the change of port of call by the shipping company from Cyprus to Diamettia, cargo throughput changed. In 1960s, Antwerp, Rotterdam, and Marseilles developed industrial sites very close to port facilities. Due to the success recorded for the place to become a center of industrial facilities, an additional three regional ports were established. Two of the three were productive, while the last one along the River Eems (Eemshaven near Germany) was not productive due to its inability to generate significant cargo flows from the hinterland. The major obstacle to the development of seaports in Nigeria is the large number of distributaries of the River Niger, which drain into ocean carrying large amount of sand [14]. Apart from this, to gain economies of scale, bigger vessels are required, and the ports are expected to keep up with these demands.

Most of the research in Nigerian maritime logistics has been directed towards solving port congestion or measuring seaport performance. Oyatoye et al. [15] applied queue theory to solving port congestion in the Lagos metropolis. Stephens [16] worked on port efficiency using Data Envelopment Analysis. Ogunsiji and Ogunsiji [17] explored ports in developing nations using Matching Framework Analysis and suggested that structure, environment, and strategy are to be monitored in seaport performance. Ndikom [18] examined the influence of privatization on port productivity. He opined that the privatization concept has been adopted all over the world but Nigeria has to strategize on how to reduce the vices inhibiting local and foreign investors. There are many other researchers who have worked on various facets of seaport development, but this research deals with examining the prospects and challenges of the introduction of new seaport(s) to the existing ones.

2. Literature Review

2.1. Concept of Seaport Development

The concept of seaport development has been viewed to be characterized as shown in Figure 1. The conceptualization of a seaport falls within this set of contexts, i.e., organizational, institutional, space, time, functional, and socio-economic perspectives.

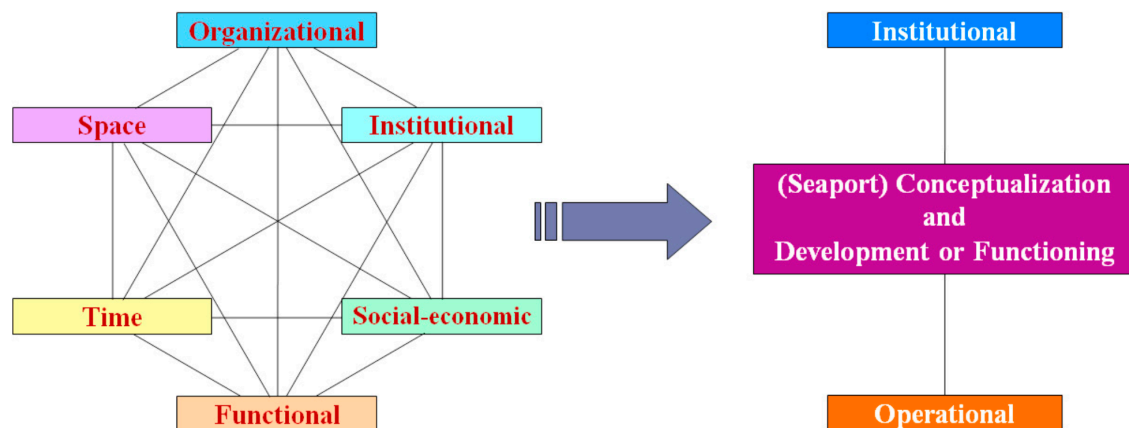


Figure 1. The conceptualization of Seaport Development. Source: [19].

In the opinion of Kirenar [19], port development must examine the contexts and the contexts can be subsumed into operational and institutional. This connotes the modality for port operations and the processes of port administration.

