Foreign Direct Investment and Natural Resources in Sub-Saharan Africa: The Role of Institutions towards the Africa We Want "2063 Vision".

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Abstract

This study examines the mediating effect of institutions on the relationship between natural resources and FDI inflows using the panel data of 46 Sub-Saharan Africa countries over 2000-2015. The panel unit root tests by Im, Pesaran and Shin and Fisher type are employed and results indicate that data are stationary at first difference whereas the Pedroni cointegration tests confirm for the long-run relationship among variables. The GMM estimator is employed to account for the endogenous problems. The initial results demonstrate that FDI-Resources curse exists because natural resources crowd out non-natural resource sectors. Moreover, significant positive relationship between FDI and the interaction variable of institutions and natural resources signify that FDI-Resources curse exist in countries with weak institutions. The findings of this study are important in Sub-Saharan Africa because they enforce institutions and governance to promote sectoral linkages and build economy diversity towards the agenda 2063, "The Africa We Want".

Keywords: Natural Resources, FDI inflows, Institutions, Sub-Saharan Africa.

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1. Introduction

The African Union Commission has recently delivered a framework known as Agenda 2063 that focuses on at least seven primacies for building the Africa we want. To implement these aspirations, clusters of five ten years plan were formulated with the first ten year plan running from 2014-2023. Included in the aspirations are: building the Africa of good governance, justice, rule of law, inclusive growth and sustainable growth. Thus, to achieve these goals the turnaround issues require focusing on the exploitation of demographic opportunities, efficacy utilisation of natural resource endowments, urbanisation and deepening regional integrations to mention few (African Union Commission, 2015). Stemming on the Commission's vision 2063, the SSA region which covers large part of the continent with 49 economies has strong contribution towards this stable and sustainable growth. Therefore, this study contributes to the aforesaid vision by examining the role of quality institutions to mediate the relationship between FDI inflows and natural resources in SSA.

There are accredited benefits acquainted with FDI inflows to the host country including but not limited to the transfer of technology, job creation, know-how skills, capital accumulation and crowding in effect on domestic investments (Sukar, Ahmed and Hassan, 2007; Farole and Winkler, 2014). These externalities are essential ingredients to catalyse the host country's economy and financial markets development. In mid-1980s and 1990s, private investments started to migrate to developing economies including the SSA and since then, FDI inflows has become a stable and overriding investment option in SSA compared to portfolio investments, remittances and official development assistance (ODA) (Sy and Rakotondrazaka, 2015; Adams, Sakyi and Opoku, 2016; United Nations, 2017). Thus, Africa Progress Panel (2013); Sy and Rakotondrazaka (2015b) commented that the SSA countries are gradually becoming more FDI dependent than aid dependent. Specifically, the world oil exporters Angola and Nigeria reduced aid dependence from about 4% to less than 1% whereas ODA for Zambia and Ghana declined significantly from over 25 % and 12 % to 6% and below 5% respectively (Africa Progress Panel, 2013).

In 2015, FDI to Africa were about US$54 billion a decline by 7 per cent of FDI in 2014 (US$58 billion). FDI to SSA were about US$42.8 billion a decline by 10 per cent of FDI in 2014 (US$47.5 billion). The drop in FDI is linked with low prices of oil and commodities among natural resource rich countries (UNCTAD, 2016). The underscore fact is that over the past five years, African natural resource rich countries faced sharp price decline in oil and commodities. The price alterations, policy uncertainties and slowdown of Chinese economy created negative outcome on FDI inflows (Chen, Geiger and Fu, 2015; AfDB, OECD and UNDP, 2017).

The natural resources rich countries including Nigeria, South Africa and Congo have FDI in 2015 declined by 34 per cent (from US$4.7 billion in 2014 to US$3.1 billion in 2015), 69 per cent (from US$5.8 billion in 2014 to US$1.8 billion in 2015) and 72 per cent (from US$5.5 billion in 2014 to US$1.5 billion in 2015) respectively (UNCTAD, 2016). The depressed FDI inflows amongst the natural resources countries implies that these countries are heavily dependent on the extractive industries and thus, there are no other sectors which can attract FDI. In simple words, the resource rich countries hardly attract FDI inflows outside the natural

resource sectors (Asiedu, 2006; Sy and Rakotondrazaka, 2015). This can be summed up to imply that, there are no viable sectors linkage (Morisset, 2000; Adams, 2009).

