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Comparative analysis of foreign and coastal trade cargo handling charges in SIFAX seaport terminals, Nigeria

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Abstract. The study was carried out to compare the cargo handling charges of SIFAX terminal in Lagos ports, Nigerian for coastal import and export trade between Nigeria and tropical West African countries handled via the port operator's terminal; and foreign import and export trade between Nigeria and other countries other than tropical West African countries handled through the SIFAX port terminal. The objective of the study among other things was to determine if significant differences exist in the cargo handling charges coastal shippers and ocean (foreign) shippers are made to pay by the terminal operator in the handling of coastal export and import trades, as well as foreign imports and exports via ocean shipping to countries other than coastal West African countries. Secondary data on the cargo dues and container handling charges for import and export trade types was obtained from the SIFAX terminal as a case study. The data covered a period of three years between 2019 and 2021. The statistical method of difference of mean was used to analyze the data obtained while the t-test was used to investigate the significances of the differences in charges. The analysis was implemented by the use of SPSS version 20.1. It was found that, for the import trade, there exist significant differences between the charges per ton of cargo handled and per TUE and FEU handled. Coastal import trade between Nigeria and tropical West African Countries are charged significantly lower cargo handling charges per ton of cargo handled than foreign imports from countries other than the tropical West African countries. For container export trade, the study concludes that there is no significant difference between the container handling charges per FEU and TEU exported to foreign countries other than tropical West African countries and per FEU cum TEU exported via coastal shipping to tropical West African countries. This indicates that there is no disparity in the pricing policy of the terminal operator with regards to export container handling charges. The same amount of charges is paid by shippers for export of laden TEUs and FEUs to all destinations and regions.

Keywords. Terminal-operator, coastal-shipping-trade, ocean-shipping-trade, cargo-handling, charges, Nigeria.

1. Introduction

Port terminal operations in Nigeria were, for many years, carried out inefficiently and imperfectly too, due to varying degrees of vices that actually pervaded the entire economic system. This is because; there is the need for government to reform and transform the operations of the terminals to really conform to international standards. Obviously, this was indeed achieved at the period of port concession exercises, as its terminal operations has really moved from a slow unstructured system to more sophisticated and mechanized system of operations, due to technological applications of information highways and byways [1]. This is because; the fundamentals of terminal operations have really involved the ever-changing process of systematic movement of containerized cargoes from and through the terminals at the end [1]. This implies that, the terminal operations must be able to actually absorb in practice the heavy containerized cargo traffics that are expected to move through it; that ports or its terminal operations exist solely to handle the available cargo traffic. Obviously, its ability to really sustain such cargo traffic at every given point in time is anchored on the provisions and availability of critical super-structures and infrastructure. This is because; the expected improvements in port infrastructure have helped in coping with the increasing tide of cargo traffic at today's ports [2]. Port terminal is a potent infrastructure, which is very vital to the survival of the port system, and without which, it would be almost impossible for cargo to move in and out of a port. This is very obvious because, the management of such infrastructure is vital to the system, as a loose system of control can jeopardize its essence at the end of the day [3]. More so, at the very inception of the official handover of port terminals to private operators over fourteen (14) years ago, it was obvious that, the system witnessed structural changes in terms of operational performance and functioning, culminating in enhanced efficiency, cargo through-put and optimal productivity at the end [4]. This is as a result of increased infrastructural provisions at various terminals through massive injections of funds into the system by private operators such as the SIFAX group. As the post-concessioning era of port terminals is witnessing a restructured ports industry, tight control measures in the area of jurisdiction, and a port system that is run under the landlord port model. Unfortunately, the issue of higher charges and tariffs occasioned by the takeover of ports terminals over these fourteen years, has really made the experiences of shippers, importers and exporters a very excruciating one, thereby making the prices of goods in the markets to be higher and a reflective painful experience. The issue of cargo clearance and documentation process has been very difficult due largely to ports congestion problems, reflecting into a difficult ports access road leading to higher demurrage charges which have really worsened the ports terminal operations in recent times. For instance, at the terminals of ENL Ltd, AP-Molar Ltd and ABY Ltd, vessel discharge and loading time have drastically reduced to the mandated maximum of 72-hour period, a situation far better than what was obtainable when the ports were being managed under the "Service Port Model" (during the period

