Original Research Article

Foreign Direct Investment (FDI) Inflows in Africa: Evidence from the "Big Three"

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Abstract

The controversy surrounding the major determinants of FDI inflows in Africa motivated this study. Past empirical studies have failed to examine how the growth rate of the economy could affect FDI inflows in the continent. The study employed a panel OLS to pool annual data from three largest economies in Africa between 1990 and 2017. This paper identified that, there exists active and passive determinants of FDI inflows in Africa. However, the study reveals that the active determinants of FDI inflows in Africa are market size and the growth rate of economy while the passive determinants are GDP per capita and past FDI inflows. Therefore, the study recommends that the policy makers in Africa need to embark on economic reforms and policies that will promote the expansion of the market size that will guarantee sustainable economic growth in the continent, this in turn will serve as a catalyst that will stimulate further attraction of FDI inflows into Africa.
Keywords: FDI Inflows, Nigeria, South Africa and Egypt.

INTRODUCTION

Generally, Foreign Direct Investment (FDI) can be viewed as a pertinent source of financing investment projects in African countries in the last few decades. FDI is gradually replacing the overseas development assistance that used to be the financial muscle of the African countries some decades ago. The contributions of this critical variable in integrating the continent economies into a global village cannot be overemphasized. There are numerous economic benefits attributable to FDI in developing countries as a result of its multiplier effects which are diffused to these economies through its share of world capital flows on the host economies. Though, African countries are relatively lagging behind in attracting FDI comparing to the other regions of the world. Available data show that some of the newly emerging economies reference to China, Brazil, India, Singapore, Hong Kong etc are competing with the industrialized countries in attracting FDI inflows.
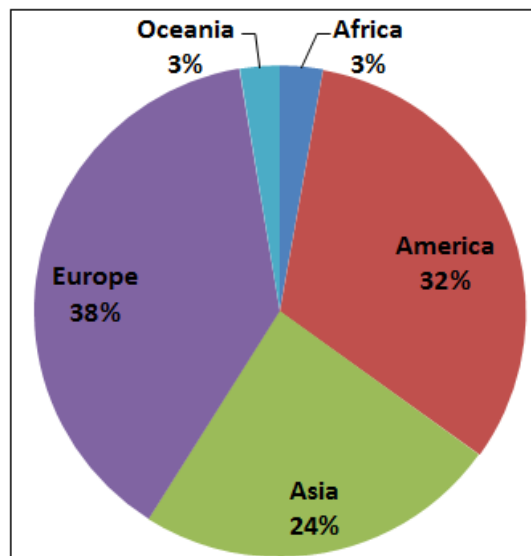
An overview of global FDI inflows

From the table 1, it could be deduced that no single African country ranked among the top FDI inflows in spite of the fact that there are catalogue of investment opportunities in Africa. In 2017, FDI inflows to Africa stood at $42 billion, which shows a 21 percent decline of the 2016 inflows. Meanwhile, the following has been identified as critical factors that led to the sharp decline in FDI inflows in Africa in last year: continuous dwindling in prices of oil and ongoing unfavorable conditions of macroeconomic variables caused by the commodity bust saw flows contract in the majority of host African economies [1].

Table-1: FDI giants in 2016; top 12 countries by FDI inflows, USD millions, current prices

1	USA	391104
2	UK	253825
3	China	133700
4	Hong Kong	108125
5	Netherlands	91956
6	Singapore	61593
7	British Virgin Island	59679
8	Brazil	58190
9	Australia	44967
10	Cayman Island	44485
11	India	37667
12	Russsian Federation	33721

Source: Author's calculation from UNCTADstat, 2017.

Fig-1: The Regional Distribution of Global FDI inflows (%), 1970-2017
Source: Author`s calculation from UNCTADstat, 2018

In terms of aggregate regional distribution of FDI inflows in the last 47 years, European countries were the major recipient of Global FDI, this region had received 38% of global FDI inflows between the period of 1970-2017. In the same vein, America had received 32%, and Asian continent received 24%, within the same period. However, both African and Oceania continents were at the lowest spectrum of FDI inflow recipients over the same period, in which the duo received only 3% of global FDI inflows concurrently [1].

