



WHY SOUTH-SOUTH FDI IS BOOMING: CASE STUDY OF CHINA FDI IN NIGERIA

Oji-Okoro Izuchukwu

School of Economics, Wuhan University of Technology P.R China

Daniel Ofori

School of Economics, Wuhan University of Technology P.R. China

ABSTRACT

As economic linkage between south-south countries especially China with Nigeria have grown in intensity, it is seen as an engine to Nigeria economic growth. Therefore the amplified presence of China investment in Nigeria is now widely noticed and has drawn scrutiny from the populace raising questions of whether collaboration with the Asian giant is beneficial to the country and its developmental goals. This paper investigates why south-south foreign direct investment (FDI) is booming in Nigeria from 1992-2010 through the application of three-step procedures (Autocorrelation Function, Unit-root test and Granger Causality test). The results of the analysis affirmed the existence of autocorrelation and Unit-root with Granger causality showing that China FDI inflow is bidirectional with Gross Domestic Product (GDP) indicating a significant contribution in the economy growth of the country. In line with the findings to boost more foreign investment from China to Nigeria the research recommends, among other things, the creation of enabling investment climate and adequate macroeconomic policies in the country to ensure better productivity and sustainability of investment.

Keywords: Foreign direct investment, Nigeria-China, Gross domestic product, Bilateral relations, Economic growth, South-South.

1. INTRODUCTION

Foreign Direct Investment (FDI) from South-South into Africa of which Nigeria is a key beneficiary has brought in much needed capital, along with technology and managerial know-how to enhance the production and skills capacities in the country. This has resulted to so much criticism by the citizens, some argued that the relationship has been purely a mercantile transaction between politicians and business moguls. However, there are enough grounds to insist that China's business interest in Nigeria, does not in any way weigh against the country, which has recorded a significant development from the Asian giant huge investment and aid.

Chinese ministry of commerce summarized the main aim of government policy towards Nigeria into three (3) points they are as follows: (i) to increase Chinese Multinational Companies in the Nigerian market share. (ii) To expand the Nigerian market for Chinese manufactured goods. (iii) To increase China's presence in Nigeria oil and gas sector and leverage its investment in Nigeria as a gateway for entering the Economic Community of West African States (ECOWAS) market. According to [Gboyega et al. \(2011\)](#) "All these was induced by the fact that the two countries have economic complementarities. On one hand a major development challenge in Nigeria is infrastructural deficiency with huge investment need. Complementarily, China has developed one of the world's largest and most competitive construction industries with particular expertise in the civil works critical for infrastructure development coupled with its ability to provide the necessary financial assistance to the countries in need including Nigeria. On the other hand, China's industrialization drive and massive inflow of FDI into the country led to fast growing manufacturing economy which requires oil and mineral inputs that are outstripping the country's domestic resources, hence there is a need to source them from abroad including Nigeria which is well blessed with these resources".

Therefore, since FDI comprises a key channel through which economic growth can be achieved. Thus there is a need for existing and future FDI inflow from China to be beneficial to Nigeria, this poses the following research questions. Why is China investing so much in Nigeria? Is the market resource-seeking FDI? Do the total output produced targeted at domestic or external market? To what sector is China FDI directed? These questions constitute the main research issues for the study.

The scope of the study covers 1992-2010 and the objective of the study is to analysis why south-south FDI is booming in Nigeria with the view to determine its developmental impact. The study is divided into 6 sections. Section 2, review of related studies is undertaken. Section 3 discusses the overview of the recent FDI development in Nigeria. Section 4 focuses on methodology while section 5 presents the results and discussions of findings. Section 6 concludes the study with some remarks.

2. REVIEW OF RELATED LITERATURE

Renewed research interest in FDI stems from the changes of perspectives among policy makers from "hostility" to "conscious encouragement" especially among developing countries. FDI had been as "parasitic" and retarding as development of domestic industries for export promotion until recently. Several researchers have contributed theoretically and empirically the ways in which inward FDI can contribute to the economy development of host countries, these includes increase in capital accumulation in the recipient economy, improved efficiency of locally owned host country firms via technology change and human capital augmentation and increased export. However [Wang \(2002\)](#) states that the extent to which FDI contributes to economy growth depends on the economic and social condition or the quality of environment of the recipient country. Meaning that the quality of environment is associated to the rate of savings in the host country, the

degree of openness and the level of technology development, which would benefit from increase FDI to the host countries economies.

FDI is seen as foreign capital flows in which a firm in one country establishes a subsidiary in another country. Therefore, the transfer of resources and acquisition control characterizes FDI. [Borensztein et al. \(1998\)](#) See FDI as an important vehicle for the transfer of technology that contributes to growth in a large measure than domestic investment. According to [Oji-Okoro \(2010\)](#) FDI has been one of the major adoptions to bolster funds into various sectors of the economy. For instance, telecommunication sector in Nigeria. Modern theory of Multinational enterprises has been seen as a vehicle for international capital mobility, which focused on the analysis of two (2) important issues. (1) The reason commodity is produced in two or more different countries rather than one country. This issue is referred to as “Location”. (2) The reason production in different location is carried out by the same firm rather than by separates firms. This issue is referred as “Internalization”. ([Dunning, 1999; Appleyard and Field, 2004](#)).

