

## Relationship between Corruption and Terrorism in African Countries

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### ABSTRACT

**Background:** There has been a global outcry and collective effort to tackle social ills through the implementation of anti-graft laws, anti-corruption policies, and various counterterrorism strategies across the world. As the fight against corruption and terrorism continues, other nations have been successful in their quest to limit the level of corrupt practices and terrorist attacks while other countries are still highly penetrated by corruption and terrorism. This study examines the relationship between corruption and terrorism in four African countries (Nigeria, Niger Republic, Cameroon, and Chad) using data between 2010 and 2017 on the corruption perception index and global peace index. The year 2010 was chosen as the base year because of the availability of data for all the four countries. Global peace rank was used to determine the rank of terrorism. Spearman rank correlation was employed to establish the relationship between corruption and terrorism. The reason for employing the Spearman correlation was justified in the study.

**Results and Conclusion:** The study finds that there is a very weak negative causal relationship between corruption and terrorism in Nigeria and Chad with Spearman correlation coefficients ( $R_s$ ) of -0.012 and -0.212 respectively, also a strong positive causal relationship between the corruption and terrorism in Niger with Spearman correlation coefficients ( $R_s$ ) of 0.530, and a very weak positive causal relationship between the corruption and terrorism in Cameroon with Spearman correlation coefficients ( $R_s$ ) of 0.177. Regarding the hypothetical statement, the null hypotheses which state that there is no relationship between corruption and terrorism in all the four African countries were rejected. The implication of this study is that the fight against corruption may not be a good means to tackle terrorism in Africa, especially in Nigeria, Cameroon, and Chad. Hence, anti-corruption strategies and counterterrorism strategies should be developed and applied independently.

**Keywords:** corruption, terrorism, Nigeria, Niger, Cameroon, and Chad

### INTRODUCTION

Corruption and terrorism have become a common phenomenon in every society nowadays and the negative effect it has on the political and socio-economic structure of a country can be hard overemphasized.

There has been a global outcry and collective effort to tackle social ills through the implementation of anti-graft laws, anti-corruption policies, and various counterterrorism strategies across the world. As the fight against corruption and terrorism continues, other nations have been successful in their quest to limit the level of corrupt practices and terrorist attacks while other countries are still highly penetrated by corruption and terrorism. In order to discover a more suitable and realistic way of fighting corruption and terrorism, there is need

to examine if the two constructs are related and the direction of the relationship, as the approach will assist if the two social ills should be tackled independently or simultaneously, or mutually. Corruption and terrorism have been the subject of many studies because of their alarming increase over the last two decades. Among the studies conducted on corruption and terrorism are; Adeniran and Owoeye (2018) conducted a prospective study on logistical perspective towards counterterrorism of Boko Haram Insurgency in Nigeria. Lessons were drawn from the Boko Haram's geographical location, evolution and their mode of operations in previous attacks. Boko Haram group was declared terrorist in the north-east part of Nigeria, and the in the global world because the insurgency grew into one of the largest areas of violence in Africa, and major conflict in global

terms. Their study relied on empirical and it lacks statistical backing.

Adeniran (2018a) assessed the effort of the Federal Government towards looted assets recovery in Nigeria which is a means of fighting corruption and terrorism and enhancing national development. The study also examined the relationship between corruption and terrorism in Nigeria, it revealed a strong and positive relationship between the low rank of the global peace index and the high rank of corruption perception index in Nigeria. The regression value indicates that 45.3% of the high-rank corruption is explaining low-rank peace. The low rank of peace signifies high rank of terrorism in Nigeria. The study is limited to Nigeria and does not include other African countries, it also adopted the inferential statistical test instead of descriptive statistics because of the data type and sampling technique involved. Santana-Gallego, Rosselló-Nadal, and Fourie (2016) examined the effect of terrorism, crime and corruption on tourism for 171 countries between 1995 and 2013.

Their results show that terrorism and crime have a negative effect on tourist arrivals especially those related to leisure activities. Also, corruption has no effect on leisure tourism but affects only business tourism. Nahil and Malik (2016) examined the relationship between corruption and terrorism using a dataset approach for a panel of 123 developed and developing countries over the period 2003-2014. Pedroni's residual-based panel co-integration test and the error correction model-based panel co-integration test developed by Westerlund were adopted. In order to obtain more robust results, two different measures of corruption are utilized which are Corruption Perceptions Index (CPI) and Worldwide Control of Corruption Indicator (CC). It was revealed from both tests that the null hypothesis of no co-integration was rejected and concluded that corruption and terrorism converge.

