

Policy and Non-Policy Factors: What Determines Foreign Direct Investments in Africa?

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Abstract: Studies have been conducted on the determinants of foreign direct investment (FDI) destinations. However, there seem to be few studies on determinants in African countries. This paper evaluates the determinants of FDI inflows, by examining specific relationships between the determinants (policy and non-policy factors) and FDI inflows to Africa, using a panel dataset from 1980 to 2016. Ordinary Least Squares (OLS) and Generalized Method of Moments (GMM) were used as the estimation techniques. The dependent variable, FDI inflows, was represented by the ratio of FDI flows to GDP, while the independent variables were agglomeration effects, trade openness, fiscal balance-macroeconomic condition, market size, economic instability, exchange rate, foreign aid, human capital development, corporate tax, and natural resource endowment. First-year lag of FDI (agglomeration effects), trade openness, market size, economic instability, foreign aid, human capital development, and natural resources (oil and metals) endowment have positive and significant effects on FDI inflows to Africa, while there is a negative relationship between FDI inflows to the continent and fiscal balance (public debt), exchange rate, and corporate tax. Consequently, government policies and non-policy factors played significant roles in facilitating FDI inflow into Africa during the study period. The p-value of the estimation (0.0001) further attests to the statistical significance of the results. Consequently, African countries must improve their regulatory framework to be able to attract more inflow of FDI. Efforts should also be made to reform and improve macroeconomic policies, institutional quality, and natural comparative advantages.

Keywords: *Foreign Direct Investment; FDI; Policy Factors; Non-Policy Factors; OLS; GMM; Africa.*

1. Introduction

Foreign Direct Investment (FDI), as a form of capital obtained through foreign sources, has preferred multifaceted characteristics compared to other sources of capital (El-Wassal, 2012; Anyanwu & Yameogo, 2015). Consequently, as an important element in the economic development process, FDI has become the largest and the most reliable component of capital flows to African countries (Asiedu, 2002; Asheghian, 2004; El-Wassal, 2012). However, there is no simple way of describing the policy and non-policy environments for FDI in developing countries in the last three decades. In countries that historically emphasized import-substituting industrialization – such as most of Africa, Latin America, and Southeast Asia countries – FDI was either completely prohibited or multinational firms had to operate under severe restrictions (Asiedu, 2002; Asheghian, 2004; Aregbesola, 2014). According to Aregbesola (2014), contrary to the restrictive stance towards FDI by most developing countries, licensing of foreign technology was aggressively encouraged to encourage technological development of indigenous firms, while some were encouraged to form joint ventures with local firms (Alba, Park & Wang, 2009; Culem, 1988; Billington, 1999). Asheghian (2004) also observed that the rationale behind restrictive policies was aimed at weakening the bargaining position of foreign firms.

It is interesting to note that many African countries still do not allow free entry of multinational firms and often expresses preferences with regard to the type of FDI (Anyanwu & Yameogo, 2015; Alfaro, Chanda, Kalemli-Ozcan & Sayek, 2004). Unfortunately, there is little in the literature that helps us to understand such policies, other than the standard argument that certain industries are able to secure greater protection for themselves than others. Perhaps it is also the case that positive spillovers to the local economy are perceived to be higher under certain types of FDI than others (Hill, 2013). Previous studies (Asiedu, 2002) also observed a lower impact of FDI on Africa in terms of linkages and spill-over into the domestic economy compared to developed and emerging economies. This is due mainly to a concentration of FDI into resources (natural resources, like oil and metals) rather than manufacturing. However, despite the subtle policy interventions outlined above, Asiedu (2002) maintained that when measured by a broad yardstick, overall government policy has become more liberal across the world – with intense competition for strategic FDI from developed and ‘emerging nations’ by most developing countries (Hailu, 2010; Kimura & Todo, 2010).

Consequently, both developing and developed countries are increasingly recognizing FDI as an important tool of economic growth for the host country (Billington, 1999). In numeric terms, FDI flows around the world rose from \$54 billion in 1980 to \$208 billion in 1990. These later increased to \$1,401 billion in 2000 before falling to \$1,114 in 2009 (UNCTAD, 2009). Despite variances in some West African (mainly due to declining commodity prices and the Ebola crisis) and North African countries (due to political and security issues), FDI inflows into Africa were relatively stable at \$54 billion in 2014 (UNCTAD, 2015). Specifically, in Sub-Saharan Africa alone, FDI inflows still rose by 5% in 2014 (UNCTAD, 2015; Aregbesola, 2014), while East Africa saw its inward FDI increased by 11% to \$6.8 billion. Central African countries also attracted \$12.1 billion in 2014, a 33% increase from 2013 figures (UNCTAD, 2015). With an inflow of USD\$10.8, South Africa still received the highest African FDI inflows in 2014 (UNCTAD, 2015). These trends reflect the increasing importance placed on FDI inflows by many African countries.

