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Foreign Direct Investment and Public Sector Management and Institutions: The Acquaintances in Sub-Saharan Africa (SSA) Low-Income Economies

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Abstract

This study examines the direct role played by governments of the SSA low-income countries to attract potential FDI inflows in their accountabilities as advocates of public sector management and institutions for poverty reduction. The study employs panel data for 24 SSA low-income economies over the period 2005-2015. Panel unit root tests by IPS and Fisher-ADF are applied to test for data stationarity thus furthering the conduct of panel cointegration analysis using Pedroni tests. Both tests confirm for data stationarity and long-run relationships. The major finding using GMM estimator reveals that public sector in SSA low-income economies negatively influence FDI inflows. This implies that public sector is plagued with lack of transparency, accountability and corruption in delivering public services. Thus, the authorities and policy makers in SSA low-income economies need to undertake meticulous measures by strengthening public institutions that adhere to the rule of law, accountability for achieving human development, safety and fairness to general public. The failure of public sector instigates catastrophe for the survival of private sector and market mechanisms. Moreover, amiable regulations, rule of law and control of corruption are vital for public and private sectors to work together towards poverty alleviation.

Keywords: FDI inflows, poverty reduction, public sector management and institutions, SSA low-income economies

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1. Introduction

The financial liberalization that emerged between 1980s and 1990s capitalised on loosening the international investment barriers for enacting entrée international markets. Thus, the private investment flows found the root to migrate around the world either within industrial nations or between industrial and developing countries (Mishkin, 2007). This era experienced policy restructuring and subsequently the World Bank argued the developing economies including SSA low-income economies to adopt the Structural Adjustment Programmes (SAPs) to fostering their economies. Among the key reforms undertaken by SAPs was the public sector reforms (de Waal, 2007; Vyas-Doorgapersad, 2011).

The need for public sector reforms emanated from the poor performance of public institutions and governance which among other roles are responsible for active private sector (Nhema, 2016; World Bank, 2009). The deteriorated economic growth in 1980s among African countries including SSA low-income economies was associated with inefficacy of traditional public administration. The functioning of private sector which is a backbone to the economic growth depends on functional public sector (AfDB, 2013). Initially, public sectors in SSA low-income countries were responsible to control economies and thus, reforms intended to facilitate optimal output and economic growth for tangible poverty reduction (Lekorwe, 2010).

Institutional quality and governance accelerate the catching up of the economic growth of any country (Acemoglu, Johnson, Robinson, & Thaicharoen, 2003; Kant, 2016; North, 1990, 2016; Yildirim, 2016). Institutions and governance are cornerstones for creating amiably regulatory environment that attracts FDI inflows especially for non-rich resource countries including SSA low-income countries (Asiedu, 2006). FDI inflows are argued to be vehicles towards economic growth and poverty alleviation. For the host country, FDI facilitate job creation, technological transfer, capital formation and development of human skills which are necessary for solid poverty reduction. Because of the benefits attached with FDI inflows, many countries would like to attract significant basket of FDI. Thus, efficacy of public sector in SSA low income countries need be attached with the spill lover benefits of attracting FDI inflows for combating poverty.

Regardless of FDI inflows being the most reliable source of capital flow compared to other private investments, FDI inflows in SSA low income countries have been increasing at decreasing rate (UNCTAD, 2016). Countries with comparative advantages like rich natural resource countries attract potential FDI inflows than non-rich natural resources countries. The justification for low share of FDI inflows to SSA low-income countries is depicted on figure1 that shows the trend of FDI inflows for the period 2000 to 2015.