Jorji and Victor (2016) conducted a study on the impact of corruption on economic growth and cultural values in Nigeria focusing on the need for value re-orientation. Trend analysis of the corruption perception index, relative corruption index and corruption rank of Nigeria were displayed on a line graph. The secondary data were gotten from the period of 1999-2015. Also, the impact of corruption on economic growth was examined with Auto-Regressive Distributive Lag (ARDL) model. The study does

not establish a link between corruption and terrorism and is limited to Nigeria. Institute for Economics and Peace (2015) on the relationship between peace and corruption finds that corruption is highly correlated with peace indicators, and the influence of peace on corruption is not statistically significant which indicates that the relationship between peace and corruption has a one-way nature. Shelley (2005) conducted a study on the unholy trinity considering a transnational crime, corruption, and terrorism. His study finds that terrorism is a result of ethnic and sectarian tensions as well as economic and demographic inequalities. This phenomenon is more widespread in developing economies due to the spread of corruption and misallocation of resources which results in the export of terror all over the world.

Kalbasi Anaraki (2012) opines that recent social upheavals in the Arab World result from economic problems and bad corruption scores. Also, Long-run relationship between corruption and terrorism using data for 13 Arab countries was examined using Johansen Co-integration tests. It was revealed that corruption and the number of terrorist attacks are convergent over time in most countries.

The results suggest that there is a long-run relationship between these two variables for most Arab countries. Al-Badayneh (2009) examines the relationship between corruption and terrorism incidents in the Arab World over the period 1970-2007. The study reveals a significant negative correlation between corruption and terrorism.

Past studies that conducted the relationship between corruption and terrorism used Pearson Moment correlation, regression, and time series co-integration tests. They all relied on secondary data as shown in this study, but there were time, location, scope, and methodology gaps. This paper examines the relationship between corruption and terrorism in four African countries, which are Nigeria, Niger Republic, Cameroon, and Chad. The four African countries were chosen because there is a record of a high terrorist attack in the northern part of Nigeria and the three countries surrounding northern Nigeria. It is believed that this approach is capable of giving a more plausible result with regard to the examination of the relationship between corruption and terrorism in four African Nations. The hypothesis states that there is no relationship between corruption and terrorism in African Nations.

### CONCEPTUAL CLARIFICATION

#### Corruption

Corruption can be defined as the abuse of public office for private gains. Public office is abused for private gain when an official accepts, solicits or extorts a bribe. It is also abused when private agents actively offer bribes to circumvent public policies and processes for competitive advantage and profit. Public office can also be abused for personal benefit even if no bribery occurs, through patronage and nepotism, the theft of state assets or the diversion of state revenue (World Bank, 1997).

The International Monetary Fund (IMF) defines corruption as the abuse of authority or trust for private benefit: and is a temptation indulged in not only by public officials but also by those in positions of trust or authority in private enterprises or non-profit organizations (2000). Corruption is defined as an arrangement that involves an exchange between two parties (the demander and the supplier) which (i) has an influence on the allocation of resources either immediately or in the future; and (ii) involves the use or abuse of public or collective responsibility for private ends (2006). According to Transparency International, corruption is the abuse of entrusted power for private gain.

Corruption occurs in many forms such as bribery (when someone improperly provides goods or services against some form of improper compensation); kickback (a form of bribery, where someone involved in a purchasing process is getting a reward from the supplier for placing an order of goods or services); embezzlement (theft of resources for own use); evidence destruction (irregular destruction, removal or abuse of records); extortion (the act of obtaining something by force, threats or undue demands); favoritism (the unfair favoring of one person or a group at the expense of others including nepotism which is favoritism shown to relatives); knowingly omitting to report corrupt acts (deliberately omitting or refusing to report or act upon reports of any such irregular or dishonest conduct); maladministration (also referred to as financial misconduct in handling or reporting of money, financial transactions or other assets) (Adeniran, 2018a). The definition of corruption according to Transparency International was adopted in this study as it seems to be elaborate. It is important to note that countries that are gifted in natural resources seem to be the wellspring of

the world. Those countries are usually sabotaged with corruption. Corruption has a moral, legal, and social standpoint. The moral and ethical dilemmas form the basis of frustrations amongst all people across societies. Gardner (2006) identifies moral and legal scenarios where a legal or moral argument for corruption can be unhinged using an example of a Nazi German passport inspector who accepts a bribe from a Jewish traveler trying to escape the country. From a moral perspective, this action would be justified, however, at the time, the law forbade Jewish emigration. In this case, an illegal action was moral in most regards. The bribe created the breach for the moral act to occur, which likely would not have been the case. Arguably, to reach this end without the bribe would be even more moral.

Corrupt acts are associated with the gain by the individual at the cost to the public. The corruption has to do with financial benefits gained through bribery, but corruption is not limited to monetary gains. Additional gains could be political or social power received from other acts associated with corruption. Corruption undermines a government's ability to develop and therefore support itself. One can broadly categorize corruption into cost-reducing, cost-enhancing, benefit enhancing, and benefit-reducing activities. After considering these cases, a strictly moral perspective is not an appropriate lens to look at corruption as well. Moral views and laws governing actions vary largely from culture to culture. The desired endpoint for operations in Africa is one of providing stability. Stability is achieved through national development and government legitimacy (Alam, 1989).

