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Research Article

MACRO-ECONOMETRIC MODELING OF SOCIAL INSECURITY, FOREIGN DIRECT INVESTMENTS AND ECONOMIC GROWTH ASSOCIATION

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Abstract

Social insecurity has in recent time constituted a major hurdle to the Nigeria authorities. Theoretically, it is believed to have a strong negative link with Foreign Direct Investment (FDI) and levels of economic growth. This in Nigeria's context ranges from Niger Delta crises, to the un-going Boko-Haram Islamists Militants insurgency. Given paucity of empirical literature on this line of investigation into this form of socioeconomic problem, this study empirically examines the link amongst social insecurity, FDI and growth of the Nigerian economy. The study adopted the Augmented Cob-Douglas production function in its analysis, introducing the variable (social insecurity) into the FDI model and subsequently traces its impact on economic growth. Result indicates that social insecurity stimulates the inflow of foreign technology, rather than inhibit it. The paper attributes this to merging of these distinct forms of social insecurity in the study and consequently recommend an explicit examination of these forms of social insecurity-FDI association in Nigeria.

Key words: Macro-econometric modeling, Social insecurity, Foreign Direct Investment, Economic Growth, Augmented Cub-Douglas Production functions.

Introduction

Social insecurity remains one factor that scares investible funds from any economy where it exists, as investors want to be sure of the security of their investments where ever they choose to invest. This is given the fact that insecurity is a risk factor which investors all over the globe dread so well. Insecurity is an uncertainty which is not only considered bad for business, but also sends warning signals to will-be investors to take their investible funds to another country with a better records and atmosphere of security (chejina,2011). Insecurity has in recent times constituted a major hurdle to the Nigerian authorities. This in Nigeria ranges from the Niger Delta crises (1990s to 2009) to the most recent and ongoing Boko Haram Islamic sect insurgence. Foreign investors now see Nigeria as a high risk country to invest, and this is taking its toll on businesses and consequently the growth of the Nigerian economy via short and medium term negative impact on the flow of Foreign Direct Investments (FDI). Insecurity and FDI is in theory known to have a significant negative correlation, and the extent to which this effect transmits to the determination of levels of growth of the economy where it exist should be of great importance for policy.

According to the United Nations Conference on Trade and Development (UNCTAD), about US$1.4 trillion investment capital circulates globally. This figure indicates that capital in the global economy is volatile with a lot of indicators considered by investors before they decide to invest in any given economy. One of these indicators strongly considered is security of lives and investments. The Niger Delta crises which began in the early 1990s and degenerated in 2008 into kidnapping and adoptions of oil workers, and most recently the Boko Haram Islamic sect insurgence whose activities led and still leading to lose of lives through suicide bombings and reckless shootings and destruction of lives and properties, constitute two major insecurity challenges in Nigeria in recent times. These two major threats to the security of lives and investment led to huge FDI outflows from Nigeria and hindering of subsequent inflows: There were huge FDI outflow from Nigeria in 2008 to 2009 as a result of Niger Delta crises, and most recently according to the world investment report of UNCTAD, The Nigerian economy recorded a reduction in FDI from US$8.65 billion in 2009 to US6.1 billion in

2010 due to the fear of Boko Haram. These quantum of loses of FDI can easily be measured by the reoccurring daily huge losses of stocks which serves as the barometer for measuring the growth of the economy. In terms of opportunity cost, critical sectors of the economy that could have gotten increased funding in the budget, is known in recent times to have lost such to huge allocation to the security sector as the authorities redoubles efforts to put the situation under check.

Currently as it stands in Nigeria, there is a paucity of empirical literature on the effects of social insecurity on the flow of international investments, as most data on the issue have been of the sunspot nature. On the other hand, Roy and Van den Berg (2006) points out a lack of consensus on growth effects of international investments globally. Though more widely studied, but so far the accumulated evidence is still not clear, furthermore, not all empirical evidence support the hypothesis that FDI as an aspect of international investment plays a positive role in diffusing technology and stimulating economic growth, so it becomes clear that FDI- growth relationship is complex and calls for more research efforts. As a result, it becomes necessary to have empirical knowledge of what the economy has lost and unfortunately still losing as a result of these social menaces. Such empirical evidence will no doubt provide the necessary guide and tonic needed to spur the authorities to a more result oriented action, as they redouble efforts at finding a lasting solution to the problem of social insecurity in Nigeria. Again, knowledge from a detailed study of the insecurity situation in Nigeria is most likely needed as it will serve as a spring board for dealing with the social security needs of the Nigerian state at present and in the future. In the light of these, the paper assesses the effects of social insecurity on the long run growth of the Nigerian economy, through its effect on FDI flows to Nigeria within the period under investigation.