NPA was in charge of all facilities and infrastructures and super-structures [5]. Experts insist that the challenges of port congestion faced in the ports cannot be enough reason to justify the very high port charges, cargo dues and demurrage charges that shippers are manipulated to forcefully pay to the terminal operators for coastal and foreign bound shipping trade. For example, studies by references [6] and [7] reveal that the SIFAX group similar to other port operators allows the shippers three (3) days free period to take delivery of their containers/cargo once it is discharged from the ship onto the sheds, stacking areas or warehouses. After the free period of three (3) days, shippers pay storage rental charges for spaces occupied by their cargo to the terminal operators. The delineation of the storage rental fees by most terminal operators at the Tin Can Island Container Terminal, Lagos, per TEU for example is summarized in the table below:

Table 1. Storage Rental Regimes of Tin-can Island Container Terminal Operators

No of days at terminal/stacking area or warehouse	Periods/phases of rental charges	Rental charge (₦/TEU)
First three days after arrival and discharge in port	Free period/phase	Free
2 days after the first 3 days of arrival	First phase of storage rental charges	12,000/TEU
5 days of cargo remaining in stacking area after the first phase of rental charges	Second phase of rental charges	8,800/TEU
Rest of the days the cargo stays in port without delivery after the second phase of rental charges	Third phase of storage rental charges	1,800/TEU

Source: Ndikom et al, (2017).

Obviously, the objectives of the storage rental charges should be to curb the abandonment of containers in the storage spaces by the shippers and ensure quick delivery of consignments by the shippers as such consignments arrive the ports. However, the free period of 3 days of cargo delivery operational in most port terminals after which the storage rental charge regimes/phases become operational negates the standard global average benchmark of 4 days cargo dwell time; since three days is below the global average cargo dwell time benchmark of 4 days. Shippers opine that the three days period is not even enough for the conclusion of cargo examination and clearance in the Nigeria ports.

But apart from the storage rental fees by which Nigeria shippers are made to pay millions of naira as storage rental fees, freight forwarders fault the high charges, cargo dues, stevedoring charges, cargo handling charges, and other rates charged by port terminal operators. They insist that these high charges have the effect of stiffening industrial growth and declining productivity in the Country. This is because as manufacturers and local exporters pay very high charges in the import of raw materials and export of products bound for international destinations; their purchasing power declines which affects subsequently productivity levels.

Moreover, it is the interest of the Nigeria Government to growth coastal cum domestic trade in Nigeria. It is also the interest of the Government to development the seaborne trade with Countries in the West African coast. Thus, the ECOWAS free trade agreement and the need to grow the trade between and among the countries in the tropical West African require that port charges for handling seaborne trade between Nigeria and the Tropical African Countries as well as for Nigeria's coastal trade should show reflections of support for the growth of both trade types. It is expected that port charges for coastal trade and trade with countries in the West African coast, should be significantly lower for than charges for trade from the Developed Western World. Exports originating from Nigeria are equally expected to attract significantly lower port charges. This is the only basis to support local manufacturers and companies to remain in business and compete favorably while generating employment. Whether this is the exact situation prevailing in the ports is still yet unknown as no empirical studies seem to have investigated if exports and coastal trades attract significantly lower port charges than other trade types or not. Therefore, this study is carried out to compare the charges of SIFAX port terminal for the identified trade types as basis for understanding the tariff regimes of terminal operators in Nigeria ports and development of policy for the protection of local exporters and coastal shippers against the high port charges of port terminal operators in Nigeria.

1.1. Aim and Objectives of the study

The aim of the study is to compare the port charges billed by SIFAX terminal operator in the handling of foreign and coastal trades in Nigeria ports.

The specific objectives of the study include:

(i) To compare the cargo dues charged by the terminal operator per unit of cargo types imported from foreign non-tropical West African Countries and via coastal shipping from tropical West African trade;

(ii) To compare the cargo dues charged by SIFAX terminal operator per ton of cargo types exported via ocean shipping to foreign non-tropical West African countries and exports via coastal shipping to tropical West African countries;

(iii) To determine the existence of significant difference in container handling charges by the terminal operator in Nigeria ports between containers imported from foreign non-tropical West African Countries and those imported via coastal shipping from topical West African countries;

(iv) To determine the existence of significant difference in container handling charges by SIFAX terminal operator in Nigeria ports between containers exported to foreign non-tropical Countries via ocean shipping and those exported via coastal shipping to topical West African countries.