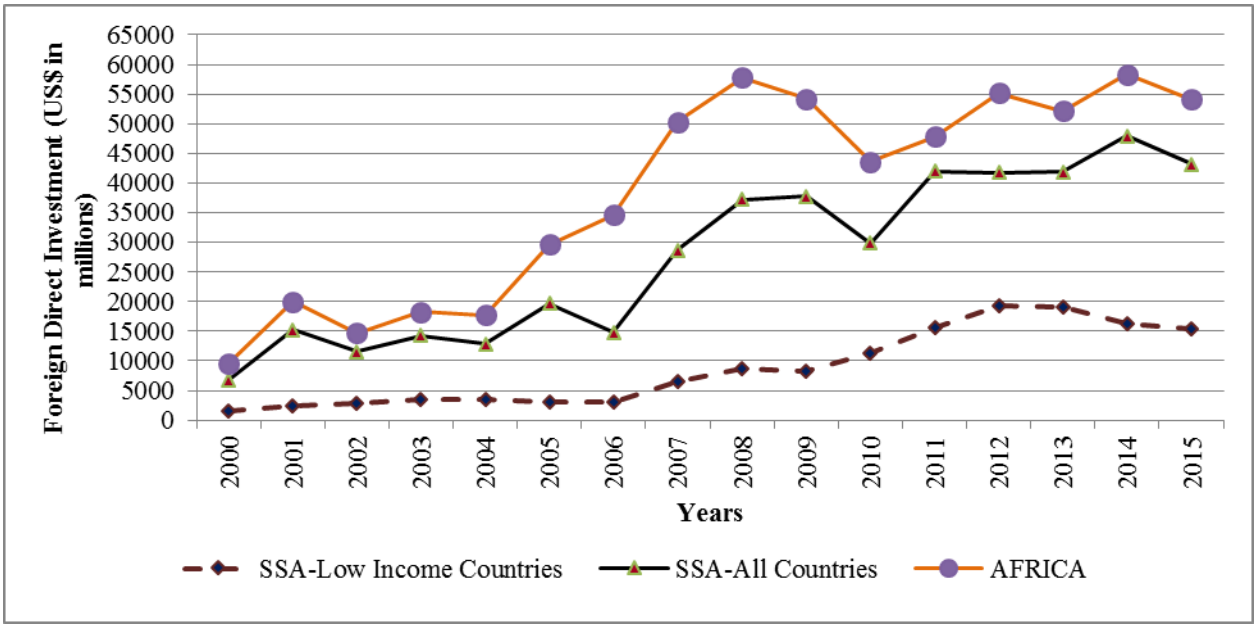

Figure 1: Trend of FDI inflows (US$ Millions) to SSA from 2000-2015
Source: UNCTAD (2016)

The FDI inflows are catalyst for economic growth and are the stepping stones for country's integration into regional and global markets. However, it is very hard to achieve potential dividends of FDI inflows without concrete public sector management that creates friendly regulatory business environment that covers institutions and governance. Moreover, concrete public sector management is required to enforce the complementarity between domestic and foreign investment to enhance productivity.

The technological and socioeconomic adjustments were among challenges faced performance of public sector management in Africa. To overcome these challenges necessary for improving operations of public sector, African countries adopted the administrative framework known as New Public Management (NPM) in 1990s. The NPM was intended to overcome shortcoming of traditional public administration through enhancing institutional capacity, result-oriented technique, transparency and public accountability (Pollitt, 2007; Rubakula, 2014; Vyas-Doorgapersad, 2011). However, SSA low income countries were (are) reluctant to enforce the ingredients of the NPM model for good institutions and governance and thus SSA lag far behind (Rubakula, 2014; Schuppan, 2009). Therefore, challenges facing public sector in SSA low income countries including weak institutions, unaccountability, weird public services ethics, and corruption have constrained the scope, pace and efficacy of services delivered.

The public sector management and institution in SSA low income countries should aim at delivering better public services to uplift living standard of people where majority are poor. The assessment by the United Nations through the Millennium Development Goal revealed that the level of poverty in SSA low income is still high because more than 40 percent of the population lives in poverty environment (United Nations, 2015b). Thus, governments of SSA low income nations are argued to facilitate domestic savings through FDI inflows where its multiplier effect

would help to reduce poverty. Therefore, it is necessary to examine the roles played by the governments of SSA low-income countries in strenghthening public sector structure. The effective public sector management and institution qualifies for significant development especially when capitalise on location advantages that encourages investment projects (Bjorvatn, Kind, & Nordås, 2002; Nhema, 2016).