Review of Related Literature

Insecurity and FDI Flows in Nigeria

The significant presence of Foreign Direct Investments in Nigeria's industrial sector began in the 1970s. FDI activities in Nigeria over these period has been in the primary sub-sector of the industrial sector, where they are involved in oil and gas productions and recently the services sector since the liberalization of the telecom sector. Statistics has it that 50% of FDI inflows to Nigeria from major investors over the period 1996 to 2000 had the primary sector as their most important destination. On the African front according to UNCTAD (2000), Sub-Saharan African countries attracted US$5582 million FDI inflows in 2000; representing 0.44% global FDI flows, and 2.3% of total inflows to developing countries. Of these, Nigeria accounted for US$1000 million. On the stock of FDI (accumulated inflows) which is arguably a better measure than flows, rose progressively for Nigeria from 2.6% of GDP in 1980 to 50.5% of GDP in 1999 (Te Velde, 2001). A lot of indicators are considered by investors before they decide to invest in any given economy; among these are corruption, political stability, security, as well as level of infrastructural development. In a renewed efforts at improving in Nigeria's records on these indicators, the last Obasanjo regime made efforts at bringing about improvements in these areas as observed, thereby creating an enabling environment for inflow of foreign investments. This accounted for the relatively higher FDI inflow to Nigeria over the period 1999 to 2007. However, crises in the Niger Delta which deepened, culminating into kidnapping and abdoptions of foreign oil workers in 2004, continued unabated till 2008-2009. This development led to the closure of firms, while those that did not close, ran skeletal operations instead, as western countries called for their nationals to leave the region. The government amnesty programme became the panacea for the problems in the region at the time(2009).

As the nation moved a step away from the Niger Delta crises, came the barbaric activities of Boko-Haram Islamic sect insurgency. The group who has claimed responsibility for many shootings and bombings across Nigeria, especially across northern states, including the United Nation's building at Abuja, massacre of Madala Christian worshipers and ambush of security personnels on duty and many other killings, has scared away investors from Nigeria. According to the world investment report of UNCTAD (2000), the Nigerian economy recorded a reduction in FDI from US$8.65billion in 2009 to US$6.1 billion in 2010 due to the fear of Boko Haram. The Nigerian tourism sector which is worth some N80 billion annually has lost more than half of its value due to terrorist attacks. These are in addition to a US$1. 2 billion business investment funding deal lost in the real sector by a supposedly indigenous firm, due to the Independence Day bombing.

FDI-Economic Growth Association

Review of past works herein are carried out from two perspectives; first, the study ex-rays past studies, most of which are cross country studies whose debate was on the potential benefits accruable from FDI. Secondly the study looked at specifically Nigerian studies-an extension of the relations.

The debate on the issue of multinational corporations (MNCs) activities generating or not generating adequate spillovers required to spur growth in host economies led Alfaro L (2003) to argue that empirical evidence for FDI generating positive spillovers for host countries is ambiguous at both micro and macro levels. The paper further concludes that FDI flows into the different sectors of the economy (primary, manufacturing and services) exert different effects on economic growth; FDI inflows to the primary sector tend to have a negative effect on growth, whereas FDI inflows in the manufacturing sector-

a positive effect on growth. Evidence from the service sector is ambiguous. Hanson (2001) argues that evidence that FDI generates positive spillovers for host countries is weak. In a review of micro data on spillovers from foreign owned to domestically owned firms, Gorg and Greenwood (2002) concluded that the effects are negative. Lipsey (2002) takes a more favourable view from reviewing the micro literature and argues that there is evidence of positive effects. Surveying the macro empirical research led Lipsey to conclude however that there is no consistent relation between the size of inward FDI stocks or flows relative to GDP and growth and further argues that there is need for more consideration of the different circumstances that obstruct or promote spillovers. The divergent views on this issue by scholars is unending; for instance, positive spillover effects were reported as part of Caves (1974) pioneering work in Australia, and by Kokko (1994) in Mexico, while Haddad and Harrison (1993) findings in Morocco and Aitken and Harrison (1999) in Venezuela do not support the positive hypothesis. Furthermore, Blomstrom and Kokko (2003) conclude from their review of the literature that spillovers are not automatic, and local conditions influence firms' adoption of foreign technology and skills.

