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Impact of Container Shipment Costs on Consumer Prices of Imported Goods in Nigeria

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Abstract

The study focuses on impact of container shipment costs on consumer prices of selected imported goods in Nigeria. The relationship between container shipment costs on consumer prices of imported goods has been an area of interest for maritime stakeholders, economists and industry analysts which is relevant especially in the context of globalization, where the movement of goods across borders plays a crucial role in determining the final prices consumers face. Two objectives were reviewed these include examine the impact of container shipment costs on consumer prices of imported goods and examine how container shipment costs affected the prices of imported goods.The study review electronic such as PC, TV and machinery such as Water Pumps as selected imported goods from 1990 to 2024. The study uses qualitative approaches to achieve the laid down objective. The study draws it data from annual reports of the Nigerian Port Authority, CBN, Nigeria Bureau of Statistics to determine the periodic changes in Nigeria ports from 1990 to 2024. The method of data analysis used was a simple linear regression. The result from the regression showed that if the P-Value with a threshold of 0.005 is < 0.005 rejected, but if $P > 0.005$ accepted. Therefore Port handling fees (USD) had a *p*-value of 1.61E-07, Cost of container shipment (CCS), with P-Value with 4.46E-07, Value of unit of containerized imports (VUCI) with P-Value 6.69E-07 are rejected indicating a very strong evidence against the null hypothesis while Demurrage was the other significant factor with a *p*-value of 0.00308 is equally rejected indicating a strong evidence against the null hypothesis. But if the $P > 0.005$ then the result should be accepted based on this Unofficial costs (UC) with P-Value of 0.051914 and Inland transport cost (ITC) with P-Value of 0.065803 is accepted suggesting insufficient evidence. Freight charges (FC) with P-Value 0.0178911 would have been rejected since 0.0178911 is greater than 0.005 but less than 0.005 FC would have been considered significant. .While insurance (INS) indicating very weak evidence against the null hypothesis. The study therefore recommends that there should be an immediate implementation and introduction of digital and automation platform technologies to streamline port operations as well reduced paper work in other to improve efficiency at Lagos ports and for future port developments. Government should invest in improving in transportation infrastructure such as road, railways, and inland waterways to enhance logistics and supply chain efficiency, and lastly implement cost saving measures for importers as well as provide import financing options so as to reduce financial burden on importers and assist them to manage cash flow

Key words: Costs; Container; Consumer; Goods; Imported; Shipment.

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1. Introduction

Container shipment cost refers to the expenses incurred when transporting goods via containerized shipping. The relationship between container shipment costs and the selling prices of imported goods has been an area of interest to maritime stakeholders, economists and industry analysts. This is important especially in the context of globalization, where the movement of goods across global frontals plays a crucial role in determining the final prices consumers pays. Understanding the effects of container shipment costs on the selling prices of imported goods involves exploring various economic theories and examining empirical studies that highlight the connection between transportation costs, trade patterns, and price transmission mechanisms. In container shipment, transportation plays a major role in the economic and socio-political development of nations. A well-functioning transport system stimulates national development, allows unrestricted movement of goods and services and serves as a vital link with facilities among others. The different transport modes- rail, road, water and air have specific advantages and uses; hence the overall efficiency of the transport system depends on the development of these modes (Nwoloziri *et al.,* 2021).

In recent times container shipment facilitates international trade which enables developing nations to import and export goods globally. As transportation plays a vital role in the survival and functionality of any nation, it is a fundamentally the desire for man to access the movement of goods from one place to another in line with consumer's demand. Transportation is a crucial component and a pre-condition that bridges the geographical gap for spatial interaction and economic production of the globe (Ayinde, 2019). It is the central dimension of national and global production system that are reshaping the universe (2011). Transportation system is to a large extent a pivotal to economic and social development of any society (Akinsehinwa.,2023). Thus, the economy development of any nation is hardly possible without efficient and effective transportation system, hence the economic growth of any nation is connected directly to the magnitude of its maritime transportation (Adebumiti and Faniran 2014).

Thus, container shipment accounts for nearly 90% of trade requirements of the world. Seaborne trade, which also constitutes a larger chunk of water transport trade that accounts for over 60% of the total Gross Domestic Product (GDP) of sixteen (16) countries (Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo) that make up the Economic Community for West African States (ECOWAS) (Airahuobhor., 2011).

In line with the growth of world trade volume through sea lane, container shipment demand during 2023 was increased by seven percent (UNCTAD, 2023). This new phenomenal as a major catalyst for socio-economic development and international competitiveness is fast changing the globalized world, and has also affects a wide range of modern societies and their development (Fintell, 2014). Container shipment in 2020 contribute so much to the GDP of some countries like India (28.1), China (29.7), Russia (15.9), Brazil (12.8), South Africa (9.3) and Nigeria (4.15). In line with this increase, container transportation is experiencing very significant growth, due to its many advantages over other traditional transportation. Therefore, the maritime sector encompasses diverse components of shipping operations that ensure the successful handling and transshipment of goods from the sea to the hinterlands and vice versa through container (Adenigbo *et al* 2023).

