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Article

Study on the Effects of Maritime Piracy and Sea Robbery on Economic Growth in Nigeria

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Abstract: The study investigated the effects of the level of global and local attacks against ships on economic development in Nigeria. It also examined the effects of volume of cargo pilfered in Nigeria ports as a result of insecurity on the economic growth in Nigeria. The study employed secondary data sourced from from the Nigerian ports authority, the National bureau for statistics (NBS) and the International Maritime Bureau (IMB) on the Gross Domestic Product (GDP), levels of pirate attacks against ships in local and global waters, and volume of cargo pilferages in ports. The multiple regression analysis method was used to analyze the dataset obtained using GDP as the dependent variable while global attacks, local attacks and volume of cargo pilfered were used as independent variables. It was found that the effect of maritime piracy and sea robbery on economic growth and development is expressed by the equation:

$GDP_t = 1638944 + 5745.61GLOTAKS_t - 34587.7LOTAKS_t + 193.25VOCARP_t$. This implies that economic growth in Nigeria increase with increase in attacks against ships in global waters, it decreases with increase in attacks against ships in Nigerian maritime domain and increases with increase in volume of cargo pilfered from the ports. A unit increase in level of global attacks increases the GDP by 5745.61 units while a unit increase in local attacks against ships trading in Nigerian waters decreases the Gross Domestic Product (GDP) by 34587.7 units. Similarly, a unit increase in volume of cargo pilfered from the ports increase the GDP by 193.25 units. It concluded that maritime piracy and sea robbery attacks against ships have significant impact on economic growth and development in Nigeria.

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1. Introduction

Economic growth in the context of this study is defined as the improvement in the production of economic goods and services compared between two periods [1,2]. Reference [2] opines that the aggregate economic growth within an economy over a given period of time is best measured by the Gross Domestic Product (GDP) or the Gross National Product (GNP) of the economy. Thus we view economic growth in the context of this study as the increase in aggregate production of goods and services within a given economy [1,3]. It also encompasses increase in capital goods, labor force, technology, and human capital which in turns contribute to economic growth estimated as the aggregate value of the goods and services produced in the economy and/or Gross Domestic Product (GDP).

Public opinion favour the fact that GDP growth/ economic growth increase purchasing power, incomes, employment and higher standard of living which in turn causes a declining trend in criminality and violence, such as maritime piracy and sea robbery against ships involved in global trade [4,5]. In the views of reference [2], economic growth/GDP growth when sustained over the long-term brings about economic development, defined as the process whereby poor economies are transformed into rich, modern, civilized and industrialized economies. We therefore opine that economic development is the aftermath of sustained GDP growth and/or economic growth translated into the all-round transformation of an economy involving qualitative and quantitative improvements in both economic and non-economic indices such social welfare, employment and unemployment statistics, income levels, early childhood education and literacy levels, criminal justice systems reform, and other human capita development indices [6-8].

It obvious it is right to assert and expected that economic growth and development should cause a declining effect on youth unemployment rate in the economy, while also improving the output, income and living standard of the working population. This declining youth unemployment rate and improved income cum living standard should in turn induce a declining trend on youth involvement in criminality, sea piracy and armed robbery attacks against ships involved seaborne trade in the Nigerian territorial waters [9-11]. Investments in maritime transport represent typical activity and/or operation aimed at improving the economy of a state and bringing about economic development. Thus it is generally viewed that transport is the fore runner of economic growth and development. However, criminality and violence in the form of maritime piracy and sea robbery attacks against ships trading in global sea routes negates the economic development of role of transport in national economies. For example, studies by [12] and International maritime Bureau [13] note that violence and pirate attacks against ships in the Somali region for example costs millions of dollars annually for cost of ransoms alone and this has far reaching negative impacts on the economic growth and development of the economy of the region. See table-1 below.

Table 1: Cost of Somali Piracy Ransoms 2009 and 2010

	Average Ransom	**Total Number of Successful Hijacking**	**Cost of Ransom**
2009	$3.5 million	52	$ 177 million
2010	$5.4 million	44	$238 million
	Cost of Ransoms 2009 and 2010		$415 million

Sources: IMB, (2011); Ojutalayo (2013)

In Nigeria, IMB [13] report indicates that the most direct and obvious consequence of maritime piracy is economic. The study identified that Nigeria loses about $25.5 billion annually to piracy and sea robbery attacks in its coastal waters with much of the loss arising from theft of crude oil resources. An estimated quantum of 300, 000 barrels per day representing about 12 percent of daily oil production is lost to pirates and oil thieves in the region [12]. IMB [13] reports that between 2003 and 2008, maritime insecurity cum illegal maritime activities cost Nigeria $92 billion.

