



Maritime Technology and Research

<https://so04.tci-thaijo.org/index.php/MTR>



Research Article

Poverty, youth unemployment, maritime piracy, and sea robbery in Nigeria between 1995 and 2013: A relationship assessment

John Folayan Ojutalayo, Ndikom Obed Boniface, Nnadi Kenneth Ugwu,
Akujuobi Aghaegbulam Bonaventure Chidiebere and Theophilus Chinonyerem Nwokedi*

Department of Maritime Management Technology, Federal University of Technology, Owerri, Nigeria

Article information

Received: May 5, 2023

1st Revision: June 30, 2023

Accepted: July 13, 2023

Keywords

Maritime,
Piracy,
Sea-robbery,
Poverty,
Unemployment

Abstract

The study investigated the relationships between the poverty level in Nigeria and levels of global and local pirate attacks against ships on one hand; and between the unemployment rate in Nigeria and the level of local and global attack against ships, as well as the volume of cargo pilfered from Nigerian ports, on the other hand. The study employed secondary data sourced from the Nigerian Ports Authority, the National Bureau for Statistics (NBS), and the International Maritime Bureau (IMB) on the poverty rate, unemployment rate, 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 poverty rate and unemployment rate as the dependent variables in each case. It was found that poverty among dwellers is a component driver of maritime piracy and sea robbery against ships trading in Nigeria, since there is a significant relationship between the level of maritime insecurity and the rate of poverty in Nigeria. The study also found that there is a significant relationship between the level of maritime piracy/sea robbery and the unemployment rate in Nigeria.

1. Introduction

The International Maritime Bureau (IMB, 2014) defines piracy as any act of inciting or of intentionally facilitating an act aimed at forcefully boarding a ship with apparent intent to commit illegal acts of violence, detention, or any act of depredation, committed for the purposes of private ends by the crew or passengers of a pirate boat or aircraft on the high seas. It is sea robbery when the act is committed within territorial waters under the sovereignty and jurisdiction of a coastal state (Chalk, 2009; Chew, 2005; IMB, 2014). Our context of the use of the word piracy in this study encompasses both acts- armed robbery and piracy- irrespective of the geographical location (whether the sea or the territorial waters of a coastal state) of the occurrence.

Global concerns have been high regarding the resurgence of maritime piracy and sea robbery on major global sea routes in recent decades, particularly concerning the severe attacks against the maritime industry in the Gulf of Guinea maritime domain (Afinotan & Ojukorotu, 2009; Writer, 2014). This is partly because of the importance of the Gulf of Guinea in energy sustaining the equation of global energy demand, being rich in fossil fuel deposits and a major host to major

*Corresponding author: Department of Maritime Management Technology, Federal University of Technology, Nigeria
E-mail address: nwokeditc@gmail.com

global corporations and players in oil and gas exploration and exploitation, particularly in Nigeria. The importance of the waters of Nigeria in the sustenance of seaborne commerce and shipping trade is paramount (Whitman et al, 2012; Wombwell, 2010). Attacks against ships operating in this region have, however, threatened the potential for economic growth, economic development, and human development in the region. For example, studies by Madsen (2013) notes that attackers in Nigerian waters are aggressive and subject their victims to violence and inhumane treatment, a situation which puts the vessels, crew, and cargo traversing the region in danger. The intention of attackers is known primarily to be the drive for financial gratification, in the form of ransoms and revenue earnings from illicit drug deals and crude oil theft among others (Ojutalayo, 2013). Armed attacks against ships in the oil-rich Gulf of Guinea surged in 2018, making these waters off west and central Africa the world's most dangerous maritime route (Nwokedi et al. 2020). The thinking that the youths involved are fighting for survival from government neglect has, over the years, made it difficult for serious open and direct confrontation by responsible authorities in order to remedy the situation. Since it is the oil majors and the shippers who are directly affected by the revenue losses and human capital waste associated with the attacks, the majority of members of the public, including coastal state authorities, have the general view that piracy and sea robbery attacks against ships trading in Nigerian waters has no, or negligible, effects on the generality of the people (Nwokedi et al. 2020). These opinions may be wrong, since they are not backed up by any empirical evidence. Certainly, the economic resources destroyed and wasted as a result of sea piracy and sea robbery attacks against ships involved in maritime trade could have been translated into investment opportunities that generate employment for youths. This would have, in turn, eradicated poverty and guaranteed economic growth and development. Several authors have the view that the current high youth unemployment rate in Nigeria, particularly in the Niger Delta region, have correlation with the increasing trend of poverty in the region; however, the same authors also have the view that piracy and sea robbery attacks against ships on global sea routes cannot be ascribed to have significantly impacted rising youth unemployment and poverty in most coastal zones in Africa (Bushman & Heusman, 2010; Jones, 2013; Nwokedi et al., 2020).