Meanwhile, containers shipment has increased seaports productivity by sixteen times when compared to the previous state of bulk transportation (Bernhofen, El-Sahli and

Kneller.,2016). The economic growth of a country seriously relies on the success of its shipping industry; therefore, the global shipping chain is directly connected to economic growth of any nation, (Ubaid *et al,* 2020).

Container as an essential part of a unit-load concept has achieved undoubted importance in international sea freight transportation. With ever increasing containerization, the numbers of seaport container terminals and competition among others have become quite remarkable through international trade (Stennke *et al* 2004). Since the introduction of the containers in the transport sector, several studies have investigated the massive evolution of containers traffic over time on international trade in different seaports in the world, where the movement of goods across borders plays a crucial role in determining the final prices consumers face. Understanding the effects of container shipment costs on the selling prices of imported goods involves exploring various economic theories and examining empirical studies that highlight the connection between transportation costs, trade patterns, and price transmission mechanisms.

Consequently, the shipment of cargoes on containers for international trade appears in the form of inflow (import) and outflow (export) of goods and services in a country which represent a significant share of her gross domestic product. Maria (2020), posited that international trade is an engine of growth that has leads to the increase of foreign exchange revenues, which makes a wide variety of goods accessible in the global market, expands the technology transfer among nations and also improves the well-being of the masses with greater employment opportunities (Attahir *et al.* 2015).

However, the essence of container shipment is to promote growth from the supply side. One major key component of Nigeria's economy is economic growth which is well known for increase in the stratum of national output or income over time (Duodu & Baidoo,2020). Nigeria's trade openness has increased the participation of foreigners in the economy by allowing the inflow of foreign capital and expertise, thereby impacting on her economic growth. These scenarios fueled series of events in most oil exporting countries including Nigeria. Due to COVID -19 Pandemic in 2020 the nation witness a negative growth rate of –1.79 attributed to negative growth of Corona virus Nigeria is projected to be amongst the nations that will be most affected. While admitting that some studies have indeed been carried out in an attempt to identify the major factors influencing import demand in Nigeria, this research work extend and examine the impact of container shipment costs on consumer prices of selected imported goods in Nigeria

Research Questions

i. What is the impact of container shipment costs on consumer prices of selected imported goods in Nigeria?
ii. How has container shipment costs affected the prices of imported goods

Objectives of the Study

1.1 Aim and Objectives

The aim of the study is to explore the impact of container shipment costs on the prices of consumer prices of imported goods in Nigeria. The specific objectives of the study are to:

i. ascertain the impact of container shipment costs on consumer prices of selected imported goods in Nigeria.

ii. examine how container shipment costs affected the prices of imported goods.

Research Hypothesis

H_0: Container shipment costs has significantly affected the prices of imported goods.

Hoa: Container shipment costs has not significantly affected the prices of imported in Nigeria.

2. Related Literature

2.1 Conceptual Review

Maritime transport is a universal trade which accommodate around 80% of the volume of the world goods commerce and 40% of the traded goods is seaborne (UNCTAD,2021 AND 2022).The cost of maritime transport which involves shipping and insurance represent 6.0% of the value of world maritime trade in 2017 (UNCTAD,2021:Hoffmeister et al., 2022). Due to the significance of container as a catalyst for global maritime trade expansion, various scholars have investigated the revolutionary attributes of containerization, in the maritime industry. Container shipping is an important mode of international trade used today. The world fleet size is undergoing a serious growth and the world seaborne shipping is also growing with the continuous growth in the world population, the change in the standard of living, the increased globalization pushing international companies to collaborate and merge, (Christiansen 2003). Hayuth (1981) describe the importance of containerization as creating a structure of hierarchy in the port industry. He further stated that, the demand of containerization on ships terminals and inland carriers tends to evolve a load center.

Traditionally seaports have become a strategic economic endowment and major catalyst of globalization process (UNCTAD 2006). Almost 80 percent of the total global trade volume is carried by ocean transportation, (Shan *et al*,2014). As an interface between sea and land transportation, port have constituted a core of the transport system and the economic determination of any state that owns them (Olapoju, 2019). The role of ports in the globe has been gasified by the global maritime trade called container. Urry (2007) describe container as mobility system which produce complex and paradoxical effects in transport system. It is a unitization object in the most advance form which speeds up rate of international trade.

According to Levinson (2006), container is at the core of a highly automated system for moving cargoes from one place to another for cost minimization. Studies have shown that established the revolutionary impact of containerization in terms of speed of moving cargoes has been cited as a major concern of shippers (UNCTAD 2006). For thousands of years, method of shipping products across the seas and ocean remained essentially the same. Products came to ports in wooden crates, sacks and kegs by wagon or later, by trucks and trains. Ships were then loaded and unloaded crate by crate, sack by sack and kegs by kegs. Which was time consuming and labor intensive, theft was a perpetual problem, ships spent more time in ports. It was in this basis that innovations approaches came in to introduce a small standardized box to address all this fundamental challenges.