1.2. Research Questions

(i) Is there a significant difference between the cargo dues charged by SIFAX terminal operator per unit of cargo types imported from foreign Countries via ocean shipping and coastal West African trade?

(ii) Is there a significant difference between the cargo dues charged by SIFAX terminal operator per ton of cargo types exported from Nigeria to foreign countries via ocean shipping and to tropical West African countries via coastal shipping?

(iii) What is the of the difference in container handling charges by the terminal operators in Nigeria ports between containers imported from foreign Countries via ocean shipping and those imported from coastal shipping to topical West African countries?

(iv) Is there a significant difference between container handling charges by SIFAX terminal operator in Nigeria ports between containers exported to foreign non-African countries and those exported via coastal shipping to topical West African countries?

2. Literature Review

The post reforms era of post operations with its institutional restructuring over the last fifteen (15) years have indeed witnessed efficient port administration and management, leading to improved port's operational performance. Reference [1] opined that, port reforms are policy measures by government that are really aimed at revitalizing and strengthening operational and functional modalities at the ports. He stated that, port reforms call for an extensive modernization of the port system and require appropriate transformation of the sector from being labor-intensive to being an autonomous system with clear cut automated facilities, for the purpose of increased turn round time of vessels and profit turnover. Studies by references [8] and [9] maintained strongly that, the impact of shipping companies and terminal concessionaire operations on port operations in West Africa for example, has been impressive and wonderful in terms of operational performance and productivity of vessels discharge rates, documentation and delivery processes and customer satisfaction. However, it is important to note the segmentation of port operations in line with the agendas, visions and missions of different terminal operators is the best thing that would happen to the Nigerian ports industry but arbitrary increases in cargo handling and other charges by terminal operators does not encourage the growth of ocean and coastal shipping trade interest in Nigeria ports [6, 10]. The concept of port restructuring is for the purpose of achieving efficiency and productivity within the confines of the Nigerian ports, have witnessed some operational vices, which have earned them a very bad image among stakeholders of the worldwide maritime industry. This is why these ports had to undergo operational reforms to reshape the system and its services [11]. Reference [7] expressed that, during the period of the reform process, a total of 26 concessions were granted, out of which 24 have been taken up. He also stated that the management and terminal operations in these concessional ports are quite encouraging and commendable. Also, substantial progress and infrastructural development have being recorded, and cargo throughput across the terminals particularly in the Lagos area, has greatly improved [7]. It is also stated that, other aspects of the subsisting agreement involving port infrastructural development plan allow for monitoring and evaluation of such progressive development. Based on this, reference [7] stated that, the Nigerian Ports Authority (NPA) is very determined to maximize the said opportunities offered by the reform policies to actually develop all port facilities at the end. He also asserted that, NPA management is aware of the peculiarities of the ports in Delta State. Apart from having the concession agreements signed slightly later the others, the challenges of youth and community restiveness which have been the bane of development in that area in recent years take its toll on the efficiency and operations of the Ports [7, 12].

Reference [13] note that, it is a herculean task trying to stop multinational shipping lines from imposing charges and tariffs on shippers. He stated that, this is very obvious for the fact that, the shippers are often left in the clear web of no choices for the transportation of their goods from different continents at their various discharging ports. He strongly opined that, the shipping companies do clearly operate under a very obnoxious monopolistic environments that importers have no clear alternatives than to key into patronizing them, if they must be in any business transactions at the end. Reference [13] maintained that; this is what the union of African Shippers councils is trying to fight against. These surcharges, has serious far-reaching implications on the great economy of Nigeria and those of other neighboring countries. Reference [13] did explain that, when shippers are over-billed, it is the final buyer that has to suffer the apparent consequences in terms of high prices of local trade consumer goods in the markets at the end. It is important that shippers of member states of West Africa insist that, shippers must be consulted before new charges and tariffs are imposed on them. This is to ensure that the intended benefits of encouraging seamless flow of coastal trade among the tropical West African countries is not truncated through excessive port charges by terminal operators. It supports the need for shippers to actually take time to study and ask serious questions on the components of the charges and tariffs being presented to them and agree on their justifications before payment is made. If the foreign terminal operators insist that, local shippers cannot be part of the negotiation, shipping industry policy makers should develop legislation to alter the trend of high and unnecessary charges that local shippers are made to pay especially for coastal shipping and trade interest.