Public sector management and institution which is among four clusters of Country Policy and Instituions Assessment (CPIA) established by the World Bank covers five components that are highlighted in table 1 which are mainly institutional capacity and governance. However, the displayed poor performance of the components in this cluster triggers the need to build governance and institutional capacity among low incoms countries in SSA which are necessary blocks to economic performance. Note that in 2015 the scores for components transparency, accountability and corruption in public sector management was 2.7 which is low (1 = low, 6 = high) where higher score implies better rating (World Bank, 2016).

Table 1: The Country Policy and Institutional Assessment (CPIA)

Clusters	**A**	**B**	**C**	**D**
	Economic Management	**Structural Policies**	**Policies for Social Inclusion/Equity**	**Public Sector Management and Institutions.**
Components	i. Macroeconomic management ii. Fiscal policy iii. Debt policy	i. Trade ii. Financial sector iii. Business regulatory environment	i. Gender equality ii. Equity of public resources use iii. Building human resources iv. Social protection and labour v. Policies and institutions for environmental sustainability	i. Property rights and rule based governance ii. Quality of budgetary and financial management iii. Efficiency of revenue mobilisation iv. Quality of public administration v. Transparency, accountability and corruption in the public sector

Source: World Bank (2009)

There has been a dearth of empirical studies that examines the role played by host country's public sector management and institutions towards FDI inflows as a strategy for solid poverty reduction in SSA low-income economies. Thus, this study examines the direct impact exerted by governments of host countries to attract potential FDI in their responsibilities as advocates of public management and institutions. Thus, are the pro-public sector management in SSA low-income economies friendly to potential FDI inflows for poverty reduction?

This study is important for reasons that, the sound private sector solely depends on the efficacy public sector. Thus, functional public sector reinforces thriving of private sector and market mechanisms that are catalysts for attracting potential FDI inflows necessarily for poverty eradication. Additionally, this study reconsiders that rigorous efforts are needed to reinforce pro-poor development reforms and policies on regulatory frameworks among SSA low-income

countries to reduce extreme poverty as it was reported by United Nations based on their Millennium Development Goals (MDGs) Assessment that more than 40 percent of the population in SSA are living in extreme poverty (United Nations, 2015a).

2. Literature Review

2.1 Overview of Public Sector Management and Institutions

Public sector refers to those organisations (including central and local governments) and agencies that are owned and operated by the government for the purpose of delivering goods or services to its citizens. The public sector being a pivotal to excelling country's economy has core role of creating appropriate and conducive environment necessarily for other sectors of economies including private sector to thrive optimally (Antwi & Analoui, 2008; Ayee, 2005; United Nations, 2010).

The public sector management and institution collectively as institutions and governance is among four clusters of Country Policy and Institutional Assessment (CPIA) established by the World Bank. The CPIA examines Sub-Saharan Africa's muscles to reinforce reforms for sustainable growth, efficacy utilization of development assistances and poverty reduction (Independent Evaluation Group, 2010; World Bank, 2009). On this connection, the other three clusters of CPIA include economic management cluster, structural policies cluster and policies for social inclusion and equity cluster. These four clusters were categorised from a total of 16 components (World Bank, 2009).

More formally, public sector management and institutions cluster constitutes five components namely the property rights and rule based governance, the quality budgetary and financial management, the efficiency revenue mobilisation, the quality of public administration and the transparency, accountability and corruption in public services (World Bank, 2009). These components measure the efficacy of the governments for timely response on citizen demands, solid financial management, reinforcement of rule of law that is applicable to everyone, justice on revenue collections and transparency processes that are not colluded with corruption. In general, the World Bank calculates the CPIA score for each country to assist the International Development Assistance (IDA) when allocating resources to poor countries. The CPIA score ranges from 1 = low, to 6 = high; the higher the score the better institutions and governance. The resource allocation is established under the performance-based allocation (World Bank, 2009).

The structural adjustment programmes (SAPs) that were initiated by the World Bank in 1980s have the root from the economic crunch among African countries including SSA low-income economies. Thus, the Structural Adjustment Programmes (SAPs) intended to be the catalyst for building quality institutions and governance for fostering economic growth. The public sector reforms were among the earlier reforms initiated by SAPs to move from traditional public administration to new public management (de Waal, 2007; Vyas-Doorgapersad, 2011). The need for new public management (NPM) emanates from the truth that, the efficient and effective public sector management creates best practices for economic growth and poverty eradication (Antwi & Analoui, 2008; Independent Evaluation Group, 2008; United Nations, 2010).

