

## Analysis of Crime Control and Foreign Direct Investment in Nigeria

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### Abstract

This study analyses the impact of crime control on the performance of Foreign Direct Investment (FDI) in Nigeria. To obtain the objective of appropriate policymaking, secondary data covering 1996 to 2017 was utilized. This study employed multiple econometrics regression techniques (MERT) using econometrics view for the analysis. Unit root test was carried out to overcome spurious results and most of the variables became stationary at first difference. The results revealed that defense vote does not exhibit correct signs based on a priori criteria and has no significant impact on the performance of FDI in Nigeria. Furthermore, the internal security vote and corruption index of Nigeria conform to the a priori criteria and both have positive and negative impact on FDI inflows to Nigeria respectively. Meanwhile, the  $R^2$  (0.71) and  $\bar{R}^2$  (0.66) indicate that the model fits the data quite well and in addition, the F-statistic which is the test statistics for overall results significant with (14.42) as compared with the tabulated value of 3.16 and  $\rho=0.0000$ . This is an indication that the model is well formulated. The results obtained from the individual variables provide adequate information for decision making that will influence the foreign direct investment in the country. Based on the findings, the following recommendations are made among others; the inverse signs of defense vote call for concern, that it should be increased, the annual budget should be executed early to avoid delay effect and corruption should be fought vigorously as it affects the efforts of fighting crime.

**Keywords:** Crime control, Corruption, Defense, Foreign Direct Investment, Internal Security and Nigeria.

### Introduction

It has been globally established that Foreign Direct Investment (FDI) is a necessary ingredient for sustainable economic growth and development of host economies. The cardinal role of FDI in emerging/developing economies including Nigeria can be underscored on the ground that these countries can hardly mobilize their domestic savings sufficiently enough to stimulate investment, employment, income and economic stability. The FDI serves to augment the deficit of domestic investable resources.

Overall benefits of FDI for developing countries are well documented given the appropriate host-countries' policies and basic level of development (OECD, 2002). In furtherance to this, the OECD (2002) reported that FDI triggers technology spillovers, assist human capital formation, contributes to international trade integration, helps create a more competitive business environment and enhances enterprises development. It is believed that some institutional and environmental factors tend to prevent some developing countries especially from realizing optimal benefits of FDI inflow in the domestic economy.

According to Ndem, Okoronkwo and Nwamuo (2014), the steady decrease in the share of FDI inflow in Nigeria can be attributed to high level corruption, poor governance, in adequate infrastructures amongst others. These constitute poor business environment and these myriads of socio-economic challenges have been made worse with the prevalence of varying degrees of crimes that seem to remain unabated in Nigeria. The wave of crimes in Nigeria have graduated from robbery, 419, yahoo boys/yahoo plus, internet fraudsters/cybercrimes, and others to kidnapping/hostage taking for the purpose of coercing the victims' employers, family or the government to raise huge amount of money to release the victims.

The wave of insecurity and its effect on the level of investment in Nigeria most especially the foreign direct investment has been recognised by studies (Jelilov, Ozden & Briggs, 2018). In their study relating to the impact of insecurity on investment in Nigeria, Jelilov, Ozden and Briggs documented that the wave of insecurity in Nigeria has discouraged not only local but foreign investment in the country. According to Ukoji and Okolie (2016), crime in Nigeria for the past few years has assumed a debilitating proportion. The development portrays the inability of government to provide security and safe environment for lives, properties and the conduct of economic activities (Osawe, 2015; Ukoji & Okolie, 2016).

Giving the fact that information technology has made the world a digital global village, no amount of papers at global fora that Nigerian political leaders would present to project Nigeria as safe haven for investment will likely yield positive results as foreigners are aware of the trend of insecurity ravaging the country. This can explain why foreign direct investment favours the oil enclave sector at the expense of other sectors such as education, health and agriculture and thus can only bring about few employments and hardly can overcome poverty trend in Nigeria. The FDI inflows to Nigeria has been dwindling and in the downward trend for a decade now.