#### The Perspective of Corruption from the Slowing Growth of Africa's Development

At the beginning of World War II, there had been little concern on the cause of underdevelopment, but at the end of World War II, the developing countries struggled to improve their living standards. This struggle made the newly independent countries, industrializes countries and the United Nations to rally round and tried to promote development through the following means; among are:

- By applying the measure of technical know-how through the assignment of experts;
- The expansion of education;
- The development of infrastructure.

In an attempt to make promote development in the developing countries, the process was supposed to be spearheaded by the developed countries such that they will lead the way by showing the developing countries the secret behind their growth, this instead made way for some of the giant capital countries to exploit the developing nations (Day, 2011). Majority of African countries are known to be developing countries. Hence, there is a wide gap between developing and developed countries. According to the Marxist school, developing nations seeks to come in contact with the Western developed countries, and as a result become parasitized (Furtado, 1971).

The developing countries cannot stand on their own without relying on the developed countries, while the developed countries can stand on their own. Developing countries are pictured from the absence of trade that leaves their economy isolated to the rest of the world. The concept of developing is more like an active process by which the global lesser-developed nations are exploited by their contact with an abusively capitalist group of already-developed nations. Without sharing the view with the Marxist, One can agree with this definition, since it is derived in the concept of the nation and of the state that some groups of people are collectively referred to as "developed" and others are collectively referred to as "underdeveloped". It is actually entirely irrelevant which nation and which state they belong to, because the level of public and private infrastructure is what generally gives rise to this misconception (Foster-Carter, 1979). The situation of exploiting the developing countries by the developed countries is referred to as corruption (foreign corruption). Apart from the corruption caused by the developing countries through exploitation, the management and strategies of operating or driving the developing country's economy are quite less as individuals in developing countries are involved in a different form of corruption scandals.

### **Terrorism**

According to the United Kingdom legislation titled Terrorist Act (2003) states that "terrorism is the use or threat of action designed to influence the government or to intimidate the public or a section of the public for the purpose of advancing a political, religious or ideological cause".

The definition according to the United Kingdom has an influence on the United States, Canada, and Israel's definition. Terrorism is seen as

violent act dangerous to human life that appears to be intended to: intimidate or coerce a civilian population; influence the policy of a government by intimidation or coercion; or affect the conduct of a government by assassination or kidnapping (United States Code, Title 18, Section 2331 (18 USC 2331 (Adeniran and Owoeye, 2018).

Terrorism is a deliberate creation and exploitation of fear for bringing about political change. Its occurrence can be historical, cultural, political, social, psychological, economic, or religious or any combination of these factors. Examples of terror act are; murder, kidnapping, bombing, arson, and so on (Adeniran, 2018a). Terror acts are committed by non-governmental group or individual who are neither parts of nor officially serving in the military forces, law enforcement agencies, intelligence services, or other governmental agencies of an established nation (Adeniran and Owoeye, 2018; Adeniran, 2016; Hoffman, 2008).

Terror acts can also be conducted by protesters, rebels or fanatical groups who are dissatisfied with government policies and programmes, and are in contestation with the state for power or to impose their own ideological belief thereby overlooking the fact that the state could equally be involved in terrorist activities against its own citizens either directly or through unpopular policies (Adeniran, 2018a). It is a psychological weapon hidden behind an ideological objective (political, economic, or religious), such as Boko Haram terrorist group in Nigeria. It could also be the type conducted by the Movement for the Emancipation of the Niger Delta (MEND) whose activities were aimed at preventing the exploitation and degradation of their land and environment and to have a fair share in the oil revenues. It could also be the (negative) attitudinal conduct carried out by government agents or senior officials to deprive the subordinates of their legitimate rights in gaining advantage (Udama, 2013).

Likely future risings is farmers kicking against open grazing law in a country like Nigeria where many unemployed youths were forced to become farmers; also future rising in African countries can be likened to when citizens and organizations insists on the establishment and enactment of death sentence (death by hanging, or death by being stoned to death, or death by being ground by machine) bill for high corrupt public holders. From the definitions of



corruption and terrorism, two similarities were identified: there is no international legal consensus on the agreed definition of corruption and terrorism; and both corruption and terrorism are national, regional and international issues.

