

Assessment of the Influence of Maritime Piracy and Sea Robbery on Cargo throughput Performance of Nigerian Ports

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ABSTRACT

The study assessed the impact of maritime piracy and sea robbery on the cargo throughput performance of Nigeria ports. The central objective of the study was to determine the significances of the influences of levels of attacks against ships trading in global cum local waters and maritime insecurity induced cargo pilferage levels on the cargo throughput performance of Nigeria ports. The study used secondary data sourced from the Nigerian ports authority, and the International Maritime Bureau (IMB) on the cargo throughput, levels of pirate attacks against ships in local; and global waters, level of cargo pilferages in ports and used for the study. The multiple regression analysis method was used to analyze the dataset obtained using cargo throughput performance of the ports as the dependent variable while global attacks, local attacks and volume of cargo pilfered were used as independent variables. the model showing the effects of maritime piracy and sea robbery attacks on the cargo throughput performance of the Nigerian ports is: $CARGO_t = 0.729700 + 0.0140GLOTA_{kt} - 0.0921LOTA_{kt} - 0.0003VOCAR_{kt} \dots (2)$. It indicates that a unit increase in attacks in global waters increases the cargo throughput in Nigerian ports by 0.0140 units while a unit increase in local attacks by pirates within the Nigerian territorial waters causes cargo throughput performance of Nigerian ports to decrease by 0.0921 units. Similarly, a unit increase in cargo pilferage associated with maritime insecurity in Nigeria ports causes the cargo throughput performance of the ports to decrease by 0.0003 units. It is also found that that there is a significant impact of the level of maritime piracy/sea robbery on the cargo throughput performance of the Nigerian seaports.

Keywords: cargo-throughput, maritime, piracy, seaports, sea-robbery.

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I. INTRODUCTION

Maritime piracy and robbery at sea are age long phenomena that had bedeviled the maritime industry over the centuries. Like the Greek proverb says "Where there is a sea there are pirates". Pirates and sea robbers, also referred to as the "Predators of the sea" were generally believed to have ravaged and plundered the seas of the world over the centuries. Pirates, however, are deemed *hostes humani generis* (enemies of all humankind) because they endanger safe navigation, hamper commercial trade, retard productivity and restrict the freedom on the high seas, a medium that is known to be transiting over 90% of the world's transnational commerce, thereby adversely affecting the overall economy of those littoral states and their neighbouring nations both individually and collectively on the long run (Chew 2005; Council for foreign affairs, 2013).

Coggins (2014) notes that despite the fact that some areas have been globally known to be piratical hot spots, the recent upsurge in the activities of pirates and sea robbers in the associated African maritime domains, first in Somalia, and

now in the Nigerian neighbourhood, have called for a cause for concern within the international community. However, during the past 4 years, while piratical attacks have been on the decrease in the Somali maritime extensions and its associated seas of the Indian ocean, Gulf of Aden, Gulf of Oman and the Arabian sea; the attacks originating from the maritime domain of Nigeria and extensively spreading to other areas in the Gulf of Guinea have attracted the spotlight of the international community on the Gulf of Guinea with particular focus on Nigeria as the originating state of maritime piracy and sea robbery in the region. Piracy and robbery at sea have in recent times posed a humongous threat to safety of navigation and commercial shipping in the West African maritime transit corridor and it is therefore no more a news that these predatory menaces are an emerging threat to the safety and security of both domestic and international trades in the sub-region, and especially to the nation of Nigeria being the largest economy in Africa and globally an emerging dynamic market with mixed economy. The complex diversity of consumer-based Nigerian populace and the dynamism of the Nigerian market have provided a

multiplicity of commercial opportunities to the global community and have made the Nigerian ports an attractive maritime hub not only in the sub-region but also to global shipping (Conklin, 2007; Day, 2013).