Within the context of the Nigerian economy, a number of studies found a positive relationship between FDI and economic growth in Nigeria. Amongst these studies are Aluko (1961), Brown (1962), Obinna (1983), and Oseghale and Amonkhienan (1987). However , later studies like those by Oyinlola (1995), Ariyo (1998), Adelegan (2000) saibu et al (2011) reports a negative effect of FDI on economic development in Nigeria. Saibu et al (2011) quotes Akinlo (2004) as haven found that foreign capital has a small and not statistically significant effect on economic growth in Nigeria. But how does one reconcile this with the fact that since 1970s, growth of the Nigerian economy has depended largely on crude oil production than non-oil. Onodugo et al (2013) recent study findings, revealed a very weak and infinitesimal impact of non-oil export in influencing rate of change in economic growth in Nigeria. The study as a result, concludes that Nigeria's level of growth is largely driven by foreign technology.

In summary, the focus amongst Nigerian studies was on spillover effects of FDI, as well as FDI-growth impact. Among these, Asiedu (2006) reported political stability as one of the important factors that account for the inflow of FDI in Nigeria. So far, no attempt has been made on the investigation of the effect of insecurity, and more specifically on the Niger Delta crises as well as the current Boko Haram Islamists Militants insurgence on the flow of FDI in Nigeria, and by extension, how this has affected the growth of the Nigerian economy within the period under investigation. This forms the important existing gap in literature which the study intends to fill.

FDI and Industrial Development in Nigeria

The believe that FDI can have important positive effect on host countries' development effort in addition to the direct capital financing it supplies, is however not automatic because, certain conditions has to be met: for FDI to positively contribute to the growth and development of host countries' industrial sector, the economy in question must have a well taught-out growth stimulating industrial policy which will not only be on paper but strictly implemented and enforced. Secondly, the operating multinational firms must be interested in the growth and development of the economy where they chose to operate. Lastly though not the least, there must be a balanced spread in the presence of FDI among the various sub-sectors of the industrial sector, and most importantly, a significant presence in the manufacturing sub-sector.

In Nigeria, the problem is never the absence or lack of good policies, but bad and poor implementation of existing laws, and lack of enforcement where need be. Most multinational firms in Nigeria for instance, hardly meet the entry requirements at the point of entry, but are licensed to operate; greater number of the firms in their operational structure are highly capital intensive. One can here imagine the nature of impact that such firms do have on the industrial development of a highly labour intensive economy like Nigeria. When viewed in another perspective; the government are often times short-changed on two fronts; through tax exemptions and other juicy incentives offered to these multinational firms aimed at attracting them to invest in the economy, and also through tax evasions by way of connivance with state agents by those firms that have out-stayed the number of years spelt out in their initial tax exemptions but could not successfully renegotiate for further exemptions. Furthermore, because the multinational firms are often not interested in the development of the Nigeria economy, they often times indulge in a number of sharp practices which over times has hindered meaningful efforts geared towards the development of the Nigeria industrial sector. One of the ways the Nigerian industrial sector could have benefited from the activities of multinational firms is through reinjection of profits. It is however unfortunate that rather than reinjection of profits, the MNCs are grossly engaged in massive repatriation of profits to their parent firms in Europe and America through over-invoicing. The consequence of this practice is the fact that MNCs by this means, take away investment funds from Nigeria in multiples of the initial sum they brought in and the economy is made worse –off subsequently. Concerted efforts at addressing these ills by the Nigerian authorities are often met by pull-out threat from the firms. This action, more often than not leads government into compromising its stand.

As important as the foregoing factors are, is also the issue of creating linkages amongst the various sub-sectors of the

industrial sector, from the activities of multinational firms. Alfaro L (2003) argues that FDI can convey great advantage to host countries, but warns that such gains might differ across primary, manufacturing and services sub-sectors. The paper notes that the often mentioned benefits from FDI such as, transfer of technology and management know-how, introduction of new processes and employees training tend to relate to the manufacturing sub-sector, than mining and agricultural sub-sectors. Hirschman (1958) has earlier emphasized that not all sub-sectors have the same potential to absorb foreign technology or to create linkages with the rest of the economy. The paper went further to note that linkages are weak in agricultural and mining, and warns that in the absence of linkages, foreign investments could have limited effect in spurring growth in an economy.

In Nigeria, because MNCs are interested in exploiting Nigeria's abundant oil and gas, has found the primary sub-sector as their most important destination point in the industrial sector, where 50 percent of the stocks of FDI in Nigeria are rooted. There has however been an increase in the inflow of FDI into the service sub-sector, since the privatization of state utilities- particularly the telecom sub-sector. Overtime, there has been an insufficient presence of FDI in the manufacturing sub-sector. Unfortunately, the primary sub-sector of the industrial sector which accounts for over 50 per cent of stocks of FDI in Nigeria, and the services sub-sector that are recently becoming another point of attraction, in the literature are known to have little potential for spurring growth and subsequent development of a given industrial sector. As a result, FDI which would have been a source of valuable technology and know-how in fostering linkages with local firms, which could have helped jumpstart the Nigerian industrial sector on the path of diversified and sustainable growth and development, has contrarily undermined efforts at developing the sector by way of sharp practices and other unhealthy mode of operations in Nigeria. However, in the midst of these, the fact still remains that, Nigeria since the 70s, has not seized from being a mono-product economy – depending largely on oil production for growth and development. The extent to which social insecurity has alters its growth progress is what this study set out to unravel.