### Impacts of Corruption on Terrorism

Terrorism in Nigeria is at its height most especially in the North-Eastern part of Nigeria and other African countries surrounding Northern Nigeria. The increasing terrorist act is an indication of profitability and success in their activities such as robberies, extortion, kidnapping, oil smuggling. Corruption facilitates terrorism as it undermines governance, the economy, health, social order, and sustainable development in all regions of the globe. According to Louise (2018), terrorists are organized criminals that engage in corrupt activities with governments to survive, as they are dependent on smuggling that requires the collusion of officials. Repulsion at widespread systemic corruption of the government also serves as a recruitment tool for different terrorist organizations. Their activities are dependent on corruption acts, hence corruption is a key tool for terrorism. The terrorist act is connected with the needed logistics by moving people and goods across borders, paying off corrupt officials, facilitating illegal financial flows, and furnishing weapons needed for operations (Adeniran, 2018a).

Out of 176 countries surveyed in the world by Transparency International (2016), the ten least corrupt countries in the world are Denmark (1), New Zealand (1), Finland (3), Sweden (4), Switzerland (5), Norway (6), Singapore (7), Netherlands (8), Canada (9), Germany (10), Luxembourg (10), and United Kingdom (10). Also, the ten most corrupt countries are Burundi (159), Central African Republic (159), Chad (159), Haiti (159), Republic of Congo (159), Angola (164), Eritrea (164), Iraq (166), Venezuela (166), Guinea-Bissau (168), Afghanistan (169), Libya (170), Sudan (170), Yemen (170), Syria (173), Korea (North) (174), South Sudan (175), and Somalia (176). It is important to note that terrorism is prevalent in most corrupt countries in the world, hence there seems to be a relationship between terrorism and corruption in a country. In a situation whereby corruption is highly ranked in a country, the level of terrorism will also be highly ranked, and vice-versa. This indicates that those countries with least corrupt practices are more peaceful, while those countries that are most corrupt are

full of terror acts. Hence, it can be said that corruption is a catalyst that directly or indirectly fuels terrorism.

In order to buttress this fact, corruption reduces the economic buoyancy of individuals in the country, low GDP, poor public health care, worse condition of infrastructure, slow growth, increases poverty, increases income inequality (wide margin between the rich and the poor), and lowers the quality of education which is a worse situation. Therefore the deliberate creation of revolution in the political change cannot be overemphasized, and this is said to be a form of terrorism because it will definitely involve the use of terrorism indices.

In the land borders for immigration and emigration, seaport, airport and another exchange point where traffic are consolidated and fragmented, corrupt officials provide information and documents needed for the operation of terrorists. Corruption can facilitate the entry and movement of drugs and arms into the country which hinders the efficiency of civil-military in combating criminal acts. Recently, comprehensive and accurate data on corruption has become relatively accessible which enhances the establishment of relationships between corruption and other variables. The data covering the period of eight years (2010 to 2017) was available to establish cause and effect relationship.

### METHODOLOGY

This study used secondary data ranging from 2010 to 2017. This period was selected to cover recent and available data of the two constructs for Nigeria, Niger Republic, Cameroon, and Chad. Data were sourced from Transparency International and Institute of Economic and Peace. The study used Trend analysis and Spearman rank correlation. In order to establish the effect of corruption on terrorism, data of Corruption Perception Index and data of the Global Peace Index were gathered.

### RESULTS

It is not surprising with the tragic event of terrorism in the African countries under examination because the reports of corruption revealed by Transparency International gives a clear indication that corruption is highly ranked. The more the corruption is being ranked high, the more the disappearance of peace as shown in table 1, table 2, and table 3. The Corruption Perception Index (CPI) generally ranks countries by their perceived level of corruption

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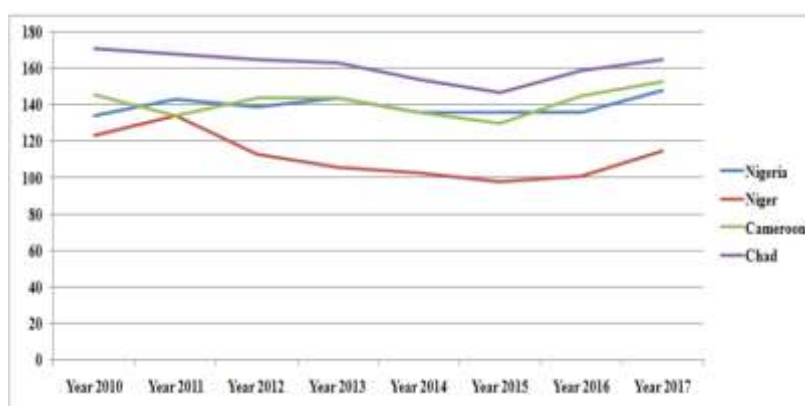
as determined by expert opinions and surveys. Table 1 and figure 1 reveals that rank of corruption in Chad is very high and higher than other three African countries from 2010 to 2017.

While corruption in Niger was ranked lower than other three African countries from 2010 to 2017.