2.2 Public Sector Management and Foreign Direct Investment (FDI) Inflows

The presence of FDI inflows to host countries constitutes several advantages including job creation, technological transfer, sources of financing, an access to international markets, development of human capital, marketing know-how and spill over benefits toward poverty reduction. On this connection, FDI inflows are sometimes linked with improvement of the domestic investments and promote economic growth of the host country (Adams, 2009; Adams, Sakyi, & Opoku, 2016). In general, advantages that are created by FDI inflows to the host country are dual notably the total factor productivity (TFP) and capital accumulation (Adams, 2009; Mahmoodi & Mahmoodi, 2016; Nath, 2009).

Premised with the above, the capital accumulation and total factor productivity constitute the theoretical perspective populated by the modernisation theory of FDI inflows to the host country. The theory argues that capital investment is the necessary tool for promoting economic growth in developing economies and thus, the source of capital investment comes from FDI inflows (Choong & Lam, 2011; Drigă, 2011). However, the FDI inflows could bring negative impact to the host country if sector of economies are weakly correlated. This means that, FDI inflows could bring negative impact if it does not create the multiplier effect especially when the demand of one sector creates weak demand to another sector. Thus, the above argument connote the needy for functional demand linkage between sectors and not one sector to be barrier to another sector (Adams, 2009; Morisset, 2000).

The extant literatures have identified various factors including natural resources and market size to attract FDI inflows in SSA (Asiedu, 2006; Morisset, 2000). The rich resource countries like South Africa, Nigeria and Angola absorb a bulky share of total FDI inflows compared to other non-rich resource countries including the SSA low-income countries. However, the resource rich countries cannot attract FDI inflows outside the resource sectors (Asiedu, 2006; Sy & Rakotondrazaka, 2015).

However, literatures on the determinants of FDI inflows by the host countries especially SSA low-income economies emphasise building quality institutions and governance to accelerate FDI inflows. Factors like transparency, accountability and corruption collectively constitute quality institutions and governance which are directly related with poverty reduction (Bräutigam & Knack, 2014; Hyden, 2007). For instance, Bräutigam and Knack (2014) argued that the declining capital investments among African countries including the SSA low-income countries encompasses meagre institutions, rule of law that are not applicable for everyone, dearth of government accountability and rampant corruption. This can be argued that, the ingredients of the public sector management constitute unpleasant performance when delivering public goods or services.

Bénassy-Quéré, Coupet, and Mayer (2007) argued that the pioneering factors that accelerate FDI inflows to the host countries are attached with pleasant institutions. That means country that enforce good governance should attract potential FDI inflows and that the multiplier effect can be achieved provided that there is demand linkage among sectors. However, uncertainties in public institutions like corruption would fly away the FDI inflows.

The empirical study carried by Gani (2007) on a selected sample from Asia and Latin America countries concluded that governance indicators of government effectiveness, rule of law, control of corruption, regulatory quality and political stability have positive and statistically significant relationship with FDI inflows. This conclusion concur with what was advocated by Kaufmann, Kraay, and Mastruzzi (2009); Kaufmann, Kraay, and Zoido-Lobatn (1999) that the governance indicators namely voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory burden, rule of law and control of corruption create good atmosphere for a country to attract potential FDI inflows.

3. Methodology

This study employed the panel data for 24 selected SSA low income countries over the period 2005-2015. These years 2005 and 2015 were selected because the first dataset of CPIA scores were published by World Bank in 2005 and the last update was made in March 2017 for 2015 dataset. The World Bank income classification 2016 classified 27 countries in SSA as the low-income economies. The choice for 24 countries based on the data availability whereby Eritrea, Somalia and South Sudan were excluded.