2.2. Nigerian Seaport Development

Seaport development has been divided into spatio-temporal evolution, traffic trends and patterns, and trends in port administration [14]. However, Gbadamosi [20] segmented it based on generations. He explained that, first generation ports in Nigeria are before 1960, which are Lagos and Port Harcourt seaports; the second generation ports (1970–1976) are Warri, Sapele, Koko, Burutu, and Calabar; the third generation ports (1975–1980) are Tin Can Island, New Warri, and New Calabar; and the fourth generation ports include Federal Ocean Terminal and Federal Lighter Terminal, in 1980. Badejo and Solaja [21] discussed the historical perspectives of Nigerian seaport developments. In 1913, Apapa wharf was developed in Lagos Island due to the challenges of littoral rifts, siltation, and the inability of bigger vessels to enter Lagos harbor during the Colonial days. The Marine Department of the Nigerian Railway Corporation (NRC) used to cater for the maintenance of the harbor and thereafter ceased to exist following the establishment of the Nigerian Port Authority in 1955.

Port development in Nigeria became paramount because of the logistics requirement for certain commodities to be moved out of the country. It was mainly in an attempt to evacuate goods and mineral resources to the coast for exportation [21]. The discovery and exploration of crude oil caused the Nigerian seaport to become overburdened and the rapid development of seaports without viable analysis of the implications and challenges in the near future. Many of the products that necessitated the demand for sea transport are textile materials, tobacco, steel in Ajaokuta, tin, coal, bauxites, paper mills, beverages, cement, petrochemicals, and wheat, among others. Tin and aluminum products, as well as glass and paper, were the major products boosting sea transportation in Port Harcourt. Tin Can Island was commissioned in 1977 [1]; new Sapele was completed in 1982. Because of the adverse effect of civil war in 1972, Port Harcourt seaport was closed and Lagos seaport was overburdened, which led to the acquisitions of Warri, Burutu, and Calabar, which were privately operated by private entrepreneurs. There are other seaports like Koko, Federal Lighter Terminals (FLT), and Federal Ocean Terminals

(FOT), Bonny, apart from Jetties and other smaller seaports. The Calabar seaport has a depth between 6 and 7 m and the Lagos, Apapa seaport depth is between 12 and 13.5 m [1].

The seaports may not be viable in providing services of all types. Common complaints from shipping lines and other port users according to PwC & Panteia [22] can be related to an insufficient depth of water; a lack of quay space, resulting in vessels having to wait for a berth; a lack of storage space behind the quay, often caused by the “city center” locations of older ports; and insufficient (or outdated) mechanical equipment. For container ships, the most common problems are too few cranes (preventing the ship from working as many holds as the operator would like) or the absence of ship-to-shore gantry cranes (resulting in slower handling rates). Yard congestion caused by a lack of space can also slow down crane handling rates on the berth; for bulk ships, the most common problem is a lack of automation (ship loaders and pneumatic or screw discharge equipment linked to high speed conveyor systems to the storage area or plant) and poor interface arrangements for rail and inland waterway transport. Part of the problem is when customers or shippers want to reserve berthing windows so that scheduled services are not disrupted by unforeseen delays waiting for a berth; to negotiate service contracts with the port authority or cargo handling company, giving them a guaranteed loading/discharge rate or ship turn-around time; dedicated storage areas within the port; and extended cargo collection and delivery times. Of course, these always tend to cause commotions and confusion at the ports. Burns [5], in an attempt to look at port structures and ownership, made a very important remark that the development of a seaport must be related to the objective to pursue, in form of regional development, productivity, profitability, or a competitive edge. The ownership structure must be defined in alignment with the objectives, looking at various types like a fully public port, a privatized port, a landlord port, or tool type port systems. Port investment analysis requires feasibility studies and investment appraisals considering legal, environmental, technical, operational, accessibility, and administrative analysis.