2.2 History of Containerization

The development of containerships dated back 1956 was child brain of a US-based entrepreneur named Malcolm Mclean who had no maritime experience whatsoever, created cargo containers in an attempt to simplify the process of shipping cargo across the ocean.

During that era, the process was incredibly drawn out and inefficient. The lengthy process meant that freight had to be suitably separated or dismantled before it could be put in a ship was cumbersome. In effect this shows that labour was wasted at multiple points throughout the process of shipping, starting with the initial dismantling of the cargo and later the final assembly if the shipment.

This man circumvented the issue by modifying an oil tanker vessel from World War II the ideal X. Using the basic structure of that vessel, altered and was essentially truck carts required the modified truck charts to be sealed with cargo and then successfully put on shipping vessels so they could be transported from one place to another.

This level of containerization meant that the cost for moving cargo was reduced drastically because unwanted processes that were part of shipping requirements previously were eliminated. Transporter could now utilize economies of scale because a large amount of cargo could be easily transported. Nigeria decision to adopt container technology in 1968 was a step in the right direction as the adoption of containerization has already become ubiquitous maritime object across the globe (Levinson 2006).

The adoption of containerization into Nigeria seaport not only brought about an enhanced specialized, mechanical, and standardized method of operation (Ukpong 1998), but also led to the construction of the first container berth in Nigeria, which was commissioned in 1968 as part of the second Apapa wharf extension. This was followed by the commissioning of the 1005m berthing facility as part of the third Apapa wharf extension in 1979.Though there are other container handling facilities in other seaports in the country, the container terminal in Apapa and Tin-Can Island are the major hub of container cargo handling ports. Container revolution also led to the development of other port facilities such as the RORO port which equally have facilities for handling container trade (Odumosu 1998; Ukpong 1998).

The growth rate of the world container traffic annually, has been above the world trade growth because of the containerization of more commodities types and the deployment of larger containerships to accommodate increasing number of containers (Neylan, 2015). Again, several international container business players are expanding to achieve global visibility. With the elimination of trade barriers, World Trade is continuously increasing, creating an increasing need for container shipping. However, the ocean shipping is becoming a monopoly with the introduction of huge capacity ships. The world leading container carriers currently control more than 70% of the world total container shipping.

2.3 Positive Impacts of Containerization to Shipper

The development of container for the shipping made it easier for shipping companies to benefit from that economy of scale. Companies today can ship large quantities from one location to another, which opens up the door to manufacturing in off-site factories in other countries where labor might be cheaper or more specifically skilled. It also brings it in the opportunities for shippers to utilize warehouses throughout the world, so that goods can be shipped quickly to different customers, not just those who are local with those who are international.

The cost of shipping is now reduced compared to what it was before containers. No longer do shippers has to shoulder the financial burden of paying for unskilled labor to dismantle and subsequently reassemble their cargo at the first and final port. As more shippers are involved in the shipping process, with supply and demand fluctuating in favor of shippers, the overall cost for shipping goods is reduced as well.

Finally, with more ports and harbors open and actively accepting shipments from around the world, shippers can move goods from one place to another faster. There are more people engaged in the process, more countries that are ready to be part of the shipping industry on a global scale and thus provide regular ports throughout shipping lanes.

The introduction of container shipping has indeed expanded the proportions of cargo shipping in a global scale. This introduction has helped technological development as well as helped newer shipping companies and countries to get involved in containerized operations. Cargo shipping as it stands today would not be possible without containers. Therefore, one of the best ways to ship freight across the ocean is through container shipping. Shipping industry containers could be efficiently stacked, allowing more and more goods transported across the seas. Since containers were sealed, theft declined. Overtime, the marine transportation industry and the size of ships, trucks, trains, dock and ports increased and expanded to handle the growing use of containers. The impacts on global commerce were enormous, leading to a boom in international trade due to lower transportation and handling cost.

2.4 Negative Consequence of Containerization to Shipper

While containerization was indeed a breakthrough for the global shipping industry, the adverse effect that were brought about primarily affect shippers. The labor force used for dismantling and for assembly line operations before the advent of cargo containers was phased out due to redundancy. Beyond that, motorized operational links reduced the requirement for the labor force involved in loading and unloading the freight. Eventually, those engaged in operations at different ports and harbor facilities, skilled labors, and semi- skilled laborers, alike were negatively impacted.

2.5 Empirical Review

Afaf and Hussan (2015) examined the impact of export and import on economic growth in Tunisia. The study employed co-integration and error correction modelling techniques as well as the Granger causality test for the period 1975 – 2012. The result revealed that import is a source of economic growth in Tunisia. Bakari and Mabrouki (2016) investigated the relationship among imports, exports and economic growth using empirical data from Turkey for the period 1960 – 2015. The study employed vector auto regression technique and the granger causality test. The result revealed that there exists a bidirectional causality between economic growth and import in Turkey. Mori, Dallah, Kok and Jaratin (2011) assess the impact of import on economic growth in Malaysia using annual time series data for the period 1970 – 2007. The study employed the Engle-Granger, Hsiao-Granger and the Tado-Yamamoto procedure for bivariate co-integration and causality analysis. The findings of the study show that there exists a bidirectional causality between import and economic growth. Also, it was observed that economic growth in Malaysia is significantly influenced by import. Ali, Ali and Damar (2018) studied the impact of import and export performance on economic growth in Somalia using annual time series data for the period 1970 – 1991. The study employed the vector error correction modelling technique and the Granger causality test. The results show that import do not granger cause economic growth and export. However, export granger cause evidence economic growth. The paper does advocate for the adoption of the export-led growth strategy to stimulate economic growth in Somalia. Kim *et al (*2007) examined the impact of import on economic growth in modelling technique for testing for causality between import and economic growth. The result revealed that import significantly influence productivity in