**Table1.** Corruption rank in Nigeria, Niger, Cameroon, and Chad

Year	Nigeria	Niger	Cameroon	Chad
Year 2010	134	123	146	171
Year 2011	143	134	134	168
Year 2012	139	113	144	165
Year 2013	144	106	144	163
Year 2014	136	103	136	154
Year 2015	136	98	130	147
Year 2016	136	101	145	159
Year 2017	148	115	153	165

**Source:** Transparency International (Collated by Author)



**Figure1.** Line graph of corruption rank in four African countries

**Source:** Authors' work

Global Peace Index (GPI) measures the relative position of nations' and regions' peacefulness. The GPI rank is according to the level of peacefulness. In the situation where the trends of peacefulness increase, this signifies the low level of violence, and vice-versa. Table 2 and figure 2 indicates that the rank of global peace in Chad was very high and higher than all other three African countries in the year 2010 and 2011, followed by Nigeria. This is an indication that the level of violence (terrorism) in Chad is quite low in the year 2010 and 2011. While in

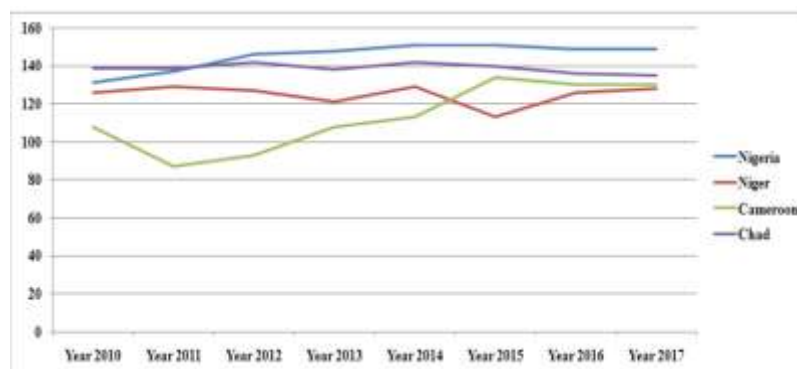
subsequent years till 2017, Nigeria takes the lead as the most peaceful among the four countries under examination. Although the ranks of Cameroon was also high, but it was ranked least among the four African countries from 2010 to 2014, which is an indication that Cameroon witnessed high violence between 2010 to 2014 than other three African countries; while Niger was ranked least from 2015 to 2017, this indicates that Niger witnessed high violence between 2015 to 2017 than other three African countries.

**Table2.** Global peace rank in Nigeria, Niger, Cameroon, and Chad

Year	Nigeria	Niger	Cameroon	Chad
Year 2010	131	126	108	139
Year 2011	137	129	87	139
Year 2012	146	127	93	142
Year 2013	148	121	108	138
Year 2014	151	129	113	142
Year 2015	151	113	134	140
Year 2016	149	126	130	136
Year 2017	149	128	130	135

**Source:** Institute for Economics and Peace (Collated by Author)

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**Figure2.** Line graph of global peace rank in four African countries

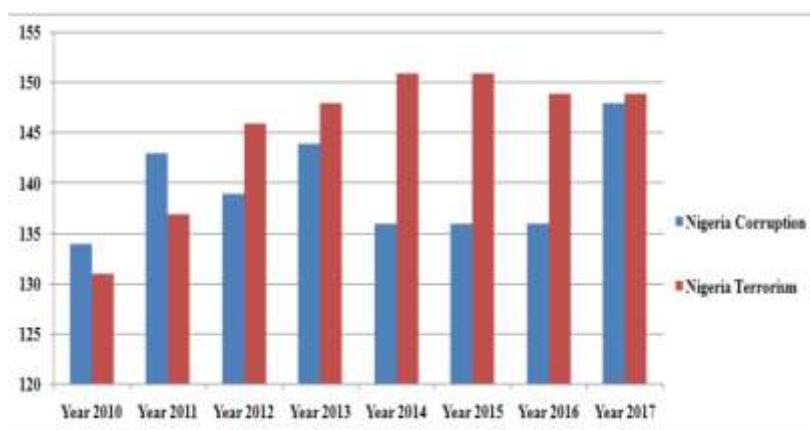
From the data analysis, table 3 was used to produce figure 3, figure 4, figure 5, and figure 6. It is ideal that when the global peace rank is low, then perceived violence or terrorism is high. Hence, for there to be a relationship between corruption and terrorism, there should be a low rank of peace and high rank of corruption. In order to avoid confusion about categorizing global peace and violence

(terrorism), the four African countries under study were ranked to be among the least peaceful countries in the world; this signifies a high level of violence from 2010 to 2017. Hence the rank of global peace will be equal to the rank of violence or terrorism. The bar charts shown in figures 3, 4, 5, and 6 seem confusing, and therefore, the need for serious statistical analysis.