The work of Bushman and Heusman (2010) supports the position of the Frustration-Aggression Theory (FAT), in which human frustration may lead to aggressive behavior and/or violence. Nwokedi et al. (2020) 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. Essien and Adongoi (2015) 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.

The fact is that the violent aggression which has manifested in the form of piracy and sea robbery has equally led to the waste of useful resources which should have been budgeted for investment, economic growth, development, youth employment schemes, and the eradication of poverty (Afinotan & Ojakorotu, 2009; Essien & Adongoi, 2015; Wong & Yip, 2012). This is because if security is guaranteed in the Nigerian maritime domain, the rising savings in output wastage occasioned by a conflict free maritime industry can be channeled into generating higher productivity and in enhancing economic growth in the region. By implication, the longer the aggression against the maritime industry, the more the delay in the implementation of programs, policies, and projects that will help to lift the region out of unemployment-induced poverty. Ushering in growth and development in such a situation becomes an illusive task.

From this arises the urgent need for an empirical study that provides evidence of the relationship between poverty, the youth unemployment rate in Nigeria, and the incidents of pirate attacks against ships trading in global and local waters. It is also important to note that insecurity in the Nigerian ports system has been heightened by attacks against ships at ports and in anchorages, leading to high level collusion in committing acts of cargo pilferage in ports (Essien & Adongio, 2015). A major literature gap that needs to be filled in this regard is an understanding, based on empirical evidence, of the nature of the relationship between the poverty rate, youth unemployment rate, and volume of cargo pilfered in Nigerian ports over the years (Essien & Adongio, 2015).

The most sustainable approach towards eradicating poverty, unemployment, maritime piracy, and sea robbery in Nigeria lies in generating information on the empirical relationship between poverty and violence against the maritime industry on one hand, and youth unemployment and violence against the maritime industry on the other hand, as the basis for decision making. This is the central problem which the study seeks to address. While the global attacks presents evidence of piracy against ships in the open sea, which Nigeria's Gulf of Guinea region also contributes to, sea robbery provides evidence of attacks within the jurisdiction of Nigeria and in her territorial waters. The central aim and objectives of the study are itemized in section 2, as follows:

2. Aim and objectives of the study

The aim of the study is to establish the nature of the relationship between the poverty rate in Nigeria and the level of piracy and sea robbery against ships on one hand, and the unemployment rate in Nigeria and levels of maritime piracy in the maritime industry on the other hand.

The specific objectives of the study include:

- Establishing the significance of the nature of the relationship between the poverty rate in Nigeria and the level of global attacks against the maritime industry.
- Determining the nature of the relationship between the poverty rate in Nigeria and the level of local attacks against ships trading in Nigerian waters.
- Estimating the relationship between the poverty rate in Nigeria and the volume of cargo pilfered in Nigerian ports.
- Estimating the relationship between the unemployment rate in Nigeria and the level of global attacks against the maritime industry.
- Ascertaining the relationship between the unemployment rate in Nigeria and the level of local attacks against trading in Nigerian waters.
- Estimating the significance of the relationship between the unemployment rate in Nigeria and the volume of cargo pilfered in Nigerian ports.

2.1 Research hypotheses

H_{01} : There is no significant relationship between the poverty rate in Nigeria and the level of global attacks against the maritime industry.

H_{02} : The relationship between the poverty rate in Nigeria and the level of local attacks against ships trading in Nigerian waters is not significant.

H_{03} : There is no significant impact of the volume of cargo pilfered in Nigeria ports on the poverty rate in Nigeria.

H_{04} : There is no significant impact of the level of global attacks against the maritime industry on the youth unemployment rate in Nigeria.

H_{05} : There is no significant relationship between the unemployment rate in Nigeria and the level of local attacks against trading in Nigerian waters.