Data and Methodology

Data

The study focuses on the Nigerian economy within the period 1981-2010 using time series data for analysis. Data for the study are sourced from the central Bank of Nigeria's statistical bulletin and National census Board. Annually, the CBN publishes data on GDP, gross capital formation, FDI, and public capital expenditure. Per capita income is calculated as a ratio of GDP to population (population sizes are sourced from National Census Board). Degree of openness of the economy is calculated as ratios of export plus import to GDP, while labour force is calculated as percentage of those in the working age bracket, from the population figures published by the census board.

Methodology

To model links amongst social insecurity, FDI and economic growth in Nigeria, the study adopts the Augmented Cobb-Douglass production function. This method of analysis follow Demello (1996) as adopted by Saibu et al (2011) in modeling the effect of FDI and financial development on economic growth in Nigeria. Same method has also been employed by Ghosh Roy and Van den Berg (2006) in the modeling of the relationship between FDI and economic growth in U.S.A. First we model the impact of social insecurity on the flow of FDI to Nigeria, then, subsequently model the impact of FDI on economic growth in Nigeria.

Model 1

In modeling the impact of social insecurity on FDI flows to Nigeria, our specification specifically follow that by Gosh Roy and Van den Berg (2006).

Thus:

$$FDI = \alpha_0 + \alpha_1 gr\ (RGDP) + \alpha_2 \left[\frac{RGDP}{N}\right] + \alpha_3\ (IOP) + \mu \ldots\ldots (1)$$

The introduction of a time dummy (SO-IN) as proxy for social insecurity transforms equation (1) to:

$$FDI = \alpha_0 + \alpha_1 gr\ (RGDP) + \alpha_2 \left[\frac{RGDP}{N}\right] + \alpha_3\ (IOP) + \alpha_4 SO\text{-}IN + \mu \ldots\ldots (2)$$

Where gr(RGDP), $\left[\frac{RGDP}{N}\right]$, (IOP), (SO-IN) are growth rate of real Gross Domestic product, real per capital GDP (ratio of Real GDP to size of the population), degrees of openness and dummy, as proxy for social insecurity.

It is of note here that in the theory, as much as economic growth is stimulated by FDI, on the other hand, FDI is known to follow growth hence reason for the inclusion of gr(RGDP) in model (1). Real per capita GDP represents market size of the domestic economy. It is an important factor often considered by multinational firms, especially those producing largely, for domestic consumption. MNCs also consider the extent to which foreign investments are restricted within the domestic economy where they operate, and also the ease of importation of needed machinery and raw materials for their production, as well as exportation of their products where need be. This is where the degree of openness of the economy included in the model is justified.

α_1, α_2, α_3, shall be greater than zero, while $\alpha_4 < 0$. SO-IN shall assume value 0, for pre- crises period and 1, for post-crises period. Its value will be greater or less than zero.

Model 2

In our modeling of the impact of FDI on economic growth in Nigeria, we begin with the familiar sources of growth equation.

$$Gr(Y) = \beta_0 + \beta_1 Gr(K_D) + \beta_2 Gr(K_F) + \beta_3 Gr(L) \quad \ldots\ldots (3)$$

Where, Gr (Y), Gr (K_D), Gr (K_F), Gr (L) are growth rates of real gross domestic product. Domestic capital stock, foreign capital stock, and labour force respectively.

Equation (3) is similar to the well-known sources of growth equation specified as:

$$G(Y) = GA + (\beta+\varphi\gamma)\, GK_D + (\theta\varphi\gamma)\, GK_F + (\theta\varphi\gamma)\, GL \quad \ldots\ldots (4)$$

Equation (4) is drivable from a neoclassical production function, where G is the growth rates for real output (Y), A is the economic environment, K_D denotes the domestic capital stock, K_F denotes the foreign capital stock (FDI) and L represent labour force. α, β, γ are the elasticities of domestic labour force, domestic capital and foreign capital derivable from the output function where $Y = AL^{\alpha} K_{D\beta} E^{Y}$. θ and φ denote the marginal and inter-temporal elasticities of substitution between local and foreign capital derivable from FDI externality function (E), where $E = (L, K_D, K_F^{\theta})\varphi$.

