

**THE FOREIGN DIRECT INVESTMENT-GOVERNANCE NEXUS: ANOTHER PERSPECTIVE FROM AFRICA****Amal Nouri Alziyani**

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E-Mail-ID: alziyzani@ctss.edu.ly**Abstract**

This paper examines the impact of governance on foreign direct investment over the period 2005-2019 on a set of 41 sub-Saharan African countries: oil producing countries and non-oil producing countries. Our research shifts from a consolidated evaluation to a differentiated evaluation by implementing the generalized moment method of the framework (GMM). The cumulative strategy consists of the usage of a standardized good governance index that incorporates 6 country policies and institutional assessment tools as governance indices to assess the general effect of governance on FDI inflows. In addition, the incremental methodology explores the effects of the governance indicators on foreign direct investment. The findings suggest that good governance in both oil and non-oil producing countries in the sub-Saharan African region is an essential condition to be considered effectively for the attraction of FDI.

Keywords: Governance, Foreign Direct Investment, GMM.**Introduction**

Foreign direct investment assumes an important function in the economic growth and advancement of a nation. Indeed, since it is an element of financing and provides avenue for job creation, it is regarded to be a driving force behind economic advancement. Through the economic modernization concept of the late 1980s, foreign direct investment movements to emerging economies have risen substantially. Even so, because several advanced and developing economies have aimed for rapid industrial development, demand for foreign direct investment is high. In this background, Africa reported a dramatic improvement in flows of FDI to \$57 billion in 2013, a 4 percent sharp rise relative to 2012 figures. This rise has been reported in Eastern and Southern Africa's top economies. Admittedly, the FDI inflows increased to \$13 billion in Southern Africa, while South Africa and Mozambique were the main countries that attracted the maximum FDI. In fact, via the growth of the facilities and the gas markets, these two economies obtained a major portion of FDI, whereas Eastern African region obtained just \$ 6.2 billion, a rise of 15 percent in 2012. The majority of the inner foreign direct investment was allocated to the Kenyan and Ethiopian economies. In Kenya, for example, developers have been drawn primarily by the country's natural reserves (oil and gas) and also the transportation and construction industries Which are

very relevant in that African economy. In the Northern African block, nonetheless, FDI inflows fell by 7 percent to cross \$15 billion. Furthermore, inflows of FDI to Central and Eastern African regions fell by \$8 and \$14 billion respectively. This decrease is dependent on political uncertainty as well as a paucity of protection. Alternatively, disparity has prompted scientists to question the key factors that affect the availability of foreign direct investment.

Although the previous literature is extensive on the indicators that are important to induce foreign direct investment inflows, the findings are unpersuasive in most cases and rely on the approach or experiment implemented. Evidently, Ayachi and Berthomieu (2006) studied the determinants of foreign direct investment in the MEDA area for the duration spanning 1990 to 2002 using a sample size of 10 countries. These scholars found that the key indicators of FDI in the European region are institutional architecture (governance), external facilities, business dynamics, amalgamation amongst companies and scope. Furthermore, Alaya et al. (2007) indicated that FDI rests on multiple variables, notably industry forces (cost of transport, execution and development, as well as technical superiority and amalgamation of operations), business variables (business dynamics, accessibility to market, proximity to production, trade barriers) and structural variables (tax or market policies, danger to the nation and constitutional capital relocation provision).

In addition, Mazbahul and Tanin (2010) analyzed the key predictors of FDI in Bangladesh between 1975 and 2010. They noticed that FDI in this country was favorably influenced by the extent of transparency, the currency value and the infrastructural facilities. In the study of Jadhav (2012), over a span from 2000 to 2009, he researched the economical influence, structural and political drivers in drawing FDI to BRICS regions utilizing the panel data analysis. The findings show that in drawing foreign direct investment to the BRICS economies, business dynamics, market transparency and the rule of law assume a significant function. Although the abundance of natural raw materials has a detrimental effect on the flow of FDI, this means that foreign direct investment is mainly investor-focused in BRICS countries. Likewise, Jadhav and Katti (2012) observed that public sector effectiveness and regulatory quality have a beneficial impact on flows of FDI, whereas political uncertainty, voice and transparency, and corruption prevention negatively impacts on BRICS countries' FDI inflows. In addition, Sayed Mohammed Alavisab (2013) studied the socioeconomic indicators of FDI in Iran for the timeframe from 1991 to 2009. The scientific findings indicate that real GDP growth, the portion of importing in GDP and the yield on investments and development are the macroeconomic variables determining FDI inflows.

This difference of scientific outcomes motivates us to concentrate our focus on the most important indicators of foreign direct investment whilst also focusing on the influence of the country policy and institutional framework in the attraction of FDI in sub-Saharan African states and sub-regions (oil and non-oil producing sub-Saharan African economies). This article is unique from several existing papers on governance-FDI nexus since the governance indicators of this study is novel from all of those ones. None of the existing studies utilized the country policy and institutional assessment (CPIA) tool as a proxy for governance to evaluate impact on FDI in the African context. In addition we decomposed the sub-Saharan African region into oil producing and non-oil producing economies which is also a novelty in this area of research. To the best of the author's

knowledge, all the existing literature on the subject matter have concentrated in evaluating the African region in terms of income levels. For instance, (Bouchoucha et al., 2019) studied the impact of governance on FDI in low and middle income countries in Africa utilizing the six worldwide governance indicators (rule of law, government effectiveness, control of corruption, regulatory quality, voice and accountability and political stability).