It's also based on the premise that, besides bringing in capital, FDI can facilitate improvements in domestic industrial infrastructure, transfer of technology, technical assistance, increased tax revenue, employment, regional expansion, and foreign reserves (El-Wassal, 2012; Aregbesola, 2014). Although studies on the determinants of FDI destination are on the increase, most have focused on developed and emerging economies (Asiedu, 2002; Asheghian, 2004; Culem, 1988; Billington, 1999). According to Aregbesola (2014), despite the limited studies concentrating on some countries in Africa (Adam & Tweneboah, 2009; Alfaro et al., 2004), there seem to be few studies concentrating on FDI determinants into Africa. According to Asiedu (2002), despite the importance of FDI in conveying knowledge spillovers among countries, evidence relating to determinants of FDI inflow has been mixed. Therefore, a study of the dynamic relationship between FDI inflows and the various determinants in Africa will be beneficial to many policy-makers in terms of formulating their trade and FDI policies (Steers & Nardon, 2006; Hill, 2013; Porter, 1990).

Consequently, this paper seeks to evaluate the determinants of FDI inflows, by examining the specific relationships between the determinants (policy and non-policy factors) and FDI inflows into Africa using a panel dataset from 1980 to 2016. This objective was motivated by the submission of Wyk and Lal (2008). Consequently, the analytical focus was premised on Africa. This paper therefore argues that the practice of pooling developed or emerging and developing economies together in analyzing FDI determinants, is inappropriate: developed economies have substantial amounts of two-way FDI flows compared to developing nations with mostly one-way flows (they are exclusively recipients of FDI flows from developed economies) (Wyk & Lal, 2008; El-Wassal, 2012). The remaining part of this paper is structured as follows: Section two reviews the related literature and section three treats the adopted methodology. Section four presents the results and discussion of the findings. The last section, section five, presents a summary and concludes with some policy implications and recommendations.

2. Literature Review

Theoretical Framework: This study was premised on the influence of government (institutional) and non-government regulatory frameworks on FDI inflows from multinational enterprises (Asheghian, 2004; Culem, 1988). Past studies have also used macroeconomic and institutional factors (Alibar, 1970; Asiedu, 2004; Asiedu & Lien, 2004). According to Wyk and Lal (2008), the dual impact of institutional factors and macroeconomic variables has emerged as an important theoretical framework in the analysis of FDI flows to African economies. According to these studies, macroeconomic theory attempts to explain FDI in relation to macroeconomic variables like GDP, inflation, exchange rate, and employment (Alibar, 1970). Wyk and Lal, (2008) also maintained that the macroeconomic approach focuses on the pattern of net investment flows among nations. On the other hand, institutional theory focuses on the institutional rules that shape and bind organizational behavior in society (Asiedu, 2004; Asiedu & Lien, 2004). The following theories were used to explain theoretical motivations for FDI inflows: transaction cost analysis (TCA), the resource-based view, and institutional theories (Asikhia and Awolusi, 2015; Mustapha, Fakokunde and Awolusi, 2014; Steers & Nardon, 2006; Hill, 2013). This is because much of the existing literature presents no agreement regarding the theoretical framework that should be used to explain the determinants of FDI inflows (Billington, 1999; Aregbesola, 2014), while a theoretical framework can also be based on more than one theory (Billington, 1999). In addition, the three theories are positioned as a strategy tripod, in an interactive position towards improved inflow of FDI to African economies.

TCA seeks to identify the environmental factors that together with a set of related human factors explain how companies can organize transactions to reduce the costs associated with these transactions (Asika and Awolusi, 2013; Awolusi, 2013a; Correa & Kumar, 2003; Peng, 2009). Consequently, the focus of this study is on the premise that FDI decisions are influenced by a country's ability to reduce high transactional costs – usually in the form of opaque regulatory behavior, corruption, and resource-poor and inefficient financial and judicial systems (Asheghian, 2004). The study also argues that improved levels of political-economic freedom, as an important institutional change, will facilitate lower costs and higher FDI inflows to African economies (Asiedu, 2004). The resource-based theory views internal organizational factors as the determinants of FDI inflows (Steers & Nardon, 2006; Hill, 2013; Porter, 1990). The resource-based view suggests that valuable firm resources – comprising tangible and intangible elements – are usually scarce, imperfectly imitable, and lacking in direct substitutes (Asikhia and Awolusi, 2015; Awolusi, 2013b; Brouthers & Hennart, 2007). It is about producing the most value from one's existing capabilities and resources by combining these with others' sources of advantage, and, in this, ensuring that complementarity is paramount (Hill, 2013).

The resource-based view suggests that countries must develop some unique strategic assets or resources that they can exploit in foreign markets or use foreign markets as a source for acquiring or developing new resource-based advantages (Asheghian, 2004). Consequently, many countries often explored or developed resource-based advantages by developing or acquiring a set of country-specific resources and capabilities that are valuable, rare and imperfectly imitable – and for which there are no commonly available substitutes (Korth, 1985; Rivera-Batiz & Oliva, 2003). Consequently, resource-seeking investors are mainly interested in abundant natural resources, while market-seeking investors often look for large and expanding local markets as a prerequisite to making FDI decisions (Peng, 2009). The interaction among government institutions, organizations, and strategic choices also influence FDI flows to many developing and emerging economies (Aregbesola, 2014; Mustapha et al., 2014; Awolusi, 2013a). Consequently, most MNCs often consider wider influences from sources such as government policies and various environmental factors in terms of their decision to invest in other countries (Hill, 2013; Porter, 1990).