Our specification in equation (3) is not in any way different from the specification in equation (4). In our splitting of capital stock into accumulated FDI and all other capital, we follow Most and Van den Berg (1996) in their examination whether the source of investment financing matters in developing countries.

The general formulation of equation (4) after taking into consideration of the macroeconomic environment or factor endowment is specified as:

$$\Delta Y = \beta_0 + \beta_1 \Delta_{PRIV} + \beta_2 \Delta_{PUB} + \beta_3 \Delta K_{FDI} + \beta_4 \Delta IOP + \beta_5 \Delta L + V \quad \ldots\ldots (5)$$

Priv is private domestic investment, Pub denotes public investment, $K_{FDI\ represents}$ FDI, IOP is index of openness and L denotes labour force, Y represents real GDP and V is the error term (all variables are expressed in logarithmic terms).

More specifically**:**

$$\Delta \log RGDP = \beta_0 + \beta_1 \Delta \log Priv + \beta_2 \Delta \log Pub + \beta_3 \Delta \log K_{FDI} + \beta_4 \Delta \log IOP + \beta_5 \Delta \log L + V \quad \ldots\ldots (6)$$

Theoretically, a priori expectation is that all parameters will be positive, but considering the fact that on the average, Nigeria's industrial sector is at its infant stage of development relative to its trading partners; under this circumstance, openness is expected to impact negatively on growth. On the other hand, sign which the coefficient of labour assumes will largely depend on the absorptive capacity of Nigeria's industrial capital relative to the growing labour force. Where the growth of labour outpaces the capacity of growth in industrial capital needed to absorb such level of growth in labour – the coefficient of labour will under such circumstance be negative – order wise, it will have a positive sign.

Estimation-Analysis of Results

The Ordinary Least Square (OLS) estimation technique was employed in the estimation, after making sure that the variables in their behaviours conform to the assumptions of the Classical Normal Linear Regression Model (CNLRM). Efforts were also made to ensure that the models adhere to the principles of parsimony using AIC (Akaike Information Criterion) and SBC (Swartz Bayasian Criterion).

In our estimation, conscious effort was accorded to the fact that macroecnomic aggregates are known to exhibit random walks and regression models using such non-stationary variables are likely to generate "spurious" results. To overcome this expected undesirable outcome, stationarity properties of variables in the model were examined using the popular Phillips-Peron stationarity test. The result indicates that in model (1), FDI, grRGDP and IOP are stationary at levels. The index of social insecurity (SO-IN) is stationary at first difference, while $\left[\frac{RGDP}{N}\right]$ is stationary at second level of differencing. From model (2), RGDP, K_{FDI} and IOP are stationary at levels, while Priv, Pub and L became stationary at the first level of differencing.

From the result (test of stationarity), test of cointegration became an overriding requirement for both models. This is necessitated by the coinciding of order of integration of each of the dependent variables and two of the explanatory variables in the models respectively. Result of Johansen cointegration test (for FDI model) revealed the presence of cointegration, as test statistics rejects the hypothesis of no cointegration, but indicates the presence of one cointegrating equation at both 5% and 1% levels of significance. The story is however not the same, for the economic growth model, as test statistics failed to reject the hypothesis of no cointegration at both 5% and 1% levels of significance respectively. The outcome suggests a long run relationship between FDI and the set of explanatory variables in the FDI model and absence of lung run relationship in the economic growth model. Implication here is the fact that analysis herein will be based on Error Correction model (for the FDI model) and log run regression model (for the economic growth model).

Result of the long rum FDI regression function as specified in Table 1 shows that three (grRGDP, IOP, SO-IN) out of the four explanatory variables are statistically significant at 5% level of significance-infact, IOP and SO-IN are statistically significant, while grRGDP is

marginally significant. Among these variables (explanatory variables), only IOP has the theoretically expected sign. Adjusted R^2 of 0.95 reveals a very strong explanatory power of the explanatory variables, thus providing strong empirical support for the fitness of the regression line. F-statistics of 149.74 shows that, the explanatory variables are non zero at 95% level of confidence. On the other hand, a Durbin –Watson statistics value of 1.55 indicates the presence of negative autocorrelation, which is however attributable to the characteristics of the data used. When examined in the context of the Error correction model (ECM) as specified in Table 2 of the appendix, the model maintained its initial long run order of significance (i.e grRGDP, IOP and SO-IN are statistically significant at the conventional level of significance). The theoretical signs of the variables were maintained, changes only occurred in the absolute values of the coefficient as a result of adjustment to short run equilibrium; under the short run, a unit change in grRGDP is expected to effect a 0.5% change in FDI flows in the opposite direction, a unit change in IOP (the index of openness) is expected to change FDI flows by 10% in same direction, whereas a unit change in the level of SO-IN (social insecurity) will most likely change the level of FDI flows by 190.3% in the same direction. The coefficient of the ECM which shows the rate at which equilibrium can be restored in the event of disequilibrium is positive. It suggests that one period lag value of FDI is above its equilibrium value. The implication is the fact that a negative change in FDI is required each period, to the extent of an infinitesimal value (0.00001%) for equilibrium to be restored. Other virtues of the model include its strong coefficient of multiple determinations, high value of F-statistics and negative serial autocorrelation.