The theory of Location, internalization and agglomeration was mentioned in Newtonian physic notion in a context of gravity model. The gravity model was applied in early 1960s to analyze trade relations and diversion effects of bilateral and regional co-operation between countries. However the model demonstrates that trade between two countries depends upon the distance between them, population size, level of output and income. Furtherance to this, the model has been used as one of the several applications in economics in analyzing the impact of FDI. On the basis of these assertions, government has often provided special incentives to foreign firms to set up companies in their countries. [Carkovic and Levine \(2002\)](#) Stipulate that the economic rationale for offering special incentives to attract FDI frequently derives from the belief that foreign investment produces externalities in the form of technology and spillover.

The empirical and theoretical analyses of FDI determinants flow have been group into two main factors. These are the Push-factor (supply side factor) and the Pull-factor (demand side factors). The Pull-factors are those factors that could induce Multinational Corporation (MNCs) desiring to expand or establish their operation overseas. [Singh and Jun \(1995\)](#) states that these factors explain why national firms evolve the MNCs and why they decide to locate their production in another country rather than licensing or exporting. On the other side, the Push-factors are the host-country specific conditions that influence the flow of FDI. Therefore they are factors that attracts FDI when the decision to invest out of the country is conceived by the MNCs. ([Asiedu, 2002; Akinkugbe, 2003](#)) stipulate that pull-factors determine which country receives what share of FDI while Push-factors influences the overall size of FDI.

Curiously, the empirical evidence of these benefits both at the firm level and at the national level doubtfully.

Though, [De Gregorio \(2003\)](#), while contributing to the debate on the importance of FDI, notes that FDI may allow a country to bring in technology and knowledge that are not readily available to domestic investors and in this way increase productivity growth throughout the economy. FDI may also bring expertise that the country does not posses and the foreign investors may have access to

global markets. In fact he found out that FDI is three times more efficient than domestic investment.

3. RECENT TREND AND PERFORMANCE OF CHINA'S FDI IN NIGERIA

3.1. Nigeria Macroeconomics performance and Business Environment

Nigeria macroeconomics performance has been broadly positive over the past years. The country is one of the world's four best performing markets in 2012 with a 35.45% gain and it the biggest and most dynamic frontier economy in Africa with Gross Domestic Product (GDP) at par with global capital like Hong Kong and Singapore. However the country is face with some constraint of slow progress in building consensus around key fiscal reforms and continued security problems in the far North of the country.

Therefore with the integration of international capital markets, FDI story of Nigeria today is dominated by the oil industry, which was not so, at independence in 1960, there was a widespread of FDI presence in the economy. Policy design thereafter narrowed FDI performance and decades of political instability, endemic corruption and economic mismanagement further reduced Nigeria ability to attract and retain FDI. The return of democracy in 1999 has created the opportunity for economic renewal and the attraction of more seeking FDI to Nigeria. The Government of Nigeria undertook ambitious measures to reap the benefits from FDI with a view to improve the investment climate, the policy has started bearing fruits and will certainly provide a more conducive environment to private investment and enhance the attractiveness of FDI to the Nigeria's large and growing market. The policies were the induction of the National Economic Empowerment and Development Strategy (NEEDS), at the national level and it was associated with poverty reduction at the state and local levels, State Economic Empowerment and Development Strategy (SEEDS) and the Local Economic Empowerment and Development Strategy (LEEDS). NEEDS was adopted in 2003, it was meant to guide public policies until 2007. The broad agenda of the social and economic reforms (NEEDS, SEEDS and LEEDS) were based on four key major strategies:

- (i) Improve efficiency in delivering services by reforming the way Government works and eliminating waste and free up resources for investment in infrastructure and social services;
- (ii) Changing the government into a business regulator and facilitator by making the private sector the main driver of economic growth;
- (iii) Push a "value re-orientation by shrinking the domain of the state and hence the pie of distributable rents which have been the heaven of public sector corruption and inefficiency"
- (iv) Implementation of social character such as improving security and welfare.

The reform by NEEDS enabled Nigeria to become the first African country to settle its official debt through an agreed-upon program of debt forgiveness and repayment in October 2005. In 2004 the reform made by the Central Bank of Nigeria in the banking sector with the aim at fostering

consolidation helped the country in improving its financial environment, as a result of this, Fitch Standard and Poor's Rating Agencies rated the country as BB- credit rating in 2006.

3.2. Origin of Nigeria and China Bilateral Relations

The People's Republic of China (PRC) and the Federal Republic of Nigeria formally established bilateral relations in February 1971. Nigeria and other developing countries from Asia, Africa and Latin America that same year helped to support in favor of Beijing 21 year campaign to win the world recognition as one true government of China, despite American opposition. On 25th November 1971, the PRC officially replaced the Republic of China (Taiwan) in the United Nations Security Council. Following the 30 years of bilateral relations, the Asian giant was transforming into an economic power while Nigeria was undergoing series of military coup from 1980s to late 1990s.