The rich diversity of marine resources in Nigeria has also enhanced the economic importance of the Nigerian offshore to global commerce especially in the areas of biodiversity together with oil and gas exploration. However, since shipping has over the centuries proved to be providing the safest and the most cost effective freighting mode in the international transport system, the Nigerian maritime domain and by extension, the Gulf of Guinea (GoG) has been known to be a major transit corridor for both export and import commodities. Crude oil, which is also the economic lifeline of Nigeria, is also totally being exported by sea despite the prevalence and advancing threats of piracy and sea robbery to seaborne crude oil freight in the Nigerian maritime domain. Apart from Nigeria being the largest crude oil producer in Africa, the Gulf of Guinea waters are similarly of geostrategic importance to the global energy commerce because according to Onuoha (2012), nearly 70 percent of Africa's oil production is concentrated in the West African coast of Gulf of Guinea with other major oil-producing countries in the region being Angola, Equatorial Guinea, Cameroon, Republic of Congo, and Gabon.

Additionally, Venus oil field, stocking around 200 million barrels was also discovered in Sierra Leone in 2009 and in December 2010, Ghana similarly joined the league of oil producers in the region when it commenced the production of oil from its "Jubilee" oil field, located some 60 km offshore. This has made the international shipping route to the Gulf of Guinea, and especially energy related terminals in Nigeria to be of growing geostrategic importance to global commerce (Cripp, 2011; Chikwem, 2007).

Globalization promotion had also dictated that no individual nation, either developing or developed can stand alone without engaging in various trans-boundary exchange of information, services, goods (finished products, semi-finished products or raw materials) and other resources that may be pertinent to her socio-economic development, hence, it cannot be overemphasized that shipping is a key factor to infrastructural development and socio-economic sustainability of Nigeria and the West African sub-region at large. Although piracy and robbery at sea are an age-long menace that have ravaged the maritime industry for many years, the International Maritime Organization (IMO) in its 2013 report on Piracy and Armed robbery against ships acknowledged that the increasing number of attacks off Nigeria and by extension the Gulf of Guinea are a major problem to humanity as well as serious threat to global economic sustainability (Dasuki, 2013; Cindy, 2003).

However, they maritime industry in Nigeria particularly the shipping community are seriously concerned about the increasing demand for extra insurance against piracy by ships destined for Nigerian ports. This has led to increased cost of shipping cargo to and from Nigeria while also disrupting the supply chain and flow of shipping trade through the Nigeria ports. There is the argument that the upsurge in pirate attacks against cargo ships trading in Nigeria waters has led to dwindling cargo throughput performance of Nigeria and the attendant loss of valuable revenue by the Government

(Onuoha, 2013; Cummings, 2013). The unavailable of empirical data on the nature of relationship between maritime piracy and sea robbery attacks and the cargo throughput performance of the Nigerian ports, following the attacks against cargo ships of various kinds needs to be ascertained as justification for prompt remedial actions against attacks on cargo ships trading in Nigerian maritime domain.

It is obvious that the incessant attacks by pirates against ships trading in the territorial waters of Nigeria which has over the years led to significant decline in ship calls to the Nigeria ports have effects on the cargo throughput performance of the Nigerian port. It is thus important to understand the extent to which these attacks have impacted on the cargo throughput of Nigeria the ports in Nigeria. This forms the central aim which this study is seeking to address. The aim of the study is thus to assess the impact of maritime piracy and sea robbery on the cargo throughput performance of Nigerian seaports.

The specific objectives of the study are:

- (i) To determine the impact of level of global attacks on the cargo throughput performance of Nigeria ports.
- (ii) To ascertain the effects of level of attacks in local waters on cargo throughput performance of Nigeria ports
- (iii) To estimate the impacts of level of insecurity induced cargo pilferage on cargo throughput performance of Nigeria ports.

The hypotheses of the study are as follows:

H0₁: The level of Global Attacks has not significantly impacted on Cargo Throughput within the Nigerian maritime industry.

H0₂: The level of Local Attacks has not significantly impacted on Cargo Throughput within the Nigerian maritime industry.

H0₃: The volume of Cargo Pilfered has not significantly impacted on Cargo Throughput within the Nigerian maritime industry.