Results of long run economic growth model Table 2, as drawn from our specification in equation (6), reveals that only one out of the five coefficients is statistically significant at the conventional 5% level of significance. Only three of these (pub IOP and L) have the theoretically expected signs. The multiple determinations (i.e. adjusted R^2) of 0.94 indicate a strong explanatory power of the model in accounting for changes in economic growth. The result of the F– statistics shows that the independent variables are non-zero at 95% level of confidence. The value of the Durbin- Watson statistics reveals the presence of negative autocorrelation in the model, which can be attributed to the quality of data used. Autocorrelation problem according to Gujarati and Sangeetha (2007) is a data deficiency phenomenon which the researcher has no choice over-being a secondary data.

Table 1: Result of Long run FDI model

Dependent variable	Independent variable/constant	Coefficients	t-statistics
FDI	C	9.350255	13.36246
	grRGDP*	-0.001358	-1.981798
	$\left[\frac{RGDP}{N}\right]$	-133.5094	-0.462350
	IOP*	0.094135	3.294950
	SO-IN*	2.072133	11.53677
R^2 0.96, AdjR^2 0.95 F-statistics 149.7434, D-Watson 1.55			

Note: * Indicates significant at 5% level of significance.

Table 2: Result of long rum Economic Growth model

Dependent variable	Independent variables/constant	Coefficients	t-statistics
LogRGDP			
	C	12.18441	12.49311
	Priv	-1.48E-08	-1.357845
	Pub	0.081436	1.486091
	K_{FDI}	-0.023445	-0.348857
	IOP*	0.042807	5.748712
	L	-0.026350	-0.50445
R^2 0.95, Adj R^2 0.94 F- Statistics 91. 34, D-watson 0.7			

Note: * Indicates Significant at 5% level of significance.

Table 3: White Hetroscedasticit Test on Economic Growth model

No of observation	Auxiliary R^2	df	$n.R^2$ auxiliary	$X^{0.05}$ (k)
30	0.598448	21	12.567408	32.6705

Result of white hetroscedasticity test as presented in Table 3, failed to reject the hypothesis of no hetroscedasticity in the data. The statistical implication is the fact that the homoscedasticity assumption of CNLRM has not been violated, so the variances are constant overtime. From the correlation matrix, it was observed that the pair-wise correlation between Pub and K_{FDI}, Pub and IOP as well as K_{FDI} and IOP are high, suggesting that there may likely be collinearity between these pairs of variables. One known way of alleviating this problem is to drop some of the variables, but the study chose not to because, that may lead to specification bias which has its own consequences. The remedy here may be worse than the "disease" itself. A collinearity problem even when severe is essentially a data deficiency problem which the researcher has no choice over, being a secondary data. The best option to get around this, which is really not a problem according to Blanchard (1967), is not to resort to creative techniques, but instead "do nothing". A collinearity problem even when severe, is essentially a sample phenomenon which violates no regression assumption- it is not a serious problem when it comes to prediction (Gujarati and Sangeetha, 2007; Ichoku et al, 2013). The Jarque-Bera (JB) test of normality rejects the hypothesis that the residuals are normally distributed; with a JB statistics of 1.486761 and the probability of obtaining such value is given to be 0.4755. However it is necessary to keep in mind that the sample size of 30 observations for the study may not be considered large hence, the result outcome.