In terms of analyzing the econometrics in this current paper, the GMM estimation technique by Arellano-Bover/Blundel-Bond is implemented so that issues of multicollinearity, exclusion of pertinent parameters and estimation flaws could be adequately addressed. First of all, the addition to existing literature by this study include building a computational indexes that incorporates the different indicators of governance metrics, measured by their connection to the clarification of maximum instability by employing the principal component technique. Because of the presence of a high association among the aggregate measurements of governance indicators (Globerman and Shapiro (2002) and Buchanan et al. (2012), majority of the studies employ just a single element or a collection of institutional quality among the total metrics of governance. Second, we are interested in individualizing the impact of governance, calculated utilizing multiple definitions identified by Kaufmann et al. (2010), on the attraction of foreign direct investment which has not been the focus of existing papers. The incremental method, in certain terms, provides an opportunity to decide which element is the root of FDI's attractiveness. This paper is unique from past research in the fact that, unlike most works that use time series or panel data, or cross-section data, we perform cross-sectional simulations in instances of states corresponding to a given region. This research paper will not only contribute an effective strategy blend to enhance the attraction of FDI in African. It will in addition define which governance metrics are correlated with the attraction of foreign direct investment in the zone. The remainder of the analysis is organized in the following way: section two introduces the theoretical literature review. The econometric framework and the key outcomes are discussed in the third section. Ultimately, with a conclusion and some political consequences, we complete this study.

Theoretical literature review

It is evident to investigate the key predictors FDI to be able to understand the variations in the levels of FDI inflows amongst economies and what encourage investors to be located in certain a countries and not in others. In this subject, the literature of economics identified some main groups of FDI determinants, notably: conventional determinants linked to the determinants of FDI and economic characteristics, in particular, and non-conventional variables relevant to the institutions of the home regions. Numerous scientific researches have examined the influence of different economic variables on FDI attractiveness with respect to conventional variables (Root and Ahmed 1979, Lee and Tan 2006, Wheeler and Mody 1992, Dunning and Narula 1996 and UNCTAD 2006). Others have identified the main determinants of FDI as size of the market, the primary resources reserves and the performance variable (Dunning 1998a, b, Stoian and Filippaios 2008). Likewise, Stoian and Filippaios (2008) and Jensen (2006) observed that FDI's determinants are the real economy capacity determined by GDP growth, home country's infrastructure, business transparency and macroeconomic stability environment and the job efficiency. Equally, Dupasquier and Osakwe (2006) and Deichmann et al (2003) have shown that the presence of

natural assets positively influence FDI flows. Additionally, Mohamed and Sidiropoulos (2010) reported that natural resources, home countries size, government size as well as the institutions are the key factors which Influences flow of FDI into the Middle East and North African region. Furthermore, several studies have linked financial advancement to FDI. These studies discovered that the architecture of monetary advancement favorably attracts FDI (Deichmann et al., 2003, Jenkins and Thomas 2002 and Kinda 2009). Many recent studies have shown that the hosting economies need to enhance and reinforce their advantages via the appealing contribution made by the authorities of such economies. Therefore, the discussion on the choice of location moved to policy decisions of governments, that is, to the position of the quality of institutions as a significant determining factor of FDI other than socioeconomic variables. Many other scientific findings have explored institutional contributions in attracting FDI in this sense. The studies on this topic can be broken down into three classes: the first class focuses primarily on the effects on FDIs of a particular institutional framework, such as corrupt practices and the political system. Wei (2000), for instance, found that corruption provides a detrimental effect on multinational corporations' location choices. Undoubtedly, the burdens of conducting a trade and also instability are increased by corrupt practices. Likewise, the study of Habib and Zurawicki (2002) and Voyer and Beamish (2004) resulted in the similar outcome as that of Wei (2000).

Furthermore, the studies of Jensen (2003) and Ahlquist (2006) revealed that economies with a system of democracy draw greater foreign investments as compared to those with an authoritarian regime, provided that economies with a democratic regime appear to minimize the risks of political and exploitation and improve the recipient countries' reputation for international direct investments. O'Neal (1994), moreover, observed that oppressive governments give greater payoffs to stakeholders in emerging economies. Also g, utilizing 17 sampled countries from Latin American, Staats and Biglaiser (2012) examined the determining factors of FDI and concluded that the rule of law and judicial power are major indicators for the flow FDI inflows into countries in Latin America. The next literature category focuses on the significance of the various aspects of institution consistency in FDI attraction. Gastanaga et al (1998) paper, for instance, indicated that minimal rate of corrupt practices and effective contract compliance are good indicators to win greater amount of foreign direct investments. Then again, Asiedu (2006) demonstrates that FDI flows are being discouraged by the weak institutional quality assessed by corrupt practices, the absence effective legal system and political uncertainty. Similarly, Daude and Stein (2007) explored the aspects of the institutional efficiency affecting the deciding on FDI inflows.