**Table3.** Comparison of corruption rank and Terrorism (violence) in Nigeria, Niger, Cameroon, and Chad

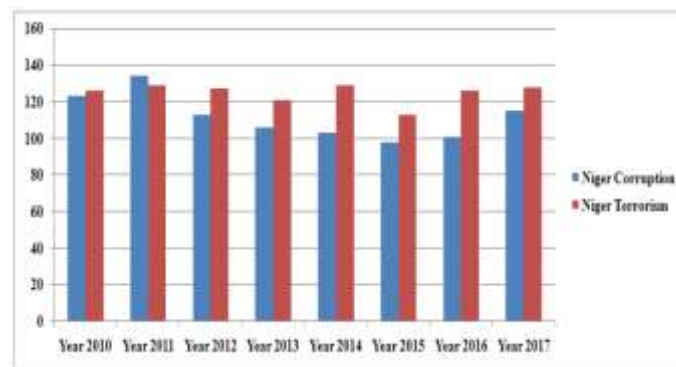
Year	Nigeria Corruption	Nigeria Terrorism	Niger Corruption	Niger Terrorism	Cameroon Corruption	Cameroon Terrorism	Chad Corruption	Chad Terrorism
Year 2010	134	131	123	126	146	108	171	139
Year 2011	143	137	134	129	134	87	168	139
Year 2012	139	146	113	127	144	93	165	142
Year 2013	144	148	106	121	144	108	163	138
Year 2014	136	151	103	129	136	113	154	142
Year 2015	136	151	98	113	130	134	147	140
Year 2016	136	149	101	126	145	130	159	136
Year 2017	148	149	115	128	153	130	165	135

Source: Authors' work

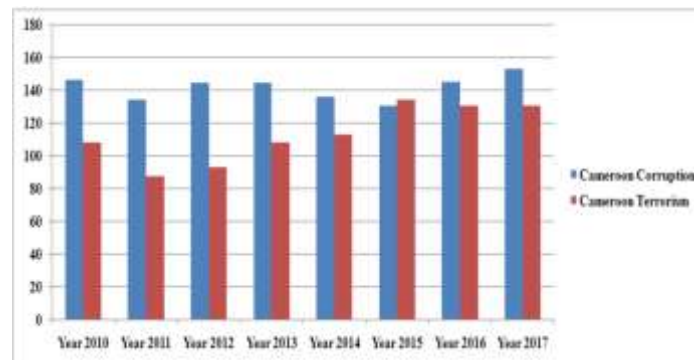


**Figure3.** Bar chart showing the comparison of corruption and terrorism in Nigeria

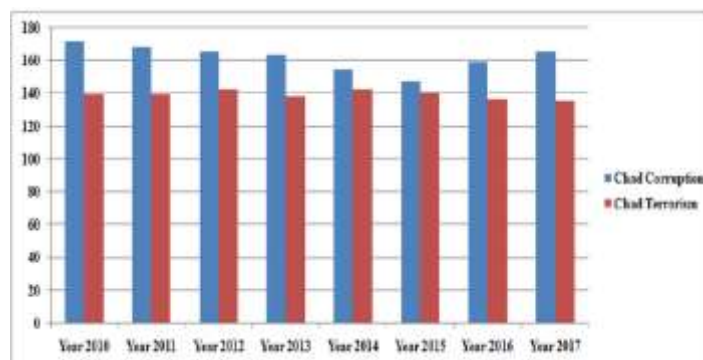
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**Figure4.** Bar chart showing the comparison of corruption and terrorism in Niger



**Figure5.** Bar chart showing the comparison of corruption and terrorism in Cameroon



**Figure6.** Bar chart showing the comparison of corruption and terrorism in Chad

### Spearman Rank Correlation

Correlation is the degree of relationship between the variables (dependent and independent variables) under consideration. The measure of correlation is called the correlation coefficient. The degree of relationship is expressed by a coefficient which ranges from correlation  $-1 \leq r \leq +1$ . The direction of change is indicated by a sign. Correlation analysis helps to have an idea about the degree and direction of the relationship between the two variables under study (Terry, 2007; Adeniran, Adekunle and Adeleke, 2016).

Correlation is said to be positive correlation if the values of two variables changing with the same direction. As X variable is increasing, Y variable is also increasing. As X variable is decreasing, the Y variable is decreasing. It is

indicated by a positive (+) sign. Correlation is said to be a negative correlation when the values of variables change with opposite direction. As X variable is increasing, the Y variable is decreasing. As X variable is decreasing, the Y variable is increasing. It is indicated by a negative (-) sign. The methods of studying correlation are scattered diagram method, Karl Pearson's Coefficient of Correlation, and Spearman's Rank Correlation Coefficient. This study focused on the Spearman rank correlation. When statistical variables under study are not capable of quantitative measurement but can be arranged in serial order, in such situation Pearson's moment correlation coefficient cannot be used in such case; hence Spearman Rank correlation can be used. It is important to note that when a variable is measured at no more than the ordinal level, the researcher must



decide whether to treat the ordinal scale as if it has an interval level scale or to use a correlation coefficient designed for an ordinal level scale. Hence, the correlation coefficient that is designed for ordinal scale statistical data type is Spearman's rank correlation coefficient (Kendall and Gibbons, 1990; Zou and Hall, 2002).