The volatility facing the natural resources prices and henceforth negative impact on FDI inflows imply that resource endowments are necessary but not sufficient determinant of FDI inflows among SSA countries. This also imply that FDI inflows have not yet generated the desirable and anticipated multiplier effects among SSA countries and thus, FDIs go where it goes (Ndikumana and Verick, 2008; Anyanwu, 2012). Thus, to serve the interests of host countries in SSA, one should ask "what are the favourite policies that are vital to accelerating the catching up of FDI inflows in low and rich natural resources countries?"

Snowdon and Vane (2005) noted that weak institutions devastate poor countries including SSA to exploit the likelihoods of catching up and convergence attributes of economic growth. Thus, the attractive business environments are the connecting tools for low and rich natural resource countries to skyrocketing towards potential FDI. It is essential that the current and future roles of natural resources to attract potential FDI trail with the institutional quality which accelerates the diversification. Political instability and corruption are among impediments towards potential FDI inflows among SSA countries (Asiedu, 2006; UNECA, 2016). It is worth to note that about 30 per cent of SSA countries have natural resource endowments which contribute for 20 per cent of their country's GDP, and they contribute to nearly 17 per cent of SSA's total GDP. Moreover, there are other SSA countries with untapped natural resources.

In general, being rich in natural resources does not guarantee smooth attraction of FDI inflows because non-natural resource countries have potentials which attract abundant FDI (AfDB, OECD and UNDP, 2017). Moreover, poor resource countries like Japan, South Korea and Taiwan managed to attract significant FDI by modernising their business environment and governance which skyrocketed towards the growth miracles (Snowdon and Vane, 2005; Lipsey and Sjöholm, 2011; Irwin and Gallagher, 2014). However, the natural resources rich SSA countries like Nigeria, Congo and Angola have slowed down toward potential FDI inflows. The ease of doing business by the World Bank has ranked the SSA with poor score to substantiate the presence of poor business climate in SSA region (World Bank, 2016). In 2015 for instance, the non-resource rich countries Ethiopia, Ivory Coast and Rwanda were recorded as fast growing economies in Africa and thus, potential FDI inflows are now targeting the non-resource rich economies engineered by diversification towards institutional reforms (Chen, Geiger and Fu, 2015; AfDB, OECD and UNDP, 2017).

Alongside this background information, this study intends to achieve twofold objectives.
  i) To examine the relationship between natural resources and FDI inflows in SSA.
  ii) To evaluate the mediating effects of quality institutions on the relationship between natural resources and FDI inflows in SSA.

This study is significant for number of reasons. First, extant studies argue that FDI inflows tend to follow the natural resources. However, in recent years the FDI inflows among SSA natural resource rich countries have dropped significantly to signal deteriorating effect on economic growth. Second, the inability of non-natural resource sectors to attract FDI inflows indicates

unhealthy linkages between sectors. Third, foreigner investors are attracted by amiable business environment. The quality of resource governance of the host country determine the current and future of natural resource countries to attract potential FDI (Aggarwal *et al.*, 2011; Farole and Winkler, 2014; Farla, Crombrugghe and Verspagen, 2016).

2. Literature Review
2.1 FDI, Natural Resources and Institutions
2.1.1 Overview of FDI in SSA
The FDI inflows describe the international capital movement to the host country and grant the foreign investors the lasting interest of greater than10 per cent in the domicile enterprises. This kind of ownership grants an investor with management control in the foreign enterprise (Moosa, 2002). It is worth to note that ownership stake of less than 10 per cent is considered as portfolio investment (Art Ridgeway, 2004; Chen et al., 2015; OECD, 2002).