H_{06} : There is no significant impact of the volume of cargo pilfered in Nigerian ports on the unemployment rate in Nigeria.

3. Materials and methods

The study used an ex-post facto research design method in which time series secondary data were obtained from secondary sources. Secondary data on the frequency of pirate and sea robbery attacks against ships trading in global and Nigerian waters was obtained from statistical reports of the International Maritime Bureau (IMB) covering the period between 1995 and 2013. Similarly, data on the poverty rate and unemployment rate in Nigeria 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. 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 both the poverty rate and unemployment rate 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:

$PORATE_t$ = Level of poverty in Nigeria,
 $LUEMP_t$ = Level of unemployment in Nigeria,
 $LOTAKS_t$ = Number of local piratical attacks,
 $GLOTAKS_t$ = Number of global piratical attacks,
 $VOCARP_t$ = Volume of cargo pilfered in the ports as a result of maritime insecurity,

The dependent variable, however, is as specified:

$$PORATE_t = \beta_0 + \beta_1 GLOTAKS_t + \beta_2 LOTAKS_t + \beta_3 VOCARP_t + u_t \quad (1)$$

Similarly,

$$LUEMP_t = \partial_0 + \partial_1 GLOTAKS_t + \partial_2 LOTAKS_t + \partial_3 VOCARP_t + u_t \quad (2)$$

where;

β_0 ; ∂_0 , = The intercept parameter,

β_1 ; ∂_1 β_3 and ∂_3 (betas) are the regression coefficient, or the slope parameters, for the various regressors (explanatory variables or maritime industry compo-nents) as stated above.

Here, β_1 ; ∂_1 , ∂_3 ; $\beta_3 > 0$.

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. Note that the rates of poverty and unemployment were, in each case, used as the dependent variables, while global pirate attacks on global waters, local pirate attacks in Nigerian waters, and volume of cargo pilfered in Nigerian ports were used as the independent/explanatory variables.

4. Data presentation

Table 1 above presents the dataset used for the study. It indicates the annual figures of poverty level and unemployment rate in Nigeria, the volume of cargo pilfered in the ports occasioned by piracy and sea robbery attacks, and the number of local and global attacks against ships between 1995 and 2013. The statistical summary of the data presented is shown in **Table 1**.

Table 1 Unemployment rate, poverty rate, volume of cargoes pilfered, number of local attacks, and number of global attacks on ships for the period 1995-2013.

Year	VOCARP (Metric Tons)	LOTAKS (NOS)	GLOTAKS (NOS)	LUEMP (%)	PORATE (%)
1995	2,177	1	188	1.9	50.8
1996	3,570	4	228	2.8	65.6
1997	5,213	9	248	3.4	64.9
1998	3,817	3	202	3.5	66.3
1999	2,411	12	300	17.5	63.5
2000	5,369	9	469	13.1	64.2
2001	3,415	19	335	13.6	62.5
2002	6,009	14	370	12.6	53.4
2003	6,842	39	445	14.8	55.2
2004	8,741	28	329	13.4	54.4
2005	9,322	16	276	11.9	55.5
2006	4,151	12	239	12.3	56.6
2007	3,322	42	263	12.7	58.6
2008	4,981	40	293	14.9	60.1
2009	4,981	29	410	19.3	62.2
2010	3,093	43	445	21.1	69.1
2011	2,111	47	439	23.9	71.5
2012	1,112	87	297	24.3	61.2
2013	2,915	106	264	37.1	65.9

Source: NIMASA, CBN, NBS, NPA, IMB, various years.

Table 2 Descriptive statistics of unemployment rate, poverty rate, volume of cargoes pilfered, number of local attacks, and number of global attacks on ships for the period 1995-2013.

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
VOCARP	19	1112.00	9322.00	83552.00	4397.4737	2185.58953
LOTAKS	19	1.00	106.00	560.00	29.4737	28.04435
GLOTAKS	19	188.00	469.00	6040.00	317.8947	88.18219
LUEMP	19	1.90	37.10	274.10	14.4263	8.60619
PORATE	19	50.80	71.50	1161.50	61.1316	5.67353
Valid N (listwise)	19					

Source: authors calculation

Table 2 above indicates that the mean volume of cargo (VOCARP) pilfered in the seaports between 1995 and 2013 was 4397.47 metric tons with standard deviation of 2185.59. The average number of pirate attacks against ships in Nigeria territorial waters over the period was 29.47 per annum with standard deviation of 28.044, while the average global attacks against ships over the same period was 317.9 with standard deviation of 88.2. Similarly, the average poverty rate and unemployment rate in Nigeria between 1995 and 2013 covered in the study were 61.13 and 14.42 %, respectively, with respective standard deviations of 8.61 and 5.67.