## **Conceptual Clarifications**

### **Crime**

Crime is any act which constitutes an offence against the organization or society or nation and punishable by law. Some societies believe that same sex marriage is legal while some societies maintain otherwise. In Nigeria, killing of bush animals is seen as a means of

earning a living, and some hunters are praised for their bravery when they kill animals like buffalo, elephants, chimpanzee, whale or soon, but if the killings take place in some societies where such animals are held as endangered species, the act is seen as a crime. Nonetheless, there are common deviant behaviours which are termed as crimes across the globe such as homicide, financial crimes, corruption, bribery, thuggery, rape and other sexual violence, human trafficking, drug trafficking, robbery, kidnapping, terrorism, denial of human rights, cybercrime, self-kidnapping, arms proliferation. What constitutes crime does not have limited scope and that deviant acts metamorphosis from time to time. The obvious is that it violates the social norms of a given setting. According to the Scottish Centre for Crime and Justice Research (2015), crime is an action or omission which constitutes an offence punishable by law. It further conceives crime as an offence which goes beyond the personal and into public sphere, breaking prohibitory rules or laws, to which legitimate punishments or sanctions are attached and which requires the intervention of public authority. Crime is a public wrong as criminal offense has harmful effect on some individual or individuals as well as community, society or state (Ukoji & Okolie, 2016).

### **Crime Control**

This explains measures put in place to counter behaviours which have detrimental effects on individuals, organization, societies, nations and the global community. It also includes mechanism put in place to prevent crimes and stem the wave of criminality in a given society. Since crime constitutes insecurity, it therefore means that measures to have security constitute crime control measures. It embraces all efforts geared towards forestalling integrity and confidentiality of citizens, foreigners and committee of nations on a given nation by the manner which the security architecture can deter, delay, detect, deny or mitigate harmful attacks on people and installations or facilities within the boundaries of any given country. Crime control has to do with behaviours and approaches directed at reducing the threat of crimes and enhancing the sense of security and safety which is aimed at improving the quality of life, and as well as develop an environment where crimes cannot thrive (Adebayo, 2013). Crime control embraces the anticipation, recognition and appraisal of crime and initiation of some actions to remove it.

### **Foreign Direct Investment**

Foreign direct investment is an investment in a business by an investor from another country for which the foreign investor has control over the company. According to Susic, Trivanovic and Susic (2017), foreign direct investment represents such investment in which a foreign investor keeps the ownership right, provides control and the management of the firm he invested the funds, in order to achieve long term interest. This is why most foreign direct investments are owned by multinational companies with robust capital resources to sustain their assets outside the home countries. FDI represents the amount of investments made by foreign investors over a period of time (Sarbu & Gavrea, 2014).

## **Theoretical Evidence and Empirical Review**

The gains of foreign direct investment can be analysed in two directions; the side of host economies and the foreign investors. With this in mind, several factors account for motivation of foreign investment into the host countries amongst which has to do with business environment including safety concern particularly crime issue. The traditional determinants of FDI are becoming relatively less important such as natural resources and labour cost while the less traditional factors such as governance and economic freedom are becoming more popular (Perres, Ameer & Xu, 2018). Countries with high crime rates portray weak governance and the nature of violent crimes such as kidnapping and Boko haram insurgents deter economic freedom. This has negative effect on inflow of FDI to Nigerian economy as uncertainty about loss likely to be due to criminal activities constitute risk premium to investors. Firms may be reluctant to invest in expensive equipment and machinery for fear of losses due to theft and vandalism (Mahofa, Sundaram & Edwards, 2016).

In Ashby and Ramos (2013), organized crimes deter foreign direct investment in financial services, commerce and agriculture in Mexico. In addition, Kimou and Gyimah-Brempong (2012) revealed that crime has a negative effect on investment. Violent crimes affect the diversification of economic production factors because it can lead to outflow of human capital and as well reduction in production. Foreign direct investment is believed to be motivated to places with high human capital stock but on daily record, human capital suffers drain outside the country as the active populace feel insecure and unsafe.