The Sani Abacha government, from (1993-1998) initiated a contact with Chinese government, early during his regime. The Nigerian-Chinese Chambers of Commerce was founded in 1994, which paved way for China Civil Engineering Construction Corporation (CCECC) to win a \$529 million contract to rehabilitate the Nigerian railway system in 1995, thereafter the former premier of China's State Council, Li Ping visited Nigeria in 1997, signing protocols relating to power generation, steel and oil. Due to western nations sanction on Nigeria, during Sani Abacha's regime, CCECC was unable to complete the Nigerian railway project given to them. Li Ping's protocols were barely implemented, it was until Olusegun Obasanjo returned to power as the elected civilian president in 1999, and the start of new China's orientation to Nigeria began in 2000. Additionally the China new focus to Africa countries has equally influence the two giants trade relations. In October 2000 the first ministerial conference of the Forum on China-Africa Co-operation was held in Beijing, senior Nigerian representatives were in attendance. In the same year tender award was given to CCECC to build 5,000 housing units for athletes participating for the eighth annual All-African Games in Abuja, which were duly built. In 2001 the two countries signed an agreement on the establishment of Nigeria Trade Office in China, China Investment Development and Trade Promotion Centre in Nigeria. From 2003 to 2007 the Nigeria-China relations intensified further, President Hu Jintao and Prime Minister Wen Jiabao of China both visited Nigeria while Obasanjo visited China twice. In 2006 the inter-governmental Nigeria-China investment Forum was founded and it increased the growing number of Chinese companies in Nigeria projects. Chinese multinational company's MNCs won significant contracts in Nigeria, particularly in telecommunications, construction, transportation and power. However the volume of Chinese manufactured goods exported to Nigeria increased substantially, by the end of 2008 according to the Chinese Ministry of Commerce, the total volume of Chinese investment in Nigeria is about \$6 billion.

Table-1. Major Agreement Between China and Nigeria

Year	Agreement Types
2001	Agreement on Trade, Investment Promotion and Protection.
2002	Agreement for the Avoidance of Double Taxation and Prevention of Fiscal Evasion with respect to Tax on Income.
2002	Agreement on Tourism Co-operation.
2002	Agreement on Co-operation on strengthening management of Narcotic Drugs, Psychotropic Substance and Diversion of Precursor Chemical.
2002	Agreement on Consular Affairs.
2003	Agreement of South-South Co-operation among China, Nigeria and FAO.
2006	Memorandum of understanding on Strategic Partnership.
2009	Agreement against fake products exported to Nigeria from China.
2009	Memorandum of understanding on promotion between Ogun State of Nigeria and Zhejiang Province of China.
2010	Memorandum of understanding on Peace Co-operation.

Source: China Ministry of Commerce

3.3. China FDI into Nigeria

Outward FDI from emerging economies like China has been considered to be one of the biggest questions in the 21st century. FDI from China has increased dramatically in recent years. It has accounted for 10% of global outward FDI in 2008, up to 7% from 2007 (UNCTAD, 2009). However since 2003, China has been known as a destination of global investment and her investment abroad by the local firms has increased substantially. Outward FDI from China in 2008 surged to USD 52 billion up to 132% from 2007, making it the 13th largest source of capital in the world and third among developing countries (UNCTAD, 2009).

More so, Nigeria is the largest recipient of FDI in Africa. FDI inflows have been growing enormously over the course of the last decade from \$1.14 billion in 2001 to \$11.5 billion in 2009 according to UNCTAD, making the country the nineteenth greatest recipient of FDI in the world. As China seek to expand its trade relation with Africa, she is becoming one of Nigeria most important source of FDI from \$3 billion in 2003, China's direct investment in Nigeria is reported to be now worth about \$10 billion. Recently in 2013, the Chinese government has invested \$1.1 billion in Nigeria's infrastructure, in the form of low-interest loans. The loans will be used in the construction of four airport terminals in the country and a light-rail line in the capital city Abuja, with an additional \$1.7 billion contract that the Chinese companies won to construct road in the country. However, the question is, why is China investing so heavily in Nigeria? Analyst has argued to the fact that the country is one of the largest oil-producing countries in the world and statistics has shown that oil and gas sector receives 75% of China's FDI in Nigeria. China is investing in raw material deposits overseas, and is multiplying its trading partnerships in order to secure regular supplies Lafargue (2005).

China outward FDI flow has been on the increase in the past 7 years, its relations to Nigeria is closely linked to trade and development assistance and has increased by 30 percent per year and ranked second after South Africa among the ranks of Africa host countries for Chinese FDI between 2003-2009.