II. DATA AND METHODS

The study used an ex-post research design method in which time series secondary data were obtained from secondary and used for the study. Secondary of the frequency of pirate and sea robbery attacks against ships trading in Nigeria waters was obtained from the statistical reports of the International Maritime Bureau (IMB) covering the period between 1995 and 2013. Similarly, data on cargo throughput performance of Nigerian ports was obtained from the Nigerian Ports Authority (NPA) annual statistical reports covering the same period between 1995 and 2013.

The data obtained were analyzed through by the use of descriptive statistics and inferential statistics. The pirate attacks against ships were disaggregated into local attacks and global attacks. Thus the multiple regression analysis method was used to analyze the dataset to determine the impact of local attacks, global pirate attacks and volume of cargo pilfered following the attacks on the cargo throughput, handled in Nigeria ports over the period covered in the study. The co-integration and unit-root tests were also employed to estimate if the dataset is stationary or contain unit roots before

implementing the multiple regression method. The hypotheses were tested using the corresponding t-test and f-test from the regression output.

The model specification is as shown below:

CARGO_t = Total cargo throughput in year t;
VESSEL_t = Total vessel throughput in year t;
VEGRT t = Total vessel gross registered tonnage throughput in year t;
LOTAKS = Number of local piratical attacks;
GLOTAKS= Number of global piratical attacks;
VOCARP = Volume of cargo pilfered in the ports as a result of maritime insecurity;

The dependent variable, however, is as specified:

$$CARGO_t = \beta_0 + \beta_1GLOTAKS_t + \beta_2LOTAKS_t + \beta_3VOCARP_t + u_t - \quad (1)$$

Where

β_0 = The intercept parameter, $\beta_1 \dots \beta_3$ (betas) are the regression coefficient or the slope parameters for the various regressors (explanatory variables or maritime industry components) as stated above.

Here, $\beta_1 \dots \beta_5 > 0$.

The term, u_t , otherwise called the stochastic term of the regression is introduced to represent the random or unexplained variation encountered in the modeling since in real life which we are trying to mimic through this estimation, chance events do occur which would make our model not to be 100% deterministic.

III. RESULTS AND DISCUSSION OF FINDINGS

TABLE I: THE INFLUENCE OF PIRACY/SEA ROBBERY ON PORT REVENUE IN NIGERIA

Test-statistic	Model1: Least square with LAG
R-square	0.978
Adjusted R-square	0.971
S.E of Regression	3.842
Sum of squared residual	191.902
Log likelihood	-46.840
Durbin-Watson stat	2.367
Mean depend. Var	47.334
S.D. depend. Var	22.647
Akaike info criterion	5.760
Schwarz criterion	6.007
Hannan-Quinn criterion	5.794
F-statistic	144.418
Prob(F-statistic)	0.00000

NB:*** = significant at 1%; ** = significant at 5%; * = Not significant. F-ratio tabulated DF (2, 16); 1% = 6.23, 5% = 3.63, t-ratio DF (16); 1% = 2.92, 5% = 2.12.

Source: Eviews 6.0 Statistical Package (2014).

The table above shows the results of the study which provides evidence of the effects of maritime piracy and sea robbery on the cargo throughput of the ports in Nigeria. The table is employed to determine the aggregate effects of local attacks, global attacks and cargo pilferage risks associated with the attacks on the cargo throughput performance of the Nigerian ports between 1995 and 2013. In order to determine the overall effects of the independent variables of LOTAKS, GLOTAKS and VOCARP on the dependent variable CARGO_t, we employ the analysis of variance or ANOVA, and the corresponding f-test as shown in the table above.

The result indicates that the model showing the effects of maritime piracy and sea robbery attacks on the cargo throughput performance of the Nigerian ports:

$$CARGO_t = 0.729700 + 0.0140GLOTAKS_t - 0.0921LOTAKS_t - 0.0003VOCARP_t \quad (2)$$

It indicates that a unit increase in global attacks in global waters increases the cargo throughput in Nigerian ports by 0.0140 units while a unit increase in local attacks by pirates within the Nigerian territorial waters causes cargo throughput performance of Nigerian ports to decrease by 0.0921 units. Similarly, a unit increase in cargo pilferage associated with maritime insecurity in Nigeria ports causes the cargo throughput performance of the ports to decrease by 0.0003 units.

