

PORTS COMPETITION AND CUSTOMER SATISFACTION IN THE NIGERIAN PORTS AUTHORITY

Daramola, O. Tope¹

Oguntifa, Felix Ogunshola²

Adeyemi, Emmanuel Adewale¹

Abogunrin, Abioudun Peter³

Abstract

Nigeria ports had been perceived as one of the most inefficient ports in the world as they were characterised by long turnaround time (14days) as against the (48hours) of international standard obtainable in most Asian and European ports leading to extreme customer dissatisfaction. These could be partly traced to problems of obsolete infrastructures and superstructures, bloated workforce and excessive port charges. In order to allay these problems, government decided to introduce market induced ports competition. This study therefore examined whether or not the introduction of ports competition into the operations of Nigeria Ports Authority has facilitated significant improvement in customer satisfaction in its activities. A 5-point Likert scale questionnaire was designed in collecting primary data from a sample of Nigerian Port Authority's customers viz the Head of operations of Shipping lines and freight forwarders who conduct their activities in Apapa ports. The formulated hypotheses in line with the research questions were tested using multiple regression analysis, with the aid of SPSS. The findings revealed that port competition has significant effect on the performance of Nigeria ports Authority. The study concluded that port competition strategy has a significant effect on customer satisfaction in Nigeria Ports Authority and is therefore significantly relevant in predicting how happy/satisfied customers of NPA could become. It is recommended that NPA should further encourage and institutionalise port competition within port and between ports to further stimulate improved Customer satisfaction.

Keywords: *Intra-port competition, Inter-port competition, Customer satisfaction, Nigerian port authority, Shipping lines*

¹ **Department of Business Administration, Faculty of Management Sciences, University of Ilorin, Ilorin, Nigeria.** daramolat@yahoo.com awadex4queen@gmail.com

² **Nigeria Security and Civil Defence Corps (NSCDC) Kwara State Command.** felixoguntifa@gmail.com

³ **Department of Industrial Relations and Personnel Management, Faculty of Management Sciences, University of Ilorin, Ilorin, Nigeria.** abogunrin.ap@unilorin.edu.ng

Introduction

The current global environment, characterised by rapid economic changes, globalisation, technological revolution and the tendencies of worldwide companies toward horizontal and vertical integration, has brought impressive changes. The operations of ports have not been left out of the race for change as they are regarded as nodes of vital importance for the complex maritime logistics' chain with the main objective of an improvement in port products (Pardali & Stathopoulou, 2006). Ports in Sub-Saharan Africa Countries have since the last 2 decades embraced reforms geared toward improving their customer service offerings given that ports play significant role in global trade and logistics chain. The belief is that the reforms that will improve ports efficiency leading to improved customer satisfaction by having reduction in the aggregate costs of goods at ports and turnaround time (Estache, González, & Trujillo, 2001).

Furthermore, competition, which is one of the key elements of New Public Management (NPM), is generally known as one of the most commonly used private sector tool to improve the performances of public enterprises such as ports that are in dire need of efficiency (Pollitt, 1994). In the case of Nigeria ports Authority (NPA), massive ports reforms were undertaken during the 2004-2006 (and still ongoing) with the belief that the introduction of private sector in the activities of NPA will induce competition among the private terminal operators, hence, improved operational efficiency and a reduction in total logistics costs (Nwanosike, 2014). Port competition gained huge scholarly attention in Europe during the 1980s, with conventionally strong container ports in the 'North Range', especially Hamburg, Bremen, Rotterdam, Antwerp, Felixstowe and Le Havre all in Europe, intensively competing against one another for the share of the market and market dominance (Petez-Labajos & Blanco, 2004; Pallis & Vaggelas, 2005). With the rise of the Asian Tigers of East Asia, in the 1980s and 1990s, port competition assumed an even more of global phenomenon. Competition can be adopted into the ports by means of *ex-ante* or *ex-post* approaches (Estache, González, & Trujillo, 2002). *Ex-ante* relies on the authorisation to operate the port or in the port while *ex-post* is competition between ports, or between terminals within the port. The Nigeria Port Authority port concession programme was articulated to involve two types of competition viz; intra-port competition and inter-port completion.