Korea. Furthermore, the study shows that import of capital goods and import of consumer goods significantly influence productivity in Korea.

3. Methodology

The study uses qualitative approaches to achieve the laid down objective. The study draws it data from annual reports of the Nigerian Port Authority, CBN, Nigeria Bureau of Statistics with focus on port inefficiencies on container shipment cost. The use of tabulations, charts, and graphic illustrations to present data analysis was applied to determine the periodic changes in Nigeria ports from 1990 to 2024.A linear regression was used to analyze the contribution of containerizes cargoes at each port. This was done using excel software package. The study areas for this research work is Lagos ports (Apapa and Tin-Can Island) in Nigeria. The study focused on the mention ports because they are the major freight generation and attraction zones where freight operations are massively concentrated in Nigeria.

Model Specification

The mathematical model specification is specified below:
The mathematical model can be expressed as:

□□□□ =$_0$□ +$_1$□ (□□□) + □2(□□□) + □3(□□□) + □4(□□) + □5(□□□) = +□6(□□ □□) + □

Where:
CPIG = Consumer Prices of Imported Goods
PHF = Port Handling Fees
CCS =Cost of Container Shipment
DEM= Demurrage
UC= Unofficial Costs
INSU= Insurance Per Container

□$_0$ = Intercept
□$_1$, □2, □3, □4, □5, □6 =Coefficients representing the impacts of each independent variable on the dependent variable. Per container
□□: Error term, accounting for unexplained variability

4. Results and Discussion

4.1 Examine the Impact of Container Shipment Costs on Consumer Prices of Imported Good in Nigeria

The study used three containerized products for its assessment of the impact of container shipment costs on consumer prices of imported goods within Nigeria's domestic markets, particularly in Lagos State. To this end, the prices of personal computers (PCs), televisions (TVs) and water pumps were collected over the years from 1990 to 2024 for the basic types of these products as shown on Table 1. The table also showed the annual value ofn US dollars (USD), freight charges, port handling fees, unofficial cost (0.95%) of port handling cost (like bribes and other fees and charges that are not documented), demurrage paid for extended stay in the seaport, insurance cost per container (which is 1.5% of cargo value), inland

transport cost (0.37% of port handling fee) to any part not more than 250 km radius of the port) and cost of container shipment. All these fees were captured in USD.

Using these sources of information: the US Bureau of Labor, Nigerian Bureau of Statistics, Statista; World Bank, Drewry Shipping reports, Freights Index, Nigerian Shippers' Council, World Bank Logistics Report, TradeLens and Tojum for the study period – 1990 to 2024, we were able to estimate the selling prices of PC (hp Lattitude 4600), TV (Samsung standard), and Water Pump (DeWatt Home Pump). The prices were observed on annual basis to be on steady rise from the base year till 2024. Figure 1. shows that the price of the premium Samsung TV rose steadily from around N2, 000 in 1990 to about N360, 000 with a slope equation of Y=14889x – 142063 and R^2 of 0.2693. The price of the PC and water pump were seen to have risen too from N4,000 and N4,500 respectively in 1990 to N1,700,000 and N97,000 in 2024. This showed that Nigeria had experience tangible inflationary changes during this period and then there is stressed valuation placed more on PC than on the other two items has its value had raised more rapidly than the others. This is in agreement with the following studies: Warschauer (2003) and Aker & Mbiti (2010) that showed how the world has come to value more PC over basic household items.

Another major reason is the continuous loss in value of the Nigerian naira when compared with the major international currency the US dollar. This is substantially linked to the poor manufacturing based in Nigeria and the continual importation of these and major products into Nigeria. This corroborate the studies of Rodrik (2008) and Saibu (2018) that found that poor industrialization of Nigeria and overdependence on importation is the cause of continual loss of value of naira.