Although, information about Chinese activities in the country point to increase the economic, social and technical relation, the composition of Chinese investment into Nigeria is fragmented. *Ogunkola et al. (2008a)*, States that China has set up over 30 solely owned or joint venture companies in Nigeria actively involved in construction, oil and gas, technology, manufacturing, services and education sectors of Nigerian economy (see Table 2). Since 1999 to date, Nigeria has recorder significant investment from China and several Chinese companies are already investing heavily in Nigeria.

A study from the African Economic Research Consortium reports that FDI from Chinese private investors into Nigeria is in the oil sector followed by other solid minerals. It is noted that the relatively small proportion are in manufacturing sector especially, agro-processing and telecommunication sector.

China FDI into Nigeria is carried out largely by state-owned enterprises or Joint venture, which offer relatively large aid component in form of concessionary interest rates and grant element. Besides, the loans on investment are been offered without conditionalities attached to them as compared with loans from the multilateral finance organizations such as the World Bank and the International Monetary Fund (IMF).

Table-2. Major Chinese companies in Nigeria

Companies	Sector	Employees	Area of Investment
SINOPEC	Oil and Gas	373,375	Block of 64,6629 and operating right to block 2 Nigeria- Sao Tome Joint Development Zone.
CNPC	Oil and Gas	1.6 Million	Licenses for OPL 471,721,732,298.
SEPCO	Electric and Power construction	19,756	Papalanto power plant
CCECC	Construction	70,000	Construction of Games Village Lekki Free Trade zone etc.
CSCEC	Construction and Real Estate	121,500	Refinery
CNOON	Offshore oil and gas	21,000	45% interest in Offshore exploitation license OML 130.
Huawei	Telecom	51,000	Network and handsets
ZTE	Telecom	85,232	CDMA, Handsets

Source: Nigeria Investment Promotion Commission

China-Nigeria investment is not a one-way issue, as with trade, the traffic in the opposite direction is booming. Although on a smaller scale, Nigerian companies and investors are making progress into the Chinese market. Direct investment by African countries is close to USD 10 billion by the end of 2009, and Nigeria ranked top five among the African countries investing in China. In 2010, First Bank of Nigeria Plc opened a representative office in Beijing, becoming the first Nigerian bank to penetrate the Chinese market. The bank offers an array of services to its customers in Asia, including Chinese companies seeking to enter the Nigerian market. Among First Bank's other clients, undoubtedly, are some of the Nigerians' in diaspora, many of who are engaged in exporting Chinese products to Nigeria.

3.4. Chinese Investment in Nigeria a case study of the Lekki Free Trade Zone (LFTZ)

The Lagos State Government signed a memorandum of understanding with the Chinese Government in 2007. Nanjing Jiangning Development Zone in Jiangsu Province and China Railway Construction Corporation were represented. This marked the beginning of the Lekki Free Trade Zone (LFTZ). Prior to the signing of the MOU, the Lekki-Free Trade Development Company was incorporated in Lagos in April 2006 as a joint venture among CCECC. The Nigeria Export Processing Zone Authority (NEPZA) registered it as developer, operator and manager of the LFTZ. The main objective of the LFTZ include the following: to develop an offshore economic growth zone; attract foreign investment; promote export; create job opportunities; minimize capital flight; and establish a one-stop global business haven.

In an attempt to provide adequate infrastructure in the zone, construction of roads into the zone began in October 2007. Other infrastructure put in place is a functional power plant, which is independent of the national grid to ensure regular supply of energy, and also water and sewage treatment plants. The LFTZ featured at international trade fairs including the one held in South Africa in September 2007 and World Conference of Free Zones held at Kuala Lumpur, Malaysia in November 2007. Abundant land is available for industrial projects and the first phase consists of the development of 3,000 hectares. There are opportunities and access of investors to supply raw materials particularly for activities such as agro-processing, clothing and textiles, food and beverages, forestry, mining and pharmaceuticals. The incentives available to investors in the LFTZ are as follows: close to 100 per cent foreign ownership of investment; one-stop approvals; zero import and export licenses; tax holidays; and unrestricted remittances of capital and duty-free importation of raw materials.

3.5. China-Nigeria FDI: Challenges and Prospects

There have been a lot benefit from FDI ranging from augmentation of domestic capital, transfer of technology, knowledge and skills, promotion of competition and innovation, employment and enhanced output, export and revenue performance. These have weighed against costs such as anti-competitive and restrictive business practices, tax avoidance and abusive transfer pricing, volatile flows of investment and related payments deleterious for balance of payments, transfer of polluting activities and technologies, and excessive influence on economic affairs with possible negative effects on industrial development and national security.

There is no argument as to whether china's engagement adds to or detracts from Nigeria's economic growth. Measuring from the economic and social impact it is difficult. Chinese manufacturing operations contribute to the country's GDP but offer strong competition for local producers. Chinese firms in Nigeria have been criticized for being "closed" as they hardly employ local experts. There are even submission that their workers are been mal-treated. According to a report, the conditions of employment of Nigerians in Chinese firms neither conform with the Nigeria Labour Laws nor to that of the International Labour Organization.