Subsequently, port exists as a link, its main significance is to transfer and handle goods from marine transport to inland transport and vice-versa (Pardali, 1997). According to Leigland and Palsson (2007), Nigeria ports are one of the most inefficient ports in the world. They are characterised by poor customers satisfaction as against what is obtainable in most Asian and European ports (Ducruet & Merk, 2012; Nwanosike, 2014). There were also problems of bloated workforce, excessive port charges and too many agencies involved in cargo clearing at the port. In order to mitigate these problems and promote customer satisfaction, the Nigeria government decided to introduce private sector expertise, in the operations of the ports through concession contracts with the intent to induce competition. The above reforms were undertaken with a view to improve operational efficiency of ports and bring down total logistics costs and in turn improve the competitiveness of the Nigerian economy. Consequently, Nigerian Ports Authority (NPA) pursues effectiveness and efficiency

through competition among privatised port terminals. It is the expectation of the NPA that an improvement in terminal operation by the introduction of port competition will imply an improved efficiency and hence customer satisfaction. It is therefore crucial to critically examine whether the introduction of port competition into NPA port terminals has brought about an improvement in Customer satisfaction as a measure of her performances. Therefore, the study's specific objectives include to:

- i. determine the influence of intra-port competition on Customer satisfaction in NPA; and,
- ii. examine the impact of inter-port competition on Customer satisfaction in NPA.

Literature Review

Concept of Port Competition

Port competition can be defined as competition for trades, with terminals as the competing units, logistics, transport, and industrial enterprises as the chain managers of the respective trades and port authorities and port policymakers as co-developers of the broadly defined port complex (Notteboom, 2021). Verhoeff (1981) conceived port competition on the basis of four levels of seaport competition: competition between port undertakings; competition between ports; competition between port clusters (i.e. a group of ports in each other's vicinity with common geographical characteristics) and competition between ranges (i.e. ports located along the same coastline or with a largely identical hinterland). Winklemans and Van de Voorde (2002) define port competition along three broad categories. First, as competition among terminal operators within the same port referred to as intra-port competition. Secondly, the competition between operators from different ports, known as inter-port competition at operator level. This second level of port competition usually occur between ports within the same range, serving more or less the same hinterland, e.g the Apapa and Tin can Island ports in Lagos. It implies that competition can or may occur within port ranges. Such as competition within the Hamburg-Le Havre range in Europe and within the Lagos, Cotonou and Lome range in West Africa which are only restricted to those ranges. In this instance, it is rare to see ports outside the range being involved, because there is little or no overlap between hinterlands of ports from different ranges. Thirdly, there is competition among port authorities, regional or local, which most times influence the determinants of port competition, particularly the infrastructure and superstructures in and around a port. It is, of course, vital to the competitive position of operators and it is called inter-port competition at port authority level.

Intra-Port Competition

Intra-port competition allows for two or more different entities to provide competing services within the same port vying for the same market. It is beneficial for the competitiveness of ports, local and national economies, and consumers and exporting industries (Xie et al. 2021; Pallis, 2012). Its presence is conditional and might be facilitated by reform initiatives. The premise in which this is most common is in terminal operations, where ports terminal operations are shared by private different operators who then has jurisdiction over an entire terminal area allocated to

it and consequently competes with other terminal operators responsible for other terminals (Pallis, 2012).

The discussions on intra-port competition revolve around how port ownership is structured, as there cannot be any competition within a single port under the management of a public port authority (Cullinane, Teng, & Wang, 2005). Different port ownership arises as a result of the distribution of property rights to infrastructure, superstructure and services. It is within this context that this study treats port competition, because of the focus on private participation in terminals operations through concession.

This is supported by Heaver (1995) who expounded that encouraging competition should be a new and deliberate policy direction. Among other advantages, privatisation is a useful approach to introducing intra-port competition.