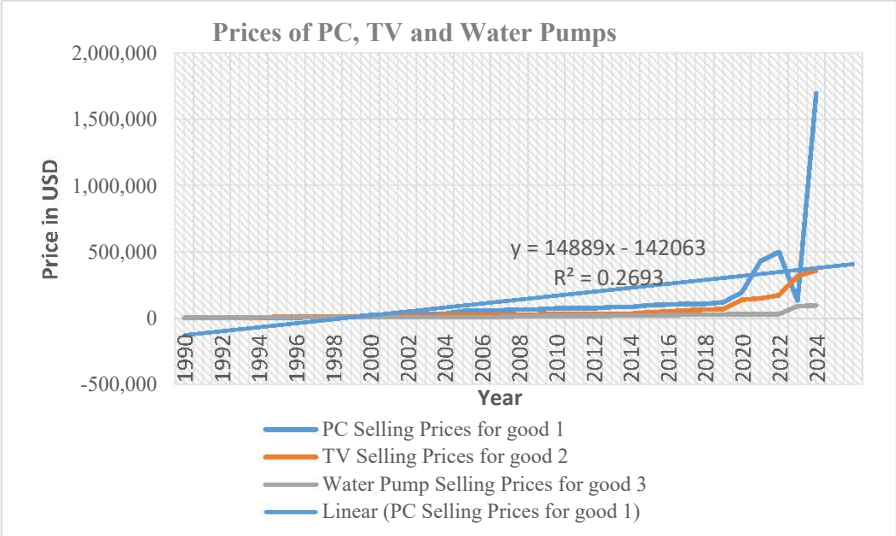


Figure 1: Selling prices of PC, TV, and Water Pump

4.2 Factors Affecting Container Shipment Cost

The adoption of container as a unit load device (ULD) has seen tremendous growth in the last fifty (50) years and this has been experienced in Nigeria as well (Nwachukwu et al, 2023). The surge in demand for these ULDs and the fact that the economy has continued to be import-oriented can be attributed to as part of the reasons for the steady rise in the cost of a container shipment to Nigeria.

The cost of shipping a 20ft container was observed to have increased from $1,722 to $14,161 in 1990 and 2024. There was a 1.95 % change in cost of shipment of container in 1991 when compared to that of 1990 cost. There was deep in the cost as it fell by about 5.23% in 1992. The anticipated benefit that was supposed to result from the annulled 12 June election of Moshood Kasimawo Olawale Abiola gave rise to rush in importation and that drove the cost of shipment with containers to about 183% to $1901.64 in 1993. A sharp drop in the cost of using container was recorded in 1999 by as much as 529.73% from what was obtained in 1998 to $2955.74 from $3485.46. Analyzing this occurrence, one can deduced that it cannot be disassociated from the fear for the economy following the death of M. K. O. Abiola and the fear that the new democratic process might not succeed which led importers and the economy to slow down. Also, the policy of General Abacha's regime that favoured looking eastward away from the West made importation from the already established nations to wane and await the increase from China and the Southeast Asian nations.

From year 2000 there was a steady increase in the cost of container shipment from $3077.22 to around $5488.92 in 2007. The global financial crisis of 2008 led to a huge dip in global trade and made demand for containerized shipment to drop significantly leading to a corresponding drop in cost of using containers by as much as 1274.62% as shown in Figure 2. The reduction in cost of shipment of container corroborates the study of Stopford (2009), that shows that trade volatility can be tied to container shipping demand. It also agrees with the studies of Drewry Shipping Consultants (2023) and Zhang & Lam (2019), that analzed how economic recessions lower freight rates by shrinking demand for containrised goods, particularly in consumer-driven economies of which Nigeria is one.

The growth in GDP of the nation can be correlated to the growth in demand and supply of shipping containers (UNCTAD, 2020). The growth of global trade has led to increase in the use of container and these forces of demand and supply of containers has continually made the cost of using containers to increase and Nigerian container market is not exempted. This corroborated the study of Zhang & Lam (2019) that showed that a slowing down of China's economy led to reduction in global container trade and usage. Container shipment cost was observed to be around $14,160 in 2024.

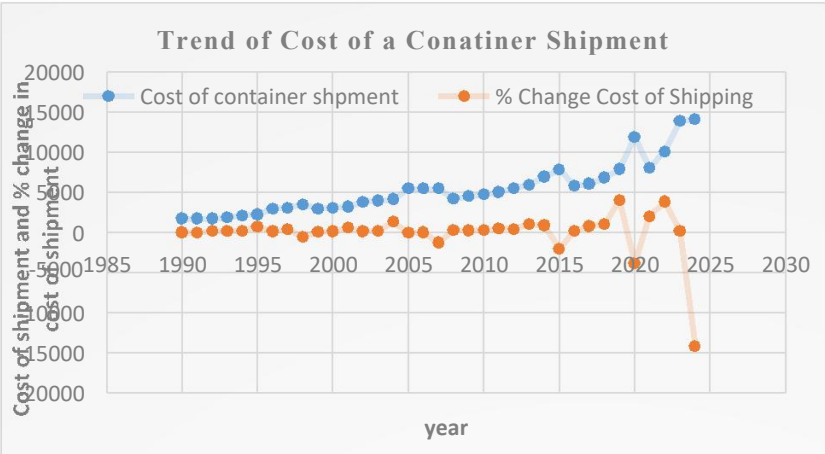


Figure 2: Trend of cost of shipment of a container and annual percent change

4.3 Factors Contributing to Cost of Container Shipment

Literature had shown that the following factors are the contributors to the buildup of container shipping costs – freight rates, port handling charges, unofficial costs, demurrage, insurance

cost and inland transport costs (Drewry Maritime Research, 2023). Figure 3. and Table 1. show that all these factors over the years have been on the rise, which has led to increase in the total cost of container shipment or cost of using containers as unit load devices.