There is a report on September 2002 on the case of fire incidence at one of the Chinese-owned factory located in Lagos in which about 40 Nigerians were trapped as a result of the locked up of the building factory by a foreman. Besides, was there any compensation given to the victims if any? How reasonable was it? According to reports alleged that technology transfer from Chinese FDI is insignificant because most of the Chinese firms bring into the country finished products and complete equipment with Chinese technicians. In a nutshell, the expected benefits may not be realized. The lesson is for the country not only to design appropriate policies and regulations but also to ensure that these are implemented.

More so, most Chinese investments are in critical areas of the Nigerian economy especially in telecommunications, manufacturing, electricity, etc., hence they have high social contents. However, there are reservations about the activities of Chinese investors especially those who are engaged in manufacturing. Such complaints include sharp practices such as importation of inferior products that has flooded the Nigerian markets and the exploitation of tariff concessions, in dumping cheap goods in the market and stifle competition.

However, the most important opportunity offered by Chinese FDI in Nigeria is the increase in investment on transformation activities. China can be very responsive to the complaints made in Nigeria. For instance, Nigeria's complained on the importation of substandard product, which has made the two countries to sign an agreement on importation of inferior goods into the country in 2009. Therefore, there have been few and limited complainants that might be a reflection of limited capacity of the country to develop partnerships with Chinese FDI.

Effects of Chinese FDI may not be easily realized by the Nigerian Government, due to tax net and other fiscal incentives as well as the possibility for tax evasion and avoidance by Chinese firms coupled with the permission to repatriate profits and incomes.

The massive influx of Chinese FDI into the country to produce goods and services at cheaper prices and the importation of cheap products from China will enhance the welfare of Nigerians. Besides, given that Nigerian manufacturing firms are not competitive, influx of Chinese FDI into the country to produce goods and services may lead to closure of most domestic competing firms, with adverse employment effect particularly where Chinese firms are fond of bringing in workers from their country. Also, the fact that Chinese firms in Nigeria bring in inputs from their own country and set up their own market outlets implies that there may not be major backward and forward linkages between Nigerian and Chinese firms.

4. METHODOLOGY

The study employed a quantitative analysis using three-step procedures (Auto Correlation Function (ACF), Unit Root Test and Granger Causality Test) in order to determine the impact of China FDI inflow on the Nigeria economy. The use of content analysis of relevant literatures reports from various scholars was corroborated in the selection of some macroeconomic variables for the result. We used annual data from the period of 1992-2010. The annual variables of Gross Domestic Product (GDP) and Exchange Rate data were sourced from Central Bank of Nigeria

(CBN), while China outward FDI inflow to Nigeria, Trade Volume between the China and Nigeria data were sourced from National Bureau of Statistics China.

$$GDP_t = a_1 + a_2 FDI_t + a_3 TV + a_4 ER + \varepsilon_t \dots \dots \dots \text{equation (1)}$$

Where:

GDP= Gross Domestic Product

FDI= China Outward FDI inflow

TV= Trade Volume between Nigeria and China

ER= Exchange Rate

ε = is the stochastic random term

4.1. Econometric Model

4.1.1. The Autocorrelation Function (ACF)

We conducted an Autocorrelation test statistic to identify the degree of autocorrelation in the variable employed with the lagged values of same series. It is the cross-correlation function of a mark. Moreover, ACF was used in signal processing technique to analyze series of real data values such as time domain signals. According to the mathematical definition, autocorrelation can be defined, as the condition occurring when successive items in a series are correlated. If covariance is not zero, it indicates that they are not independent. The ACF equation goes thus:

$$\rho_k = \frac{\sum_{t=1}^{n-k} (R_t - \bar{R})(R_{t+k} - \bar{R})}{\sum_{t=1}^n (R_t - \bar{R})^2} \dots \dots \dots \text{equation (2)}$$

Where; ρ_k denotes the serial correlation coefficient of stock returns at lag k and R_t denotes the stock returns with n number of observations. Auto correlation test examines whether the coefficients are significantly different from zero or not.

4.1.2. Unit Root Test

In order to avoid estimating spurious regression, we conducted the Augmented Dickey-Fuller (ADF) test and the Philips-Perron (PP) test to check whether each data series is integrated and has a unit root, thereby testing the stationarity of the four time series. A variable that has unit root is non-stationary in the level form but becomes stationary after being differenced once. Such as a variable is also called integrated of order one and it is usually denoted by 1(1). Hatemi-j and Hacker pointed out that it is crucial to test for unit root because in the presence of the unit roots the standard distribution of test statistics are not correct and there is risk of having spurious regression result. The formula is expressed as follows.

$$\Delta y_t = a_0 + a_1 y_{t-1} + \sum_{i=1}^n a_i \Delta y_i + e_t \dots \dots \dots \text{equation (3)}$$

$$\Delta y_t = a_0 + a_1 y_{t-1} + \sum_{n=1}^n a_n \Delta y_t + \delta_t + e_t \dots\dots\dots \text{equation (4)}$$

Where Y_t is a time series, it is a linear trend, Δ is the difference operator, a_0 is a constant, n is the optimum number of lags in dependent variable and e is the random error term.