The data was analyzed using the methods described in the previous section. The results and discussion of the findings are in section 5.0 below.

5. Results and discussion of findings

From the result shown on **Table 3** below, we developed a model showing the relationship between the level of poverty in Nigeria and the levels of global and local attacks against the maritime industry cum volume of cargo pilfered in ports, as shown below:

$$PORATE_t = 59.25 + 0.009268GLOTAKS_t - 0.027176LOTAKS_t - 0.001580VOCARP_t + u_t \quad (3)$$

Table 3 Influence of maritime piracy and sea robbery on level of poverty in Nigeria.

Test-statistic	MODEL5 LEAST SQUARE, WITH LAG
R-square	0.499
Adjusted R-square	0.345
S.E of regression	4.242223
Sum of squared residual	233.9539
Log likelihood	-48.62367
Durbin-Watson stat	1.646248
Mean depend. Var	61.70556
S.D. depend. Var	5.239721
Akaike info criterion	5.96
Schwarz criterion	6.205511
Hannan-Quinn criterion	5.992288
F-statistic	3.233630
Prob(F-statistic)	0.047640

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 indicates that poverty rate increases with increase in global attacks against the maritime industry and decreases with increase in local attacks in Nigerian waters. It also decreases with increase in volume of cargo pilfered from the ports over the period.

By implication, a unit increase in global attacks increases poverty level by 0.00928, while a unit increase in local attacks against ships trading in Nigeria decreases poverty level by 0.0271. Similarly, a unit increase in volume of cargo pilfered in the ports decreases poverty level by 0.00158 units. This implies that poverty among dwellers is a component driver of maritime piracy and sea robbery against ships trading in Nigeria.

The F-test shows the F- ratio calculated (3.233) > F - ratio critical (3.11), at 5 % level of significance. Thus, we conclude that there is a significant relationship between the level of maritime piracy/sea robbery and the rate of poverty in Nigeria. By implication, maritime piracy cum sea robbery, manifested in forms of global attacks against ships, local attacks against ships trading in Nigerian waters, and level of insecurity induced by cargo pilferage in ports have significant joint impact on the level of poverty in Nigeria. See table 3 for the test for hypotheses for the individual

effects of the independent variable (level of global attacks, level of local attacks, volume of cargo pilfered).

Table 4 was employed in testing the first three sets of the study hypotheses, which aimed to test the significances of the influences of local attacks, global attacks, and volume of cargo pilfered on the level of poverty in Nigeria. We restate the hypotheses as follows:

H₀₁: The level of global attacks has no significant impact on the poverty rate in Nigeria.

H₀₂: The level of local attacks has no significant impact on the poverty rate in Nigeria.

H₀₃: The volume of cargo pilfered has no significant impact on the poverty rate in Nigeria.

Note: $PORATE_t = 59.25 + 0.009268GLOTAKS_t - 0.027176LOTAKS_t - 0.001580VOCARP_t + u_t$ (4)

The t-test for hypothesis **H₀₁** shows a t-score of 0.724, t-tabulated of 2.14, and p-value of 0.48 at 5 % level of confidence. Since t-tabulated > t-score (2.14 > 0.78), we accept the null hypothesis **H₀₁** that the level of global attacks has no significant impact on the rate of poverty in Nigeria.

The test of hypothesis **H₀₂** shows a t-score of -0.6765, t-tabulated of 2.14, and p-value of 0.51 at 5 % confidence level. Again, we accept the null hypothesis **H₀₂** and conclude that the level of local attacks has no significant impact on the poverty rate in Nigeria.

The test of hypothesis **H₀₃** shows a t-score of -2.4766, t-tabulated of 2.14, and p-value of 0.028. Thus, we reject the null hypothesis **H₀₃** and accept the alternate that the volume of cargo pilfered in Nigerian ports has significant impact on the rate of poverty in Nigeria.