Daude and Stein (2007) noticed also that attraction of FDI is discouraged by an uncertain government policies and the absence of governmental involvement. Furthermore, in a data set of Asian and Latin American economies, Gani (2007) evaluated the association amongst good governance metrics and FDI. The study concluded that the rule of law, prevention of corrupt practices, regulation consistency, and efficiency of government and how stable political system in a country positively influence foreign direct investment. Gangi and Abdrazak (2012) have recently analyzed the effect of governance in African countries on FDI inflows. The paper concluded that from the 6 governance metrics, three of them: voice and transparency, efficiency of the government and the legal system are important to adequately attract foreign direct inflows. Furthermore, the impact of quality of institutions on inflows of FDI into GCC countries is

investigated in Gani and Al-Abri (2013). Their findings indicate that FDI inflows are improved by political uncertainty and the democratic deficit. From similar background, in the aftermath of the Arab Spring in 2010, Helmy (2013) investigates the determinants of foreign direct investment into Middle East and North African nations.

The findings have shown that investment freedom and stability positively impact on FDI, while the risk of exploitation and corrupt practices levels have a negative impact since they contribute to insecure trading climate. In similar fashion, Bouchoucha et Benammou (2018), used the World Bank measures to examine the relationship between governance and Foreign direct investment in 41 African economies. The empirical results show that FDI's attractiveness to Countries in Africa is significantly associated with corruption prevention, government efficiency, regulatory consistency, and freedom of expression and transparency. Another set of scholars investigated the impact on the attractiveness of FDI of a standardized measure of governance built from the multiple aspects of institutional factors. Wheeler and Mody (1992), for example, analyzed the influence of the cumulative governance index measured from the foregoing factors: bureaucratic system, corrupt practices, political instability and efficiency of the legal system on United States international corporations. The results showed that the governance indexes did not influence the decisions of US multinational corporations to locate their businesses to other places. Globerman and Shapiro (2002) and Buchanan et al (2012), developed a standardized metric of governance relating to the preceding factors: corruption control, corruption control, the rule of law, the legislative climate and peace in politics. They discovered that a measure of governance, thus the arrangements of politics in a place has positive influence in attracting flows of FDI in a country. Samimi and Ariani (2010) have more recently examined the effect of effective governance on FDI. Aggregate yearly data was used for sixteen economies in the MENA region for the duration 2002-2007. Three indicators of governance: was utilized by them. Indicators, such as stabilized political climate, prevention of corrupt practices and the legal regime in terms of ruling a country with laws. The scholars argued that there is a positive effect of strengthening the governance system on the flow of FDI in the Middle East and North African economies. As a direct consequence, initiatives are recommended for the development of governance metrics within that zone.

Material and Methodology

The purpose of this study is to concentrate on the attraction of FDI Inflows in sub-Saharan African oil producing and non-oil producing economies from 2000-2018. Even then, in emerging economies, the scientific findings do not really consent upon key attraction variables of foreign direct investment. The importance of economic factors like market size, transparent policies was highlighted by some scholars, while the importance of political environment was emphasized by others, and institutional variables were given great importance by the third school of thought.

Material

This study considers country level policies and institutional factors of the attraction of FDI inflows in oil and non-oil producing sub-Saharan African countries. This is based on the World Bank's country policies and institutional assessment (CPIA) indicators. The paper will consider that the

rates of FDI flows of the present period is inspired by previous judgements on investments in the context of Singh and Jun (1995), as an independent variables in the framework, the lagging variable of a time. Equation (1) can, therefore, be described in dynamic order as follows:

$$FDI = \partial_0 + FDI_{it-1} + \partial_1 PRR_{it-1} + \partial_2 QGA_{it} + \partial_3 QBFM_{it} + \partial_4 BRE_{it} + \partial_5 MM_{it} + \partial_6 FP_{it} + \partial_7 INF_{it} + \partial_8 TO_{it} + \partial_9 GDP_{it} + \epsilon_{it}$$

A share of GDP in state *i* at time *t*, in a case that is the net inflows of FDI. Governance is represented by the following six indicators known as the country policies and institutional assessment (CPIA) tools: Property rights and rules, Quality of government administration, Quality of Budget and Fiscal Management, Business regulatory environment, Macroeconomic management and Fiscal Policy, the lagging dependent variable of FDI inflows in year *t*-1 (is the collection of independent variables (PRR, QGA, QBFM, BRE, MM, FP, Inf, TO and GDP). PRR is the property rights and rules, QGA represents quality of government administration, QBFM denotes quality of budget and fiscal management; BRE stands for business regulatory environment; MM is macroeconomic management; FP denotes fiscal policy; INF stands for inflation; TO is trade openness; GDP is the gross domestic product per capita; ϵ_{it} denotes the unobservable variables. ∂ are the parameters to be estimated.