Reference [14] 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 [15].

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 [16], 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 [17].

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 [18].

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 [16, 19]. 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.

The works of [20-23] supports the position of the Frustration-Aggression Theory (FAT), in which human frustration may lead to aggressive behavior and/or violence. Reference [11] agrees that frustration ultimately leads to aggression, and aggression always implies that frustration has occurred at some previous time. This is exactly the proposition of the FAT. However, aggression jeopardizes opportunities and the potential for growth and development. This is exactly the case at hand in the Nigerian state, where it is believed that youth unemployment and the associated poverty is responsible for increasing attacks against ships operating and trading in the Gulf of Guinea maritime domain. References [21-23] observes a

sad reality in the coastal regions of Nigeria where there is a preponderance of adults aged above 35 to 40 years who are willing to work but who have never had the opportunity of being gainfully employed. However, recourse to violent attacks against the maritime industry is counterproductive and will not address the vexed issue of poverty and youth unemployment in the coastal regions of Nigeria.

Obviously, maritime piracy and sea robbery activities constitute a serious threat to economic growth, economic development and the development of the maritime sub-sector in Nigeria. But there have an in-depth understanding of the effects on the economic potentials of the state require that a proper estimate of the influence of piracy and sea robbery on the economic growth of the state be determined empirically. There currently exist a gap in empirical literature on what constitute the significance nature of the relationship between maritime piracy cum sea robbery against ships trading local and global waters and economic growth in Nigeria. In line with the explanations given above, the aim of the study is to evaluate the influence of maritime piracy and sea robbery on economic growth in Nigeria. The specific objectives of the study include:

(i) To evaluate the influence of global attacks against ships on economic growth in Nigeria

(ii) To determine the relationship between local attacks against ships trading in Nigerian waters and economic growth in Nigeria

(iii) To estimate the influence of cargo pilfered as a result of maritime insecurity in ports on economic growth in Nigeria.

In order to investigate the aforementioned specific objectives, the study developed the following null hypotheses below:

H$_{01}$: The level of global attacks has not significantly impacted on economic growth in Nigeria.

H$_{02}$: The level of local Attacks has not significantly impacted on economic growth in Nigeria.

H$_{03}$: The volume of cargo pilfered has not significantly impacted on economic growth in Nigeria.

2. Materials and Methods

The study used an ex-post facto research design method in which time series secondary data were obtained from secondary sources and used for the study. Secondary of the frequency of pirate and sea robbery attacks against ships trading in global and Nigeria waters was obtained from the statistical reports of the International Maritime Bureau (IMB) covering the period between 1995 and 2013. Similarly, data on the Gross Domestic Product (GDP) as a proxy for economic growth in Nigerian was obtained from the Nigerian National Bureau for Statistics (NBS) annual statistical reports covering the same period. The quantity of cargo pilfered in the port terminals over the period was obtained from the Nigerian Ports Authority (NPA).

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 insecurity in ports on the Gross Domestic Product (GDP) as proxy for economic growth in Nigeria. The hypotheses were tested using the corresponding t-test and f-test from the regression output.

The model specification is as shown below:

GDPt = Total cargo 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:

$GDPt = \beta0 + \beta1GLOTAKSt + \beta2LOTAKSt + \beta3VOCARPt + \text{ʊ̂t}$ -…….... (1)

Where;

β0 = The intercept parameter, β1 …… β3 (betas) are the regression coefficient or the slope parameters for the various regressors (explanatory variables or maritime industry components) as stated above.

Here, β1 …… β5 > 0.

The term, Ut, otherwise called the stochastic term of the regression is introduced to represent the random or unexplained variation encountered in the modeling.

Results should be clear and concise.

3. Result and Discussion of Findings

The table below shows the result of the multiple regressions implemented to determine the effects of maritime piracy and sea robbery on economic growth in Nigeria.