The F – ratio calculated is 144.418 while the F-ratio critical is 5.04. Since F-ratio calculated is greater than F-ratio critical, i.e., (144.418 > 5.04) at 5% levels of significance, we reject H₀₁ and conclude that there is a significant impact of the level of maritime piracy/sea robbery on the cargo throughput performance of the Nigerian seaports. Therefore the joint impact of local attacks, global attacks, and the maritime insecurity related cargo pilferages in ports on the cargo throughput performance of the seaports is significant. The R-square value showing the explanatory power of the model is 0.978. This indicates that about 98% of variations in cargo throughput performance of the Nigerian ports is explained by local attacks, global attacks and maritime insecurity induced cargo pilferages in Nigerian ports.

TABLE II: TEST OF HYPOTHESES

VARIABLE	X1, No. of Global Attacks, GLOTAKS _t	X2, No. of Local Attacks, LOTAKS _{t-1}	X3, Vol. of Cargoes Pilfered, VOCARP _t
TEST STATISTIC			
Coefficient of the Variable	0.014040	-0.092137	-0.000280
Standard Error	0.012017	0.065054	0.000468
T-Statistic	1.168329	-1.416294	-0.599307
Calculated	NS	NS	NS
T-Statistic	2.98	2.98	2.98
Tabulated 1%			
T-Statistic	2.14	2.14	2.14
Tabulated 5%			
Significance	0.26	0.18	0.56

NB: *** = significant at 1%; ** = significant at 5%; * = Not significant. F-ratio tabulated DF (3, 15); 1% = 5.42, 5% = 3.29, t-ratio DF (15); 1% = 2.95, 5% = 2.12.

Source: Eviews 6.0 Statistical Package (2014).

Recall that the model showing the relationship between cargo throughput as the dependent variable and local attacks, global attacks and cargo pilferage levels as independent variables is:

$$CARGO_t = 0.729700 + 0.0140GLOTAKS_t - 0.0921LOTAKS_t - 0.0003VOCARP_t - \quad (3)$$

The first hypothesis H₀₁ seeks to determine the significance of the impact of global attacks on cargo throughput performance of Nigerian ports. The t-score for hypothesis H₀₁ is 1.168329 and the tabulated is 2.14 at 5% confidence interval with p-value of 0.26. Since the t-score is

less than the t-tabulated (i.e.: $1.168 < 2.14$) at 5% confidence interval, we infer that the global attacks solely does not significantly affect cargo throughput performance of Nigerian seaports. We therefore accept the null hypothesis H_{01} that the level of global attacks does not significantly affect cargo throughput of Nigerian ports.

The test of hypothesis H_{02} also shows a t-score of -1.416294 and t-tabulated of 2.14 at 5% level of confidence. Given that t-score (-1.416294) is less than the t-tabulated (2.14) at 5% confidence level, we accept null hypothesis H_{02} that: The level of Local Attacks has not significantly impacted on Cargo Throughput within the Nigerian maritime industry.

Similarly, the test of hypothesis H_{03} indicates a t-score of -0.599307 , p-value of 0.56 and t-tabulated of 2.14 at 5% level of confidence. Again since $-0.599307 < 2.14$, we accept the null hypothesis that the level of insecurity induced cargo pilferage in Nigerian ports has not significantly impacted cargo throughput performance of Nigerian ports. Thus, individually, levels of global attacks, local attacks and cargo pilferage has no significant impact on cargo throughput performance of the Nigeria ports. But the joint impacts of the level of global attacks, local attacks and the associated level of cargo pilferage have significant impact on the cargo throughput performance of Nigerian ports between 1995 and 2005. Thus we asset based on the findings above that maritime piracy and sea robbery has significant effects on the cargo throughput performance of Nigeria seaports.

IV. CONCLUSION

Maritime piracy and sea robbery against ships trading in global cum local waters has significant effects on the cargo throughput performance of Nigeria seaports.

V. RECOMMENDATIONS

That since cargo throughput performance of the Nigeria ports is significantly affected by level of maritime piracy and se robbery attacks, the incidence of attacks against ships should be closely monitored in the maritime industry in order to ensure its security and stability at national economic level.

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