FDI inflows are argued to be vehicles that create ingredients for country's economic growth and poverty reduction. These ingredients include but not limited to the advanced technology, creation of employment, capital accumulation and technical know-how skills (Moosa, 2002). Moreover, FDI inflows are linked with crowd in effect of the domestic investments in the host country (Adams, 2009; Adams, Sakyi and Opoku, 2016). In general, the presence of FDI inflows to the host country assist towards the total factor productivity and capital accumulation (Adams, 2009; Nath, 2009; Mahmoodi and Mahmoodi, 2016). Thus, based on the acknowledged benefits that are attached with FDI inflows many countries are excited to attract significant basket FDI inflows (Jumanne and Keong, 2017).

The FDI inflows are needed as the main sources of capital investment for stimulating the economic growth among the developing economies including the SSA (Choong and Lam, 2011; Drigă, 2011). However, FDI inflows can bring negative impact to the host country especially when FDI inflows do not result into beneficial multiplier effects of sectoral investment linkage. This occurs when one sector does not create robust spill over to another sector (Morisset, 2000; Scott-Kennel, 2007; Adams, 2009).

The determinants of FDI inflows are categorised as micro and macro determinants. The micro determinants of FDI inflows are based on the motives that excite the multinational corporations to open an enterprise overseas. These factors include interest rate discrepancies, production costs and OLI paradigm namely the Ownership, Location and Internalisation (Krugman and Obstfeld, 2003; Dunning and Lundan, 2008; Woldemeskel, 2008). In general, these motives encompass the market, resource and efficiency seeking (Dunning, 2000).

Meanwhile the macro level determinants of FDI include factors available to the host country that determines FDI inflows. These factors include natural resources, market size, infrastructure, macroeconomic factors, political stability and regulatory frameworks (Moosa, 2002; Asiedu, 2006; Chen, Geiger and Fu, 2015). This study focuses on natural resources and institutions.

2.1.2   The Natural Resources

The WTO (2010) defines the natural resources as "stocks of materials that exist in the natural environment that are both scarce and economically useful in production or consumption, either in their raw state or after a minimal amount of processing". In general, natural resources are categorised as renewable resources like land, water, fish and forestry) or non-renewable resources like minerals, metal, oil and gas (Wright and Czelusta, 2007; WTO, 2010; Mildner, Lauster and Wodni, 2011; Thorborg and Blomqvist, 2015).

The non-renewable natural resources namely minerals, oil and gas are the main determinants of FDI inflows in Sub-Saharan Africa (Lundgren, Thomas and York, 2013). The extraction and exportation of the non-renewable natural resources are major drivers of economic growth to majority of extractive industries in SSA (Lundgren, Thomas and York, 2013; Thorborg and Blomqvist, 2015). Thus, SSA region is estimated to occupy about 30% of World's mineral reserves with South Africa contributing one third of World's Platinum, 40% of chromium and over 15% of gold and manganese; Democratic Republic of Congo contributing the half production of world's cobalt, ¼ of industrial diamond, 14% of tantalum and 3% of copper and tin; Botswana exports about 20% of the World's diamond; Zambia ranks 6th in Copper production; whereas 9% of the World's gold comes from Tanzania, Mali, Guinea, Ghana and Burkina Faso together; the fourth and fifth producers of world's uranium are Namibia and Niger respectively producing about 17% of total output and Sierra Leone the 10th producer of the world diamond and 3rd producer of rutile (Africa Progress Panel, 2013; Thorborg and Blomqvist, 2015).

The natural gas in Sierra Leone and the world's highest-grade natural gas the iron ore in Guinea and Liberia attract significant foreign investment (Africa Progress Panel, 2013). Moreover, the natural gas in Nigeria, Mozambique and Tanzania also attract large foreign investment (Africa Progress Panel, 2015). In general, natural resources are regarded as historical determinants of FDI (Asiedu, 2006; Cleeve, 2008; Africa Progress Panel, 2013). The study by Asiedu (2006) on 22 SSA concluded on significant positive relationship between natural resources and FDI inflows after controlling for institutions, macroeconomic stability and political variables. Moreover, Kolstad and Wiig (2012) on 142 OECD and non-OECD economies concluded that the Chinese outward FDI are channelled into regions that are rich in natural resources but poor institutions.