4.1.3. Granger Causality Test

Granger Causality test was conducted to identify causal relationship between the variables employed and to determine whether the current lagged values of one variable affects another. According to Granger (1969), a variable y is caused by another variable x if y can be predicted well from past values of y and x than from past value of y alone. The Granger test may be explained with the help of the following equations:

$$X_t = a_0 + \sum_{j=1}^m a_j x_{t-j} + \sum_{j=1}^n b_j y_{t-j} + e_t \dots\dots\dots \text{equation (5)}$$

$$Y_t = c_0 + \sum_{j=1}^m c_j x_{t-j} + \sum_{j=1}^n d_j y_{t-j} + w_t \dots\dots\dots \text{equation (6)}$$

5. RESULTS PRESENTATION AND DISCUSSIONS

5.1. Autocorrelation Function (ACF) Test Results

First, we tested if the relevant variables employed in this research have a degree of autocorrelation with the lagged values of same series, test for the impact of one or more interventions with the variables and compare the series of different kinds of event. The result is reported in the table below.

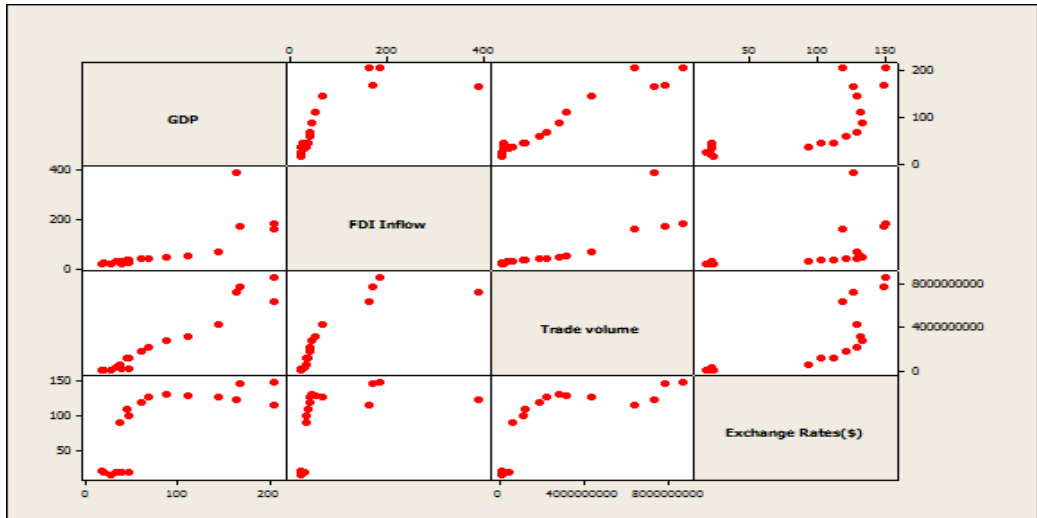
Table-5.1. Autocorrelation Function (ACF) Test Result

	GDP	China FDI	Trade Volume
China FDI	0.764		
Trade Volume	0.969	0.830	
Exchange Rate	0.737	0.499	0.760

Note Cell contents: Pearson correlation

>0.5 strong positive relations between variables

Figure-5.1. Autocorrelation Function graph Presentation



Hence, from the result in the table above, we observed that the patterns in the sequences of variables overtime, which are correlated, but offset in time, we conclude that there is a strong relationship with all the variables employed in the long run. Therefore the result is good for making generalization.

5.2. Unit Root Test Result

Having confirmed the autocorrelation of the variables employed, we proceed to test if the variables are stationary and to determine their orders of integration. We use both the Augmented Dickey Fuller (ADF) and Philips-Perron (PP) tests to find the existence of unit root in each of the time series.

Test result from ADF and PP table below shows that the results were not stationary under their levels, hence we proceeded to the first difference, the result we obtained clearly indicate that the variables employed shows strongly evidence of stationarity. Therefore, the null hypothesis is rejected and it is sufficient to conclude that there is a presence of unit root test in the variables at first difference. This implies that the variables are integrated of order one, i.e 1(1).