Inter-port competition

Referring to Verhoff's levels of competition, inter-port competition can also be classified into three subcategories. The first is competition between a whole range of ports and coastlines such as the competition that hold between the various ports in the Hamburg-Le Havre range and the ports in the South of Mediterranean. The second category can be seen from the competition between ports in different countries such as the inter port competition between Apapa Port in Nigeria and Tema port in Ghana. The third category is the inter-port competition between individual ports in the same country such as the Apapa port and Tin Can port. The third category of inter-port competition exists only when there are similar ports in a country that have same hinterlands.

The following factors are influencing inter-port competition among different levels. They include political, economic, social, organisational and production aspects. Nevertheless, the competitive strength and advantages of individual ports such as those performed by container terminals within a port is determined mainly by certain inputs such as skilled workers, capital and technology (Slack, 1985). Also, competition between ports/container terminals, port clusters and port ranges can also be influenced by some regional specific factors such as the geographical location, the availability of infrastructure, the degree of industrialisation, the governmental and political policy and the level of port performances (Chlomoudis & Pallis, 1998). Port performances is crucial on inter-port competition and it is normally measured in terms of alternative variables, such as the frequency of liner services, the transshipment cost, storage capacity and connection to hinterland (De Langen, 2007).

Furthermore, there are number of elements that should be considered when addressing inter-port competition. They could be classified in general as the expansion capacity, new investment in port infrastructures, renewal of equipment, identification of the present and potential development of different transport routes and the improvement of port operation efficiency and effectiveness (World Bank, 2006). However, referring to more specific set of elements Song and Yeo (2004) classified the most important criteria for the determinants of inter-port competition into five groups. The first is the cargo volume which implies the ability of ports under consideration to handle more cargoes including import, export and transshipment. The second group is the port's infrastructures and superstructures in the sense that the greater the capacity, the higher the competitiveness level of a port. The third group

embraces the issue of port location which underscores the importance of the geographical location and ease of access of a port/container terminal in port competition.

The fourth is the service level offered as the higher the quality of services provided to the port users, the higher the competitiveness level of the port. The fifth group is the port expenses i.e the cost of doing business with the port which includes port dues, tariff, terminal handling charges in the sense that the cheaper the port expenses, the higher the competitiveness level of such a port. In the views of Fleming and Baird (1999), the competitiveness of a port in inter-port competition is determined by factors such as, port performance, port accessibility and location, port tradition, government assistance, port user preferences, port performance improvements, e.g., improving the quality of service to port users and reducing technical and cost inefficiencies, increases the port's competitiveness in interport competition.

Concept of Customer Satisfaction

Customers' satisfaction is first seen from a customer's assessment of a particular purchase. It is known as the state of positive fulfillment when evaluating a purchased service or product (Maneno, 2019). Specifically, customer satisfaction is thought to be an inherent variable that describes repeat consumers and their subsequent shopping habits. In the maritime industry, customer satisfaction may explain customers' choice of the seaport/terminal after comparing its standard with near possible seaports/terminal. Generally, the concept of customer's satisfaction has two components, which are pre-event expectations and post-event evaluations (Shin et al., 2018). Customer's satisfaction with the service or goods they bought is determined by the difference between these two components. Customers' satisfaction arises when the value of post event evaluations outweighs pre-event expectations and the service has been given to the customer in a beneficial way (Duc et al., 2021). Yeo et al. (2015) affirmed that customers are satisfied only when their expectations were met.

Theoretical Background

This study is premised on the systems theory which says a system can be grouped according to its common features and is most time consists of interrelated entities of activities (Ashmos & Huber, 1987; Scott, 2003). System defines and iterates itself among its internal elements as well as its relationship with its external environment, aiming at correcting errors in the direction of increasing compatibility between the system and the environment (DiMaggio & Powell, 1983). In this regard, a country can be viewed as an integrated political, social, and economic system that interacts with the world (i.e., the environment). The country's system is composed of interrelated entities such as government agencies, private and public organisations, and the general public. If the system is disassembled in any way (e.g., one or some State Own Enterprises (SOEs) in the system are privatised), the properties of both the components (i.e., the SOEs) and the system as a whole are changed consequently (Ashmos & Huber, 1987), so is its relationship with the environment. From such a perspective, a country's system is open in configuration and is affected by both external (i.e., global competitions, scientific breakthroughs, demands for resources)

and internal (i.e., domestic economic failures, unemployment rate, political legitimacy) factors.