Table 4 Test of hypotheses on the influence of piracy and sea robbery on level of poverty in Nigeria.

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	0.009268	-0.027176	-0.001580
Standard error	0.012798	0.040167	0.000638
T-Statistic calculated	0.724222 ^{NS}	-0.676574 ^{NS}	-2.476638 ^{**}
T-Statistic tabulated 1 %	2.98	2.98	2.98
T-Statistic tabulated 5 %	2.14	2.14	2.14
Significance	0.48	0.51	0.028

NB: *** = significant at 1 %; ** = significant at 5 %; * = not significant. T-ratio DF (14); 1 % = 2.98, 5 % = 2.14. Source: Eviews 6.0 Statistical Package (2014).

The equation showing the relationship between the level of youth unemployment in Nigeria and maritime piracy/sea robbery based of the result shown on **Table 5** below is:

$$LUEMP_t = -1.197675 + 0.028850GLOTAKS_t + 0.248422LOTAKS_t - 0.000198VOCARP_t \quad (5)$$

This indicates that increase in global attacks increases youth unemployment, while increase in local attacks also increases youth unemployment in Nigeria. Similarly, increase in volume of cargo pilfered in the ports decreases level of youth unemployment in Nigeria.

The result indicates that a unit increase in the level of global attacks against ships in global sea routes increase the unemployment rate in Nigeria by 0.028850, while a unit increase in local

attacks against ships trading in Nigerian waters increases the youth unemployment rate by 0.248422 units. A unit increase in the volume of cargo pilfered in the ports decreases the level of youth unemployment by 0.000198 units.

Table 5 Relationship between level of unemployment and maritime piracy cum sea robbery in Nigeria.

Test-statistic	Coefficients
R-square	0.844
Adjusted R-square	0.812
S.E of regression	3.726703
Sum of squared residual	208.3247
Log likelihood	-49.70909
Durbin-Watson stat	2.093
Mean depend. Var	14.42632
S.D. depend. Var	8.606189
Akaike info criterion	5.65
Schwarz criterion	5.85
Hannan-Quinn criterion	5.69
F-statistic	26.99805
Prob(F-statistic)	0.000003

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 F-test shows f-score of 26.998 and F- ratio critical of 3.63, at 5 % level of significance. Since f-score > f-critical ratio, we conclude that there is a significant relationship between the level of maritime piracy/sea robbery and the unemployment rate in Nigeria. See Table 5 below for a test of the significance of each of the independent variables.

Table 6 Test of hypotheses on the influence of maritime piracy cum sea robbery on the level of youth unemployment in Nigeria.

Variable	X1, No. of Global Attacks, GLOAKS _t	X2, No. of Local Attacks, LOTAKS _{t-1}	X3, Vol. of Cargoes Pilfered, VOCARP _t
Test Statistic			
Coefficient of the variable	0.028850	0.248422	-0.000198
Standard error	0.010395	0.033737	0.000433
T-Statistic calculated	2.78**	7.363503***	-0.456025 ^{NS}
T-Statistic tabulated 1 %	2.92	2.92	2.92
T-Statistic tabulated 5 %	2.12	2.12	2.12
Significance	0.014	0.00	0.65

Source: authors calculation

The result on **Table 6** above was employed in testing the last three sets of the study hypotheses, which aimed to test the significance of the influences of local attacks, global attacks, and volume of cargo pilfered on the level of youth unemployment in Nigeria. We restate the hypotheses as follows:

H₀₄: The level of global attacks has no significant impact on the unemployment rate in Nigeria.

H₀₅: The level of local attacks has no significant impact on the unemployment rate in Nigeria.

H₀₆: The volume of cargo pilfered has no significant impact on the unemployment rate in Nigeria.

Note: $LUEMP_t = -1.197675 + 0.028850GLOTAKS_t + 0.248422LOTAKS_t - 0.000198VOCARP_t$ (6)

The t-test for hypothesis **H₀₄** shows a t-score of 2.78, t-tabulated of 2.12, and p-value of 0.014 at 5 % level of confidence. Since t-tabulated > t-score (2.12 < 2.78), we reject the null hypothesis **H₀₄** that the level of global attacks has no significant impact on the rate of unemployment and accept the alternate that the level of global attacks has significant impact on the youth unemployment level in Nigeria.