An overview of FDI inflows in Africa

However, it has been observed that FDI inflows in Africa in the past two decades has been unevenly distributed both across countries and sectors in which fifteen oil-endowed nations accounted for 75% of FDI flow [2]. Similarly, the UNCTAD World Investment Report 2006 concludes that FDI inflows to West Africa sub region are principally dominated by inflows to Nigeria, which accounted for 70% of the FDI inflows to the sub region. From 1992 to 1997, Nigeria dominated FDI inflows in Africa which accounted for about 23% of the continent`s FDI inflows followed by South Africa which received 17.6% and Egypt 13.8% concurrently. Meanwhile from 1998 to 2000, it was observed that Egypt ranked 2[nd] FDI recipient with 11.5%, Nigeria 3[rd] with 10.1% and South Africa 4[th] with 10.0% of the continent`s total FDI inflows. In the last four decades several African governments have embarked upon different strategic economic reforms such as trade liberalization, financial sector liberalization, labour market deregulation and privatization towards catalyzing greater FDI inflows into their respective economies. These reforms have not yielded monumental results because, the level of FDI inflows to the continent of Africa has been relatively low comparing to other developing regions. Also, FDI inflows are mainly concentrated in few countries in Africa especially those countries that are blessed with oil and mineral deposits. In view of the above, it is therefore paramount to examine the performance of FDI inflows in the first three biggest economies in Africa namely Nigeria, South Africa and Egypt. These three economies have received substantial FDI inflows in the past few decades as a result of natural resource endowments and financial sector liberalization.
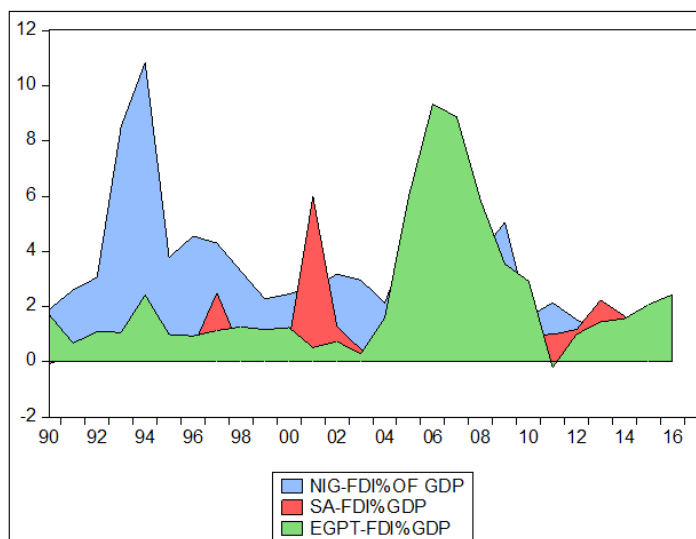
Fig-2: FDI Trend in Nigeria, South Africa and Egypt (net inflows as % of GDP) 1990-2017
Source: WDI, 2018