Reference [14] is of the opinion that, this affects inflation because all the charges are passed on to the various states councils and this had drastically affected the supposed standard of living of the final consumers as regards the issues of affordability. In the views of reference [15], if there is no monopoly, then we don't have choice, hence, we are doing this not only for the shippers but also for the providers. Reference [11] notes that it was very apparent that, the surcharges were targeted against the sub-regional states' son the very claims of poor ports infrastructure and issues of piracy at the Gulf of Guinea. The very major argument at these ailing ports economy was that, the shipping companies were over-doing it imposition of surcharges even when there were no clear-cut reasons for that abnormally. Reference [16] pointed out that, some of these abnormal surcharges have been obviously prevalent within the confines of the sub-region under different structures, which is very unfortunate. He strictly identified some of these as peak season surcharges and war risk surcharges. Reference [16] argued that, while some of them are supposed to be temporary measures by shipping lines to mitigate peculiar challenges of shipping at the discharging points and subject to removal when the situation normalizes, unfortunately this situation was not the case, as some of the charges have really assumed a stand point dominance without a clear-cut justifications or basis for serious negotiations when necessary, at the end. Reference [16], subsequently called on the regional states shippers to stand up to fight this evil and illegal surcharges through syndicated legislations. He also suggested that, the sub-region should emulate the Sri Lanka policy history, which introduced an all-inclusive freight law that has obviously checkmated such arbitrary surcharges by carriers within the confines of the global and regional maritime industry. He also opined that, no licensed service provider shall charge from an exporter in Sri Lanka any form of charges other than an all-inclusive freight rates where the carrier is contractually liable to pay for the carriage of cargoes from port of sail to port of destination as specified in the Bill of lading or forwarder's cargo receipt.

As regards the enormous powers shipper's councils have with specific ownership of goods, reference [6] maintained strongly that, there was need to seek more political powers to fight this seemingly illegality. He also opined that, there is also need to have both political and economic powers on the freight charges. In the views of reference [16], the need to remind different sub-regional states government of their responsibilities on provision of infrastructures as this will impact positively on serious trade facilitation at the end. Bello pointed out that, the Shippers Councils were not out to deny ship owners or their agents of profits but want regulations to be obeyed.

Sea ports should be natural choices for ship owners for doing business within the sub-region [2]. But, the Nigerian policy on Ports development since independence in 1960 has been disjointed and misinterpreted one, due largely to serious managerial incompetence. During the pre-concession era, the Nigerian Ports Authority (NPA) had the overall monopoly in the operations in the ports, but this was considered largely inefficient, sluggish to its reactions to the demands of the port services offered to her consumers [2]. It is very noted that, the country's seaports (pre-concession) has been bewildered with a clear dishonest outlook in terms of sharp practices likened to inefficiency in ports operations and management, obsolete equipment and infrastructures, dilapidated plants, high operational cost, poor documentation procedures, dwell time for cargoes and vessels was prolonged (congestion, pilfering, vandalizing, delays etc.), corruption by the various government agencies and stakeholders involved in the clearing of customers good, slow turn round time for vessels, diversion of cargoes to neighboring ports, labor for ship work was controlled by the grip of wharf over lords (wharf rats and wharf thieves and huge revenue loss to the government, resulting to poor image about the country's maritime activities internationally [2, 13]. Finally, reference [17] And [18] noted strongly that, the port charges duly managed by Nigerian Ports Authority under the service port model, were the real concerns that the ports were reformed and concession over fifteen years ago, seemed to reflect a child's play when seriously compared with the heights and levels of charges that these terminal operators are charging under the landlord ports model without recourse to the interest of the Federal Government of Nigeria in seeking to encourage the growth of coastal trade and shipping interest between Nigeria and the tropical West African countries.