Institutional theory research suggests that a country's institutional environment affects a country's decision to invest in other countries, because the environment reflects the "rules of the game" by which firms participate in a given market (Brouthers & Hennart, 2007; Caves, 1996). Specifically, the efficiency of the political institutions in the recipient nation to formulate the desired investment-related fiscal and monetary policies must be strengthened (Asheghian, 2004). Thus, developing countries that compete for a larger share of global FDI flows have started liberalizing their institutional environments – to create favorable investment opportunities for MNEs (Hill, 2013). This is on the premise that institutional quality, sound macroeconomics, educational levels (human capital), and natural resources are the major determinants of FDI inflow to many African economies (Asiedu, 2004b; Asiedu & Lien, 2004). However, the inadequate functioning of institutions in Africa has been identified as creating high political risk, corruption, poor governance, bureaucracy, and rule-of-law failures (Anyanwu, 2012). In addition, most African countries are characterized by less structural interaction between political and economic institutions – which inhibits the inflow of FDI (Aregbesola, 2014).

Determinants of FDI Inflows: Studies have been conducted to understand the determinants of FDI destinations. Agglomeration effects (economies) may exist given that foreign investors may be attracted to countries with more existing foreign investment (Nnadozie & Osili, 2004). This is on the premise that, due to lack of knowledge of a country's environment, foreign investors may view the investment decisions by others as being a good signal of favorable conditions, and they then invest there too (Anyanwu, 2012, 2011, 2006). In another comprehensive study, Chakrabarti (2001) compiled previous work done on the determinants of FDI direction; he identified eight determinants of FDI inflows: labor cost, market size, trade barriers, economic openness, growth rate, exchange rate volatility, trade deficit and tax (Aregbesola, 2014). According to Aregbesola (2014), although most of the findings were inconclusive, variables like growth rate, market size, and economic openness were found to be major determinants of FDI inflows in the studies evaluated. Similarly, trade openness has also been found to be positively associated with FDI inflows (Asiedu, 2002). However, due to the tariff-jumping theory, some studies have found a negative impact of trade openness on market-seeking FDI inflows (Anyanwu, 2012).

Furthermore, while Nnadozie and Osili, (2004) observed a negative influence of economic instability on FDI inflows, Brahmasrene and Jiranyakul, (2001) indicate otherwise. As regards the influence of economic and financial factors, Alfaro et al. (2004) observed the role of the local financial markets as a major determinant of the absorptive capacity of the southern Africa host countries. Similarly, a case study on Ghana by Kyereboah-Coleman and Agyire-Tettey, (2008) showed that the volatility of the real exchange rate has a negative influence on FDI inflow. However, this assertion was disputed by Brahmasrene and Jiranyakul, (2001). The influence of host country institutions was also mentioned in past literature. For instance, Mohamed and Sidiropoulos, (2010) found institutional variables among the key determinants of FDI inflows in the MENA region. Weak institutional enforcement may lead to sharp labor practices and the avoidance of projects by multinational companies with long gestation, and which are investment-intensive and have low initial profitability (Anyanwu, 2012). In addition, Dabla-Norris et al. (2010) found the degree of diversification in an economy was another major determinant of FDI flows. According to the study, countries with a better diversified economic structure often attracted higher FDI inflows to the preferred economic sectors.

Furthermore, previous studies also observed significant relationships between FDI inflows and foreign aid (Blaise, 2005; Anyanwu, 2012; Kimura & Todo, 2010; Harms & Lutz, 2006; Yasin, 2005); attraction of natural resources (Dupasquier & Osakwe, 2006; Aseidu, 2002, 2006; Mohamed & Sidiropoulos, 2010); good infrastructure, macroeconomic stability, an efficient legal system, less corruption and political stability (Hailu, 2010); human resource development, productivity and cost (Reiter et al., 2010; Rodríguez & Pallas, 2008; Alsan et al., 2006; Anyanwu, 2012; Nonnemberg & Cardoso de Mendonça, 2004). However, contrary to these studies, Harms and Lutz (2006) find that the effect of aid on FDI is generally insignificant but significantly positive for countries in which private agents face heavy regulatory burdens. In addition, Hailu (2010) maintained that the availability of a stock market has a positive but insignificant effect on FDI inflows. In focusing on this study, the operationalization of the policy and non-policy factors (Table 1) were distilled from various articles and empirical research on FDI inflows. They were then categorized into a number of subgroups – similar to Aregbesola (2014) and Anyanwu (2012) – representing various determinants of FDI inflows. These dimensions are: agglomeration effects, trade openness, fiscal balance-macroeconomic condition, market size, economic instability, exchange rate, foreign aid, human capital development, corporate tax, and natural resource endowment (Fedderke & Romm, 2006). Agglomeration effects, foreign aid, and natural resource endowment are the non-policy factors (Mateev, 2009).

3. Methodology

This research employed a panel dataset of 42 selected African countries from 1980 to 2016. The selected countries are: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Democratic Republic of the Congo, Cote d'Ivoire, Egypt, Equatorial Guinea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Sudan, Swaziland, Togo, Tunisia, Uganda, and Zambia. The data used in this analysis was generated from World Trade Organization (WTO) database, the World Bank African Development Indicators (ADI), United Nations Commodity Trade Statistics (UNCTS) Database, International Monetary Fund (IMF), United Nations Statistics Database (UNdata), World development indicators ONLINE, and UN Statistics Database (UNdata).