Method

This paper employed the GMM estimation approach to analyze the data collected to draw conclusions. The GMM estimation method was suggested by Arellano and Bover (1995) and Bondell and Bond (1998). They suggested that estimations that employ the GMM approach follows two steps using these moment conditions: during the initial process, the unobservable variables are random and distinct amongst groups then across duration. The other is to use the resulting residuals to construct a suitable approximation of the matrix of variance-covariance that ignores the previous assumptions. In all of those phases, the theory of heteroscedasticity, the autocorrelation of the conditions of error, can be taken into account. Indeed, the Arellano and Bond GMM method (1991) is focused on the hypotheses of the absence of second-order autocorrelation in the first difference equation errors and the validation of all the instruments.

The famous Monte Carlo experiments have showed that the limitations of the instrument may cause skewed equations in the terms of limited sample size. To resolve the deficiencies associated with the assessor of first difference. The above incorporates the difference in estimation as well as estimations at level. Additionally, the probability of endogeneity among the response variable can be taken into account by GMM. The GMM estimation method is therefore most robust and better than the rest of estimation techniques in dealing with data of the nature employed in this paper. The efficacy of GMM is dependent on the confirmation of two theories: the reliability of the employed instruments and the exclusion of defect auto - correlation. The researchers employed 2 key tools to evaluate the reliability of the instrument: firstly the Hansen over-identification limit measure, that measures the general reliability of the tools (the null hypothesis is that the tools are accurate) (Leitão, 2015); secondly, the second-order auto - correlation evaluation for the error variable, which measures the hypothesis of no autocorrelation (Abdouli and Hammami, 2017).

Empirical Findings

Descriptives

The descriptive statistics for all the variables employed in this research paper are given in Tables 1, 2 and 3. The results show that in aggregate sub-Saharan African countries, the governance level is weak in respect of OGA, BRE and MM with each governance indicator attaining averages of -0.689, -0.456 and -1.908 respectively. The highest performing governance indicator was property rights and rules (4.500), achieving a minimum of 1.098 and maximum of 2.090. Admittedly, the optimum amount of governance was registered in Morocco in 2001 (1.912), however the lowest level of the Governance Measure in the Central African Republic was reached in 2012 (-1,887). Evidently, oil producing countries, attained the optimum amount of governance (1.930) recorded in respect of Morocco in 2001, whereas the best performance of governance in non-oil producing countries (-0.232) was registered in 1997 for Benin. Alternatively, Congo Republic was the oil producing country that had the lowest level of the Governance Index (-1.865) in the year 1997. **Whereas in the Democratic Republic of Congo (-1,850), the lowest level of the governance measure in oil producing countries in sub-Saharan Africa was reached in 2012.** With regards to the factor inflows of FDI, the region obtained a mean of 5.100, with an average of \$5.854 million and \$4.665 million in oil and non-oil producing economies, accordingly. We observe that even greater FDI receipts are drawn by oil producing countries than it is by non-oil producing countries. Undoubtedly, in Ghana through 2006, oil producing economies achieved the highest FDI inflow level of \$40.10 million, whereas the lowest possible inflows of FDI level in 2004 was 20.099 million. Nevertheless, Liberia (\$35.20) got the largest level of FDI flows in respect of non-oil producing countries during the year 2004.

Table 1. Descriptive statistics of Aggregate sub-Saharan African countries

Variable	No of Observations	Mean	Standard Deviation	Minimum	Maximum
FDI	702	5.100	8.759	-83.76	90.90
Gov	680	-0.509	0.632	-1.887	1.912
PRR	710	4.500	7.900	1.098	2.090
OGA	605	-0.689	0.650	-.1.324	1.609
QBFM	729	0.790	0.354	0.340	1.457
BRE	726	-0.456	0.750	-1.950	1.715
MM	713	-1.908	0.245	-1.680	1.490
FP	709	2.432	0.854	0.470	9.090
Inf	690	3.098	8.102	1.590	2.240
TO	685	3.909	0.917	0.928	2.098
GDP	700	4.100	8.780	1.890	3.123

Table 2. Descriptive statistics of oil producing countries

Variable	No of Observations	Mean	Standard Deviation	Minimum	Maximum
FDI	358	5.854	1.287	15.965	40.100

Gov	302	4.673	0.762	1.850	5.232
PRR	309	2.560	0.169	1.868	3.095
OGA	312	0.940	0.499	-1.954	3.908
QBFM	329	1.097	0.387	0.707	2.056
BRE	319	1.456	0.235	-0.312	1.984
MM	325	-0.960	0.498	-0.232	1.870
FP	338	5.043	12.650	5.479	5.798
Inf	351	0.078	0.021	0.043	2.739
TO	302	0.453	0.530	2.401	3.054
GDP	334	2.590	0.186	1.876	2.690

Table 3. Descriptive statistics for non-oil producing countries

Variable	No of Observations	Mean	Standard Deviation	Minimum	Maximum
FDI	380	4.665	12.480	20.099	35.20
Gov	319	5.345	12.569	-1.865	1.930
PRR	332	3.521	2.568	2.209	4.076
OGA	321	1.689	0.785	2.570	4.564
QBFM	340	2.055	0.650	1.096	3.453
BRE	350	1.987	0.321	1.054	4.056
MM	368	1.760	0.509	1.048	3.096
FP	317	5.687	12.875	3.068	4.189
Inf	345	0.1805	0.365	1.949	2.623
TO	319	0.996	0.649	2.090	4.604
GDP	364	3.010	0.209	1.609	2.654