Mohamed and Sidiropoulos (2010) using the panel data of 12 MENA countries concluded that natural resources are determinants of potential FDI in countries which have strong institutions, market size and government size. Moreover, using cross sectional data on selected African countries over 1996-2008, Anyanwu (2012) concluded that FDI follow the endowment of natural resources, market size and rule of law. Likewise, Bokpin, Mensah, and Asamoah (2015) employed panel data of 49 African countries over the period 1980-2011 and concluded on positive relationship between natural resources and FDI inflows.

2.1.3   The Role of Quality Institutions

According to North (1990), institutions which are categorised as formal or informal are the human constraints for shaping human social, economic and political interactions. Formal institutions are written codes like constitutions, property rights and rules whereas informal

institutions are unwritten codes based on norms and customs and are enhanced through social dialogue. Institutions promote productivity through investments (North, 1990; Hodgson, 2006; Bénassy-Quéré, Coupet and Mayer, 2007; Buchanan, Le and Rishi, 2012). This implies that policy reforms and governance create confidences for investors to undertake investments.

Acemoglu, Johnson, Robinson, and Thaicharoen (2003) argued that quality institutions stimulate economic growth. Moreover, quality institutions accelerate the catching up of the FDI inflows which in turn promotes growth (Bénassy-Quéré, Coupet and Mayer, 2007; Jumanne and Keong, 2017). This study is based on six components of institutions developed by Kaufmann, Kraay and Mastruzzi (2009) namely government effectiveness, regulatory quality, voice and accountability, political stability and absence of violence, rule of law and control of corruption.

It is acknowledged that economies that are established on stable business climate attract potential FDI (Aggarwal *et al.*, 2011). The favourable regulatory climate excites foreign investors to transact at low costs and thus smooth the cost of doing business (Gaur, Kumar and Singh, 2014; Yang, 2015). The laxity to enforce institutional reforms among SSA countries has been spotted by number of studies including Barasa, Knoben, Vermeulen, Kimuyu, and Kinyanjui (2017); Nondo, Kahsai, and Hailu (2016); Rossouw (2005). For instance, Barasa et al., (2017) concluded that the East African countries namely Kenya, Tanzania and Uganda are overwhelmed with weak institutions. World Economic Forum (2017) cherished countries like Ethiopia and Rwanda for efforts undertaken to enforce institutional reforms.

2.1.4 *FDI, Natural Resources and Quality Institutions*
Premised with the above discussion, the declining trend of FDI among SSA countries is backed with factors including the fall in prices of oil and commodities and uncertainty conditions like political instability and rule of law. Moreover, some countries that are reliant on extractive industries are laxity to enforce sectoral linkages for attracting potential FDI inflows. Empirical studies have noted that, outside natural resources sector the FDI inflows do not create beneficial externalities (Sy and Rakotondrazaka, 2015; AfDB, OECD and UNDP, 2017).

According to Transparency International (2017), SSA region is packed with endemic corruption and low level of transparency which deteriorate management of revenue. The corruption perception index 2016 ranked SSA region with an index of 40 (0 = highly corrupt, 100 = clean) for poor performance in rule of law, justice and high corruption with the exception of Botswana with an index about 60 for more than five years. The natural resource rich and powerhouse countries like Nigeria and South Africa have poor indices of about 28 and 45 respectively for the past five years (Transparency International, 2017). In general, the corruption perception index for majority of SSA countries is below 40 to imply incapacity in tackling corruption, lack of accountability and transparency and poor rule of law (CPIA Africa, 2016; Jumanne and Keong, 2017; Transparency International, 2017).

Snowdon and Vane (2005) argued that weak institutions among poor countries including SSA hinder the likelihood to exploiting the catching up of attributes for economic growth. Thus, the quality of institutions is the bridge for low and natural resource rich countries to capture potential FDI inflows. Moreover, the current and future roles of natural resources to attract potential FDI

depends on the institutional quality that provide the diversification. Political instability and corruption are among hindrances for potential FDI inflows among SSA countries (Asiedu, 2006; Ernst and Young, 2015; UNECA, 2016).