Discussion

Result of FDI model reveal that the main variable of interest (social insecurity) positively affects inflows of Foreign Direct Investment in Nigeria within the period under investigation. It is statistically significant in influencing the rate of change in the flow of foreign technology to the extent of 207.2 per cent in the long run and 190.3 *per cent* in the short run, for every one unit change in the level of social insecurity. It is however surprising that; social insecurity positively stimulates the inflow of foreign technology, rather than inhibit it. We had expected social insecurity to inhibit inflow of foreign technology but, instead it was found to has a stimulating effect on the aggregate – well, that is the result from this study. The coefficient of grRGDP is statistically significant at the conventional level of 95 per cent level of confidence, but negatively weak in influencing the rate of change in FDI inflows (a unit change in the level of grRGDP changes FDI inflows in the reverse direction). To appreciate this result outcome, one need to consider that, though the result supports earlier evidence that, primary sector FDI has a negative relationship with growth, Nigeria within the study period experience two distinct insecurity problems (the Niger Delta crises and current Boko-Haram Islamists insurgence). These two separate social security threats most likely have distinct impact on growth. The Niger Delta Crises for instance, disrupted oil production activities within the Niger Delta region. The implication of this is the fact that greater percentage of FDI inflows during the crises period are most (in relative terms) likely non-oil FDIs whose assumed positive contributions to the growth of the Nigerian economy may not in any way be enough to cancel the huge negative impact of oil FDI outflows. On the other hand, the Boko-Haram Islamists insurgence is currently having its effect on the northern region assumed to be home to many of Nigeria's non-oil investments, discouraging the flow of non-oil FDI than oil FDI and thus compounding the attendant adverse effect. A reconciliation of the distinct specific impacts of these two separate insecurity problems, and having in mind that oil FDI adds more content to the growth of the Nigerian economy being considered, leaves us with the negative relationship observed between FDI and grRGDP. The result if literally interpreted means that instead of FDI following growth as theory stipulates, the reverse is the case for Nigeria. However, we will rather not stretch this further here but, will offer explanations to this in section "6" of the study.

Table 4: Result of FDI Error Correction Model

Dependent variable	**Independent variables/constant**	**Coefficients**	**t-statistics**
FDI	C grRGDP IOP $\left[\frac{RGDP}{N}\right]$ SO-IN ECM-1	9.395102 -0.001476 0.099481 -125.3130 1.902559 6.73E-06	14.05159 -2.244877 3.626270 -0.454408 9.782030 1.848753
R^2 -0.97, AdjR^2 -0.96 F-statistics -132.0643, D. Watson -1.192886			

Furthermore, the result reveals a positive significant impact of the index of openness of the economy (IOP). The impact of the aggregate is however weak in influencing the rate of change in the level of FDI (a unit change in IOP changes FDI by 9.5 per cent in the long run, but 10 per cent in the short run) meaning that the degree of openness of the economy is not an important factor to be considered in altering the level of FDI. The strong negative coefficient of real per capita income which is index of market size of the economy, points to the importance of per capita income in altering the levels of FDI in Nigeria within the period. The insignificant impact of the aggregate is an indication that greater proportion of international investments in Nigeria are not necessarily producing for the domestic market. The result, most likely has reflected what it ought to be if the market conditions were right.

When we consider the economic growth model, it was discovered that the index of openness of the economy again exerts a positive significant impact, this time on economic growth. The strength of its impact is very weak in influencing the rate of changes in the levels of economic growth of the Nigerian economy (4.3 per cent changes in the level of economic\ growth for every unit change in the degree of openness). Apart from openness, other variables are revealed to be insignificant in their influences on the rate of changes in the levels of growth in Nigeria within the period being investigated. Private domestic investment (Priv) for instance, negatively influences the rate of changes in economic growth by 148 per cent, for every unit change in the level of private domestic investment. The outcome is not unconnected with the crowding out effect which the domestic private investment often suffers from public investment under the Nigerian context, for a considerable number of periods. Ordinarily, one had expected private domestic investment to improve in the area of market share and by so doing improve its contribution to the growth of the economy, but this was unfortunately not to be. However, when critically examined, the state of infrastructures and instability which goes beyond the social instability here being investigated has made private domestic investments counterproductive to the growth of the Nigerian economy.

On the other hand, public investment (Pub) though maintained the theoretically expected sign of positive influence on growth, but weak in its impact- 8.1 per cent changes in levels of growth, for every unit change in the level of public investment. To explain this, we draw insight from Ikpe and Nteegah (2013) which earlier reported that the degree of impact of fiscal deficits of economic activities depends on the extent to which funds set aside for deficits financing is channeled to productive investments through the development of needed and maintenance of exiting social infrastructures. Considering the fact that deficits funds are often times diverted to private investments abroad, while some fractions are used for external debt servicing, gives rise to the situation where rather than adequately stimulate the levels of economic activities, fiscal funds instead create a non-adequate impact on the growth of the economy. Foreign investment capital (K_{FD1}) was discovered to exert a weak negative influence on growth, given that economic growth is expected to change by 2.4 per cent (in reverse direction) for every unit change in K_{FDI}. The conformity of this outcome with the negative coefficient recorded for RGDP in the FDI model, confirms the bi-directional relationship between FDI and economic growth. Furthermore, the result supports the assertion by Alfaro L., (2003) that FDI inflows to the primary sector tend to have a negative effect on growth. Among past studies, Choong and Lim (2009) for Malaysia, and Saibu et al (2011) for Nigeria, had earlier reported similar negative impact of FDI on growth. However, as to whether the interpretations offered by these past studies actually reflect realities on ground is a different matter altogether (for clarifications of this interpretation issues, we refer the reader to section six of this study). Labour force (L) exhibited a similar result with FDI. As an insight, we recall that Onodugo *et al.* (2013) had earlier noted that the growth of Nigerian labour force has outpaced growth of the industrial capital needed to absorb the increasing levels of growth in labour. As a result, Nigeria industrial sector is considered to be at the stage of diminishing returns from labour, hence the negative coefficient recorded for the aggregate.