According to Burns [5], the investment in a port does not only concern the tangible assets such as land purchase, engineering, port architecture, dredging and development, retrofitting, planned maintenance systems, and so on. It may include intangible assets like human resource development, business relationships, and promotion or marketing. Figure 2 presents the diagram of investors that can be engaged in port development. A port can be built through loan financing, bonds, grants, government expenditure, international donors, or returns on investment. The other new management models have been privatization or commercialization in the forms of Build, Operate–Transfer (BOT); Build, Own–Operate (BOO); and Build, Own–Operate and Transfer (BOOT) arrangements. In order to boost the performance of the port system, the government in 2004 adopted a concessioning arrangement under the Port Reform Act. Even though it has yielded positive results, the logistics activities of mainly Lagos seaports complex, till now, are in comatose. However, the priorities of government differ when it comes to embarking on transport infrastructure projects or humanitarian services. According to Ayade, the governor of Cross Rivers State, Nigeria, “when you build seaport at the time when your people are suffering, it contributes to capital flight, as the builders mainly will come from other countries”. It is a critical state when a decision has to be made on whether to upgrade existing ports, to establish a new seaport, or to focus on other viable instant return generating investments. Decisions on the establishment of a new seaport are often based on the incidental opinions of political leaders or of the director of the port authority [23].

Major financial investment appraisal is required in a capital intensive project like seaport development. The return on investments and multiplier effects must be well thought out before the execution of the project.

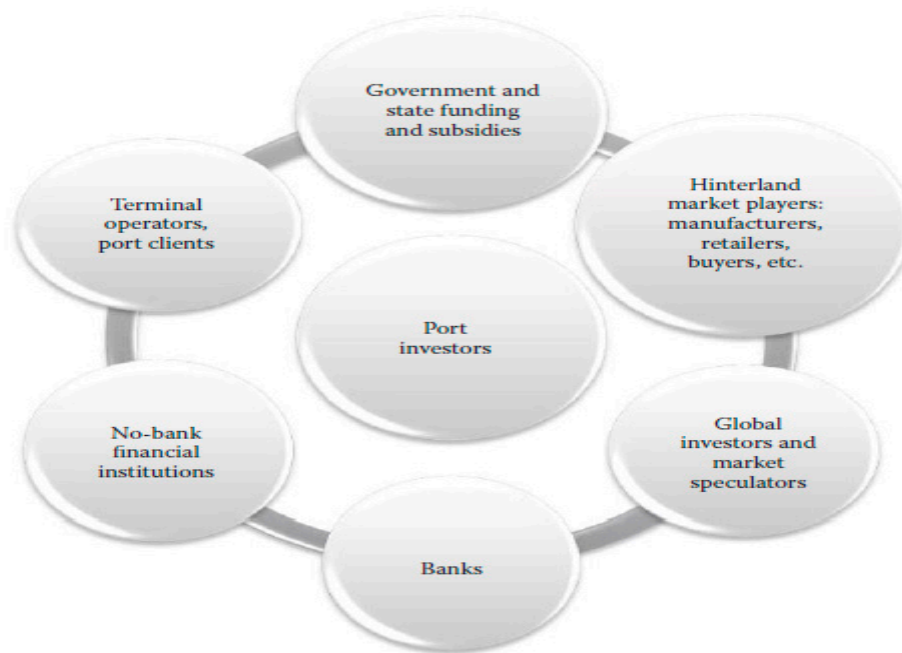


Figure 2. Port investors. Source: adapted from [5].

2.3. Location Theory

The Weberian location theory is about cost minimization around triangles. The theory opines that the location of a facility should be based on minimum costs of transportation. Figure 3 below explains Weberian location theory. In order words, it is assumed that there are two places, A and B, from which materials are to be carried to market P. The theory suggests that the least cost of transportation between the two places is to be selected. Though the assumption of same cost of transportation for both raw materials and finished goods has been faulted about this postulation, it is still useful in port location and transportation feasibility studies [24].

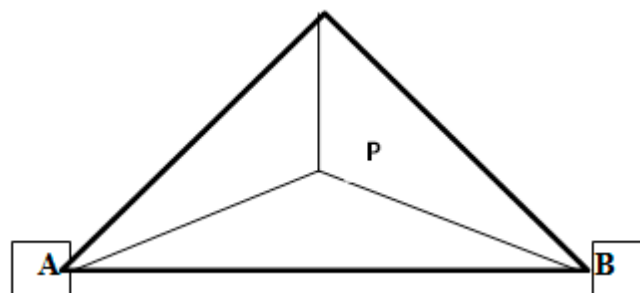


Figure 3. Location Theory. Source: [24].