This study employed panel data because countries in SSA low-income are heterogeneous and thus, panel data accounts for individual heterogeneity and can control for any spurious correlations (Arellano, 2004). Moreover, panel data was recommended because of its superiority over other types of data when studying changes in economic policy (Baltagi, 2005; Hsiao, 2003). The list of 24 SSA low-income countries is attached on Appendix A.

3.1 Variables of the Study

3.1.1 Dependent Variable

This study employed the FDI inflows as the dependent variable. The FDI inflows to the SSA low income countries have increased for sometimes however at the decreasing rate. Countries that enforce implementation of regulatory environment on institutions and governance escalate the catching-up of the FDI inflows. Thus, the FDI inflows were normalised or standardised by taking the logarithm of foreign investment for the period 2005 to 2015. Data for FDI inflows were collected from UNCTAD (2016).

3.1.2 Independent variables

This study examines the role played by the public sector management and institutions to enhance FDI inflows among 24 SSA low income economies from 2005-2015. The public sector cluster is a numerical index made up of five components known as governance criteria. This CPIA cluster receives significant attention than other three CPIA clusters because it demonstrates the property rights and rule based governance, accountability of the government, transparency, efficiency and equity of government expenditures necessary for economic growth. The CPIA scores have a scale from 1 which is low score to 6 which is maxima and best score. In 2015, the CPIA score for public sector management and institutions in SSA was 3.2 while the criteria for accountability, transparency and corruption were poorly graded at 2.7. Public sector management and institutions is an index of five components which are highlighted in table 1. This study employed this index of public sector reform.

3.1.3 Control variables

Numerous literatures have identified several variables for the host country to attract FDI inflows. These variables are either observable or unobservable and they are host country's specific characteristics. However, the unobserved heterogeneity are the sources for indogeneity problem. Thus, the control variables are included in the model because they can influence FDI inflows and account for unobserved heterogeneity. The resource endownment and market size are regarded as main determinants of FDI in SSA (Asiedu, 2006; Morisset, 2000). However, the SSA low-income countries are non-rich resource countries and thus, the relationship between natural resources and FDI is established. Moreover, larger market size have opportunity to exploit economies of scale necessary for attracting FDI inflows (Asiedu, 2006; Morisset, 2000). However, SSA low income countries are characterised with small market size which can be hard to absorp resource necessary for FDI inflows. Thus, small market size would likely not be favourable for potential FDI (Farole & Winkler, 2014).

Another factor necessary to explain FDI in SSA low income economies include infrastructure (Asiedu, 2002, 2006). Developed and favourable pysical infrastructure facilitates the catching up of potential FDI inflows (Asiedu, 2002; Cleeve, 2012). It should be noted that in order to avoid ommision biasness, infractructure should be widely measured by many variables and not only by a common indicator the fixed telephone per 1000 population. This is because there is evolution of mobile phones which surpass fixed telephones main lines which explain only the availability but not about the reliability (Asiedu, 2004; Calderón & Servén, 2008). Thus, to account for endogeneity problem and ensure the reliability of infrastructure, this study employed principal component analysis (PCA) to develop and index based on three variables: i) fixed telephone per 100 population purposely to measure availability of telephone, ii) gross fixed capital formation as percentage of GDP to measure land improvements, plant, machinery and equipment available to the host country and iii) the mobile cellular subscription per 100 people. This service is available to the public to provide quick access to the public switched telephone network using technology; this variable measures the reliability of infrastructure. These variables are most common to SSA low-income economies as they are affected geographically and some are landlocked countries where water transport does not apply to all countries and thus transport cost might multiply.

Furthermore, inflation was included as control variable and is among macroeconomic factors that impacts FDI inflows in SSA low income economies. In general, the SSA low income countries is associated with unstable macroeconomic factors. High inflation imply unfavourable environment for economic condition for the host country (Asiedu, 2002; Cleeve, 2012; Neuhaus, 2006; Yartey & Adjasi, 2007). Unstable macroecomic factors paticularly inflation have negative impact toward FDI inflows. An outline of data and data source for this study are presented in table 2.