A country's system imports energy (e.g., privatisation programs and knowledge, global competitiveness) from its external environment (e.g., foreign countries) (Katz & Kahn, 1966). These external factors impact how the country undergoes privatisation and reforms its critical public enterprises such as the Nigeria Ports Authority. In reality, within an increasing competitive global environment, a country may be forced to respond to external pressures by using the instrumentality of introducing private practices into the bureaucratic system to enhance performances that will allow her to be competitive within its own system and or with the external environment. For instance, China is one of the few countries where reforms via commercialisation and private sectors involvement in ports activities has brought about both intra and inter port competition to the benefit of the users and the country as a whole since the country opened-up with reforms in 1980. Today, the private sector involvement in port activities plays a critical role in China's economy. In Shenzhen, China's fourth largest economy, for example, the port competes favourably with the port of Hongkong (Shenzhen Government Online, 2007).

Conceptual Model

The relationship between the dependent and independent variables for the study is conceptualised using input-process-output parameters as shown in fig 1 below.

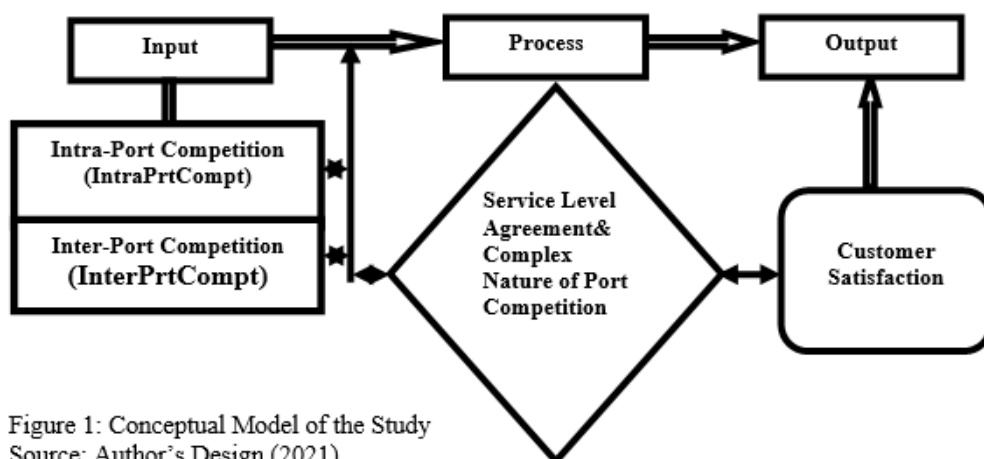


Figure 1: Conceptual Model of the Study
Source: Author's Design (2021)

Figure 1 properly described the inter relationship between the input, process and output of this study. It properly situates the construct of port completion viz intra and inter port completion as input for the accomplishment of a good and acceptable output of the port berth occupancy. The process is largely achieved by putting in place an effective and implementable service level concessioning agreement that will regulate the extant environments, requisite elements and system for an effective implementation.

Methodology

This study employed cross-sectional survey method because of its ability to accommodate collection of large data at a particular point in time from sample selected (Owen, 2002). The population of the study consists of customers/ major users of Nigerian Ports Authority's services which includes the freight forwarders and the shipping companies operating in Tincan Island Ports represented by their Head of operations totaling 1817 and were distributed as follows:

Shipping lines ----- 101 (Shippers council, 2021)

Freight forwarders ---- 1716 (Council for the regulation of Freight forwarders, 2021)

The sample size of this study was determined using Krejcie and Morgan (1970):