It has been argued in the literature that FDI inflows into the countries measured in billion US$ might not be a true reflection of countries' performance, that is why scholars in some quarters have advocated for foreign direct investment inflows as a GDP`s percentage as one of the most common measurements of FDI, which reflects the true performance of countries in attracting FDI. This indicator shows a country`s performance in attracting FDI visa-vis its economic size. Figure-2 indicates the period of average FDI inflows as percentage of GDP in Nigeria, South Africa and Egypt. FDI net inflows grew sporadically in Nigeria from 1990 then reached its peak in 1994. It declined sharply in 1995, and started to fluctuate until 2009 when there was a noticeable increment. From 2010 till 2016, there has been a continuous fall in this variable in the country. Similarly, South Africa did not record any substantial increment of FDI net inflows as % of GDP from 1990 to 2000. It was only in year 2001 that the country witnessed a sharp increment, after which the economy continues to experience consistent fall in the performance of the variable. Meanwhile, Egypt experienced sporadic rise in FDI net inflows as % of GDP in 2005 and got to its climax 2006 though continued to be declining gradually till 2009, and there after a sharp fall was continuously recorded until 2014 when the economy experienced a little increment in the variable. It is worth of note to stress that the performance of FDI net inflows as % of GDP in these three biggest economies has not been encouraging in the recent time. The volatility in oil price shocks that characterized the oil market in the globe might have been a strategic factor that has affected this economic variable in these countries especially Nigeria and Egypt whose oil exports constitute lion share of their GDP.

However, studies have validated in the recent past that FDI has the capacity and propensity to facilitate economic growth as result of its multiplier effects on the host economy. Little wonder, Goldberg and Klein [3] posits that FDI encourages economic growth through promotional export, import substitution, or higher trade volumes in intermediate inputs which usually link the foreign investors and their affiliate producers together. The critical factors determining FDI inflows in Africa cannot be overemphasized, because there have been various empirical studies on this subject, and their results have generated more heat than light in terms of arguments, recommendations and policy implications. See Onyeiwu and Shrestha [4], Hausmann and Fernandez Arias [5], Akinlo [6], Asiedu [7-9] and Ayadi, Ajibolade, Williams and Hymann [10]. Also some important determinants of FDI inflows like growth rate of economy and past FDI inflows have not been seriously examined in Africa especially the three biggest economies in the last 28 years. Hence, relevance of this study.

LITERATURE REVIEW
Theoretical Literature Review
The theoretical foundation for this research work is as follows;

Endogenous Growth Model- the AK model
One of the major properties of endogenous growth model is the absence of diminishing return to capital. The production function without diminishing returns can be expressed as

$$Y = AK \ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where ``A`` denotes a positive constant (such as the one in the Cob Douglas production function), that is, an index of the level of technology. Here`` K`` may be seen in a broad sense to capture physical and human capital so as to assume away the absence of diminishing returns to capital in the AK production function. Output per capita is y= Y/L=A. K/L =AK and the APL and MPK are constant at the level A>0.

Consequently, liberalization of national markets draws additional domestic and foreign investment and thus increases the rate of capital accumulation which in turn propels the growth of Gross Domestic Product.

Empirical Literature
There have been several empirical studies on FDI and economic growth in both developed and developing economies in general and Sub Saharan Africa in particular. This section presents studies on FDI in African economies.