Violent crime and perception of crime can affect a company's ability to attract customers, recruit and retain employees, boost workplace morale and ensure productivity of its employees in some cases to stay in business. Mahofa *et al* (2016) established that an increase in crime rates, in particular, the property crime rates reduces business entry, with one percent increase in total crimes leading to a reduction of business entry by 0.53 percent. There is no gainsaying that reduction in crime rates and the assurance of sustainable security will bring about growth in the inflow of foreign direct investment into Nigeria. The bane of FDI inflow to Nigeria can be attributed social instability, crime and corruption and thus resulted to the loss of confidence in Nigeria on general note and particularly to partner with Nigerians (Taiwo, Achugamonu, Okoye & Agu, 2017).

The wave of crimes in Nigeria have continued to rob the nation of the gains expected from the presence of FDI. Nigeria has abundant natural resources as well as robust market size which the FDI should ordinarily take as advantage and in turn beneficial to Nigeria but the issue of crime in varying dimensions in Nigeria tend to undermine Nigeria's promising gains.

Bayar and Gavriletea (2018) viewed that both FDI and portfolio inflows have become important sources of finance, especially for countries without sufficient capital but the frequency and severity of crimes associated with globalization process have caused

decrease in foreign capital inflows which may be detrimental to the development of the emerging economies.

There are a lot of benefits associated with FDI inflows such as environmental and social improvement, knowledge transfer, employment opportunities, new technologies and innovation (De Mello, 1997, Basu & Gauringlia, 2007; Kurtishi-Kastrati, 2013; Bayar & Gavriletea, 2018). These benefits will not be fully realized in Nigeria as crime problem has constituted security concern and unless it is abated, the foreign investors would prefer alternative destinations.

**Methodology**

**Data and Variables**

The data for the study was obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin and World Facts book on four variables - foreign direct investment to Nigeria, defense vote, internal security vote and corruption perception index of Nigeria between 1996 and 2017. Foreign direct investment is the dependent variable while the others are the explanatory variables.

**Model Specification**

The model of this study was specified in line with the empirical study of Jelilov *et al* (2018) where FDI was discovered to exert influence by crime incidence. Given this, the relationship between foreign direct investment (FDI) and other variables representing the incidence of crimes in the country for decision making were examined. The FDI is taken as the outcome variable and Defense vote, Internal Security Vote and Corruption Index. Therefore, in this study, the model captures variables that are expected to influence FDI in Nigeria which are specified thus:

$$FDI = f(DFV, ISV, CRI) \tag{1}$$

Where;

DFV = Defense vote

ISV = Internal Security Vote

CRI = Corruption Index

Mathematically, the relationship becomes:

$$FDI = DFV + ISV + CRI \tag{2}$$

The econometric form becomes

$$FDI_t = \alpha + \beta_1 DFV + \beta_2 ISV + \beta_3 CRI + \mu \tag{3}$$

With the result that best suit the model as established by the unit root test, the relationship becomes:

$$FDI_t = \alpha - \beta_1 DFV_{t-1} + \beta_2 ISV_{t-*} - \beta_3 CRI_{t-1} \tag{4}$$

After linearizing, better fit is achieved and the relationship becomes

$$\ln FDI_t = \alpha - \beta_1 \ln DFV_{t-1} + \beta_2 \ln ISV_{t-*} - \beta_3 \ln CRI_{t-1} \text{-----} \quad (5)$$

To overcome serial correlation, the final estimation was done without linearizing the value of corruption index (CRI), and the model assumes this form:

$$\ln FDI_t = \alpha - \beta_1 \ln DFV_{t-1} + \beta_2 \ln ISV_{t-*} - \beta_3 CRI_{t-1} + \mu \text{-----} \quad (6)$$

**A priori theoretical expectation**

$\beta_2 > 0$  while  $\beta_3$  and  $\beta_1 < 0$

$\mu$  is assumed to be normally distributed with zero mean and constant variance.