Econometric Model: Based on a framework from Aregbesola (2014), Ordinary Least Squares (OLS) and Generalized Method of Moments (GMM) were used as the estimation techniques. The GMM approach was adopted to address the potential endogeneity of the regressors (El-Wassal, 2012). The econometric model used in this study is akin to the basic production function. Consequently, to analyze the effect of policy and non-policy factors on FDI inflows, the Cobb-Douglas Production Function was expanded (Oladipo, 2008; El-Wassal, 2012). In addition, the GMM estimators used were based on differencing regressions to control unobserved effects and the utilization of previous explanatory and lagged-dependent variables as instruments (El-Wassal, 2012). To control these endogeneity concerns – due to the use of dynamic panel methods on cross-country data and to incorporate country-fixed effects – this paper utilizes the system-GMM approach of Blundell and Bond (1998). Therefore, considering the following regression specification:

$$Y_{it} = \beta_0 + \lambda \varepsilon_{i,t-1} + \beta_1 X_{it} + \mu_i + \varepsilon_{it} \dots \dots \dots \text{equation 1}$$

Where Y_{it} is the logarithm of FDI inflow as a percentage of GDP, while X_{it} represents the set of relevant explanatory variables, μ_i is the time-invariant country-specific effects, and $\varepsilon_{i,t}$ is the error term. According to El-Wassal (2012), the system-GMM approach only allows current and future values of the independent variables to be affected by the error term, while relaxing the assumption of strict exogeneity, and equation 1 was mathematically translated to equation 2 below to eliminate the country-specific effect:

$$Y_{it} - Y_{it-1} = \eta(Y_{it-1} - Y_{it-2}) + \beta(X_{it} + X_{it-1}) + (\varepsilon_{it} + \varepsilon_{it-1}) \dots \text{equation 2}$$

Based on this method, equation 2 automatically controls for the correlation between the new error term, $\varepsilon_{it} - \varepsilon_{it-1}$, and the lagged dependent variable, $Y_{it-1} - Y_{it-2}$. Therefore, using the Bundell-Blond approach (El-Wassal, 2012) and the basic assumptions of the GMM dynamic estimator (equations 3 and 4), the resultant model for this study is shown in equation 5:

$$E[Y_{i,t-s} \cdot (\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0, \text{ where } s \geq 2; t = 3, \dots, T \dots \text{equation 3}$$

$$E[Z_{i,t-s} \cdot (\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0, \text{ where } s \geq 2; t = 3, \dots, T \dots \text{equation 4}$$

It is also important to note that the assumptions were restrictive due to sample size, $s = 2$ and $t = 3, \dots, T$. Equation 2 was subsequently translated and expanded to our multiple regression equation 5 as follows:

$$\left(\frac{FDI}{GDP}\right)_{it} = \alpha_0 + \alpha_1 \left(\frac{FDI}{GDP}\right)_{it-1} + \alpha_2 TO_{it} + \alpha_3 DEBT_{it} + \alpha_4 MS_{it} + \alpha_5 EI_{it} + \alpha_6 ER_{it} + \alpha_7 FA_{it} + \alpha_8 HCD_{it} + \alpha_9 CTAX_{it} + \alpha_{10} NRE_{it} + \varepsilon_{it} \dots \text{equation 5}$$

Where:

FDIINFL = FDI inflow, which is expressed as a percentage of GDP

AE = Agglomeration effects expressed as lags of the dependent variable

TO = Trade Openness expressed as a ratio of merchandise trade to GDP (percentage)

DEBT = Fiscal balance, which is measured by public debt

MS = Market size, measured by population growth

EI = Economic instability, measured by the level of inflation

ER = Exchange rate

FA = Foreign Aid, measured by net official development assistance as a share of GDP

HCD = Human Capital Development, measured by the ratio of secondary and tertiary institution enrolment in the population.

CTAX = Corporate tax, measured by corporate tax as a percentage of GDP

NRE = Natural resources endowment, measured by resource dummy

i = represents the country

t = represents time in year

α_0 = is an intercept, and

ε_{it} = is the error term.

Defining the Dependent and Explanatory Variables: The dependent variable is the ratio of FDI flows to GDP, as used in previous studies (Alba, Park & Wang, 2009; Alfaro et al., 2004; Asiedu, 2002). According to Aregbesola (2014) and Anyanwu (2012), the variable is adjudged the most efficient measure of FDI inflow, because it captures the relative contribution of FDI to GDP. An agglomeration effect was tested for by relating current FDI inflows to past FDI inflows, and this is proxied by the lags of the dependent variable. Trade openness depicts the extent to which an economy is opened to foreign markets, through its active participation in trade and investment. In this study, trade openness is proxied by the ratio of merchandise trade to GDP. Fiscal balance, which is proxied by public debt, reflects the stability of the macroeconomic framework (Kok & Ersoy, 2009). Market size, as measured by population growth was justified as an important determinant of market size. Economic instability was measured by the level of inflation, which measures the impact of price changes in the domestic market on the consumption of locally manufactured and imported products (Nnadozie & Osili, 2004; Brahmasrene & Jiranyakul, 2001). Exchange rate was measured using variables adapted from Kyereboah-Coleman and Agyire-Tettey (2008) and Brahmasrene and Jiranyakul (2001).