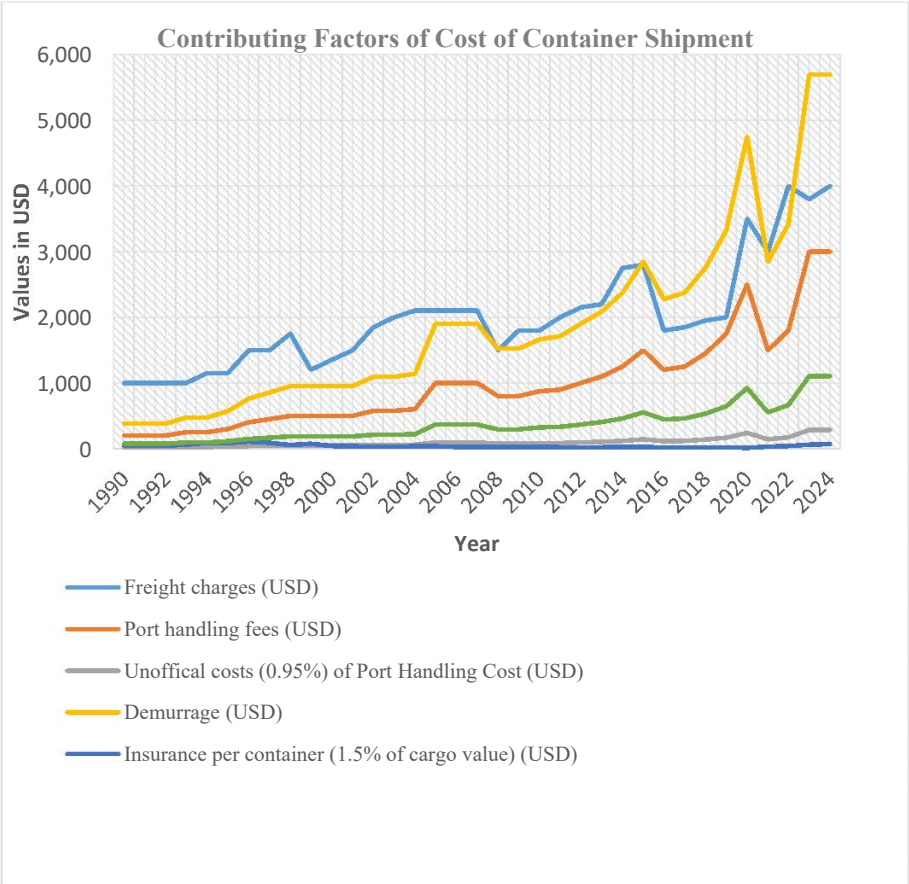


Figure 3: factors contributing to cost of container shipments

Table 1. shows the impact of shipping costs on cost of imported containerized cargoes, it had all the contributing factors (costs) to the cost of containerized shipment as well as the three selected cargoes (personal computers, PC; television and water pumps) for the study and the recorded prices and values for the mentioned attributors as well as the exchange rates from 1990 till 2024. Using the information contained on Table 1, a multiple regression was carried to determine the most significant factors that influences container shipment costs when considering the impact of container shipment costs on the selling prices of imported goods (see Table 2).

Table 1: the Impact of Shipping Costs on Cost of Imported Containerized Cargoes in Nigeria From 1990 to 2024