While investigating the key determinants of net FDI inflows in Africa with aid of panel data analysis of 31 countries from 1984 to 2009, UNACA [11] provided the evidence that supports market size, past FDI inflows, corruption, domestic credit, share of oil in exports and religious tension risk as major determining factors of FDI inflows in Africa. Meanwhile, Chakarabarti [12], asserted that the determinants of FDI inflows in Africa are both natural resource and market factors with aid of the application of econometric models coupled with some levels of robustness/sensitivity analysis on data from 31 African economies. In the same vein, While investigating the relative influence of various variables that could attract FDI in 22 Sub Saharan Africa economies between 1984 and 2000, Asiedu [8] utilized a panel data analysis to conclude that more FDI goes to countries that have large market size and natural resource endowments. It was pointed out that macroeconomic stability, good infrastructure, an educated labour force, openness to FDI, an efficient legal system, less corruption and political stability caused the inflows of FDI. The submission from the paper posited that small countries or countries who do not have natural resources can as well attract FDI if the can improve their institutions and policy environment. In the same vein, Yasin [13] estimated the nexus between official development assistances and FDI inflows with the application of panel data analysis of 11 SSA economies from 1990 to 2003. The author submitted that bilateral official development assistance and FDI inflows have a significant direct link with each other. Also, the paper proved that trade openness, growth rate in the labour force, and exchange rates and FDI inflows have a positive significant relationship. However, FDI inflows in the continent is not affected by the following variables; multilateral development assistance, the country's composite risk level, the growth rate in GDP per capita, and political freedom and civil liberties index. In another perspective, Anyanwu [14] investigated variables that propel the inflows of FDI in 53 African economies between 1996 and 2008. It was discovered from the study that the principal variables that caused inflows of FDI in this continent are the openness of the countries to foreign trade, market size, rule of law, foreign aid, natural resources, and past FDI. Meanwhile, the inflows of FDI and higher financial development have a negative relationship. It was observed from the study that East and Southern African sub-regions possess capacity to attract higher stock of FDI inflows. Akinlo [6] pooled annual data of twelve countries in Africa to investigate how FDI inflows have impacted the continent. The findings of his study shows that FDI inflows impacted economic growth through accumulation of capital as contrary to increment in productivity. However, Brambila-Macia and Massa [15] in using different style to examine the effects of different types flows of capital on economic growth in some selected countries in SSA from 1990 to 2008. The results of paper show that both FDI and cross-border bank lending have direct and significant impacts on economic growth of the continent. Similarly, Ogun, Egwaikkhide and Ogunleye [16] adopted Granger causality and simultaneous estimation techniques to evaluate the link that exists between FDI and real exchange rate in some selected Sub-Sahara Africa (SSA) economies. It was revealed from the study that there exists a statistically significant linkage between the examined variables which connotes generally the sensitivity of FDI inflows to real exchange rate movements in the continent.

In conclusion, from the reviewed empirical studies above, researches about FDI inflows in Africa are still ongoing and their findings have shown mixed conclusions and policy recommendations. This proves that literatures are still inconclusive about the way FDI affects economic growth in Africa.

METHODOLOGY
This study makes use of secondary data from 1990 to 2017. It is assumed that 27 years are long enough for the multiplier effects FDI to diffuse to all the sectors of the economies in the selected African countries. The data on FDI and GDP are sourced from UNCTAD database published by World Bank. The study purposively selected ``the first three largest economies in Africa which are Nigeria, South Africa and Egypt.

Model Specification
FDI = F(GDP, GRT, GDP/CA, GDP/FDI, PFDI) ------------------------------------1

The model 1 can be linearized to form model 2
$$LnFDI_{it} = \propto_i + \beta 0 LnGDP_{it} + \beta 1 GDPGRT_{it} + \beta 2 GDP/CA_{it} + \beta 3 GDP/FDI_{it} + \beta 4 PFDI + \varepsilon_{it} - ---2$$

Where $LnGDP_{it}$ is log of real GDP to proxy economic growth, $LnFDI_{it}$ is log of FDI inflows, $GDPGRT_{it}$ is annual growth rate and $\frac{GDP}{CA}_{it}$ is annual GDP per capita growth, GDP/FDI is foreign direct investment inflows as a GDP`s percentage and LnPFDI is log of past FDI inflows. Meanwhile $\propto$ *is an intercept and* $\beta1, \beta2$ *and* $\beta3$ *are slope parameters.*

i= 1…3, t= 1990------------2017. By estimating model 2, it will give us the factors that are causing FDI inflows in the continent of Africa, as evidenced from the panel analysis of biggest 3 biggest economies of the continent.