Table-5.2. Augmented Dickey-Fuller (ADF) Stationarity Test at Level

Augmented Dickey- Fuller Unit Root Test						
Variables	Level			1 st Difference		
	Test	t- Statistics	P-value	Test	t- Statistics	P-value
	Critical values			Critical values		
China FDI Inflow	1% Level	-3.857386	0.1988	1% Level	-3.886751	0.0001
	z	-3.040391		5% Level	-3.052169	
	10% Level	-2.660551		10% Level	-2.666593	
GDP	1% Level	-3.857386	0.9883	1% Level	-3.886751	0.0015
	5% Level	-3.040391		5% Level	-3.052169	

	10% Level	-2.660551		10% Level	-2.666593	
Trade	1% Level	-3.886751	0.996	1% Level	-3.886751	0.0024
Volume	5% Level	-3.052169		5% Level	-3.052169	
	10% Level	-2.666593		10% Level	-2.666593	
Exchange	1% Level	-3.857386	0.7959	1% Level	-3.886751	0.0080
Rates	5% Level	-3.040391		5% Level	-3.052169	
	10% Level	-2.660551		10% Level	-2.666593	

Note: Significance at 1% level, 5%, 10%. Figures within parenthesis indicate critical values.

Mackinnon (1991) critical value for rejection of hypothesis of unit root applied.

Source: Author's Estimation using Eviews 6.0

Table-5.3. Philips Perron (PP) Stationarity Test at Level

Variable	Level	Phillips-Perron Unit Root Test				
		Test	t- Statistics	P-value	1 st Difference Test	P-value
		Critical values			Critical values	
China FDI Inflow	1% Level	-3.8573386	0.2348	1% Level	-3.886751	0.0000
	5% Level	-3.040391		5% Level	-3.052169	
	10% Level	-2.660551		10% Level	-2.666593	
GDP	1% Level	-3.857386	0.9883	1% Level	-3.886751	0.0017
	5% Level	-3.040391		5% Level	-3.052169	
	10% Level	-2.660551		10% Level	-2.666593	
Trade Volume	1% Level	-3.857386	0.9999	1% Level	-3.886751	0.0024
	5% Level	-3.040391		5% Level	-3.052169	
	10% Level	-2.660551		10% Level	-2.666593	
Exchange Rates	1% Level	-3.857386	0.7959	1% Level	-3.886751	0.0080
	5% Level	-3.040391		5% Level	-3.052169	
	10% Level	-2.660551		10% Level	-2.666593	

Note: Significance at 1% level, 5%, 10%. Figures within parenthesis indicate critical values.

Mackinnon (1991) critical value for rejection of hypothesis of unit root applied.

Source: Author's Estimation using Eviews 6.0

5.3. Granger Causality Test Result

Pairwise Granger Causality Tests

Lags: 2

Table 5.4 Granger Causality Test Result

Null Hypothesis:	Obs	F-Statistic	Prob.
EXCHANGE__RATES__\$ does not Granger Cause CHINA_FDI_INFLOW	17	1.09462	0.3659
CHINA_FDI_INFLOW does not Granger Cause EXCHANGE__RATES__\$		1.12159	0.3576
GDP does not Granger Cause CHINA_FDI_INFLOW	17	8.43637	0.0052
CHINA_FDI_INFLOW does not Granger Cause GDP		16.4021	0.0004
TRADE_VOLUME does not Granger Cause CHINA_FDI_INFLOW	17	5.30922	0.0223
CHINA_FDI_INFLOW does not Granger Cause TRADE_VOLUME		5.89351	0.0165
GDP does not Granger Cause EXCHANGE__RATES__\$	17	0.09227	0.9125

EXCHANGE__RATES__\$__ does not Granger Cause GDP		2.04119	0.1726
TRADE_VOLUME does not Granger Cause EXCHANGE__RATES__\$__	17	0.97931	0.4037
EXCHANGE__RATES__\$__ does not Granger Cause TRADE_VOLUME		1.12005	0.3581
TRADE_VOLUME does not Granger Cause GDP	17	7.64355	0.0072
GDP does not Granger Cause TRADE_VOLUME		2.54576	0.1198

1. The estimated result obtained from Granger Causality test in the table above shows that Exchange rate does not Granger cause China FDI inflow and on the other China FDI inflow does not Granger cause Exchange rate, therefore the result indicate that there is no casual relationship between the two variables. This shows that there is macroeconomic instability as a result of exchange rate volatility constraining China FDI attraction. Over reliance of foreign importation of local raw material in the manufacturing sector has subsequently led to decline in production and reduce export production, which has resulted to poor performance and lack of competitiveness in the country and the international market.
2. However, the result indicate that Gross Domestic Product and China FDI Inflow has a bidirectional relationship, showing that they are statistically significant in explaining changes in the economic growth of the country.
3. Similarly, the result also indicates that Trade volume and China FDI Inflow has a bidirectional relationship, concluding that they are statistically significant in explaining changes in economic growth of the country.
4. Furthermore, the result indicates that GDP does not Granger cause Exchange rate and on the other hand Exchange rate does not Granger cause GDP, therefore there is no causal relationship between the two variables mainly due to structural imbalance in the country's economy and lack of diversification, instability in earnings from crude oil which the country depends very heavily and there is a phenomenon of excess demand for foreign exchange in relation to supply.
5. Finally the result shows that there is a unidirectional relationship in Trade volume between the two countries and GDP. This signifies that the trade volume between countries are highly beneficial and there is a lopsidedness in the trade volume of what Nigeria is importing from China than what China is importing from Nigeria, therefore there is a need to bridge the gap. In general Nigeria is benefiting a lot from the trade relation as made in China products contribute to the increase in consumption level of Nigerian's through the supply of qualitative and affordable products.