The seaports cannot have the same potential to generate traffic in maritime logistics. According to Haezendonck & Notteboom [25], it was observed that there are so many factors than can be responsible for the demand of a particular seaport. One such factor was competition. Parola et al. [26], however, disagreed by saying that competition is different from competitiveness, in which the latter connotes the ability of the port to add value to generate more traffic than others. Heaver et al. [27] found out that location is one major factor that can affect seaport development. Kim [28] noted that shippers in Korea are concerned with distance between origin and destination, loading hours, cargo handling, trucking, and cost. Notteboom et al. [29] realized from their findings that there is a correlation between port size and seaport efficiency. According to Burns [5], the main objective of ports' strategic location may be based on generating income or a competitive advantage. In practice, maritime

industry is volatile, characterized by unexpected fluctuations between the forces of demand and supply. Ports are influenced by politics, trade agreements, currency, volatile trade prices, security, and wars. The strategic location of a port can be based on global capital markets, the demand and supply of factors of production, transit areas like the Suez or Panama Canals, Free Port or Free Trade Zones, value added trade centers, shipbuilding, etc. The logistics and location of a seaport must be properly guided by the transshipment location, dimension of the port, hinterland economic dimension, port efficiency dimension, and cost dimension. From the perspectives of the seaports under consideration, the following hypothesis were postulated:

Hypothesis 1. *Apapa seaport is not efficient.*

Hypothesis 2. *Calabar seaport is not efficient.*

3. Methodology

Two seaports (Apapa and Calabar) were of focus in this research (see Figure 4 below). Apapa seaport because of the level of congestion that has been persistent over the years in the axis of Lagos State. Apapa seaport was one of the earliest seaports in Nigeria (Figure 4b). Calabar seaport was one of the oldest seaports as well; it has old and new phases, and it was formerly controlled by private investors like John Holts Limited before the Nigeria Ports Authority was ordered to possess it (Figure 4a).

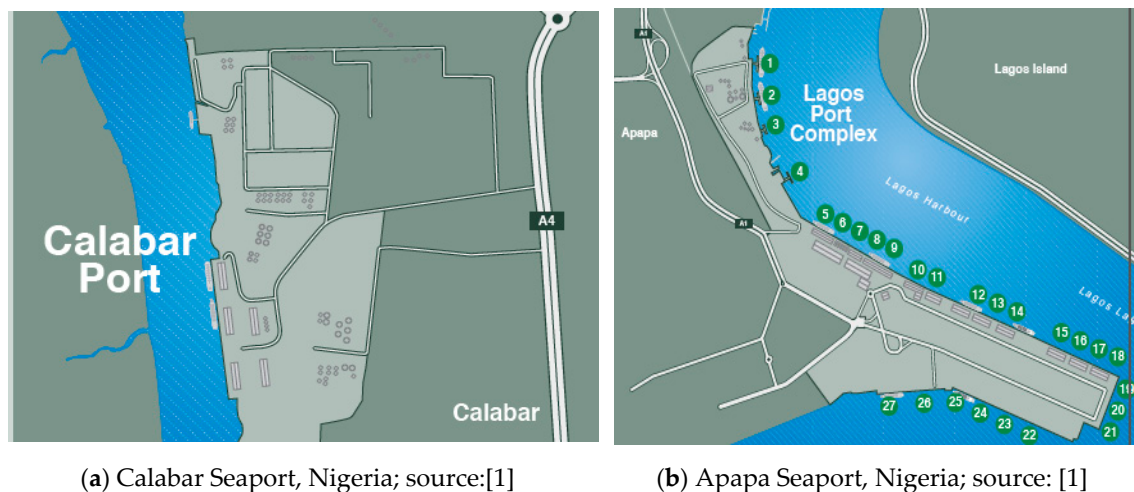


Figure 4. The seaports of Calabar and Apapa, Nigeria.