**Co-integration Test**

Stationary time series are said to be co-integrated if they move together through time, meaning that they are tied together through statistical test. The trace statistics and maximum Eigen value are used to compare with the critical value of 5 percent level of significance.

Table 1. Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.362589	16.46553	29.79707	0.6792
At most 1	0.310181	7.458709	15.49471	0.5250
At most 2	0.001609	0.032201	3.841466	0.8575

Trace test indicates no co-integration at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Source : Authors' Computation using E-views version 7

Table 2. Unrestricted Co-integration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.362589	9.006823	21.13162	0.8319
At most 1	0.310181	7.426508	14.26460	0.4400
At most 2	0.001609	0.032201	3.841466	0.8575

Max-eigenvalue test indicates no cointegration at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

Table 3. Unrestricted Co-integrating Coefficients (normalized by b'S11\*b=I):

DFV	ISV	CRI
-0.020682	0.025582	0.020364
0.011734	-0.004399	0.025714
-0.008891	0.000135	0.002696

Tables 1, 2 and 3 displayed the results of co-integration tests. The results revealed that there is no co-integrating relationship among the variables. The trace statistics, maximum Eigen value and the normalised tests all provided evidences to support the null hypothesis that there is no long run relationship between the variables under investigation at 5 percent level of significant. This implies that findings of this study will be more valid for decisions and policy makings based on the individual variable relationships with the outcome variable (foreign direct investment) than forecasting the trend of FDI

**Unit Root Test**

The unit root test is recommended for time series data to avoid spurious result. The test is often conducted to establish whether the variables have a unit root or not within the period of study.

Table 4. Unit Root Test Results

Variable	Level	Prob.Value	First difference	Prob. Value	Order of Integration
FDI	-1.38625	0.5691	-4.23704*	0.0040	I(1)
DFV	-0.36995	0.8997	-5.13780*	0.0006	I(1)
ISV	-1.09523	0.9958	-1.29691***	0.6041	I(1)
CRI	-1.26340	0.6252	-3.85933*	0.0094	I(1)
Asymptotic Critical Values					
1%	-3.78880		-3.80855		
5%	-3.01236		-3.02069		
10%	-2.64611		-2.65041		

\* implies significant at 1% level, \*\* significant at 5% level and \*\*\* non significant

Source: Authors’ computation using E-Views Version7.

Table 2 showed the unit results. From the result, it was observed that among the explanatory variables; defense vote and corruption index are stationary at 1<sup>st</sup> difference I(1) while internal security vote is not stationary at any level of difference.

Table 5. Estimated multiple regression results

Dependent Variable: LOG(FDI)  
 Method: Least Squares  
 Date: 05/31/19 Time: 13:50  
 Sample: 1996 2017  
 Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.77881	1.390971	13.50051	0.0000
LOG(DFV)	-0.700080	0.498125	-1.405431	0.1769
LOG(ISV)	1.360596	0.476218	2.857085	0.0105
CRI	-0.019959	0.006153	-3.243583	0.0045

R-squared	0.706274	Mean dependent var	20.66664
Adjusted R-squared	0.657320	S.D. dependent var	1.975233
S.E. of regression	1.156279	Akaike info criterion	3.291258
Sum squared resid	24.06568	Schwarz criterion	3.489629
Log likelihood	-32.20383	Hannan-Quinn criter.	3.337988
F-statistic	14.42721	Durbin-Watson stat	2.389028
Prob(F-statistic)	0.000049		

Source: Authors' computations using E-views version 7.

## Discussion of Results

Table 5 depicted the estimated regression which demonstrated the impact of the explanatory variables on the outcome variable as presented in the model of the study. From the results, it was observed that the individual variable as showed by the t-ratios obtained using probability values compared with 5 percent level of significance ( $\alpha_{0.05}$ ) shows that the defence vote does not have a significant impact on FDI inflows in Nigeria. This was demonstrated as a unit change in DFV brought about 0.70 unit change which is corresponding to 70 percent decrease in foreign direct investment in the country while holding other variables constant. In other worlds, a unit change in the internal security vote led to about 1.36 unit change which corresponds to 136 percent increase in foreign direct investment while holding other variables constant.