The study by Lipsey and Sjöholm (2011) in Northern and Southern Asia concluded that Indonesia contrary to other countries like Japan, South Korea and Taiwan received low level of FDI inflows because of underdeveloped business environment and poor public sector. This implies that being rich in natural resources does constitute the necessary but not the sufficient condition to attract potential FDI. Thus, building sound and quality institutions constitute high degree for natural resource to attract significant FDI inflows to facilitate economic growth and combat radical poverty among SSA countries.

The Natural Resource Governance Index (NRGI) which is an institute that measures the quality of governance among 81 natural resource rich countries of which 72% produces world's copper, 82% world's oil and 78% world's gas argues that the governance of resources define the current and future of resources countries. The RGI assesses the quality of country's governance based on the value realisation, revenue management and enabling environments (NRGI, 2017). In the group of the SSA countries, Botswana and Ghana scored satisfied indices of 67 and 61 out of 100 respectively while the rest of SSA countries fall under the category of weak, poor and failing. This implies that, on average the quality of governance among the natural resource countries in SSA is weak.

The presence of institutions not only creates political, economic and social interactions it mediates also the sectoral linkages towards economic growth. Otherwise, the expected blessing will varnish and the FDI-resource curse will persist if and only if the natural resources sector creates the crowding out effect on non-natural resource sectors (Asiedu, 2013; Elheddad, 2016; Sunde, 2017).

3. Data and Model

This study employs the annual panel data of 46 SSA countries[7] over the period 2000-2016. Data availability has influenced the selection of these countries where three countries Eritrea, South Sudan and Somalia are eliminated. The panel data account for heterogeneity among SSA countries and controls any spurious correlations (Hsiao, 2003; Arellano, 2004; Baltagi, 2005).

3.1 Variables of the Study
3.1.1 Dependent Variable

The net FDI inflows as the percentage of GDP were utilised as the dependent variable. The natural logarithm (LNFDI) was employed. Data are collected from the World Development Indicators (WDI) the update of 30th June 2017. These data constitute the ownership of 10% or more in enterprises operating in an economy other than that of an investor.

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[7] Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo Dem. Rep., Congo Rep., Cote d'Ivoire, Djibouti, Equatorial Guinea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia and Zimbabwe.

3.1.2 Independent variables

Two main variables the total natural resources and institutions are examined. Total natural resource rents are the percentage of GDP which include the oil, natural gas, coal, mineral and forest rents (LNNRESO). Data are collected from the WDI an update of 17th April 2017, and data were standardised by taking natural logarithms. This study examines impact of total natural resources as per World Bank definition.

Institutions data are sources from the Worldwide Governance Indicators (WGI) the 2016 update. The estimates data range from -2.5 (weak institutions) to +2.5 (strong institutions). The principal component index (PCA) is aggregated on six governance indicators. Governance indicators include voice and accountability, government effectiveness, regulatory quality, political stability and absence of violence or terrorism, control of corruption and rule of law Kaufmann et al. (2010). These six institutional variables are highly correlated and correlation increases overtime (Buchanan, Le, and Rishi, 2012; Globerman and Shapiro, 2002; Radaelli and Francesco, 2010). To circumvent the biasness, misspecification for dropping some variables and spurious regression (Baltagi, 2005), this study aggregates the six components into an institutional index using the PCA (Buchanan et al., 2012; Globerman & Shapiro, 2002). Then, the institutional index is standardised for estimating natural logarithms (LNINST).

3.1.3 Control variables.

To account for the endogenous problem this study employs the control variables consumer price index (CPI) to proxy for inflation and the real GDP per capita to proxy for market size. Annual data for CPI and Real GDP per capita were collected from the WDI an update of 30th June 2017. These variables are employed because they influence FDI inflows.