RESULTS AND DISCUSSION

Table-2: Descriptive Statistics of Annual Data Series (1990-2017)

Descriptive Statistics	LFDI	LRGDP	GDP growt rate	GDP/CAPITA
Mean	9705982	2463187.	72.84179	67.35924
Median	9955044.	557451.0	91.50000	65.16365
Maximum	76766567	8786556.	189.6000	99.67033
Minimum	65667.00	54724.00	0.740000	30.20000
Std. Deviation	17183491	2803336.	47.01664	19.64903
Skewness	2.635810	0.801756	0.045412	0.014726
Kurtosis	9.521128	2.118607	2.636083	2.204695
Jargue-Bera	246.1028	11.71836	0.492397	2.216821
Probability	0.000000	0.002854	0.781767	0.330083
Sum	8.1508	2.0708	6118.710	5658.176
Sum. Sq. Deviation	2.4516	6.5214	183476.9	32045.02
Observation	84	84	84	84

Source: Author`s Computation 2018

In carrying out this study, an attempt was made to examine various descriptive statistics of the data. The descriptive statistics of the data to capture the variables of interest provide information about the sample series such as the mean, median, minimum and maximum values; and the distribution of the sample measured by the skewness, kurtosis and Jaque-Bera statistics. Table-1 below shows the descriptive statistics of the data series employed for the analysis.

Consequently, it is worth of note that the values of mean and median are very close, which shows that a distribution of data is nearly symmetrical. Meanwhile, the mean, mode and median must converge before the distribution of data series can be termed perfectly symmetrical, and in cases of near symmetry, the three measures are necessarily very close. It could be inferred that the distribution of the series in the about the symmetrical nature of the probability distribution of various data series as well as the thickness of the tails of these distributions are the two paramount statistics that are normally adopted in calculating Jargue-Bera statistics, with a view to testing the normality or asymptotic properties of a particular series.

Table-3: Unit Roots Test

Unit Roots Test- Augmented Dickey-Fuller Tests		
Variables	**Chi-Squared Statistics**	**Remark**
FDI	124.66　(0.0006)	I(0) Stationary
RGDP	105.35　(0.0001)	I(0) Stationary
GDP GROWTH RATE	189.55　(0.0000)	I(0) Stationary
GDP/CAPITA	41.83　(0.0066)	I(0) Stationary
PAST FDI INFLOWS	421.11　(0.0000)	I(0) Stationary
Number of Panels　3　Number of Periods　27		

Source: Authors` Computation, 2018

Table-3 above shows the unit root test presentation of all variables utilized for the study. Testing for stationarity or otherwise of data in empirical analysis is paramount in order avoid spurious result.

Since all variables in the panel are stationary at 1 percent level of significance, the pooled regression analysis can be estimated with high level of reliability and accuracy.

Table-4: Estimated Results of Determinants of FDI Inflows in Africa

Variable	Pooled regression	T statistics	R-square	F-statistic	Number of countries
RGDP	0.267***	[4.89]			
GDP growth rate	0.622***	[11.98]	0.6068	92.61	3
GDP/CAPITA	0.091***	[0.99]			
Past FDI inflows	0.324 ***	[1.49]			

Source: Authors` Computation, 2018

The estimated results presented in table 4 confirm that; there is a direct relationship between FDI inflows and all independent variables (real gross domestic product, annual growth rate of economy, GDP per capita and past FDI inflows) in the model. This connotes as real gross domestic product changes by a unit, the stock of FDI inflow in the selected countries increases by 27%. Similarly, a unit change in GDP growth rate brings about 62% increment in the stock of FDI inflows. Meanwhile, a unit change in GDP per capita and past FDI inflows bring about 9% and 32% increment in FDI inflows simultaneously, though not statistically significant at 5% level of significance. From the results emanated from the study, it could be viewed that the major determinants of FDI inflows in Africa are the size of the market measured by gross domestic product. This finding corroborates with the submission of Asiedu [8], Anyanwu [17] and Sichei and Kinyondo [18] despite the fact that different methodologies were adopted, who posited that market size is the one of the principal factors that promotes FDI inflows in Africa. It is worth of note that this study has identified the growth rate of GDP as one of the major factors promoting FDI inflows in Africa. However, GDP per capita and past FDI inflows are not significant determinants of FDI inflows in Africa which contradicts the conclusion of UNACA [11], which submitted that past FDI inflows is a major determinant of FDI inflows in Africa.