Foreign Aid was measured by net official development assistance as a share of GDP – a measure that has been used in previous studies (Kimura & Todo, 2010; Blaise, 2005). Human Capital Development was measured by the ratio of secondary and tertiary institution enrolment in the population (Reiter et al., 2010). Furthermore, corporate tax was measured by corporate tax as a percentage of GDP. This was on the premise that the administration of corporate tax in a country may reflect the strategic interest of the country in local manufacturing at the expense of foreign companies; accordingly, high corporate tax may be used to discourage investment in certain sectors (Aregbesola, 2014). The last independent variable, natural resources endowment, was measured by a country resource dummy to control for the variability in FDI behavior that is resource-induced. According to Aregbesola, (2014) and Anyanwu (2012), this is essential given that most countries in Africa only attract FDI that is resources induced. Consequently, a dummy variable of ‘1’ was introduced for countries endowed with strategic natural resources (e.g. crude oil, gold, platinum and coal), while another dummy of ‘0’ was introduced for countries that do not possess such resources (Dupasquier & Osakwe, 2006; Aseidu, 2002, 2006; Mohamed & Sidiropoulos, 2010).

4. Results and Discussion of Findings

Descriptive Statistics: Both Ordinary Least Squares (OLS) and Generalized Method of Moments (GMM) were used as the estimation techniques in this study. The GMM estimators used were based on differencing regressions to control for unobserved effects and the utilization of previous explanatory and lagged-dependent variables as instruments (El-Wassal, 2012). However, before the application of these techniques, a series of diagnostic tests were undertaken to cater for sensitivity and reliability (Asikhia and Awolusi, 2015; Awolusi, 2013a; Hailu, 2010; Kimura & Todo, 2010). Firstly, to correct for possible autocorrelation between the regressor variables and the error terms, the Hausman test was conducted (Dupasquier & Osakwe, 2006; Aseidu, 2002). In addition, to cater for the standard errors, the redundancy variable test was conducted using the White diagonal standard errors and covariance technique (Aregbesola, 2014). The results were robust and showed the absence of arbitrary serial correlation and time-varying variances in the disturbances.

Table 1: Mean, Standard Deviations (SD), and Correlations of the Main Regression Variables (Excluding Dummies) – Average from 1980-2016

Constructs	Obs.	Mean	SD	1	2	3	4	5	6	7	8	9	10
FDIINF	599	3.66	8.48	1.00									
AE	545	5.63	1.42	0.11	1.00								
TO	579	33.24	16.41	0.26**	0.29**	1.00							
DEBT	542	9.34	3.48	0.03	0.34**	0.25**	1.00						
MS	577	3.59	9.51	-1.03	0.36**	0.29**	0.13	1.00					
EI	546	9.11	19.79	0.26*	0.12	0.25**	-0.10	0.34**	1.00				
ER	513	5.01	11.55	0.11	-0.14	-0.11	-0.11	0.11	-0.14	1.00			
FA	544	21.21	16.38	0.33**	0.32**	0.32**	0.09	0.26**	0.23**	-0.09	1.00		
HCD	596	13.45	10.61	0.18	0.33**	0.32**	0.32**	0.11	0.26**	0.23**	-0.10	1.00	
CTAX	547	14.11	7.45	0.11	0.18	0.33**	0.32**	0.32**	0.11	0.26**	0.23**	0.01	1.00

Note: *p≤0.1, **p≤0.05, *p≤0.001**

Table 1 (above) shows the descriptive statistics and correlation matrix of all the variables (Dummy Variable). It is important to note that none of the explanatory variables was strongly correlated. Consequently, all the variables were used in our analysis. Second, in order to determine the order of integration, a unit root test was conducted. This was an attempt to identify non-stationarity (unit roots). A standard augmented Dickey-Fuller (ADF) test was conducted to eliminate autocorrelation and white noise (Anyanwu, 2012), while a Phillips Perron (PP) test was also conducted, given the imperative of uncorrelated error terms. The two tests were conducted at the level, first difference and second difference series (Hair et al., 1998). The results of the unit root tests are presented in Table 2 (below).

Table 2: Summary of Unit Root Test Results

Variables	ADF Test:		Diff.	PP Test:		Order of Integration
	First Difference: Constant with Trend	2 nd Statistics		First Difference: Constant with Trend	2 nd Statistics	
<u>African Panel</u>						
LnAE	-3.220880*	-5.453346	-5.057306** **	-7.765237		1(2)
LnTO	-2.325263*	-2.847635	-4.07412**	-4.697345		1(2)
LnDEBT	-4.096229*	-5.434563	-4.096805*	-4.573655		1(2)
LnMS	-3.174591*	-3.245674	-3.174591*	-3.662856		1(2)
LnEI	-3.963164*	-3.834577	-5.860987*	-5.345675		1(2)
LnER	-6.428332*	-6.134567	-4.407357*	-4.945567		1(2)
LnFA	-5.709925*	-5.728656	-6.801947*	-6.793456		1(2)
LnHCD	-2.965081**	-2.123563	-4.489557*	-4.565734		1(2)
LnCTAX	-4.552479*	-4.734564	-5.737240*	-5.193452		1(2)
LnNRE	-4.907973**	-4.456754	-2.89165**	-2.234566		1(2)

Note: Critical Values: (ADF): 1% -2.9289; 5% -2.6772; 10% -2.1222; (Phillips-Perron): 1% -3.1122; 5% -2.8336; 10% -2.5432. *, ** and *** implies 1%, 5% and 10% levels of significant respectively.