Descriptive analysis was used to examine the challenges of the selected seaports, while stochastic frontier analysis (SFA) was used to determine the efficiency of the two selected seaports. The responses of the stakeholders and shipping companies regarding the various challenges were collected through a well-structured questionnaire, and the 2008–2017 cargo throughputs of the selected seaports were used as the secondary data for stochastic frontier analysis (SFA). The stakeholders comprised 50 randomly sampled members of the Indigenous Ship-owners Association of Nigeria (ISAN), and 20 questionnaires were evenly distributed to each selected staff of the Greenview Ltd and Ecomarine Nigeria Ltd. The efficiency of each of the selected seaports was calculated using their respective cargo throughput over 10 years (2008–2017) as provided by the secondary data of the Nigerian Bureau of Statistics [12]. The R-studio software was used to analyze the secondary data. Secondly, the opinions of people were sought on the challenges of the Calabar seaport with consideration of the propositions to establish a new seaport called Ibom at Akwa Ibom or to upgrade the existing Calabar seaports. Similarly, opinions

were sought of the need to establish Badagry seaports and Lekki Free Trade Zone in Lagos State. The results from the various questionnaires were presented through descriptive statistics.

4. Results and Discussion

Below is the output (Table 1) of the results from the stochastic frontier analysis (SFA) of the efficiency of the Apapa seaport.

Table 1. Results for Apapa Seaport cargo throughput.

Final Maximum Likelihood Estimates				
	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	1.4384×10^{-1}	9.9982×10^{-1}	1.4390×10^{-1}	0.8856
log(inward)	9.5529×10^{-1}	9.6246×10^{-1}	9.9250×10^{-1}	0.3209
log(outward)	5.0354×10^{-2}	9.7691×10^{-1}	5.1500×10^{-2}	0.9589
sigmaSq	2.0631×10^3	1.9777×10^{-3}	1.0432×10^6	$<2 \times 10^{-16}$ ***
gamma	1.0000×10^0	2.8699×10^{-4}	3.4844×10^{-4}	$<2 \times 10^{-16}$ ***
sigmaSqU	2.0631×10^{-5}	5.9240×10^{-1}	3.4826×10^3	$<2 \times 10^{-16}$ ***
sigmaSqV	2.0631×10^{-5}	5.9209×10^{-1}	0.0000×10^0	1.0000
sigma	4.5421×10^1	2.1770×10^{-5}	2.0864×10^6	$<2 \times 10^{-16}$ ***
sigmaU	4.5421×10^{-1}	6.5212×10^{-3}	6.9652×10^3	$<2 \times 10^{-16}$ ***
sigmaV	4.5421×10^{-3}	6.5178×10^1	1.0000×10^{-4}	0.9999
lambdaSq	1.0000×10^8	2.8699×10^{12}	0.0000×10^0	1.0000
lambda	1.0000×10^4	1.4350×10^8	1.0000×10^{-4}	0.9999
varU	7.4969×10^2	NA	NA	NA
sdU	2.7380×10^1	NA	NA	NA
gammaVar	1.0000×10^0	NA	NA	NA
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				
log likelihood value: −40.41772				
cross-sectional data				
total number of observations = 10				
mean efficiency: 0.9764921				

Note: *** significant at 0.001, ** significant at 0.01 and * means significant at 0.1 for estimated values in the respective column of Table 1.

10 years' cargo throughput at the Apapa seaport was used for the analysis, the results of which are shown in Table 1 above. The mean efficiency, as indicated, shows that the Apapa seaport is actually performing well in terms of cargo throughput performance, with an efficiency value of 0.976. Looking at the logarithm values, the results show that a 1% increase in inward cargo will increase the cargo throughput by 0.955%. Similarly, a 1% increase in outward cargo will increase the cargo throughput by 0.0503%. Sigmasq is used in determining the noise. Noise means all of the errors due any other factor that is not relevant. Since the z of Chi-square shows a significant value, the null hypothesis is rejected. Therefore, the Apapa seaport is highly efficient. It implies that if the port is efficient and there are other challenges of seaport logistics, then there is a need for another seaport, looking at the efficiency value of 0.976. Even though another seaport at TinCan Island is present, the seaports are having serious logistics problems; it is an indication that there is a need for another seaport that will relieve the burden on the seaports.