Table 2: Variables and Data sources

Variable	Expected sign	Description	Data Source
lnFDI		FDI iflows is measured by the natural logarithm of FDI inflows in a host country	UNCTAD, WDI
lnCPI	-	Inflation is measured by natural logarithm of consumer prices (annual %)	World Bank (WDI)
lnGDPP	+	Market size is measured by Natural logarithm of GDP per capita	World Bank (WDI)
lnINFRAST	+	Infrastructure is measured by natural logarithm of Princial component Analysis (PCA) on fixed telephone, gross fixed capital formation and electricity power transmission.	World Bank (WDI)
lnNRR	+	Natural logarithm of natural resources	World Bank (WDI)
lnPSMI	+	Public sectro is measured by Natural logarithm of public sector management and institutions ranges between 1 low to 6 high	World Bank (WDI)

3.2 Model Specification

The relationship between the Public sector management and institutions and FDI inflows was examined using the following two models.

$$FDI_{it} = \alpha_0 + \sum_{i=1}^{4} \gamma_i Z_{it} + \varepsilon_{it} \quad (1)$$

$$FDI_{it} = \alpha_0 + \sum_{i=1}^{4} \gamma_i Z_{it} + \alpha_1 PSMI_{it} + \varepsilon_{it} \quad (2)$$

Whereby the dependent variable FDI stands for the natural logarithm of foreign direct investment in country i at time t; γ_i is the coefficient for control variables Z_{it} namely the natural resources, market size, infrastructure and inflation; $PSMI$ is the natural logarithm of public sector management and institutions and ε_{it} is the error term. The first model eqn.1 was intended to measure the impact of control variables simply natural resources, market size, inflation and infrastructure towards FDI inflows. The second model eqn.2 measures the role of public sector towards FDI given other variables.

3.3 Discussion of Empirical Results

3.3.1 Descriptive Statistics

Table 3 summarises the statistics for the variables of this study. This study has a total of 264 observations (N) associated with 24 SSA low-income countries for a period of 11 years counted from 2005-2015. This size is adequate to provide concise status of public sector management and institutions in SSA low-income countries to accelerate the catching up of the potential FDI inflows.

Table 3: Descriptive Statistics

Variable	*LN(FDI)*	*LN(CPI)*	*LN(GDPP)*	*LN(INFRAST)*	*LN(NRR)*	*LN(PSMI)*
Mean	6.9296	4.0397	3.9058	-0.7635	2.4493	1.0829
Median	6.7906	3.9321	3.9134	-0.6050	2.4221	1.0986
Maximum	8.8357	19.2579	4.1872	1.5308	4.0537	1.5041
Minimum	3.1968	2.2152	2.2792	-9.0280	0.7771	0.4055
Std Deviation	0.4983	1.0508	0.1314	1.5250	0.6934	0.2558
Observations	264	264	264	264	264	264

Source: Author computation

The notation: lnFDI is the measure for FDI, lnCPI is a measure for inflation, lnGDPP is a measure for market size, lnINFRAST is measure for infrastructure, lnNRR is a measure for natural resources and lnPSMI is a measure for public sector management and institutions.

The dependent variable of this study is FDI inflows (US$ Millions). Table 3 shows that on average, FDI inflow to SSA low-income countries from 2005 to 2015 was estimated to US$322.1 Millions (Note that: mean value of LN(FDI) = 6.9296 as shown in table 3; therefore to compute for FDI, it is required to go for exponential form of (lnFDI) and standardisation of [EXP(6.9396)]). This implies that, the average FDI inflows to SSA low-income countries have been very low necessary to generate expected impacts toward poverty reduction. The maximum FDI inflows were around US$6,175.4 Millions. However, public sector management have explanations to provide based on the overall transparency and public accountability. On the other hand, average inflation in the region from 2005 to 2015 has been disappointing at 56.81. This high value of inflation is associated with Zimbabwe hyperinflation in 2007 and 2008 but in current years the situation has settled. However, unstable macroeconomic factors divert potential FDI inflows.

3.3.2 Panel Unit Root Tests

For the purpose of policy making and forecasting, data were tested for their stationarity. Testing for data stationarity is important because making decision on non-stationary data may result into implementing wrong policy. Data have tendency to fluctuate overtime whenever shock arises thus, the IPS and Fisher – ADF tests were employed to test for data stationarity (Keong, 2007). These two tests were employed because each test account for individual heterogeneity concurant with the heterogeneity among the SSA low-income countries. Results for panel unit root tests are presented in table 4.