The result of the unit root test assumed stationarity of the series for all the variables by the rejection of the null hypothesis for the second difference at all the critical values (maximum lag of one). Therefore, the models follow an integrating order of 1(2) process and are therefore a stationary process (Hair et al., 1998). The computed value of the test statistic was also compared to the critical value for both the ADF and PP test (constant with the trend) in order to reject or accept the null hypothesis. Consequently, a null hypothesis was rejected, since the former was greater (in absolute value) than the latter (Hair et al., 1998).

OLS and GMM Results: From table 3, the Sargan test suggests that none of the variables is statistically significant – thereby negating the null hypothesis that the overidentifying restrictions are valid. Furthermore, as a diagnostic measure, Durbin-Watson statistics of 2.011 posits the absence of potential first-order autocorrelation in all the variables. The results of OLS and GMM in table 3 therefore suggest that apart from fiscal balance, exchange rate and corporate tax, all the variables tested in this study are regarded as important considerations for attracting FDI to African countries. Specifically, Trade Openness, Market Size (population growth), and Foreign Aid are statistically significant at 1% level, lags of FDIINFL (agglomeration effects) was statistically significant at 5% level, while the level of inflation, Human Capital Development, and natural resource endowments were statistically significant at 10% levels.

Table 3: OLS and GMM Results for FDI Inflows into Africa (Panel)

VARIABLES	OLS	GMM
Agglomeration effects (lags of FDIINFL)	0.1434 (1.23)**	0.0812 (1.99)**
Trade Openness	0.1422 (4.41)*	0.1375 (2.94)*
Fiscal Balance (public debt)	-0.034 (-1.01)	-0.0122 (-1.09)
Trade Openness Market Size (population growth)	0.2331 (5.33)*	0.2198 (2.88)**
Economic instability (level of inflation)	-0.2079 (-1.92)***	-0.18750 (-1.98)***
Exchange Rate	-0.0171 (-2.01)	-0.2104 (-1.92)
Trade Openness Market Size (population growth); Foreign Aid	0.2773 (6.12)*	0.2999 (8.22)**
Human Capital Development	0.2132 (2.19)** *	0.1278 (-0.27)
Corporate tax	-0.0251 (-1.99)	-0.0322 (-0.22)
Metal dummy	2.129 (4.56)*	
Oil dummy	4.3248 (3.766)*	
Constant	75.3264 (3.55)*	122.3679 (4.11)*

Observations	312	302
R-squared	0.5563	
Wald chi2(41)		166.21
Prob > chi2		0.0001
Sargan Test (Prob > chi2)		0.2512
Durbin-Watson statistics		2.011
Number of countries	42	42

Note: t-statistics in parentheses. *, ** and *** implies 1%, 5% and 10% levels of significant respectively.

Discussion of Findings: Agglomeration effects were found to be capable of enhancing the attractiveness of Africa to inflow of FDI. As recommended by previous studies (Ashegian, 2004; Akinkugbe, 2005; Caves, 2007), efforts should be made by African countries to attract more FDI so as to induce other foreign investors to make additional investment due to the perceived existing foreign investment. This is on the premise that foreign investors may view the investment decisions by others as a good signal of favorable conditions (Nnadozie & Osili, 2004). Consequently, government expenditure should be directed toward incentives and infrastructure development. Trade openness was also found to be positively associated with FDI inflows in this study. Consequence upon this, Aregbesola (2014) suggests the possible realization of an improvement in the attractiveness of Africa to the inflow of FDI, if policy-makers can sustain the various economic liberalization and market size strategies. This also buttresses their relevance as the major macroeconomic policies of relevance to other developing countries. However, in a deviation from this positive disposition, Anyanwu (2012) argued that the effect of trade openness depends on the type of FDI. This was attributed to the tariff-jumping theory which stipulates that multinational enterprises that seek to serve local markets may decide to set up subsidiaries in the host country, when it is difficult for them to import products into that country (Anyanwu, 2012).

Furthermore, the positive coefficients borne by both economic openness and population growth in this study also differ from Aregbesola (2014) and Asiedu (2002). Specifically, Aregbesola (2014) observed a reverse causality between inflow of FDI and population growth. The positive result from this study may simply imply that an increase in the inflow of FDI may alternatively improve income level and knowledge transfers (Nnadozie & Osili, 2004; Hair et al., 1998). Arguably, an increase in income level and knowledge may result in creating a larger consumer market size for further investments. The interface of government debt, exchange rate and corporate tax expectedly bears negative coefficients and were statistically not significant. This suggests that FDI inflow would decrease by increasing government debt, while an increase in exchange rate and corporate tax will definitely discourage inflow of FDI to Africa. Consequently, various government interventions are required to further liberalize African economies and to reduce corporate taxes in order to improve the attractiveness of Africa to inflow of FDI. In addition, this study is similar to Kyereboah-Coleman and Agyire-Tettey (2008). The study observed that the volatility of real exchange rate had a negative influence on FDI inflow in Ghana, although, this was refuted by Brahmasrene and Jiranyakul, (2001).