Year	PC Selling Prices for good 1	TV Selling Prices for good 2	Water Pump Selling Prices for good 3	Aggregated Selling Price (Naira)	Value of containerized throughput (PC+TV+Water Pumps) (Naira)	Exchange rate (Naira to USD) (parallel market rate)	Value of containerized throughput (PC+TV+Water Pumps) (USD)	Value of unit containerized import	Freight charges (USD)	Port handling fees (USD)	Unofficial costs (0.95%) of Port Handling Cost (USD)	Demurrage (USD)	Insurance per container (1.5% of cargo value) (USD)	Inland Transport Cost (0.37% of Port Handling fee) to any part not more than 250 km radius of the port (USD)	Cost of container shipment
1990	4,000	2,000	4,500	10,500	16,353,099	100	163,531	3,267	1,000	200	19	380	49	74	1,722
1991	4,000	3,500	4,500	12,000	18,657,530	100	186,575	3,397	1,000	200	19	380	51	74	1,724
1992	4,000	4,000	4,500	12,500	20,464,733	100	204,647	3,048	1,000	200	19	380	46	74	1,718
1993	5,600	5,000	6,000	16,600	22,603,421	100	226,034	4,052	1,000	250	24	475	61	92	1,902
1994	5,600	5,000	6,500	17,100	24,659,238	100	246,592	5,760	1,150	250	24	475	86	92	2,077
1995	5,600	12,000	6,800	24,400	26,715,055	100	267,151	5,649	1,150	300	29	570	85	111	2,244
1996	5,600	12,000	7,000	24,600	28,770,872	100	287,709	7,116	1,500	400	38	760	107	147	2,952
1997	9,000	12,500	7,000	28,500	30,826,689	100	308,267	6,006	1,500	450	43	855	90	166	3,104
1998	9,000	12,500	7,200	28,700	32,882,506	100	328,825	3,584	1,750	500	48	950	54	184	3,485
1999	9,500	12,500	7,500	29,500	34,938,323	100	349,383	4,935	1,200	500	48	950	74	184	2,956
2000	25,000	12,500	7,500	45,000	36,994,140	170	217,613	2,701	1,350	500	48	950	41	184	3,072
2001	25,000	20,000	8,500	53,500	39,049,957	170	229,706	2,191	1,500	500	48	950	33	184	3,215
2002	25,000	20,000	8,800	53,800	41,105,774	170	241,799	2,129	1,850	575	55	1,093	32	212	3,816
2003	35,000	20,000	9,000	64,000	43,161,591	170	253,892	1,960	2,000	575	55	1,093	29	212	3,963
2004	35,000	24,000	9,500	68,500	45,217,408	170	265,985	2,312	2,100	600	57	1,140	35	221	4,153
2005	55,000	24,000	10,000	89,000	47,273,225	170	278,078	2,263	2,100	1,000	95	1,900	34	368	5,497
2006	58,000	24,000	10,000	92,000	49,329,042	170	290,171	1,555	2,100	1,000	95	1,900	23	368	5,487
2007	60,000	28,000	10,000	98,000	51,384,859	170	302,264	1,700	2,100	1,000	95	1,900	26	368	5,489
2008	65,000	28,000	14,000	107,000	53,440,676	170	314,357	1,571	1,500	800	76	1,520	24	295	4,214
2009	68,000	28,000	16,000	112,000	55,496,493	170	326,450	1,568	1,800	800	76	1,520	24	295	4,514
2010	75,000	35,000	16,500	126,500	57,552,310	170	338,543	1,571	1,800	875	83	1,663	24	322	4,767
2011	75,000	35,000	17,000	127,000	59,608,127	170	350,636	1,307	2,000	900	86	1,710	20	332	5,047
2012	75,000	35,000	18,000	128,000	61,663,944	170	362,729	1,303	2,150	1,000	95	1,900	20	368	5,533
2013	85,000	35,000	20,000	140,000	63,719,761	170	374,822	1,202	2,200	1,100	105	2,090	18	405	5,918
2014	85,000	35,000	22,000	142,000	85,775,578	170	504,562	1,561	2,750	1,250	119	2,375	23	461	6,978
2015	100,000	45,000	22,000	167,000	97,831,395	500	195,663	1,725	2,800	1,500	143	2,850	26	553	7,871
2016	105,000	52,000	25,000	182,000	119,887,212	500	239,774	1,074	1,800	1,200	114	2,280	16	442	5,852
2017	110,000	60,000	27,000	197,000	121,943,029	460	265,094	1,199	1,850	1,250	119	2,375	18	461	6,072
2018	110,000	65,000	28,000	203,000	183,998,846	460	399,997	1,454	1,950	1,450	138	2,755	22	534	6,849
2019	120,000	70,000	28,000	218,000	196,054,663	460	426,206	1,499	2,000	1,750	166	3,325	22	645	7,908
2020	195,000	140,000	32,000	367,000	105,627,643	480	220,058	750	3,500	2,500	238	4,750	11	921	11,920
2021	430,000	150,000	32,000	612,000	280,166,297	480	583,680	1,928	3,000	1,500	143	2,850	29	553	8,074
2022	500,000	175,000	32,000	707,000	382,222,114	480	796,296	2,552	4,000	1,800	171	3,420	38	663	10,092
2023	130,000	320,000	92,000	542,000	2,124,277,931	760	2,795,103	8,701	3,800	3,000	285	5,700	131	1,105	14,021
2024	1,700,000	360,000	97,000	2,157,000	2,486,333,748	1,200	2,071,945	6,270	4,000	3,000	285	5,700	94	1,105	14,184

Sources: US Bureau of Labour, Nigerian Bureau of Statistics, Statist; World Bank, Drewry Shipping reports, Freightos Index, Nigerian Shippers' Council, World Bank Logistics Report, APM Terminal and Freight Forwarders Association of Nigeria and TradeLens and Tojum and compiled by the author in 2024.