Table 2: Effects of Piracy and Sea Robbery on Economic Growth in Nigeria

Test-statistic	**MODEL3 LEAST SQUARE, WITH LAG**
R-square	0.984
Adjusted R-square	0.979
S.E of Regression	2031041
Sum of squared residual	5.36E+13
Log likelihood	-284.0452
Durbin-Watson stat	3.029812
Mean depend. Var	16861104
S.D. depend. Var	13912959
Akaike info criterion	32.11613
Schwarz criterion	32.36345
Hannan-Quinn criterion	32.15023
F-statistic	196.1800
Prob(F-statistic)	0.000000

NB: *** = significant at 1%; ** = significant at 5%; * = Not significant. F-ratio tabulated DF (4, 14); 1% = 5.04, 5% = 3.11, t-ratio DF (14); 1% = 2.98, 5% = 2.14. Source: Eviews 6.0 Statistical Package (2014).

The model showing the effects of maritime piracy and sea robbery on economic growth and development is:

GDPt = 1638944 + 5745.61GLOTAKSt – 34587.7LOTAKSt + 193.25VOCARPt -(2)

This implies that economic growth in Nigeria increases with an increase in attacks against ships in global waters, it decreases with an increase in attacks against ships in the Nigerian maritime domain and increases with increase in the volume of cargo pilfered from the ports. A unit increase in level of global attacks increases the GDP by 5745.61 units while a unit increase in local attacks against ships trading in Nigerian waters decreases the Gross Domestic Product (GDP) by 34587.7 units. Similarly, a unit increase in volume of cargo pilfered from the ports increase the GDP by 193.25 units.

The R-square coefficient which measures the explanatory power of the model is 0.984. This indicates that about 98.4% of the variation in the dependent variable (GDP) is explained by the independent variables, leaving only 1.6% unexplained variation.

The f-score coefficient is 196.18 and p-value is 0.000 with f-critical ratio of 3.11. Since f-score is greater than f-critical, i.e. 196.18>3.11; we conclude that there is significant effects of maritime piracy and sea robbery on economic growth and development in Nigeria.

However, it is necessary to further test the study hypotheses to ascertain the individual effects of global attacks, local attacks and volume of cargo pilfered on GDP growth in Nigeria.

Table3: Test of Hypothesis

VARIABLE / **TEST STATISTIC**	**X1, No. of Global Attacks, $GLOTAKS_t$**	**X2, No. of Local Attacks, $LOTAKS_{t-1}$**	**X3, Vol. of Cargoes Pilfered, , $VOCARP_t$**
Coefficient of the Variable	5745.610	-34587.70	193.2544
Standard Error	5981.287	37493.78	256.7578
T-Statistic Calculated	0.960598 NS	-0.922492 NS	0.752672 NS
T-Statistic Tabulated 1%	2.98	2.98	2.98
T-Statistic Tabulated 5%	2.14	2.14	2.14
Significance	0.35	0.37	0.47

Source: Authors calculation

Recall the model showing the relationship between the dependent variable (GDP) and the independent variables (GLOTACKS, LOTAKS and VOCARP) is:

GDPt = 1638944 + 5745.61GLOTAKSt – 34587.7LOTAKSt + 193.25VOCARPt -… (3)

We there used table-3 above to test the significance of the effects of the independent variables on the dependent by employing T-statistics.

For hypothesis H01, the t-score is 0.960, p-value is 0.35 and the t-tabulated is 2.14 at 5% level of confidence. Since 0.960<2.14; we accept hypothesis H01 that the level of global attacks has not significantly impacted on economic growth in Nigeria.

Similarly, the t-score for hypothesis H02 is -0.922, p-value is 0.37 and t-tabulated in 2.14. Again, we accept the null hypothesis that the level of local attacks against ships trading in Nigerian waters has not significantly impacted on economic growth in Nigeria. The is in libe with the findings of Nnadi et al, 2015).

The test of hypothesis H03 shows a t-score of 0.75, p-value of 0.47 and t-tabulated of 2.14. Since t-tabulated>t-score, we accept the null hypothesis that the volume of cargo pilfered in the ports has not significantly impacted on the growth of the Gross Domestic Product (GDP) in Nigeria.

4. Conclusions

There is a significant relationship between maritime piracy/sea robbery and economic growth in Nigeria. The continued attacks on the maritime industry is negatively affecting the growth of the Gross Domestic Product (GDP) and dwarfing potentials for economic development in Nigeria.

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