Another result was the significant relationships between the level of inflation and inflows of FDI into Africa, despite the negative coefficient. This implies that an increase in the level of inflation may reduce the attractiveness of Africa to inflow of FDI. Although this finding supports the work of Nnadozie and Osili (2004), it differs from Brahmasrene and Jiranyakul (2001). A key novel finding in this paper was the finding of a significant relationship between FDI inflows and foreign aid. Although this is similar to previous studies in advanced and emerging economies (Kimura & Todo, 2010; Harms & Lutz, 2006; Yasin, 2005), it is unique in the African context. For example, Harms and Lutz (2006) find that the effect of aid on FDI is generally insignificant, but significantly positive for countries in which private agents face heavy regulatory burdens. In addition, using cross-country panel data, Kimura and Todo (2010) find robust evidence that foreign aid from Japan has a vanguard effect. This was supported by Anyanwu (2012), using cross-country time-series data of African countries from 1996-2008. He concluded that higher FDI goes where foreign aid goes in Africa (Anyanwu, 2012). Consequently, this unique finding underscores the submission of Anyanwu (2012), that most African countries attract FDI inflows as a follow-up to foreign aid from major donor countries from developed economies.

This study also concurs with previous studies on the effect of human resource development on FDI inflows (Rodríguez & Pallas, 2008; Reiter et al., 2010; Anyanwu, 2012; Nonnemberg & Cardoso de Mendonça, 2004; Rodríguez & Pallas, 2008; Alsan et al., 2006). Specifically, Reiter et al. (2010) concluded that FDI inflows are more strongly positively related to human capital development, especially when corruption is low. In another similar study, Rodríguez and Pallas (2008) positioned human capital development as being the most important determinant of FDI inflows. This positive sentiment was shared by Alsan et al. (2006) and Anyanwu, (2012). Alsan et al. (2006) were particularly impressed by the influence of human capital development on FDI inflows in low- and middle-income countries (Anyanwu, 2012). However, another unique finding of this study was that, although the estimate for human capital development was positive and significant for OLS, the second lag was not significant at the GMM and had a negative sign. This indicates that Africa's human capital deteriorated with time over the study, despite its initial contribution to FDI inflows. Consequently, there is an urgent need for more emphasis on human capital development by policy-makers in Africa, in order to stem the rate of decline (Anyanwu, 1998, 2011, 2012). Lastly, this study also supports the positive relationships between FDI inflows and natural resource endowment in the host country, as posited by Dupasquier and Osakwe (2006) and Aseidu (2002).

5. Conclusion and Implications of the Study

Conclusions: The empirical literature on the determinants of FDI inflows is largely inconclusive. In addition, most previous studies often focused on developed and emerging economies. Consequent upon the seemingly scant studies on understanding the determinants of FDI inflows into vast African countries, this paper evaluates the determinants of FDI flows by examining specific relationships between the determinants and FDI inflows into Africa using a panel dataset of 42 countries from 1980 to 2015. Findings based on the OLS and GMM estimation techniques revealed that first-year lag of FDI (agglomeration effects), trade openness, market size, economic instability, foreign aid, human capital development, and natural resources (oil and metals) endowment have a positive and significant effect on FDI inflows to Africa – while there is a negative relationship between FDI inflows to the continent and fiscal balance (public debt), exchange rate and corporate tax. Consequently, government policies and non-policy factors played significant roles in facilitating FDI inflow into Africa during the study period. Specifically, the major determinants identified in this study are trade openness, market size, foreign aid, and natural resource endowment. With the improvement in the measurement of policy and non-policy variables, the ability to explain and understand determinants of inward FDI to Africa has improved significantly.

Theoretical Implications and Recommendations: The findings from this study conform to the theoretical postulations of transaction cost analysis (TCA), the resource-based view, and institutional theories (Steers & Nardon, 2006; Hill, 2013). The transaction cost analysis seeks to identify the environmental factors that together with a set of related human factors explain how companies can organize transactions to reduce the costs associated with these transactions (Correa & Kumar, 2003; Peng, 2009). The resource-based view suggests that valuable firm resources (market size and natural resource endowment) are usually scarce, imperfectly imitable, and lacking in direct substitutes (Brouthers & Hennart, 2007). Consequently, the paper recommends that for African countries to enhance their FDI inflows there is a need to develop some unique strategic resources (like human capital, natural resources and institutions) or use foreign markets as a source for acquiring or developing new resource-based advantages (Asheghian, 2004). The paper also established that the institutional environments in many African countries played significant roles in attracting FDI.