3.2 Model Specification

The relationship between natural resources and FDI inflows is examined using the regression model (1).

$$\ln(FDI)_{it} = \alpha_0 + \alpha_1 \ln(NRESO)_{it} + \sum_{i=1}^{2} \gamma_i \ln(Z)_{it} + \varepsilon_{it} \qquad (1)$$

Where: $\ln(FDI)_{it}$ = dependent variable of country i at time t; α_1 is coefficient for natural resources $\ln(NRESO)_{it}$ which is expected to be +; $\ln(Z)_{it}$ = control variables CPI for inflation and RGDP for market size; ε_{it} = an error term. The relationship between natural resources, institutional index and FDI is examined using the regression model (2). Thus, the FDI-Resource curse can be monitored.

$$\ln(FDI)_{it} = \alpha_0 + \alpha_1 \ln(NRESO)_{it} + \alpha_2 \ln(INST)_{it} + \sum_{i=1}^{2} \gamma_i \ln(Z)_{it} + \varepsilon_{it} \qquad (2)$$

Where: α_1 = coefficient for natural resources which is expected to be +; α_2 is coefficient for institution index which is expected to be positive.

Moreover, the impact of institutions on the relationship between natural resources and FDI is examined by creating the interaction between institutional index and natural resources (NRESO*INST) in regression model (2).

$$\ln(FDI)_{it} = \alpha_0 + \alpha_1 \ln(NRESO)_{it} + \alpha_2 \ln(INST)_{it} + \alpha_3 \ln(NRESO*INST)_{it} +$$

$$\sum_{i=1}^{2} \gamma_i \ln(Z)_{it} + \varepsilon_{it} \tag{3}$$

Where: α_3 = coefficient for interaction variable (NRESO*INST) is expected to be +.

4. Empirical Results

The panel data for selected 46 SSA was employed in this study. This section reports the descriptive statistics, results for panel unit root tests and panel cointegration tests.

4.1 Descriptive Statistics

Table 1 summarises the statistics for the variables of this study. This study has a total of 736 observations on 46 SSA countries for a period of 16 years from 2000-2015. This size is adequate to provide precise status of natural resources and institutions in SSA countries to accelerate the catching up of the potential FDI inflows.

Table 1: Descriptive Statistics

Variable	LNFDI	LNNRESO	LNINST	LN(INST*NRESO)	LNRGDP	LNCPI
Mean	2.3835	1.9375	1.6215	5.6379	3.7324	3.8848
Median	2.3138	2.1770	1.6965	5.7031	3.7395	3.8219
Minimum	0.0222	-6.7744	-0.5975	3.5351	1.1538	1.4263
Maximum	4.5693	4.4905	2.4198	5.8749	4.5735	10.104
Std. Dev.	0.4649	1.6246	0.4241	0.1977	0.1603	0.4255
Observations	736	736	736	736	736	736

Source: Author computation.

The notations: FDI = net FDI inflows (%) of GDP, NRESO = natural resources (%), INST = institutional index, CPI = inflation (%), RGDP = real GDP per capita for market size (%), (NRESO*INST) = interaction variable of natural resources and institutions.

Table 1 reveals that, SSA received an average of 10.84% (EXP 2.3835) net FD inflows as percentage of GDP for 16 years under the study with minimum and maximum net FDI inflows of 1.02% and 96.47% respectively. Liberia recorded the maximum FDI inflows received in 2003 associated with the peace treaties that ended the civil war (Paczynska, 2016). Whereas the minimum net FDI received by Angola in 2012 is associated with low price in natural gas but at the same time Angola has unattractive institutions (NRGI, 2017; WEF, 2017).

4.2 Panel Unit Root Tests

This study examines 46 SSA countries whereby each country has its unique features. Thus, to account for the heterogeneity among these countries, this study employs the panel unit root tests by Im, Pesaran and Shin (2003) hereafter IPS and fisher type tests proposed by Maddala and Wu (1999) and Choi (2001). These tests are appropriate for accounting individual differences contrary to tests like Levin, Lin and Chu (2002) which are appropriate for homogeneity assumptions.