This implies that within the period of study, internal security votes had impacted significantly on the FDI and conforms to a priori expectation of this study. The corruption index exhibit negatively impacted on FDI in Nigeria as demonstrated by the estimates which indicates that a unit change in CRI while holding other variables constant brought about decrease foreign direct investment inflow into Nigeria by 0.019 units which corresponds to about 1.9 percent decrease in the foreign direct investment in Nigeria. The result of the corruption index is consistent with the conclusions that countries with lower corruption index scores in host countries have positive association with FDI inflows (Cuervo-Cazurra, 2006, 2008; & Peres *et al*, 2018).

In overall, the variables combined explained about 71 percent variation in the foreign direct investment (FDI) as demonstrated by  $R^2$  (0.71) and after adjusting for other intervening variables the  $\bar{R}^2$  (0.66) suggest that the model has good fit. The overall fitness of the model was confirmed by the  $F_c$  (14.42) with  $\rho=0.0000$  indicating that the model is well formulated and it is significant in explaining FDI inflow in Nigeria.

## Conclusion

Nigeria needs to seriously motivate foreign direct investment into the domestic economy to stem the negative tides of unemployment and poverty. The prevalence of crimes especially Boko Haram, hostage taking, banditry have made Nigeria to be seen as unfriendly for investment especially foreign investment. There is need for sincerity of



purpose and commitment on the side of the leaders as well as all those saddled with security concern of Nigeria.

### **Recommendations**

From the results of the findings, it is believed that if the following policy recommendations are considered, foreign direct investment and even domestic investment will be encouraged so as to bring about economic stability and overall development of the nation:

- i. Defense vote should be used to procure the necessary gadgets to fight bandits and insurgents in the country. From findings, the administration of security vote in Nigeria seems not to impact seriously on the wave of crimes in Nigeria and hence needs to be reappraised.
- ii. Internal security vote though significant in explaining FDI in Nigeria has uncertain delayed effect which is not assured. It means that the quantum of security vote in Nigeria has to be increased.
- iii. Corruption negates efforts put in place to fight crimes in Nigeria. From findings, it shows that it negates FDI inflow in Nigeria. Corruption needs to be fought vigorously as it undermines all budget administration. This is because public resources are often diverted for individual gains and undermine the results that would have been achieved without corruption.
- iv. The detection and prevention require the use of forensic technology. When an individual plan to commit an offense and knows that he/she would be caught, they will not venture into such but if otherwise, the individual will carry it out with the thinking that he will not be caught.
- v. Annual budget should be implemented early enough to overcome delayed effect of policy direction.

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## Appendix A

Equation one. Log Transformation of Data Result( this improves the R-squared and , F-stat, and DW – stat)

Dependent Variable: LOG(FDI)

Method: Least Squares

Date: 05/31/19 Time: 13:36

Sample: 1996 2017

Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.92219	2.643642	9.048954	0.0000
LOG(DFV)	-0.612254	0.495959	-1.234484	0.2329
LOG(ISV)	1.107181	0.498594	2.220606	0.0395
LOG(CRI)	-1.445576	0.435131	-3.322159	0.0038
R-squared	0.711493	Mean dependent var		20.66664
Adjusted R-squared	0.663408	S.D. dependent var		1.975233
S.E. of regression	1.145961	Akaike info criterion		3.273330
Sum squared resid	23.63809	Schwarz criterion		3.471702
Log likelihood	-32.00663	Hannan-Quinn criter.		3.320061
F-statistic	14.79671	Durbin-Watson stat		2.542559
Prob(F-statistic)	0.000042			

Observation : log(DFV) not significant and DW still above 2 ie 2.5 still denoting presence of sderial correlation . though, not tool high enough. To further take care of this problem model two below left CRV without log

Model 2.