Table 2 below shows the output of the analysis for the Calabar seaport. It is the result from the stochastic frontier analysis based on the cargo throughput of the Calabar seaport based on the 10 year duration observed.

Table 2. Results for Calabar seaport cargo throughput.

Final Maximum Likelihood Estimates				
	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	2.2550×10^{-1}	1.0065×10^2	2.2400×10^{-1}	0.8227
log(inward)	9.3106×10^{-1}	2.1322×10^4	4.3670×10^{-1}	0.6624
log(outward)	1.0615×10^{-1}	1.9014×10^5	5.5800×10^{-2}	0.9555
sigmaSq	3.4047×10^4	2.1642×10^{-3}	1.5732×10^7	$<2 \times 10^{-16}$ ***
gamma	1.0000×10^0	8.8914×10^{-3}	1.1247×10^2	$<2 \times 10^{-16}$ ***
sigmaSqU	3.4047×10^4	3.0272×10^2	1.1247×10^2	$<2 \times 10^{-16}$ ***
sigmaSqV	5.0935×10^{-3}	3.0272×10^2	0.0000×10^0	1.0000
sigma	1.8452×10^2	5.8645×10^6	3.1464×10^7	$<2 \times 10^{-16}$ ***
sigmaU	1.8452×10^2	8.2031×10^{-1}	2.2494×10^2	$<2 \times 10^{-16}$ ***
sigmaV	7.1368×10^{-2}	2.1209×10^3	0.0000×10^0	1.0000
lambdaSq	6.6844×10^6	3.9728×10^{11}	0.0000×10^0	1.0000
lambda	2.5854×10^3	7.6831×10^7	0.0000×10^0	1.0000
varU	1.2372×10^4	NA	NA	NA
sdU	1.1123×10^2	NA	NA	NA
gammaVar	1.0000×10^0	NA	NA	NA
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				
log likelihood value: -54.43542				
cross-sectional data				
total number of observations = 10				
mean efficiency: 0.6086686				

Note: *** significant at 0.001, ** significant at 0.01 and * means significant at 0.1 for estimated values in the respective column of Table 2.

Examining the results from the output of the Calabar seaport, it shows that the efficiency is slightly above average with 0.6086686 value, considering the significance at $p < 0.05$. The log(inward) as indicated above (Table 2) shows that a 1% increase in inward cargo will increase the cargo throughput by 0.93106. The outward logarithm value of 0.1 indicates that a 1% increase in outward cargo will increase the cargo throughput by 0.106%. The SigmaSq also shows that errors due to other factors are not significant. In this case, the Chi-square value's significance invalidates the null hypothesis (which is that the Calabar seaport is not efficient). However, the efficiency value shows that the cargo throughput is not optimized. Thus, the seaport is not operating at its maximum capacity. The reasons for the Calabar seaport not operating optimally were further investigated, and the result was presented in Figure 5. An option for this seaport is to upgrade or to invest in new seaport development.