5. CONCLUSION AND POLICY RECOMMENDATION

This paper empirically investigates why China FDI is booming and the impact of China FDI inflow in Nigeria. Since China economic engagement in Nigeria in recent years has ballooned, in line with Chinese government strategy of going global.

The methodology employed in this study is a quantitative analysis using three-step procedures (Autocorrelation Function, Unit-root test and Granger Causality test). The scope of the study spanned from 1992 to 2010. An Autocorrelation function (ACF) test was carried out to test if the relevant variables employed have a degree of autocorrelation with the lagged value of the same series. The result of the test showed that for period of 1992 to 2010, there is a strong relationship between GDP, China FDI inflow, Exchange rate and trade volume in Nigeria.

We employed the use of a stationary test using Augment Dickey-Fuller test (ADF) and Philip-Perron test (PP). The null hypotheses being that there is presence of a unit-root was rejected which means the variables were found stationary at first difference at 1%, 5% and 10%.

Beside the stationarity test carried out, further effort was made to check the causality relationship that exist between the four variables by employing Granger Causality test. The result shows that GDP and China FDI inflow has a bidirectional relationship also with Trade volume and China FDI inflow, meaning a significant change in the economy growth of the country. More so, China FDI inflow and exchange rate has no causal relationship also GDP and exchange rate has no causal relationship between them. Finally there is a unidirectional relationship between trade volume and GDP.

The analysis clearly shows that China FDI inflows do have a positive effect on Nigeria economic growth, however there is a need for government to maximize the complementary effects between both countries by further strengthen greater cooperation and provide adequate macroeconomic environment in the country to ensure better productivity and sustainability of investment, also the Federal Government needs to invest the inflow of resources from the south-south boom in improving investment climate, develop human resources necessary to support investment and establish development banks necessary to provide financial support to the private investors.

There must be guarding policy to implement these initiatives in order to ensure that the desired outcomes are realized. Successful implementation of these initiatives under good policy will create necessary conditions for Chinese FDI to have significant backward and forward linkages in the Nigerian economy. Therefore, there should be a monitoring and evaluation processes, including requisite research should be carried out regularly to ensure that China FDI to any sector is beneficial in Nigeria.

REFERENCES

- Akinkugbe, O., 2003. Flow of foreign direct investment to hitherto neglected 3. Developing countries. World Institute for Development Economic Research (WIDER), Discussion Paper No. 2003/2.
- Appleyard, D.R. and A.J. Field, 2004. International economics. 4th Edn.: McGraw- Hill Higher Education.
- Asiedu, E., 2002. On the determinants of foreign direct investment to developing countries: Is Africa different? *World Development*, 30(1): 107-119.

- Borensztein, E., J.D. Gregoria and J. Lee, 1998. How does foreign investment affect economic growth? *Journal of International Economics*, 45(1): 3–115.
- Carkovic, M. and R. Levine, 2002. Does foreign direct investment accelerate economic growth? University of Minnesota working paper. Minneapolis. Available from www.worldbank.org/research/conferences/financial_globalization/fdi.pdf.
- De Gregorio, J., 2003. The role of foreign direct investment and natural resource in economic development [J] .Working Paper No. (196).
- Dunning, J.H., 1999. Forty years on: American investment in British manufacturing industry revisited. *Transnational Corporations*, 8(2): 1-34.
- Gboyega, A.O., M.A. Babatunde and E.O. Ogunkola, 2011. An analysis of China-Nigeria investment relations. *Journal of Chinese Economic and Foreign Trade Studies*, 4(3): 183-199.
- Granger, C.W.J., 1969. Investigating causal relations by econometric models and cross-spectral methods. *Econometrica*, 37(3): 424-438.
- Lafargue, F., 2005. China's presence in Africa french centre for research on contemporary China.
- Mackinnon, J., 1991. Critical values for cointegration test, In R. Engleand C.Granger, *Long-run economic relationships*, Oxford University Press.
- Ogunkola, E.O., A.S. Bankole and A. Adewuyi, 2008a. China-Nigeria economic relations. AERC scoping studies on China-Africa relations. AERC, Nairobi(February).
- Oji-Okoro, I., 2010. Relationship between FDI and telecommunication growth in Nigeria. *Proceedings of the 7th International Conference on Innovation and Managemant (II)*. pp: 1886-18892.
- Singh, H. and K.W. Jun, 1995. Some new evidence on determinants of foreign direct investment in developing countries. Policy Research Working Paper No. 1531. The World Bank, Wasington D.C.
- UNCTAD, 2009. Annual report 2009: World investment prospect and survey 2009-2011. United Nations, New York and Geneva. UN.
- Wang, M.Y., 2002. The motivations behind China's government-initiated industrial investment overseas. *Pacific Affairs*, 75(2): 187-206.