The Spearman is the simple correlation coefficient ( $r_s$ ) of the ranks (the relative order) based on continuous data (Kendall and Gibbons, 1990; Hettmansperger, 1991). It is a qualitative term that was first introduced by Spearman in 1904. The Spearman is used to measure the monotonic relationship between two variables (i.e., whether one variable tends to take either a larger or smaller value, though not necessarily linearly) by increasing the value of the other variable.

The steps involved in Spearman rank correlation are as follow:

- Calculate the difference 'D' of two Ranks i.e. ( $R_1 - R_2$ ).
- Square the difference of ranks  $D^2$
- Calculate the sum of the squared difference i.e.  $\sum D^2$
- Substitute the values obtained into the formula given below.

$$\text{Rank Correlation Coefficient (R}_s\text{)} = 1 - \frac{6 \sum D^2}{N(N^2 - 1)}$$

$R_s$  = Rank correlation coefficient

D = Difference of rank between a paired item in two series.

N = Total number of observation.

Interpretation of Rank correlation coefficient (R)

The value of rank correlation coefficient, R ranges from -1 to +1.

If  $R = +1$ , then there is complete agreement in the order of the ranks and the ranks are in the same direction.

If  $R = -1$ , then there is complete agreement in the order of the ranks and the ranks are in the opposite direction.

If  $R = 0$ , then there is no correlation.

### Hypothesis Testing or Test of Significance

Test of significance is very crucial in research analysis. It is also referred to as hypothesis testing. The main function of the hypothesis is to suggest new experiments and observations. In fact, many experiments are carried out with the

deliberate object of testing hypotheses (Adeniran, 2018b). Decision-makers often face situations wherein they are interested in testing hypotheses on the basis of available information and then take decisions on the basis of such testing.

In social science, where direct knowledge of population parameter(s) is/are rare, hypothesis testing is often used for deciding whether a sample data offer such support for a hypothesis that generalization can be made (Adeniran and Ben, 2017; Adeniran, 2018b).

The steps involved in hypothesis testing for non-parametric test

### State the Hypothesis

Null Hypothesis  $H_0$ : There is no association/relationship between the dependent variable and the independent variable(s)

Alternate Hypothesis  $H_a$  or  $H_1$ : There is association/relationship between the dependent variable and the independent variable(s). In statistics or research, the researcher is always silent about the alternate hypothesis.

### Determine the Critical Region or Significance Level or Error Term.

There are different critical region depending on the researchers' level of confidence. For instance, the critical region of 5% or 0.05 signifies a confidence level of 95% or 0.95. Critical regions can be 0.01, 0.025, and 0.05. For a calculated test, the degree of freedom and the critical region will be determined, while for a computer test, there is no need for determining the degree of freedom but the critical region will be determined.

### Compute or Calculate the Test Statistics using the Parametric or Non-Parametric Test.

A good example of a parametric test is Pearson moment correlation while a non-parametric test is Spearman rank correlation. There is a difference between calculated test and computed test; the calculated test is paperwork whereby the calculations are done on paper, while computed test relies on computer software package such as Statistical Package for Social Sciences (SPSS).

In other to calculate the T-test using either Pearson moment correlation or Spearman rank correlation which are a parametric test and non-parametric test respectively, the formula below is usually applied.

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T test =  $\frac{\sqrt{1-r^2}s}{\sqrt{n-2}}$  Where r = correlation value, n-2 = degree of freedom, n = number of samples

### State the Decision Rule.

The decision rule for the computed test states that if the significance level of the computed test statistics (p-value) is less than the chosen critical region (significance level) that is set by the researcher, the Null Hypothesis will be rejected and the Alternate Hypothesis will be affirmed. However, if the significance level of the computed test statistics (p-value) is more than the critical region, the Null Hypothesis cannot be rejected but the Alternate Hypothesis will be rejected. For the calculated test, if the T-test is more than the Table value, the Null hypothesis will be rejected, but if the T-test is less than the Table value, the Null hypothesis cannot be rejected. It is important to note that inasmuch as the Null hypothesis is not rejected, that does not mean that the Null hypothesis will be accepted. Researchers should be meticulous about the word “Accepted and Rejected” in the

**Table4.** Rank ascribed to data in each country

Nigeria Corruption	Nigeria Terrorism	Niger Corruption	Niger Terrorism	Cameroon Corruption	Cameroon Terrorism	Chad Corruption	Chad Terrorism
1	1	7	3	6	3	7	4
4	2	8	6	2	1	6	4
3	3	5	4	4	2	5	6
5	4	4	2	4	3	4	3
2	6	3	6	3	4	2	6
2	6	1	1	1	6	1	5
2	5	2	3	5	5	3	2
6	5	6	5	7	6	5	1