The test of hypothesis **H₀₅** shows a t-score of 7.364, t-tabulated of 2.12, and p-value of 0.00 at 5 % confidence level. Again, we reject the null hypothesis **H₀₅** and conclude that the level of local attacks has significant impact on the level of youth unemployment in Nigeria.

The test of hypothesis **H₀₆** shows a t-score of -0.456, t-tabulated of 2.12, and p-value of 0.65. Thus, we accept null hypothesis **H₀₆** that the volume of cargo pilfered in Nigerian ports has no significant impact on the rate of youth unemployment in Nigeria.

6. Discussion of results

The results of the study indicate that the rate of poverty in Nigeria's Gulf of Guinea region increases with the increasing trend of pirate attacks and decreases with the increase in local attacks in Nigerian waters. This corroborates the findings of Martínez-Zarzoso and Bensassi (2013) that implicated economic factors as the root driver of pirate attacks against ships in global waters. However, piracy and sea robbery attacks against ships leads to destruction and economic wastages, which further perpetuates poverty and unemployment. Addressing poverty and youth unemployment factors will, therefore, lead to reduction in pirate attacks against ships, which will, subsequently, deflate the circular negative effect of the relationship between maritime insecurity and poverty in Nigeria (Nana & Ofosu-Boateng; 2017; Onuoha, 2012). A unit increase in global attacks increases the poverty level by 0.00928, while a unit increase in local attacks against ships trading in Nigeria decreases the poverty level by 0.0271. This corroborates the findings of Wong and Yip (2012), who found increasing trends in pirate attacks against ships in major global sea routes. Similarly, a unit increase in volume of cargo pilfered in the ports decreases the poverty level by 0.00158 units. This implies that poverty among dwellers is a component driver of maritime piracy and sea robbery against ships trading in Nigeria. The findings of studies by Bueger (2013) are in agreement with the results and findings of this study. The findings of Bueger (2013), Onuoha (2012), and Wong et al. (2012), are in line with the results of the study, which further indicates that a unit increase in the level of global attacks against ships in global sea routes increases the unemployment rate in Nigeria by 0.028850, while a unit increase in local attacks against ships trading in Nigerian waters increases the youth unemployment rate by 0.248422 units. A unit increase in the volume of cargo pilfered in the ports decreases the level of youth unemployment by 0.000198 units. We therefore conclude that poverty and youth unemployment are significant drivers of maritime insecurity in Nigeria. To curb this menace, a bottom-up approach of massive investment in youth employment and poverty eradication programs is important and necessary.

7. Conclusions

There is a significant relationship between the level of poverty in Nigeria and maritime piracy/sea robbery attacks against the maritime industry. The level of piracy and sea robbery attacks against the maritime industry has a significant impact on the level of youth unemployment in Nigeria. The rate of poverty in Nigeria's Gulf of Guinea region increases with the increasing trend of pirate attacks and decreases with the increase in local attacks in Nigerian waters. It also decreases with the increase in the volume of cargo pilfered from the ports over the period. A unit increase in global attacks increases the poverty level by 0.00928, while a unit increase in local attacks against ships trading in Nigeria decreases the poverty level by 0.0271. Similarly, a unit increase in the volume of cargo pilfered in the ports decreases the poverty level by 0.00158 units. This implies that poverty among dwellers is a component driver of maritime piracy and sea robbery against ships trading in Nigeria. To curb this menace, we recommend a bottom-up approach of massive investment in youth employment and poverty eradication programs by the government and major stakeholders in the maritime industry.

The results indicate that a unit increase in the level of global attacks against ships in global sea routes increases the unemployment rate in Nigeria by 0.028850, while a unit increase in local attacks against ships trading in Nigerian waters increases the youth unemployment rate by 0.248422 units. A unit increase in the volume of cargo pilfered in the ports decreases the level of youth unemployment by 0.000198 units. We therefore conclude that poverty and youth unemployment are significant drivers of maritime insecurity in Nigeria. The authorities responsible for the implementation of the Nigeria maritime security strategy must, therefore, take into account the need for a massive implementation of youth unemployment and poverty eradication policies and programs in Nigeria, in order to curb the spate of maritime insecurity in the region. This corroborates the findings of Wong and Yip (2012), that Africa's Gulf of Guinea regions, to which Nigeria belongs, contribute significantly to maritime insecurity in global waters. In line with the findings of the study that youth unemployment and poverty are significantly influenced by piracy and sea robbery attacks against ships trading in local and global sea routes, it is recommended that a bottom-up approach towards remedying the attacks is massive investment in programs and policies aimed at providing employment for the youthful population and eradicating poverty in Nigeria.