Dependent Variable: LOG(FDI)

Method: Least Squares

Date: 05/31/19 Time: 13:50

Sample: 1996 2017

Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.77881	1.390971	13.50051	0.0000
LOG(DFV)	-0.700080	0.498125	-1.405431	0.1769
LOG(ISV)	1.360596	0.476218	2.857085	0.0105
CRI	-0.019959	0.006153	-3.243583	0.0045
R-squared	0.706274	Mean dependent var		20.66664
Adjusted R-squared	0.657320	S.D. dependent var		1.975233
S.E. of regression	1.156279	Akaike info criterion		3.291258
Sum squared resid	24.06568	Schwarz criterion		3.489629
Log likelihood	-32.20383	Hannan-Quinn criter.		3.337988
F-statistic	14.42721	Durbin-Watson stat		2.389028

Prob(F-statistic) 0.000049  
 observation : no presence of serial correlation as DW= 2.4

### Appendix B

Result without data adjustment for stationarity (At Level)

Dependent Variable: FDI  
 Method: Least Squares  
 Date: 05/29/19 Time: 23:00  
 Sample: 1996 2017  
 Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.11E+09	1.73E+09	1.791207	0.0901
DFV	-21107379	10539830	-2.002630	0.0605
ISV	26990926	10551221	2.558086	0.0198
CRI	-24378139	14794691	-1.647763	0.1167
R-squared	0.559184	Mean dependent var		3.13E+09
Adjusted R-squared	0.485714	S.D. dependent var		3.27E+09
S.E. of regression	2.35E+09	Akaike info criterion		46.15492
Sum squared resid	9.93E+19	Schwarz criterion		46.35329
Log likelihood	-503.7041	Hannan-Quinn criter.		46.20165
F-statistic	7.611117	Durbin-Watson stat		0.944177
Prob(F-statistic)	0.001719			

#### Diagnostic tests

Pairwise Granger Causality Tests  
 Date: 05/29/19 Time: 23:39  
 Sample: 1996 2017  
 Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
DFV does not Granger Cause FDI	20	0.39809	0.6785
FDI does not Granger Cause DFV		3.10900	0.0742
ISV does not Granger Cause FDI	20	1.16683	0.3381
FDI does not Granger Cause ISV		1.67358	0.2208
CRI does not Granger Cause FDI	20	2.50152	0.1155
FDI does not Granger Cause CRI		4.06633	0.0388
ISV does not Granger Cause DFV	20	2.43936	0.1210
DFV does not Granger Cause ISV		0.31261	0.7362

CRI does not Granger Cause DFV	20	1.08871	0.3618
DFV does not Granger Cause CRI		0.92153	0.4193
CRI does not Granger Cause ISV	20	0.13462	0.8751
ISV does not Granger Cause CRI		1.81945	0.1961

**Co-integration test**

Date: 05/29/19 Time: 23:44  
 Sample (adjusted): 1998 2017  
 Included observations: 20 after adjustments  
 Trend assumption: Linear deterministic trend  
 Series: DFV ISV CRI  
 Lags interval (in first differences): 1 to 1  
 Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.362589	16.46553	29.79707	0.6792
At most 1	0.310181	7.458709	15.49471	0.5250
At most 2	0.001609	0.032201	3.841466	0.8575

Trace test indicates no cointegration at the 0.05 level  
 \* denotes rejection of the hypothesis at the 0.05 level  
 \*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.362589	9.006823	21.13162	0.8319
At most 1	0.310181	7.426508	14.26460	0.4400
At most 2	0.001609	0.032201	3.841466	0.8575

Max-eigenvalue test indicates no cointegration at the 0.05 level  
 \* denotes rejection of the hypothesis at the 0.05 level  
 \*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b\*S11\*b=I):

DFV	ISV	CRI
-0.020682	0.025582	0.020364
0.011734	-0.004399	0.025714
-0.008891	0.000135	0.002696

LOG(FDI) vs Variables (Partialled on Regressors)