The formular is given as;
$$\frac{X^2NP(1-P)}{d^2(N-1)+X^2P(1-P)}$$

Where; n = Sample size

X^2 = Chi-Square table value @d.f=1 for 0.05 level of confidence ($X^2 = 3.84$)

N = Population size

P = Population proportion (assumed to be 0.5)

D = Degree of accuracy (usually expressed as 5%)

Therefore;

$$n = \frac{(3.84)(1817)(0.5)(1-0.5)}{(0.0025)(1817-1)+(3.84)(0.5)(1-0.5)}$$

$$n = 317$$

Thus, sample size was determined to be three hundred and seventeen (317) customers of NPA distributed as follows:

Ships	18
Freight Forwarders	299
Total	317

Stratified random sampling procedure was employed as sampling technique to ensure that all head of operations in the population were given equal chance of being represented in the sample. The study utilised primary sources of data. Selected participants were given a self-administered questionnaire via Google Survey which were completed and returned through electronic channel.

Reliability and Validity of the Instrument

The study used Cronbach's Alpha to examine the reliability of the instrument. The acceptable threshold required that the value is up to or is more 0.757 or 76% (Pallant, 2007). Thus, as shown in table 1, the Cronbach's Alpha values for all the variables shows good reliability and the overall measure of the scale is highly reliable because the Alpha value exceeds 0.7 (0.757), showing high internal consistency among all the items included in the scale.

Table 1: Cronbach's Alpha

Variables	Number of Items	Cronbach's Alpha Value
Overall	15	0.757
Customer Satisfaction (Cussat))	5	0.746
Intra-Port Competition (IntraPrtCompt)	5	0.725
Inter-Port Competition (InterPrtCompt)	5	0.729

Source: Field Study, 2021

On the other hand, face and content validity was utilised for the validation of the instrument. The questionnaire was endorsed by experts in the Department of Business Administration, University of Ilorin and other experts in the field of methodology, measurement and evaluation. Their suggestions and corrections were incorporated into the final draft of the questionnaire. The study used descriptive and inferential statistical analysis for data analysis with the aid of IBM Statistical Package for Social Sciences (SPSS version 22.0). The Hypotheses 1 and 2 of the study were tested using inferential statistic of Multiple Regression Analytical tool.

Model Specification for the Study

The model for the study is mathematically expressed as:

$$\text{Cussat} = \beta_0 + \beta_1 \text{IntraPrtCompt} + \beta_2 \text{InterPrtCompt} + E$$

Where:

Cussat= Customer satisfaction (Dependent variable)

IntraPrtCompt= Intra-Port Competition (Independent variable)

InterPrtCompt=Inter-Port Competition (Independent variable)

β_0 = Intercept of the model.

β_1 = Estimate of the parameter of the independent variable in the model of the slope.

E= Error term.

Results and Discussion

The data collected from the field were analysed to test whether or not port competition have significant influence on the customer satisfaction. The response rate to the administered questionnaires indicated that 283 out of the 317 copies of questionnaire, representing approximately 89.3% were returned and considered appropriate for the study. This shows that a significant proportion of the sample size positively responded to the questionnaire, making it relevant for the study.

Test of hypotheses

The regression results to examine whether or not port competition has significant impact on customer satisfaction in Nigeria ports Authority was presented in table 2-4.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.856 ^a	.733	.731	.244

a. Predictors: (Constant), InterPrtCompt, IntraPrtCompt

Source: Field Survey, 2021

The model summary reveals that port competition has significant effect on customers satisfaction in Nigeria ports Authority. The multiple correlation coefficient

(R) value of 0.856 (85.6%) indicates a significant and positive relationship between port competition and customer satisfaction in NPA. The R-square value of 0.733 (73.3%) posits that the independent variables of Intra-Port Competition (IntraPrtCompt) and Inter-Port Competition (InterPrtCompt) have a combine influence of 0.733 (73.3%) on the dependent variable of customer satisfaction (Cussat) in Nigeria Ports Authority. This implies that the cumulative effect of the independent variables is able to explain the dependent variable up to 0.733 (73.3%).