Table 2: Results of Panel Unit Root Tests

Variables	Im, Pesaran and Shin (IPS)		Fisher - ADF	
	Level (Trend and Intercept)	First Difference (Intercept)	Level (Trend and Intercept)	First Difference (Intercept)
LNFDI	-0.9383 (0.1740)(4)	-16.0312*** (0.000)(0)	75.7553 (0.8900)(4)	386.958*** (0.000)(0)
LNNRESO	1.5900 (0.9441)(3)	-15.0792*** (0.0000)(0)	68.2190 (0.9701)(3)	356.566*** (0.0000)(0)
LNINST	0.0497 (0.5198)(1)	-11.6135*** (0.0000)(0)	92.1966 (0.4746)(1)	288.756*** (0.0000)(0)
LN(NRESO*INST)	0.4862 (0.6866)(1)	-15.0601*** (0.0000)(0)	84.3883 (0.7012)(1)	355.108*** (0.0000)(0)
LNRGDP	-0.3167 (0.3758)(4)	-20.1668*** (0.0000)(0)	73.8794 (0.9170)(4)	445.569*** (0.0000)(0)
LNCPI	0.2881 (0.6134)(2)	-17.2913*** (0.0000)(0)	77.3556 (0.8628)	412.763*** (0.0000)(0)

Source: Author computation**.**

Null Hypothesis = Unit root. The asterisk *** imply significant at 1% level of significance. Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. IPS tests statistics are computed using asymptotic normality. Automatic lag length selection based on SIC for both IPS and Fisher ADF tests. The notations: LNFDI is the measure for net FDI as % of GDP, LNNRESO is a measure for natural resources, LNINST is institutions index, LNCPI is a measure for inflation, LNRGDP is a measure for market size, and LN(NRESO*INST) is interaction variable of natural resources and institutions.

According to table 2, results show that the null hypothesis of unit root can not be rejected at level. However, the null hypothesis of unit root can be statistically rejected after the first difference at 1% level of significance.

4.3 Pedroni Panel Cointegration Tests

This test examines the presence of long run relationship between variables. The presence of data stationarity implies that data are cointegrated. Table 3 reports panel cointegration results.

Table 3: Results of Panel Cointegration Tests

Pedroni Tests	With Individual Intercepts and Trends		Without Individual Intercepts and Trends	
	Statistic	*Probability*	*Statistic*	*Probability*
	Within-Dimension		**Within-Dimension**	
Panel v-Statistic	-6.7412	1.0000	-3.4844	0.9998
Panel rho-Statistic	6.0396	1.0000	2.6380	0.9958
Panel PP-Statistic	-9.6042***	0.0000	-5.5276***	0.0000
Panel ADF-Statistic	-7.9340***	0.0000	-4.9849***	0.0000
	Between-Dimension		**Between-Dimension**	
Group rho-Statistic	8.8707	1.0000	5.7778	1.0000
Group PP-Statistic	-17.3348***	0.0000	-12.3322**	0.0000
Group ADF-Statistic	-9.2999***	0.0000	-7.9343***	0.0000

Source: Author computation.
Null Hypothesis: No cointegration. The asterisk *** implies significant at 1% significance level. Automatic lag length selection based on SIC.

Results in table 3 shed the light that the null hypothesis of no cointegration for four out of seven tests can be rejected to imply that variables have long-run relationship. This shows an existence of long-run relationship and when variables deviate in short-run but finally will recollect in long-run (Lee, Lin and Chang, 2011).

4.4 Dynamic GMM Estimator

This study employed Generalised Method of Moment (GMM) estimator to account endogenous problems associated with unobserved heterogeneity and dynamic endogeneity which cannot be tackled by OLS (Wooldridge, 2002; Flannery and Hankins, 2013). The superiority of GMM over other estimators including OLS, 2SLS, FEM and REM is associated with the attached instrumental variables including the lagged dependent variable which helps to generate unbiased and efficient estimates (Arellano and Bond, 1991; Blundell and Bond, 1998; Arellano, 2004). It is acknowledged that the previous FDI inflows significantly determine the current FDI which imply that FDI are endogenously determined (Gujarati and Porter, 2009; Asiedu, 2013). Thus, the dynamic panel model for this study is itemised as suggested by Arellano and Bond (1991).

$$\ln FDI_{it} = \lambda \ln FDI_{it-1} + \beta_1 \ln NRESO_{it} + \beta_2 \ln INST_{it} + \beta_3 \ln(NRESO*INST)_{it} + \gamma_i \ln Z_{it} + \varepsilon_{it} \quad (4)$$

Where: $\ln FDI_{it-1}$ = lagged FDI.