Principal component estimation results

In comparison to Barro (1991) and Barro and Lee (1994), and several others we developed a standardized measure that utilized country level policies and institutional tools as a benchmark to measure the standard of establishments and stewardship. The value of this benchmark is that, in order to facilitate judgment, it helps us to simplify challenging and complicated issues. In addition, it serves to rate nations and measure development over time. Several measurement methodologies have been introduced in this perspective, many of which are generated from statistical techniques like factor analysis and many others have been focused on adaptation strategies including the concept of analytical governance. However, no matter the procedure, apportioning weights allows us to provide meaningful conclusions. Although other researchers would like to apply indices centered primarily on statistical techniques, to best depict policy preferences or philosophical considerations some could prefer factors which are much more powerful, dependent on professional judgment. The architecture of our governance index is centered on the Principal Component Analysis (PCA) analytical approach to avoid prejudging the significance of a specific predictor in the quality assessment of governance as shown in Tables 4, 5 and 6 for aggregate sub-Saharan African countries, oil producing countries and non-oil producing countries respectively.

The main component research put together different highly correlated variables to create a detailed variable that collects specific information about different variables as much as practicable. It allows the measurements of the preliminary information to be minimized by substituting suitable parameters for the original parameters. Consequently, the derived index does not rely on the high-dimensional nature of the datasets, but is centered on the information's statistical proportions. The composite indexes are the calculated mean of each governance variable's principal components measured on the basis of the proportion of the variability. In the context of aggregate sub-Saharan African countries and its sub-divisions into oil and non-oil producing African countries, the Principal Component Analysis (PCA) enables the researchers to remove two key dimensions from our sample. For this study, the very first variable was selected as a composite index because it contributes for over half of the overall resistance in the research sample as a whole. The beginning factorial axes represent 86.138 percent, 85.158 percent and 87.215 percent accordingly in respect of aggregate sub-Saharan African countries, oil-producing sub-Saharan African countries and non-oil producing countries contain details found in all the 6 initial functional factors in the situation of the countries examined, as per the results of the figures of eigenvalues mentioned in the Tables (4.3), (5.4) and (6.4).

Table 4. Factor analysis for Aggregate SSA countries

Table 4.1. Correlation Matrix

	FDI	PRR	OGA	QBFM	BRE	MM	FP	Inf	TO	GDP
PRR	0.2957	1.000								
OGA	0.6565	0.8479	1.000							
QBFM	0.1846	0.7166	0.6851	1.000						
BRE	0.7880	0.9801	0.9277	0.5552	1.000					
MM	0.7258	0.8388	0.6146	0.7546	0.5246	1.000				
FP	0.7372	0.3583	0.2764	0.3809	0.5912	0.8200	1.000			

Table 4.2 KMO and Bartlett's Test

Kaiser-Meyer-Olkin measure of sampling adequacy.		
Bartlett's test of sphericity	Approx Chi-Square Ddl Sig	3534.096 15 0.000

Table 4.2 Representation qualities (Communalities)

	Initial	Extraction
PRR	1.000	0.913
OGA	1.000	0.902
QBFM	1.000	0.820
BRE	1.000	0.765
MM	1.000	0.864
FP	1.000	0.790

Extraction Method: Principal Component Analysis
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Table 4.3 Total Variance Explained

Component		Initial Eignenvvalues	Extraction sums squared loadings			
	Total	% of variance	Cummulation %	Total	% of variance	Cummulation %
1	6.154	83.604	83.604	5.024	83.604	83.604
2	4.721	4.243	88.325	0.603	6.867	86.138
3	3.470	4.214	91.795			
4	3.410	4.052	95.205			
5	2.408	3.195	97.613			
6	2.387	2.002	100			

Table 4.2 Component matrix^a

Components		
	1	2
PRR	0.907	0.168
OGA	0.960	0.314
QBFM	0.919	0.098
BRE	0.869	0.087
MM	0.908	0.325
FP	0.912	0.189

Note: Extraction method: component analysis. a. 2 components extracted

Table 5. Factor analysis for Non-oil producing countries**Table 5.1 Corrlation matrix**

	PRR	OGA	QBFM	BRE	MM	FP	Inf	TO	GDP
PRR	1.000								
OGA	0.876	1.000							
QBFM	0.754	0.856	1.000						
BRE	0.873	0.879	0.652	1.000					
MM	0.821	0.766	0.647	0.626	1.000				
FP	0.810	0.726	0.839	0.791	0.720	1.000			

Notes: PRR: Property Rights and Rules, QGA: Quality of Government Administration, QBFM: Quality of Business and Fiscal Management, BRE: Business Regulatory Environment, MM: Macroeconomic Management, FP: Fiscal Policy