**Source:** Authors' work

From the analysis summarized in table 5, the study established that there is a very weak negative causal relationship between the corruption and terrorism in Nigeria and Chad with Spearman correlation coefficients (Rs) of -0.012 and -0.212 respectively. There is a strong positive causal relationship between corruption and terrorism in Niger with Spearman correlation coefficients (Rs) of 0.530. Also, there is a very weak positive causal relationship between corruption and terrorism in Cameroon with Spearman correlation coefficients (Rs) of 0.177. Regarding the hypothetical statement, the null hypothesis which states that there is no relationship between corruption and terrorism in all the four African countries examined were not rejected as the respective p values were more than the significance level at 0.05. The insignificance and weak correlation might be attributed to the size of the sample. It is

hypothesis. Since a Null hypothesis is a fallacious statement, if it cannot be rejected, then it cannot be accepted. Instead of using the statement “accept the Null hypothesis”, it is better to use the statement “cannot reject the Null hypothesis” (Adeniran and Ben, 2017; Adeniran, 2018b)

### Conclude the Test Based on the Decision Rule Earlier Stated.

This is the last step which requires the comparison of step two with step 3 and supported with the decision in step 4. On this note, the conclusion will be decided.

## DISCUSSION

Spearman rank correlation was used to examine the relationship between the rank of corruption and terrorism in the selected four African countries (Nigeria, Niger, Cameroon, and Chad). This method of analysis was used because of the ordinal type of data involved in this study. Also, hypothesis testing was achieved with SPSS version 15.0.

interesting to note that the findings of this study corroborate the findings of the Institute for Economics and Peace (2015) which revealed a relationship between peace and corruption. It also supports the findings of Al-Badayneh (2009) which shows a negative correlation between corruption and terrorism, however, it does not support the statistically significant relationship between corruption and terrorism incidents in the Arab World over the period 1970-2007. This study does not corroborate the findings of Adeniran (2018a) which revealed a strong and positive relationship between the low rank of the global peace index and the high rank of corruption perception index in Nigeria. This negation might be due to the fact that Adeniran (2018b) used the data where the period is ten, and regression statistical test was used, hence, variation in the sample size and technique were identified. The study does not support the

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findings of Nahil and Malik (2016) which revealed a relationship between corruption and terrorism using a dataset approach for a panel of

123 developed and developing countries over the period 2003-2014.

**Table 5.** Summary of analysis

Countries	Spearman Correlation (Rs)	Significance	Direction of Relationship	Strength of Relationship	Hypothetical Decision
Nigeria	-0.012	0.977	Negative	Very weak	Cannot Reject $H_0$
Niger	0.530	0.177	Positive	Strong	Cannot Reject $H_0$
Cameroon	0.188	0.656	Positive	Very weak	Cannot Reject $H_0$
Chad	-0.212	0.614	Negative	Very weak	Cannot Reject $H_0$

**Source:** Authors' work

### CONCLUSION

This study has examined the relationship between corruption and terrorism in four African countries. The study established that there is a very weak negative causal relationship between corruption and terrorism in Nigeria and Chad with Spearman correlation coefficients (Rs) of -0.012 and -0.212 respectively. There is a strong positive causal relationship between corruption and terrorism in Niger with Spearman correlation coefficients (Rs) of 0.530. Also, there is a very weak positive causal relationship between corruption and terrorism in Cameroon with Spearman correlation coefficients (Rs) of 0.177. Regarding the hypothetical statement, the null hypothesis which states that there is no relationship between corruption and terrorism in all the four African countries examined were not rejected as the respective p values were more than the significance level at 0.05. Hence, there is no relationship between corruption and terrorism in Nigeria, Niger, Cameroon, and Chad. The implication of this study is that the fight against corruption may not be a good means of tackling terrorism in Africa, especially in Nigeria, Cameroon, and Chad. Hence, anti-corruption strategies and counterterrorism strategies should be developed and applied independently.

### ABBREVIATIONS

ARDL: Auto-Regressive Distributive Lag

CC: Corruption Indicator

CPI: Corruption Perceptions Index

GPI: Global Peace Index

IMF: International Monetary Fund

MEND: Movement for the Emancipation of the Niger Delta

USC: United States Code

### DECLARATIONS

#### Acknowledgement

Not applicable

#### Ethics Approval and Consent to Participate

Not applicable

#### Consent for Publication

Not applicable

#### Availability of Data and Material

Secondary data was obtained from secondary sources

#### Competing Interests

No potential conflict of interest was reported by the author

#### Funding

Not Applicable

#### Authors' Contribution

The author is responsible for appropriate portions of the content and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The author read and approved the final manuscript.

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