Table 4 shows that lagged FDI variable for all models are statistically significant at one per cent significance level. The probabilities of J-Statistics are all above one to imply that instrumental variables attached with GMM are valid and thus, estimated empirical results are valid for making statistical inferential (Roodman, 2009; Flannery and Hankins, 2013; Zhou, Faff and Alpert, 2014).

Table 4: Regression Output using GMM estimator

Variables	Model I Without Institutional Index	Model II With Institutional Index	Model III Interaction to Model I	Model IV Interaction to Model II
LNFDI(-1)	0.1408*** (0.0000)	0.1247*** (0.0000)	0.3536*** (0.0000)	0.3961*** (0.0000)
LNCPI	0.1649 (0.0000)***	0.1250*** (0.0000)	0.0321* (0.0556)	0.0604*** (0.0072)
LNRGDP	-0.3871*** (0.0000)	-0.5593*** (0.0000)	0.0995** (0.0275)	0.0147 (0.7500)
LNNRESO	-0.2827*** (0.0000)	-0.2158*** (0.0000)	0.0721*** (0.0000)	0.0765*** (0.0000)
LNINST		0.8581*** (0.0000)		0.9081*** (0.0000)
*LN(INST*NRESO)*			0.8832*** (0.0000)	0.3136*** (0.0009)
S.E. of regression	0.3907	0.3897	0.4123	0.4419
J-statistic	44.287	43.589	41.778	40.830
Prob(J-statistic	0.3754	0.3619	0.4368	0.4338

Source: Author Computation.
P – Values in parentheses; the asterisk *** implies significant at 1% significance level. The notations: LNFDI (-1) = lagged FDI, LNFDI = net FDI as % of GDP, LNNRESO = natural resources, LNINST = institutions index, LNCPI = inflation, LNRGDP = market size, and LN(NRESO*INST) = interaction variable of natural resources and institutions.

Model I reveals that the negative relationship between natural resources and FDI inflows among the SSA countries is significant at 1 per cent significance level. This adverse relationship is linked with persistent variability in oil and commodity prices and policy uncertainties. Thus, 1 per cent increase in natural resources declines FDI by 0.28 per cent. This implies that FDI do not promote non-resource sector as pointed out by Poelhekke and Van der Ploeg (2010). The Natural Resources Governance Index (NRGI, 2017) argue that the future of the natural resources countries lies in the manageability of these resources. Moreover, model II shows the persistence of negative FDI-Resource relationship which implies that natural resource crowd out other sectors. Results for Models I and II indicate the presence of the FDI-Resources cure. This means that natural resource sector crowd out non-resource sectors because of poor management of natural resources (Moyo, 2010; Lundgren, Thomas and York, 2013; NRGI, 2017).

Models III and IV indicate that institutions have strong mediating effect for natural resources to stimulate FDI. The coefficient for interaction variable is positive and statistically significant at 1% significance level. This implies that the enforced institutions build linkages for non-resource sectors to attract potential FDI inflows (Lipsey and Sjöholm, 2011; Lundgren, Thomas and York, 2013; Thorborg and Blomqvist, 2015; NRGI, 2017). Similar conclusions were reported by Ali, Fiess, and MacDonald (2010); Mohamed and Sidiropoulos (2010). Moreover, Anyanwu (2012) argued that FDI trail the natural resources which are attached with rule of law.

5. Conclusion
Negative relationship between natural resources and FDI indicates FDI-Resource curse because natural resource sector does not promote FDI to other non-natural resource sector. The Africa's stagnant growth is linked with low productivity and low investments (World Bank, 2007)

whereas the main source of investment is FDI inflows (Choong and Lam, 2011; Drigă, 2011). The sustainable development goals which is linked on agenda 2063 pointed FDI as highest source of capital investment (UNECA, 2015a, 2015b).

The positive relationship between interactive variable and FDI implies that natural resources which are grounded on sound institutions promote FDI to other non-natural resource sectors to improve the economy. Premised with the above, findings of this study recommend to the authorities on the importance of enforcing institutions because policies and governance matter in promoting the interlinkages between sectors of the economy henceforth the achievement of the Africa we want 2063 vision.

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