Table 5.2 KMO and Bartlett's Test

Kaiser-Meyer-Olkin measure of sampling adequacy.		0.876
Bartlett's test of sphericity	Approx Chi-Square	465.041
	Ddl	15
	Sig	0.000

Table 5.3 Representation quantiles (Communalities)

	Initial	Extraction
PRR	1.000	0.924
OGA	1.000	0.932
QBFM	1.000	0.920
BRE	1.000	0.801
MM	1.000	0.910
FP	1.000	0.871
Extraction Method: Principal Component Analysis		

Table 5.4 Total Variance Explained

Component		Initial Eignenvalues	Extraction sums of squared loadings			
	Total	% of variance	Cummulation %	Total	% of variance	Cummulation %
1	5.946	80.001	80.001	6.110	80.001	80.001
2	4.957	3.097	85.947	0.704	7.121	85.158
3	3.901	3.051	90.904			
4	2.873	3.003	94.805			
5	2.321	2.336	97.679			
6	1.440	2.301	100			

Table 5.5 Component matrix^a

Components		
	1	2

PRR	0.918	0.172
OGA	0.950	0.276
QBFM	0.909	0.091
BRE	0.817	0.074
MM	0.930	0.329
FP	0.934	0.265

Note: Extraction method: component analysis. a. 2 components extracted

Table 6 Factor Analysis of Oil-producing countries

Table 6.1 Correlation Matrix

	PRR	OGA	QBFM	BRE	MM	FP
PRR	0.000					
OGA	0.609	0.000				
QBFM	0.726	0.542	0.000			
BRE	0.834	0.743	0.779	0.000		
MM	0.645	0.562	0.665	0.771	0.000	
FP	0.531	0.610	0.650	0.876	0.543	0.000

Notes: PRR: Property Rights and Rules, QGA: Quality of Government Administration, QBFM: Quality of Business and Fiscal Management, BRE: Business Regulatory Environment, MM: Macroeconomic Management, FP: Fiscal Policy

Table 6.2 KMO Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy.		0.895
Bartlett's test of sphericity	Approx Chi-Square Ddl Sig	1530.654 16 0.000

Table 6.3 Representation qualities

	Initial	Extraction
PRR	1.000	0.840
OGA	1.000	0.917
QBFM	1.000	0.908
BRE	1.000	0.867
MM	1.000	0.917
FP	1.000	0.890
Extraction Method: Principal Component Analysis		

Table 6.4 Total Variance Explained

Component		Initial Eigenvalues	Extraction sums of squared loadings			
	Total	% of variance	Cummulation %	Total	% of variance	Cummulation %
1	6.154	77.450	77.450	5.218	77.450	77.450
2	4.543	4.631	83.604	0.687	9.765	87.215
3	4.470	4.014	88.147			
4	3.975	3.752	92.617			
5	3.408	3.495	96.592			
6	2.387	2.102	100			

Table 6.5 Component matrix^a

Components		
	1	2
PRR	0.876	0.192
OGA	0.854	0.265
QBFM	0.912	0.294
BRE	0.862	0.169
MM	0.910	0.231
FP	0.820	0.343

Note: Extraction method: component analysis. a. 2 components extracted

The GMM results

The econometric analysis used for this paper was initiated by firstly evaluating eq (1) through the implementation of the GMM technique in respect of aggregate African economies and all oil-producing and non-oil producing economies. In this context, the 6 World Bank governance indicators that represent governance composite index was introduced for the measurement of governance in the continent. Different models were run to establish our findings for both aggregate sub-Saharan African economies, the oil-producing countries and non-oil producing sub-Saharan African countries in which are evident in tables 7, 8 and 9. Secondly, equation (1) was also estimated through the integration of the good governance indices [(quality of government administration (QGA), business regulatory environment (BRE), property rights and rules (PRR), quality of budget and fiscal management (QBFM), macroeconomic environment (MM) and fiscal policy (FP)] on separate basis. The findings emanating from this is reported in tables 7, 8 and 9 in different models as follows: model 2, model 3, model 4, model 5, model 6, and model 7 for aggregate African economies; model 8, model 9, model 10, model 11, model 12, model 13 and model 14 in respect of oil-producing countries and model 15, model 16, model 17, model 18,

model 19, model 20 and model 21 for non-oil producing countries. This decomposition was purposely done to ensure the determination of the differences in the inflows of FDI into each of the sub-regions and the region as a whole. Also, simultaneously introducing the total governance indices could lead to misleading findings given the possibilities of serial correlations among the World Bank's governance indices.