3. Data and Methods

Secondary data was obtained from the records on SIFAX Group, the terminal operator, operating in the Lagos ports and foreign and coastal shipping charges were compared. The data collected covered a period of three years between 2019 and 2021. The data obtained include the cargoes dues for handling per unit general cargo, dry bulk cargo and liquid bulk cargo respectively for import and export bound cargoes in the coastal and foreign trade types. Also, the import and export laden container handling charges for coastal and foreign trade types covering the same period was obtained from the terminal operator. The difference of means statistical method was used to analyze the data. The coastal trade consists majorly of trade within the Nigerian coast and between Nigeria and the Tropical West African Countries while the foreign trade components consist of trade between Nigeria and countries in Europe, America, Asia, etc. The hypotheses were tested by the use of t-test.

4. Results and Discussion of Findings

Table 2. Result of the comparison of cargo dues charged by terminal operators on imports from foreign and coastal trade in Nigeria ports

Cargo type	Trade type	Mean ($)	STD Deviation	N	Mean Difference	t	Sign. (2-tailed
General cargo per ton /cbm	Foreign	7.8500	.10000	3	3.99000	76.788	.000
	Coastal	3.86	.01300				
Dry bulk cargo per ton/cbm	Foreign	5.1500	.01000	3	2.58000	258.000	.000
	Coastal	2.5700	.02000				
Liquid bulk Cargo per ton/cbm	Foreign	5.1500	.01000	3	2.58000	258.000	.000
	Coastal	2.570	.02100				

Source: Author's calculation with data sourced from SIFAX group.

The result of the study shown on table-2 shows that the mean amount charged by the terminal operator (SIFAX Group) as cargo dues for General Cargo imported from foreign (Europe, America, Asia, and all non-Tropical West African countries) between 2019 and 2021 is 7.85USD per ton/cbm with standard deviation of 0.100. Similarly, the average amount charged as cargo dues by the terminal operator as cargo dues for General Cargo imported from the coastal trade with the Tropical West African countries is 3.86USD per ton/cbm with a standard deviation of 0.0130. The difference between the cargo dues charged for imports from foreign trade and tropical West African coastal trade shows a mean difference of 3.990USD. This implies that the terminal operators charge import trade from foreign countries other than tropical West African countries per ton of general cargo is an average of 3.99USD higher than it charges shippers involved in general cargo trade with coastal tropical West African countries. The t-test shows a t-score of 76.788 and p-value of 0.000. Since the p-value is less than the alpha value of 0.05 (i.e: 0.000<0.05), we conclude that there is significant difference in the cargo dues charged by the terminal operator between foreign and coastal general cargo import trade handled by the port terminals over the period covered in the study. The implication is that shippers involved in general cargo coastal trade between Nigeria and the Tropical West African countries via SIFAX terminal are offered lower cargo dues and charges than shippers involved in general cargo import trade with the developed Western Countries and Asia. This pricing policing is possibly aimed at encouraging the growth of coastal trade between Nigeria and the Tropical West African Countries.

For Dry bulk cargo import trade handled in the port terminals over the period, the result on table-2 indicates that the mean amount charged as cargo dues is 5.15USD and 2.57USD for imports from foreign countries and tropical/coastal West African countries respectively with respective standard deviations of 0.0100 and 0.0200. The result indicates a mean difference of 2.58USD per ton/cbm of dry bulk cargo handled in the coastal and foreign trade. Similarly, the general cargo trade type, the mean difference of 2.58USD indicates that the shippers in the dry bulk coastal trade are charged lower cargo dues that those involved in the dry bulk import trade. The t-score of 258.0 and p-value of 0.000 indicates that there is a significant difference in the cargo dues charged by SIFAX terminal to coastal and foreign shippers in dry bulk import trade handled in Nigeria ports.

For liquid bulk import trade, shippers of consignments from foreign countries other than tropical west African countries pay an average of 5.15USD per ton/cbm of liquid bulk cargo handled while shippers in the coastal trade with tropical west African countries pay and average of 2.57USD per ton/cbm of liquid bulk cargo handled with respective standard deviations of 0.0100 and 0.0200. The comparative analysis shows a difference of means of 2.58USD indicating that foreign shippers of the liquid bulk trade from Countries other than the tropical west African countries pay higher cargo dues than coastal shippers. The t-score is 258.00 and p-value is 0.000. Again, since p-value is less that alpha value (0.00<0.05); we conclude that there is significant difference between cargo dues charged by the terminal operator for foreign and coastal liquid bulk cargo imports handled in Nigeria port terminals between 2019 and 2021.