Consequently, the paper recommends modifications in government policies on expenditures, exchange rate, and corporate tax so as to adequately influence FDI flows to the studied African economies. Accordingly, African countries should understand and monitor macroeconomic and institutional reforms, so as to positively influence the same policies in their own domain. Mohamed and Sidiropoulos, (2010) and Asiedu, (2006) concur with this positive disposition. This finding was expected, as many African countries often receive much FDI in natural resource-based sectors, like minerals (metals), and oil and natural gas (Dupasquier & Osakwe, 2006, Asiedu, 2006). In addition, based on the validation of the institutional theory, which postulates that the environments reflect the rules of the game by which firms participate in a given market (Brouthers & Hennart, 2007), and thus there is an urgent need for African countries to formulate and implement policies to stem the negative relationship between FDI inflows and fiscal.

Balance (public debt), exchange rate, and corporate tax – as reported in this study consequently in addition to strengthening the efficiency of the various institutions in the recipient nation to formulate the desired investment-related fiscal and monetary policies, this study also recommends the use of longitudinal data-base indices of individual countries in the formulation of their FDI strategies (Wyk & Lal, 2008). This paper contributes to the literature in three ways. First, unlike previous studies which largely considered either emerging or developed economies or a group of both emerging and developed economies, this paper focused solely on African countries. Second, this study disagrees with the practice of pooling developed and developing economies when analyzing the determinants of FDI flow. This is due to variations in the pattern of FDI flows in both developed and developing economies. While developed economies have substantial leverage of two-way FDI flows, developing nations are almost exclusively recipients of FDI inflows (Wyk & Lal, 2008; El-Wassal, 2012). Third, our paper adds to the growing literature by examining a range of policy and non-policy factors that seem to play an important role in determining the inward flow of FDI to African economies.

Managerial Implications and Recommendations: The value of adding policy and non-policy variables to the FDI environment has been demonstrated in this study. Due to the positive and significant relationship between agglomeration effects and FDI inflows to Africa, the paper recommends concrete efforts by African countries to attract more FDI, so as to induce other foreign investors to make the additional investment. Consequently, government expenditure should be directed towards incentives and infrastructure development. Furthermore, policy initiatives are also required to sustain the liberalization and privatization efforts in many African countries, although liberalization and privatization processes should be well guided in order to achieve a win-win scenario for both the home and host economies. Furthermore, due to the negative relationship between FDI inflows and government spending (public debt), exchange rate, and corporate tax, the study recommends that African countries must continue to stimulate economic activities, upgrade existing infrastructural facilities, dismantle existing structural bottlenecks to private and public investment, and offer both fiscal and monetary incentives to enhance their comparative advantages. In addition, apart from the continuing macroeconomic and institutional reforms, African countries need to increase domestic investment through various tax reforms and cost sharing that will enhance public expenditure productivity.

Consequently, firms or industries, policy-makers and other stakeholders must continuously advocate suitable strategies to advance both institutional and macroeconomic changes that promote the attractiveness of the investment environment in African countries. Another important finding is that trade openness positively affects FDI inflows. Consequently, there should be sustained improvement in the attractiveness of Africa to inflow of FDI, through various economic liberalization and market-size strategies. It is also imperative for African countries to improve their trade partnership with the rest of the world – especially developed western nations and the emerging economies of Asia. This study also concurs with previous studies on the effect of human resources development on FDI inflows. Since FDI inflows are more strongly positively related to human capital development, African countries should continue to improve the stock of human capital needed for effective transfer of technology from the home nations. In addition, due to the deteriorating human capital development of most African countries during the study period, there is an urgent need to allocate more resources to human capital development by policy-makers in Africa, in order to stem this trend and to increase their comparative advantages in technology assimilation and diffusion (Aseidu, 2002).

Lastly, since this study also supports the positive relationships between FDI inflows and natural resource endowment in Africa, it is important to negotiate more beneficial and transparent contracts with these resources seeking investors. Multilateral and bilateral institutions could assist in capacity training of African leaders, policy-makers and institutions, in terms of getting the much-needed skills and the effective management of natural resource revenues (Anyanwu, 2011, 2012). However, care must be taken in using the output of this study due to some inherent limitations. Like most empirical literature on the relationships between the determinants and FDI inflow using cross-country pooled data, the study suffers from both endogeneity (since most determinants are likely to be jointly endogenous with FDI inflows) and the presence of periods and country-specific omitted characteristics (El-Wassal, 2012; Anyanwu, 2012). Although the GMM approach was adopted to address the potential endogeneity of the regressors (El-Wassal, 2012), there is still a need for future research to focus on the issue of endogeneity, based on the premise that FDI inflows and its determinants could be evidenced by strong bi-directional causality.

The hypotheses could be tested in a larger panel of emerging or developing economies, rather than just in African economies. Furthermore, due to data deficiencies and the probable non reliability of data from most developing economies, the variables included in the model may be an imperfect determinant of FDI inflows. Consequently, future studies might consider the inclusion of other relevant variables like institutional quality, infrastructural development, and monetary union (Anyanwu & Yameogo, 2015; El-Wassal, 2012). Future research could also consider the use of objective measures of institutional variables, rather than perceived or subjective indicators. There may also be a need for a comparative study of both policy (institutional) and non-policy determinants of inward FDI in various groupings of countries – i.e. developing, emerging or developed countries – due to variation in the institutional and macroeconomic environments.

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