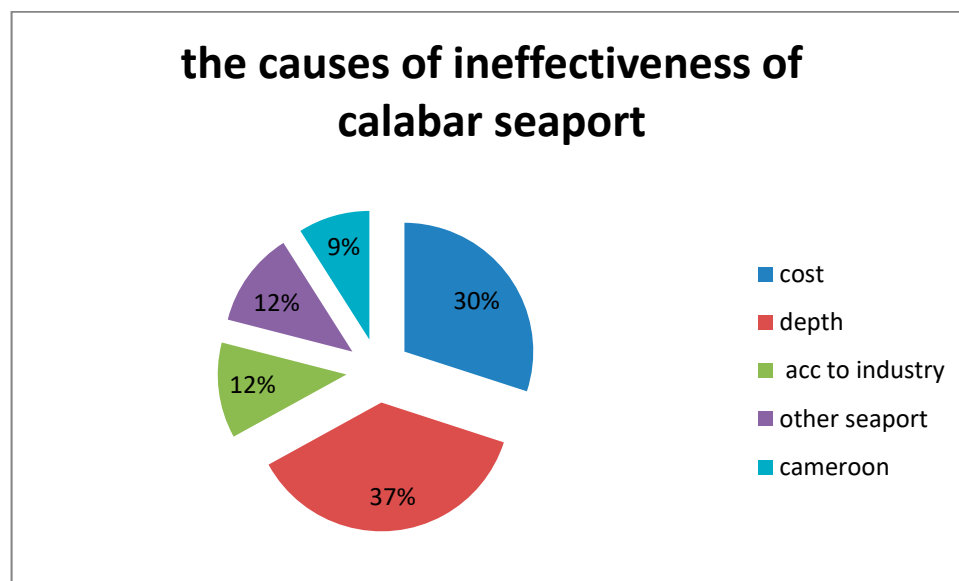


Figure 5. Factors responsible for the inefficiency of the Calabar seaport. Source: author's findings (2020).

Figure 5 shows the responses of the sampled respondents regarding the causes of the incomplete utilization of the Calabar seaport. The depth of the water to receive the bigger ships was the highest, with 37%, while the second highest was the cost of shipment, which they claimed to be too high, taking 30%; meanwhile, accessibility to industries and the proximity or presence of other seaports had the same percentage, at 12%. The least of the factors was the closeness to another country (Republic of Cameroon), which had 9%. The implication of these results is that shipping goods through Calabar may be costly if there are no economies of scale that can be derived from larger vessels berthing at the seaport(s). To cushion this, dredging may be required, of which the cost of executing may not be met by either the State or Federal Governments. There is also the issue of accessibility to industry and connectivity to other seaports, which has the same percentage, meaning that the functionality of the seaport is based on the accessibility to or creation of industries that will have direct link, mostly with exports or imports, which can boost the seaport operational capacity while considering the other complementary or competitive seaports, both in Nigeria and the neighboring Cameroon. The opinions of respondents of Lekki and Badagry received 95.2% and 45.3% for the establishment of the new seaports respectively.

5. Conclusion and Recommendations

In conclusion, for Apapa to still be congested even with the level of its efficiency, it means that the capacity of the seaport cannot accommodate the traffic at the seaport. Hence, the advocacy for another seaport is justified. Calabar seaport has not been fully utilized. Hence, the factors that caused the inability to fully utilize the seaport have been examined. Two major factors were prominent in the Calabar seaport's inefficiency challenges, i.e., the depth of the water and the cost of shipment. In this case, it calls for investigation regarding the decision to upgrade the seaport(s) or to establish another seaport. Meanwhile, the proposed seaport of Ibom may have an effect on the Calabar seaport. Hence, if the Ibom seaport is deeper in depth or draught compared to Calabar, Ibom will serve as the hub while feeding the Calabar seaport, based on the need. The cost is another issue that must be critically looked into. If the cost of shipment will be defrayed by larger ships through economies of scale, then there is a need to establish the Ibom seaport. This research can be further developed to examine the multiplier effects of seaports, with a view to understanding the cost benefit analysis of the investment. One critical issue that should be addressed in Nigeria's seaport or maritime logistics is the need to increase outward exports and the crucial function of the Nigerian Export Promotion Council (NEPC) in

this direction. The sampled seaports showed values of import-export ratios of 9.5 for Apapa and 9.1 for Calabar seaport. The implication of this is that the country's demand is import driven. Hence, if there is going to be either another seaport or upgrade of the existing seaports; the focus must be directed to what Nigeria can export more than to what she can import in seaport development and investments.

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