Table 3. Result of the comparison of cargo dues charged by terminal operators on exports from foreign and coastal trade in Nigeria ports

Cargo type	Trade type	Mean ($)	STD Deviation	N	Mean Difference	t	Sign. (2-tailed
General cargo per ton /cbm	Foreign	5.1500	.02000	3	1.29000	223.435	.000
	Coastal	3.8600	.01000				
Dry bulk cargo per ton/cbm	Foreign	2.8867	.56871	3	.31667	.936	.448
	Coastal	2.5700	.02000				
Liquid bulk Cargo per ton/cbm	Foreign	3.1500	.01000	3	.58000	33.486	.001
	Coastal	2.5700	.02000				

Source: Author's calculation with data sourced from SIFAX group.

Table-3 above shows the comparison of terminal operator's charges for various foreign and coastal export trade types in Nigeria. The result shows that the mean amount charged by the terminal operator (SIFAX Group) as cargo dues for handling General Cargo for export to foreign (Europe, America, Asia, and all non-Tropical West African countries) via ocean shipping between 2019 and 2021 is 5.15USD per ton/cbm with standard deviation of 0.0200. Similarly, the average amount charged as cargo dues by the terminal operator as cargo dues for handling General Cargo export to tropical West African countries via coastal shipping is 3.86USD per ton/cbm with a standard deviation of 0.0100. The difference between the cargo dues charged for exports moved via ocean shipping to European and American markets and exports moved via coastal shipping to tropical West African countries shows a mean difference of 1.2900USD. The t-test shows a t-score of 223.435 and p-value of 0.000. Since the p-value is less than the alpha value of 0.05 (i.e.: 0.000<0.05), we conclude that there is significant difference in the cargo dues between ocean shipping exports of general cargo to foreign countries and coastal shipping export of general cargo to tropical west African countries handled by the port operator over the period covered in the study. The implication is that shippers who export General cargo trade types through ocean shipping to America, Europe, Asia and other countries other than tropical West African countries encounter higher cargo dues than shippers who ship exports through coastal shipping to tropical West African countries. This pricing policing are possibly aimed at encouraging the growth of coastal trade between Nigeria and the Tropical West African Countries.

For Dry bulk cargo export trade handled in the port terminal over the period, the result on table-3 indicates that the mean amount charged as cargo dues is 3.86USD and 2.88USD for ocean shipping export to foreign countries and coastal shipping export to tropical West African countries respectively with respective standard deviations of 0.5681 and 0.0200. The result indicates a mean difference of 0.31667 per ton/cbm of dry bulk cargo handled in the coastal tropical West African trade and ocean shipping foreign trade. The t-score of 0.936 and p-value of 0.447 indicates that there is no significant difference in the cargo dues charged by SIFAX terminal to coastal shipping export trade to tropical West African countries and ocean shipping trade to foreign non-tropical West African countries for shippers in the dry bulk export trade handled in Nigeria port terminals.

For liquid bulk export trade, shippers of consignments from foreign countries other than tropical west African countries pay an average of 3.15USD per ton/cbm of liquid bulk cargo handled while shippers in the coastal shipping export trade to tropical west African countries pay and average of 2.57USD per ton/cbm of liquid bulk cargo handled with respective standard deviations of 0.0100 and 0.0200. The comparative analysis shows a difference of means of 0.58USD. The t-score is 33.48 and p-value is 0.001. Again, since p-value is less that alpha value (0.001<0.05); we conclude that there is significant difference between cargo dues charged by SIFAX Group for ocean shipping export of liquid bulk cargo to foreign countries other than the tropical West African countries and coastal shipping export of liquid bulk cargo to tropical West African countries handled in Nigeria port terminals between 2019 and 2021.