Table 7. Aggregate sub-Saharan Africa: GMM estimation

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
L.FDI	0.432***	0.834***	0.976***	0.932***	1.033**	0.610***	0.735
	(0.018)	(0.005)	(0.019)	(0.065)	(0.009)	(0.000)	(0.001)
GGov	11.201***						
	(2.342)						
PRR		3.097**					
		(0.897)					
QGA			5.056*				
			(0.421)				
QBFM				5.609**			
				(0.054)			
BRE					6.076**		
					(0.045)		
MM						0.165***	
						(0.076)	
FP							5.003**
							(0.034)
Inf	3.212	1.123	1.087	1.432	1.342	1.207	1.213
	(0.154)	(0.231)	(0.433)	(0.179)	(0.326)	(0.169)	0.390)
TO	1.078	1.354	1.112	3.209	4.132	2.009	5.008
	(0.545)	(0.642)	(0.408)	(0.534)	(0.242)	(0.897)	(0.654)
GDP	1.932	-0.876	-0.543	0.267**	0.306**	2.356	-0.412
	(0.643)	(0.056)	(0.321)	(0.754)	(0.545)	(0.764)	(0.054)
Constant	10.09	55.198	29.092	37.065	20.123	51.670	28.003
	(0.087)	(0.054)	(0.128)	(0.215)	(0.176)	(0.086)	(0.821)
Hansen	0.543	0.454	0.243	0.654	0.409	0.529	0.432
AR(2)	0.734	0.976	0.765	0.992	0.987	0.845	0.058

Note: t-statistics are in parenthesis; ***, **, * are significance levels at 1%, 5% and 10% respectively.

Table 8. Oil producing countries of sub-Saharan Africa: GMM estimation

	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
L.FDI	0.450***	0.649***	0.435***	0.489***	0.453***	0.659***	0.645***
	(3.132)	(0.000)	(0.000)	(0.000)	(0.000)	(3.29)	(0.015)
GGov	8.212***						

	(2.14)						
PRR		8.090***					
		(0.048)					
QGA			5.782***				
			(0.039)				
QBFM				5.453***			
				(0.072)			
BRE					2.234**		
					(0.321)		
MM						10.213	
						(0.168)	
FP							11.098**
							(0.165)
Inf	2.245	2.432	2.309	2.547	3.129***	3.230	2.678**
	(1.280)	(0.139)	(0.142)	(0.032)	(1.539)	(0.087)	(0.054)
TO	1.543	1.579	1.265	0.497	0.865	5.097	3.706
	(0.609)	(0.810)	(0.750)	(0.645)	(1.203)	(0.320)	(0.320)
GDP	1.590	0.129	1.074	0.254	0.589	1.203**	0.399
	(-0.68)	(0.762)	(0.532)	(0.689)	(0.468)	(0.780)	(0.348)
Constant	58.234***	34.650**	61.089*	10.902**	14.554**	-49.597	12.845
	(2.112)	(0.189)	(0.059)	(0.804)	(0.439)	(-1.15)	(0.587)
Hansen	0.805	0.809	0.479	0.892	0.804	0.684	0.843
AR(2)	0.856	0.876	0.431	0.794	0.772	0.054	0.921

Table 9. Non-oil producing countries: GMM estimations

	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20	Model 21
L.FDI	1.323***	1.138***	1.087***	1.146***	1.135***	1.172***	1.132***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GGov	5.349**						
	(1.543)						
PRR		6.098***					
		(0.056)					
QGA			11.234***				
			(0.054)				
QBFM				3.468*			
				(0.325)			
BRE					6.453		
					(0.048)		
MM						7.581	
						(0.056)	

FP							12.345
							(0.034)
Inf	0.532	0.269	0.570	0.632	0.469	0.432	0.423
	(1.21)	(0.843)	(0.231)	(0.502)	(0.325)	(0.309)	(0.418)
TO	2.423*	0.347	0.042	8.109	3.376	1.714	7.074
	(1.653)	(0.863)	(0.753)	(0.250)	(0.613)	(0.674)	(0.515)
GDP	3.154	4.432	6.574**	4.560	.062	-2.130	2.775
	(1.06)	(0.065)	(0.048)	(0.291)	(0.990)	(0.782)	(0.568)
Constant	40.187*	105.612**	22.083	32.445	41.281	28.016*	152.057**
	0.651)	(0.034)	(0.105)	(0.548)	(0.260)	(0.058)	(0.043)
Hansen	0.813	0.807	0.954	0.961	0.910	0.940	0.968
AR(2)	0.896	0.854	0.843	0.744	0.0857	0.930	0.941

The instruments were validated before analyzing the dynamic panel. Findings from tables 7, 8 and 9 prove that all the specifications were fit for analysis and that the sur-identification of Hansen is not rejected and agrees with the null hypothesis of the second-order with autocorrelation and this validates the instruments used for the study. The findings evaluated how valid the instruments employed in accordance with the Hansen and the AR autocorrelation examinations (2). Findings according to Tables 7, 8 and 9 prove that the diverse determining factors of FDI inflows to the African economies vary in respect of degrees when the models were re-estimated using the sub-groups of oil producing countries and non-oil producing countries. Certainly, the GMM technique proved findings that emphasize that lag of inflows of FDI has a robust positive sign in all model estimations irrespective of the sample groupings. It proves the importance of the contribution of effects training in previous FDI inflows. The findings are in agreement with previous studies such as Diaw and Camille Guidime (2013), Bouchoucha and Benammou (2018), and Bouchoucha et al., (2019).