Conclusion and Recommendations

The economic argument that seems to suggest in both theory and practice that international investment is good for growth, therefore policy makers should focus on keeping the domestic environment attractive to Foreign Direct Investments, even when this growth effect though more widely studied, but the fact that evidence accumulated so far remains unclear, led to the study of this nature. As important as the foregoing, is also the most important need to incorporate into the methodology literature, the distinct picture which social insecurity problem has given to the Nigerian scenario. Findings from the study revealed the complex state of the Nigeria situation. We had expected a negative impact of social insecurity on inflow of FDI to Nigeria. Instead of this, result indicates that social insecurity has a stimulating impact on FDI inflow to Nigeria. This development, the paper attributes to our merging of separate forms of social insecurity problems in the investigation. Evidence from the result of this investigation indicates that the two forms of social insecurity under focus have distinct characteristics as well as impact on the flow of FDI to Nigeria.

Secondly, negative impact of FDI on growth tends to portray the fact that FDI is not important for altering growth and subsequent development in Nigeria. But the question which must be asked is, how true can this be? In response and to put things straight, the often reported

negative association between primary sector FDI and growth as is the outcome of this study and as reported by a number of past studies (Alfaro, 2003; Choong and Lim, 2009; Oyinlola, 1995; Ariyo, 1998; Adelegan, 2000; Saibu *et al.*, 2011), provide misleading information when wrongly interpreted. Unfortunately these studies and some others carried out in the context of developing economies had wrong interpretation of this result. Explanations for this are not far-fetched. Most studies in developing economies like Nigeria had employed the use of inflows as a measure of levels of FDI, instead of stock of FDI (accumulated inflows). This is as a result of the fact that, empirical data for accumulated inflows is not readily available for these economies. Researchers under this circumstance, have no choice than to use that which is available. However, these studies probably out of naivety, failed to take cognizance of the fact that FDI impacts on growth directly through its level of stock, rather than inflows which is commonly used. This is the main reason why Te Velde (2001) earlier argued that stock is arguably a better measure than flows. Flows (inflow and outflow) jointly alters the level of stocks, thereby determine the level of stocks at any point in time. Given this data limitation, it boils down on researchers to as a matter of need, overcome this observed shortcoming by means of right interpretation of result outcomes.

Trend in result of past studies in Nigeria is a clear pointer to this line of argument. While earlier studies in Nigeria report a positive association between FDI and economic growth, later studies report a negative association. Earlier studies' findings were positive because these studies were carried out during Nigeria's period of relative political as well as social and economic stability. The implication of this is the fact that, there were more FDI inflows than outflows. Meaning that the level of stocks of FDI increased progressively over the period, hence the result obtained. On the other hand, later studies (including result of this particular investigation) indicate a negative association, because of relative high degree of social insecurity, as well as political and economic instability. The implication of these on the economy is mass exodus of foreign investors out of Nigeria-much more than inflows. The major consequence of this on the economy is a progressive decline in levels of Nigeria's stock of FDI, hence the negative impact on economic growth.

On the bases of reasons highlighted above, the study recommends an explicit examination of the forms of social insecurity – FDI association in Nigeria. This is aimed at hopefully addressing the unexpected result outcome observed in the nature of impact of social insecurity on the flow of FDI in the FDI model. Secondly, this paper recommends a place of emphasis on stocks of FDI, rather than flows, in the examination of impact of FDI on economic growth of nations. To this effect, in economies where there is insufficient data on stocks (developing economies), detailed literature can serve as a guide for better result interpretation. Last and most importantly, this paper advocates tightening of the nation's borders, close collaboration in security matters with neighbouring countries, as well as synergy amongst stakeholders, as a way of proactively dealing with social insecurity problem in Nigeria. A close, sincere and transparent collaboration amongst political party stakeholders, irrespective of party affiliations, where issues to be discussed should be the way forward for the nation, could help.

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