Table 4. Comparison of Container handling Charges charged by terminal operators on imports from foreign and coastal trade in Nigeria ports

Container type	Trade type	Mean ($)	STD Deviation	N	Mean Difference	t	Sign. (2-tailed)
Laden 20' container (TEU)	Foreign	115.7667	.98500	3	25.72667	45.702	.000
	Coastal	90.0400	.01000				
Laden 40' container	Foreign	167.2300	1.03000	3	38.60000	2228.572	.000
	Coastal	128.6300	1.00000				

Source: Author's calculation with data sourced from SIFAX group.

The Table-4 above shows the comparison of laden container handling charges of ocean shipping import and coastal shipping imports of Twenty Foot Equivalent Units (TEU) and Forty Foot Equivalent Units (FEU). The result indicates the mean amount charged as container handling charges by the terminal operator per TEU imported via ocean shipping from the countries other than the tropical West African countries is 115.76USD with standard deviation of 0.985. The average amount charged shippers as container handling charges by the terminal operator per TEU imported via coastal shipping from the tropical West African countries between 2019 and 2021 is 90.04USD with standard deviation of 0.0100. The difference between the amount paid as container handling charges for TEUs shipped by sea from foreign countries other than the tropical West African countries and TEUs imported from tropical West African countries via coastal shipping is 25.73USD. The t-score is 45.702 and the p-value is 0.000. Since 0.000<0.05; we conclude that there is significant difference between the container handling charges per TEU imported from foreign countries other than tropical West African countries and per TEU imported via coastal shipping from tropical West African countries. By implications, per laden TEU imported from countries other tropical West African countries attract higher container handling charges of 25.73USD. This policy will encourage containerization of coastal shipping trade between Nigeria and the tropical West African countries.

Similarly, the result indicates the mean amount charged as container handling charges by the SIFAX terminal per FEU imported via ocean shipping from the countries other than the tropical West African countries is 167.23USD with standard deviation of 1.030. The average amount charged shippers as container handling charges by terminal operators per FEU imported via coastal shipping from the tropical West African countries between 2019 and 2021 is 128.63USD with standard deviation of 1.0100. The difference between the amount paid as container handling charges for TEUs shipped by sea from foreign countries other than the tropical West African countries and FEUs imported from tropical West African countries via coastal shipping is 38.600USD. This indicates the existence of disparity in the amounts charged by the port operator as container handling charges per FEU imported from non-tropical West African countries and tropical West African countries. The t-score is 2228.572 and the p-value is 0.000. Since 0.000<0.05; we conclude that there is significant difference between the container handling charges per FEU imported from foreign countries other than tropical West African countries and per FEU imported via coastal shipping from tropical West African countries. By implications, per laden FEU imported from countries other tropical West African countries attract higher container handling charges of 38.600USD. The policy implication is that the port operator-SIFAX may seek to grow the container trade for coastal shipping between Nigeria and the tropical West African countries through disparity in port charges for foreign and coastal shipping trade handled in ports.

Table 5. Comparison of Container handling Charges charged by terminal operators on exports from foreign and coastal trade in Nigeria ports

Container type	Trade type	Mean ($)	STD Deviation	N	Mean Difference	t	Sign. (2-tailed
Laden 20' container (TEU)	Foreign	90.0500	.02000	3	.02000	2.000	.184
	Coastal	90.0400	.02646				
Laden 40' container	Foreign	127.9633	.57735	3	-.65667	-1.912	.196
	Coastal	128.6200	.02646				

Source: Author's calculation with data sourced from SIFAX group.

The Table-5 above shows the comparison of laden container handling charges of ocean shipping export and coastal shipping exports of Twenty Foot Equivalent Units (TEU) and Forty Foot Equivalent Units (FEU). The result indicates the mean amount charged as container handling charges by the terminal operator per TEU exported via ocean shipping to countries other than the tropical West African countries is 90.05USD with standard deviation of 0.0200. The average amount charged shippers as container handling charges by the terminal operator per TEU exported via coastal shipping to tropical West African countries between 2019 and 2021 is also 90.04USD with standard deviation of 0.02646. The difference between the amount paid as container handling charges per TEUs exported by sea to foreign countries other than the tropical West African countries and per TEUs exported to tropical West African countries via coastal shipping is 0.02000. The t-score is 2.00 and the p-value is 0.184. Since 0.184>0.05; we conclude that there no significant difference between the container handling charges per TEU exported to foreign countries other than tropical West African countries and per TEU exported via coastal shipping to tropical West African countries. By implications, per laden TEU exported to countries other tropical West African countries attract almost the same handling charges as per TEU exported to tropical West African countries. This indicates that there is no disparity in the pricing policy of the terminal operator with regards to export container handling charges. The same amount of charges is paid by shippers for export of laden TEUs to all destinations and regions.