As per Tables (7), (8) and (9) and explicitly in the parameters (Model 1, Model 8 and Model 15), the coefficients of governance are positive and statistically relevant, with levels of 5%, 10% and 10% in respect of aggregate SSA countries, oil and non-oil producing countries accordingly. Governance (evaluated by the composite index) increases the attraction of Fdi inflows in all economies and even in aggregate SSA African economies. This increase in FDI in African countries could be largely demonstrated by the rise of the preceding business regulatory environment (6.076), quality of budget and fiscal management (5.609). fiscal policy (5.003), quality of government administration (5.065), property rights and rules (3.097) and macroeconomic environment (0.165). Nonetheless, by enhancing the foregoing parameters governance (measured by the composite index) in oil producing countries (Model 8) has attracted foreign direct investment: property rights and rules (8.090), quality of government administration (5.782), quality of business and fiscal management (5.453), business regulatory environment (2.234) and fiscal policy (11.098). As far as SSA countries who do not produce oil are concerned (M15), governance (evaluated through the composite index) could induce FDI, especially via the creation of the foregoing organizational factors: property rights and rules (6.098), quality of government administration (11.234), quality of business and fiscal management (3.468), business

regulatory environment (6.453), macroeconomic environment (7.581) and fiscal policy (12.345). It is important to conclude that governance (a holistic indicator) is a strong determining factor of inflow of FDI to SSA economies and across sub-regions, and its six analyzed elements (property rights and rules, quality of government administration, quality of budget and fiscal management, business regulatory environment, macroeconomic environment and fiscal policy). With regard to the control parameters, there is a strong positive relationship between inflation and FDI inflows in respect of oil producing economies (Model 12 and Model 14). Coefficients for inflation remain positive and significant except for aggregate SSA countries and non-oil producing economies where it is insignificant. Even though the results contradicts certain previous work on the FDI-governance nexus, it is consistent with findings of Kinoshita and Campos (2003), and Bouchoucha et al., (2019). Trade openness coefficients are significantly positive in model 15 at a level with just 10 percent in oil producing countries, but it is insignificant in the context of aggregate SSA and oil producing countries. Once trade is published, multinational shareholders may be well advised as to the domestic circumstances of their global business associates. As a consequence, in economies with significant amounts of trade, international investment groups and individuals tend to engage in trading activities in those countries. This outcome is familiar with Elfakhani and Matarar (2007).

The coefficients connected with GDP are positively and significant in statistical terms in aggregate SSA (Model 4 and Model 5) and significant for oil producing economies (Model 13). This indicates that improving GDP growth results in a greater effect on Foreign Direct Investment's attractions. Alternatively a, in order to fund infrastructural programs, oil producing African economies need to maintain high levels of GDP growth.

Conclusions and policy directions

The aim of this article is to understand the impact of governance to attract FDI in in sub-Saharan Africa. The region was divided according to oil producing and non-oil producing economies. Firstly, the econometric research was centered on an aggregate strategy to create a universal governance index utilizing principal component analysis (CPA) approach. The findings show that the attraction of foreign direct investment in the African region and other sub-regions impacts positively and robustly by governance indicators.

The aim is to identify the impact of governance on individual basis in the phase 2, calculated by the various indicators established by the World Bank, on FDI inflow attraction. Again, to assess the efficiency of institutions, we utilized six metrics and evaluated their impact on the attraction of foreign direct investment. The incremental method admittedly, provides an opportunity to decide which component is at the root of FDI's attraction. The enhancement of the following measures: property rights and rules (PRR), quality of government administration (QGA), quality budget and fiscal management (QBFM), business regulatory environment (BRE) and macroeconomic environment (MM) will primarily clarify the attraction of FDI in sub-Saharan African countries (aggregate sample). In oil producing countries in SSA, the attraction of FDI depends on enhancing business regulatory environment (BRE), quality budget and fiscal management (QBFM), and fiscal policy (FP). In non-oil producing economies, property rights and rules and quality of government administration (QGA) are the most significant institutional

variables influencing the attraction of FDI. We further observed that economies with stronger institutions are capable of attracting greater FDI inflows as compared to countries with weaker institutional outlook when the dataset is subdivided into oil producing and non-oil producing.

As for the aggregate SSA countries, the analysis showed the value of certain key determining factors of foreign direct investment. Such variables include lag of FDI, openness to trade, inflation and GDP. Our study's key policy consequences can be summarized as follows. Firstly, by reinforcing the institutional structure, decision makers have to implement strategies that draw greater FDI inflows into the sub-Saharan African economy. Furthermore, the attraction of FDI varies depending on GDP growth.

This helps SSA nations to boost the efficiency of their economic programmes that could encourage generation of increased returns on investment. It is imperative for policy makers to develop economic policies which are built on sound macroeconomic underpinnings to be incorporated into international capital markets and thereby render their markets increasingly competitive for business. To attract inflows of FDI, a national economic stable climate can be crucial and for growth. In particular, by reducing to the barest minimum inflationary effects that could be a blockade for international investors. This could go a long way to increase the degree of international establishments in the countries within the sub region. There is the need to institute steps to take advantage and implement the resolutions of the just operationalized African Continental Free Trade Agreement (AfCFTA) aimed at boosting trade among compatriots and even beyond. Efforts should be directed at policies that allow for trade openness to attract multinational establishments.

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