The adjusted R^2 explains the actual effect of the independent variable on the dependent variable. Thus, the adjusted R^2 value of 0.731 (73.1%) confirmed that Intra-Port Competition (IntraPrtCompt) and Inter-Port Competition (InterPrtCompt) actually contribute to variation in the level of customer satisfaction (Cussat) in Nigeria Ports Authority. This is good enough in determining the goodness of fit for the model. Hence, the regression model proved to be very useful for making predictions.

Table 3: ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	45.755	2	22.878	383.966	.000 ^b
1 Residual	16.683	280	.060		
Total	62.438	282			

a. Dependent Variable: Cussat

b. Predictors: (Constant), InterPrtCompt, IntraPrtCompt

Source: Field Survey, 2021

The F-statistic is a statistical instrument used to check the overall significance of an estimated model. The F-statistics value of 383.966 in table 3 with probability value of 0.000 indicates that the independent variables {Intra-Port Competition (IntraPrtCompt) and Inter-Port Competition (InterPrtCompt) have significant effect on the dependent variable of Customer satisfaction(Cussat) in Nigeria Ports Authority. This confirmed that Intra-Port Competition (IntraPrtCompt) Inter-Port Competition (InterPrtCompt) collectively explained the variations of customer satisfaction (Cussat) in Nigeria Ports Authority.

Table 4: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.172	.057		55.907	.000
1 IntraPrtComp t	.210	.029	.486	7.341	.000
InterPrtComp t	.162	.027	.396	5.978	.000

a. Dependent Variable: Customer satisfaction(Cussat)

Source: Field Survey, 2021

The estimated equation of the model is expressed as $Cussat = \beta_0 + \beta_1 \text{IntraPrtCompt} + \beta_2 \text{InterPrtCompt} + \varepsilon$ As depicted in the table 4, the standardized beta coefficient in respect to Intra-Port Competition (IntraPrtCompt) is 0.486 with t-test value of 7.341 at 5% level of significance. This posits that Intra-Port Competition

(IntraPrtCompt) is a positive predictor of Customer Service Satisfaction in Nigeria Ports Authority. Hence, the first hypothesis which states that Intra-Port Competition has no significant influence on Customer satisfaction in NPA is rejected.

The standardized beta coefficient in respect to Inter-Port Competition (InterPrtCompt) is 0.396, with t-test value of 5.978 at 5% level of significance. This means that Inter-Port Competition (InterPrtCompt) is significantly relevant in predicting Customer satisfaction in Nigeria Ports Authority. Thus, the second hypothesis which states that Inter-Port Competition has no significant impact on customer satisfaction in NPA is rejected.

Table 5: Table of Summary

Hypothesis	Standardized Coefficients (β)	T	Sig. value	Remarks
HO1: Intra-Port Competition has no significant effect on performance in NPA	0.486	7.341	.000	Rejected
HO2: Inter-Port Competition has no significant effect on performance in NPA	0.396	5.978	.000	Rejected

The summary of the analysis indicates that among the two levels of competition considered as among the predictors of Customer satisfaction (Cussat) in Nigeria Ports Authority, Intra-Port Competition (IntraPrtCompt) with standardized beta coefficient of 0.486 and the t-test value of 7.341 at 0.000 sig. value contributed mostly to Customer satisfaction. Inter-Port Competition (InterPrtCompt) contributed less significantly to customer satisfaction with beta coefficient of 0.396, t-test value of 5.978, and 0.000 sig value.

Conclusion and Recommendations

The results of the study reveal that port competition strategy has a significant effect on customer satisfaction in the Nigerian Ports Authority. Thus, the Federal Government of Nigeria can improve on the customer satisfaction in public enterprises by the promotion of healthy port competition strategy among the key players, thereby enhancing efficiency in service delivery. It is therefore recommended that NPA should institutionalise port competition as a corporate strategy to stimulate private sector involvement in ports activities and improvement in its infrastructures and superstructures. This is to ensure that the customer satisfaction as a key performance parameter is positively improved.

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