Similarly, the result indicates the mean amount charged as container handling charges by SIFAX terminal per FEU exported via ocean shipping to countries other than the tropical West African countries is 127.96USD with standard deviation of 0.5775. The average amount charged shippers as container handling charges by the SIFAX group per FEU exported via coastal shipping to the tropical West African countries between 2019 and 2021 is 128.63USD with standard deviation of 0.02646. The difference between the amount paid as container handling charges for TEUs exported by sea to foreign countries other than the tropical West African countries and FEUs exported to tropical West African countries via coastal shipping is -0.65667SD. This indicates the non-existence of disparity in the amounts charged by the port operator as container handling charges per FEU exported to non-tropical West African countries and tropical West African countries. The t-score is -1.912 and the p-value is 0.196. Since 0.196>0.05; we conclude that there is no significant difference between the container handling charges per FEU exported to foreign countries other than tropical West African countries and per FEU exported via coastal shipping to tropical West African countries. By implications, per laden FEU exported to countries other tropical West African countries attract almost the same container handling charges with per FEU exported to tropical West African countries.

5. Conclusion

In line with the results and findings of the study, we conclude that:

The SIFAX terminal in Nigeria charges higher cargo dues per ton of general cargo trade for imports from foreign countries other than tropical West African countries than they charge per ton of general cargo import trade from coastal tropical West African countries. The pricing policy encourages the development of the coastal shipping trade between Nigeria and the tropical West Africa countries.

Shippers of dry-bulk cargo imported via ocean shipping from foreign and non-tropical West African countries pay 2.58USD higher cargo dues per ton of cargo handled by the terminal operator than the shippers of dry bulk cargo imported via coastal shipping from tropical West African countries. The t-score of 258.0 and p-value of 0.000 indicates that there is a significant difference in the cargo dues charged by the terminal operator to coastal and foreign shippers per ton of dry bulk import trade handled in Nigeria port terminals.

Importers of liquid bulk cargo from foreign and non-tropical West African countries also pay higher cargo dues per ton of imported liquid bulk cargo than those imported via coastal shipping from tropical West African countries. The findings of the study indicate that there is significant difference between cargo dues charged by terminal operators for foreign and coastal liquid bulk cargo imports handled in SIFAX terminals between 2019 and 2021.

The findings of the study also reveal that exporters of General cargo trade types through ocean shipping to America, Europe, Asia and other countries other than tropical West African countries pay higher cargo dues per ton handled than exporters of General cargo trade type via coastal shipping to tropical West African countries.

For dry-bulk export trade, the t-score of 0.936 and p-value of 0.447 indicates that there is no significant difference in the cargo dues charged by the terminal operator per ton handled in coastal shipping export trade to tropical West African countries and ocean shipping trade to foreign non-tropical West African countries for shippers in the dry bulk export trade handled in Nigeria port terminals.

For liquid bulk trade, we conclude that there is significant difference between cargo dues charged by the terminal operator for ocean shipping export per ton of liquid bulk cargo to foreign countries other than the tropical West African countries and coastal shipping export per ton of liquid bulk cargo to tropical West African countries handled in Nigeria port terminals between 2019 and 2021.

Per laden TEU and FEU imported from foreign countries other than tropical West African countries attract significantly higher container handling charges than per laden TEU and FEU imported from tropical West African countries. This policy will encourage containerization of coastal shipping trade between Nigeria and the tropical West African countries.

For container export trade, the study concludes that there is no significant difference between the container handling charges per FEU and TEU exported to foreign countries other than tropical West African countries and per FEU cum TEU exported via coastal shipping to tropical West African countries. This indicates that there is no disparity in the pricing policy of the terminal operator with regards to export container handling charges. The same amount of charges is paid by shippers for export of laden TEUs and FEUs to all destinations and regions.

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