Notes: Inflation - Figures are nominal (not adjusted for inflation). For example, $1000 in year 2000 is approximately $1,800 in 2023. Between 1990 - 1999, global shipping were less standardized and fewer direct routes to West Africa there were also limited competition among carriers and Nigeria's ports were grossly under-developed. After 1999, the democratization in Nigeria led to increased trade demand and throughput and rising oil prices led to further increase in cost of shipping as fuel surcharges were adjusted upward for the sake of bunker adjustment factors. In mid-200s to 2010s, with a boom in export from China and Nigeria's infrastructural growth, demand for shipping containers surge. However, global financial crisis of 2008 led to a decrease in global trade and rates (shipment) dropped. Increased piracy led to added insurance premiums that made freight rates to increase and Nigeria's Apapa Port congestion became a major bottleneck. Overcapacity in global shipping forced a temporary reduction in fright rates. Nigerian import restrictions from 2019 and the border closure lowered demand and that affected rates briefly. COVID-19 disruption of supply Chain led to rates deepening and the China-Nigeria rates spiked mid-year in 2020. The port-pandemic spike in demand and container shortage occasioned by imbalance trade and inefficient container supply and port delays led to increase in freight rates to Nigeria. The Russia's war in Ukraine raised fuel cost and the insurance rates. rate normalized slightly but remained volatile due to forex issues and fuel subsidy removal in Nigeria. Additional costs could include terminal charges (THC), customs clearance, and bribes (a major issue in Nigerian ports).

Table 2: SUMMARY OUTPUT: Factors affecting container shipment cost of Imported Goods

Regression Statistics	
Multiple R	0.90249
R Square	0.814488
Adjusted R Square	0.635244
Standard Error	2.4E+08
Observations	35

ANOVA

	Df	*SS*	*MS*	*F*	*Significance F*
Regression	8	7.85E+18	9.81E+17	45.36825	2.46E-13
Residual	31	1.79E+18	5.76E+16		
Total	39	9.63E+18			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-6.7E+08	1.51E+08	-4.45006	0.000103	-9.8E+08	-3.6E+08	-9.8E+08	3.6E+08
PHF	88.72574	13.41856	6.612164	1.61E-07	61.42547	116.026	61.42547	116.026
CCS	133052.5	20930.36	6.356913	4.46E-07	90364.72	175740.2	90364.72	175740.2
VUCI	130477.9	20998.47	6.213687	6.69E-07	87651.24	173304.5	87651.24	173304.5
Dem	-297663	92958.49	-3.2021	0.00308	-487013	-108312	-487013	-108312
UC	2887.589	1428.309	2.021684	0.051914	-25.4655	5800.644	-25.4655	5800.644
ITC	2726.141	1431.056	1.904986	0.065803	-188.824	5641.107	-188.824	5641.107
FC	-211457	153758.9	-1.37525	0.178911	-525050	102136.2	-525050	102136.2
Ins	-39819.2	116952.4	-0.34047	0.735797	-278345	198706.8	-278345	198706.8

Note that: PHF – Port handling fees (USD); CCS – Cost of container shipment; VUCI – Value of unit of containerized imports; Dem – Demurrage; UC – Unofficial costs (0.95%) of cost port handling costs; ITC – Inland transport cost (0.37% of port handling fee) to any part not more than 250 km radius of the port (USD); FC – Freight charges (USD); Ins – insurance per container (1.5% of cargo value) in USD. GOODS.

5. Findings

However, the result from the regression showed that the various factors considered, and their respectively collected data interpreting P-Value with a threshold of 0.005 indicate the level of statistical significant for each of the variable. However if $P < 0.005$ rejected, but if $P > 0.005$ accepted. Therefore Port handling fees (USD) had a *p*-value of 1.61E-07, Cost of container shipment (CCS), with P-Value with 4.46E-07, Value of unit of containerized imports (VUCI) with P-Value 6.69E-07 are rejected indicating a very strong evidence against the null hypothesis while Demurrage was the other significant factor with a *p*-value of 0.00308 is equally rejected indicating a strong evidence against the null hypothesis. But if the $P > 0.005$ then the result should be accepted based on this Unofficial costs (UC) with P-Value \of 0.051914 and Inland transport

cost (ITC) with P-Value of 0.065803 is accepted suggesting insufficient evidence. Freight charges (FC) with P-Value 0.0178911 would have been rejected since 0.0178911 is greater than 0.005 but less than 0.005 FC would have been considered significant. .While insurance (INS) indicating very weak evidence against the null hypothesis.

6. Conclusion

Based on the findings of the study on impact of container shipment costs on consumer prices of imported goods in Nigeria, it was revealed that increase in container shipment cost is likely to be passed on to consumers in the form of higher prices, making imported goods less competitive and potentially harming consumers purchasing power. A noticeable rise in prices of imported electronic and machinery from 1990 to 2024 was evaluated. The prices of Personal Computer (PC), TV, and Water Pump were seen to have risen from ₦4000, ₦2999, and ₦4,500 in 1990 to ₦1,700,000, ₦360,000, and ₦97,000 in 2024. This shows that Nigeria has experience inflationary changes during this period and there is a stressed valuation placed more on PC than the other two items.

Although the demand for containers and the fact that the economy is an import-oriented give rooms for steady rise in the cost of container shipment in Nigeria.

7. Recommendations

The following recommendations that were drawn from this study are:

a. There should be an immediate implementation and introduction of digital and automation platform technologies to streamline port operations as well reduced paper work in other to improve efficiency at Lagos ports and for future port developments.
b. Government should invest in improving in transportation infrastructure such as road, railways, and inland waterways to enhance logistics and supply chain efficiency
c. Implement cost saving measures for importers as well as provide import financing options osreduce financial burden on importers and assist them to manage cash flow

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