References

- Afinotan, L. A., & Ojakorotu, V. (2009). The Niger delta crisis: issues, challenges and prospects. *African Journal of Political Science and International Relations*, 3(5), 191-198.
- Bueger, C. (2013). Communities of security practice at work? The Emerging African Maritime Security Regime. *African Security*, 6, 297-316.
<https://doi.org/10.1080/19392206.2013.853579>
- Bushman, B. J., & Huesmann, L. R. (2010). *Handbook of social psychology*. Retrieved from <https://www.researchgate.net/publication/277705818>
- Chalk, P. (2009). *Maritime piracy: Reasons, dangers and solutions*. Retrieved from https://www.rand.org/content/dam/rand/pubs/testimonies/2009/RAND_CT317.pdf
- Chew, M. F. (2005). *Piracy, maritime terrorism and regional interests* (pp. 73-88). Copenhagen, Denmark: Danish Institute for International Studies.
- Essien, B. S., & Adongoi, T. (2015). Sea piracy and security challenges of maritime business operators in Bayelsa state Nigeria: An Empirical study. *International Journal of Humanities And Social Science*, 5(2), 213-211.
- International Maritime Bureau. (2014). *ICC IMB piracy and armed robbery against ships*. 2014 Annual Report, ICC International Maritime Bureau.
- Jones, S. (2013). *Maritime piracy: The challenge of providing long-term solutions*. A working paper at the Maastricht School of Management. Retrieved from <https://www.msm.nl>

- Madsen, J. V. (2013). *The state of maritime piracy in 2013*. Oceans beyond piracy. Retrieved from <https://www.oceansbeyondpiracy.org>
- Martínez-Zarzoso, I., & Bensassi, S. (2013). The price of modern maritime piracy. *Defense and Peace Economics*, 24, 397-418. <https://doi.org/10.1080/10242694.2012.723156>.
- Nana, R., & Ofosu-Boateng, L. (2017). A SWOT analysis of maritime transportation and security in the Gulf of Guinea. *Open Journal of Social Sciences*, 5(8), 45-53.
- Nwokedi, T., Odumodu, C. Z., Anyanwu, J., & Dike, D. (2020). Frustration-Aggression-Theory approach assessment of sea piracy and Armed Robbery in Nigerian Industrial Trawler Fishery Sub-Sector of the Blue Economy. *Journal of ETA Maritime Science*, 8(2), 114-132. <https://dx.doi.org/10.5505/jems.2020.29053>.
- Ojutalayo, J. F. (2013). *Analysis of the impact of maritime piracy and sea robbery on the Nigerian economy* (Doctoral dissertations). Department of Maritime Management Technology, Federal University of Technology, Owerri.
- Onuoha, F. C. (2012). Oil piracy in the Guld of Guinea. *Conflict Trends*, 2012, 28-35.
- Whitman, S., Williamson, H., Sloan M., & Fanning, L. (2012). *Dalhousie marine piracy project: Children and youth in marine piracy: Causes, consequences and the way forward* (pp. 2-7). Marine Affairs Program Technical Report No.5, Dalhouse University, Halifax, Canada.
- Wombwell, J. A. (2010). *The long war against piracy: Historical trends* (pp. 2-5). Occasional Paper 32, Combat Studies Institute Press, US Army Combined Arms Center, Fort Leavenworth, Kansas.
- Wong, & Yip. (2012). Maritime piracy: An analysis of attacks and violence. *International Journal of Shipping and Transport Logistics*, 4(4), 306-322. <https://doi.org/10.1504/IJSTL.2012.049315>
- Writer, S. (2014). *IMB warns of West Africa piracy threat*. Defence Web Online. Retrieved from <https://www.defenceweb.co.za/security/maritime-security/imb-warns-of-west-africa-piracy-threat>