CONCLUSION AND RECOMMENDATION

This study has examined FDI inflows in Africa using panel data from the three biggest economies in the continent over the period of 1990 to 2017. From the findings that emerged in this study, it could be concluded that there are active determinants and passive determinants of FDI inflows in Africa; the active determinants are market size and growth rate of the economies while the passive determinants are GDP per capita and past FDI inflows. Therefore, it is paramount that the following vital policy implications are drawn. Market size and growth rate of economies have positively and significantly impacted FDI inflows in the selected (Nigeria, South Africa and Egypt) countries in Africa over time. However, GDP per capita and past FDI inflows though have not significantly impacted FDI inflows in these economies. Therefore, all hands must be on deck by the policy makers in Africa embark on economic policies that will promote the expansion of the market size that will guarantee sustainable economic growth in the continent, this in turn will boost further attraction of FDI inflows to Africa.

REFERENCES
1. UNCTAD. (2018). Handbook of Statistics, available on-line at (http://www.unctad.org)
2. ADB, OECE, UNDP and UNECA. (2011). African Economic Outlook 2011: Africa and its emerging partners. African Development Bank, Tunis, Tunisia.
3. Goldberg, S., & Klein, W. (1999). International Trade and Factor Mobility: an Empirical Investigation, NBER Working Paper No. 7196.
4. Onyeiwu, S., & Shrestha, H. (2004). Determinants of foreign direct investment in Africa. Journal of Developing Societies, 20, 89-106.
5. Hausmann, R., & Fernandez-Arias, E. (2000). The new wave of Capital Inflows: Sea Change or Just another Title? *Inter-American Development, Bank Working Paper* No. 417.
6. Akinlo, A. E. (2003). Foreign Direct Investment and Economic Growth in Sub-Saharan Africa. RISEC; International Review of Economics and Business, 50(4), 569-580.
7. Asiedu, E. (2004). Foreign direct investment in Africa: the role of natural resources, market size, government policy, institutions and political instability. Working Paper Series, University of Kansas.
8. Asiedu, E. (2006). Foreign Direct Investment in Africa: Role of Government Policy, Institutions and Political Instability. *World Economy,* 29(1), 63-77.
9. Asiedu, E. (2013). Foreign direct investment, natural resources and institutions. International Growth Centre, Working Paper series.
10. Ayadi, O. F., Ajibolade, S., Williams, J., & Hyman, L. M. (2014). Transparency and Foreign Direct Investment into Sub-Saharan Africa: An Econometric Investigation. *African Journal of Economic and Management Studies*, 5(2).
11. UNECA. (2009). The Governance Report, UNECA. Addis Ababa, Ethiopia.
12. Chakrabarti, S., & Fombonne, E. (2001). Pervasive developmental disorders in preschool children. *Jama*, *285*(24), 3093-3099.
13. Yasin, M. (2005). Official Development Assistance and Foreign Direct Investment Flows to Sub-Saharan Africa, *African Development Review*, 17 (1), 23-40.
14. Anyanwu, J. C. (2012). Why Does Foreign Direct Investment Go Where It Goes? New Evidence from African Countries, *Annals of Economics and Finance* 13(2) 433-70.

15. Brambila-Macias, J., & Massa, I (2010). The Global Financial Crisis and Sub-Saharan Africa: The Effects of Slowing Private Capital Inflows on growth. *African Development Review*, 22(3), 366-377.

16. Ogun, O., Egwaikhide, F. O., & Ogunleye, E. K. (2012). Real Exchange Rate and Foreign Direct Investment in Sub-Saharan Africa. Some Empirical Results. *Economía Mexicana. Nueva Época*, *21*(1), 175-202.

17. Anyanwu, J. C. (2011). Determinants of foreign direct investment inflows to Africa, 1980-2007.

18. Sichei, M. M., & Kiyondo, G. (2012). Determinants of foreign direct investment in Africa: A panel data Analysis. Global Journal of Management and Business Research, 12(18), 85-96.