Table 4: Individual Panel Unit Root Tests Results[4]

Variables	Im, Pesaran and Shin (IPS)		FISHER - ADF	
	Level (trend and intercept)	First Difference (intercept)	Level (trend and intercept)	First Difference (intercept)
LNFDI	-0.173 (0.431)(1)	-3.976*** (0.000)(1)	54.188 (0.250)(1)	170.066*** (0.000)(1)
LNCPI	0.559 (0.712)(2)	-11.691*** (0.000)(1)	33.704 (0.9626)(2)	223.588*** (0.000)(1)
LNGDPP	-0.314 (0.376)(2)	-12.660*** (0.000)(1)	49.505 (0.4932)(2)	235.587*** (0.000)(1)
LNINFRAST	-0.344 (0.365)(1)	-4.936*** (0.000)(1)	54.342 (0.312)(1)	113.082*** (0.000)(1)
LNNRR	-0.734 (0.231)(0)	-6.710*** (0.000)(1)	37.669 (0.858)(2)	142.058*** (0.000)(0)
LNTPSIM	-0.365 (0.357)(1)	-3.379*** (0.000)(1)	50.842 (0.289)(1)	76.374*** (0.003)(1)

***Source**:* Author computation**.**

The results in table 4 show that variables have unity root at level thus, the null hypothesis of unity root (non-stationary) cannot be rejected. Hence, the first difference was conducted to creating data stationarity which is necessary criteria for consistence forecasting and policy implications. It is very harm to make decision on non-stationary data especially in SSA low-income economies where macroeconomic factors are unstable and infrastructure are not reliable. The first difference indicates that it is necessary to reject the null hypothesis of unit root at 1 percent level of significance. Thus, the data stationarity signifies presence of data stability necessary to absorb short and long term shocks and useful for policy implementation and forecasting. Data stationarity imply that any intrusion brought by fluctuations will be immersed and become part of the system (Baltagi & Kao, 2000; Keong, 2007).

3.3.3 The Pedroni Panel Cointegration Test

The stationarity among data as indicated by IPS and Fisher-ADF tests is the necessary condition to conduct the panel cointegration test. Panel cointegration test intends to examine the long run relationship between variables. This study employed Pedroni (2004) panel cointegration tests because they are built on the assumption that data are heterogeneous. This assumption of heterogeneous is consistent with this study because SSA low-income countries have different specific characteristics. Results for panel cointegration analysis are presented in table 5.

[4] The Null Hypothesis: Unit root (Individual Unit root process). The asterisks ***, ** and * imply significant at 1% , 5% and 10% level of significance respectively. 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 notation: lnFDI is the measure for FDI, lnCPI is a measure for inflation, lnGDPP is a measure for market size, lnINFRAST is measure for infrastructure, lnNRR is a measure for natural resources and lnPSMI is a measure for public sector management and institutions.

Table 5: Pedroni (2004) Cointegration Tests

Deterministic intercept and trend			No deterministic intercept or trend		
Within - Dimension			***Within - Dimension***		
	Statistic	**P-value**		**Statistics**	**P-value**
Panel v-Statistic	-6.8735	1.0000	*Panel v-Statistic*	-4.4347	1.0000
Panel rho-Statistic	5.5153	1.0000	*Panel rho-Statistic*	2.9946	0.9986
Panel PP-Statistic	-35.2136	0.0000***	*Panel PP-Statistic*	-17.5676	0.0000***
Panel ADF-Statistic	-10.8704	0.0000***	*Panel ADF-Statistic*	-8.7439	0.0000***
Between - dimension			***Between - dimension***		
Group rho-Statistic	7.8818	1.0000	*Group rho-Statistic*	6.0857	1.0000
Group PP-Statistic	-25.0700	0.0000***	*Group PP-Statistic*	-17.3292	0.0000***
Group ADF-Statistic	-7.6276	0.0000***	*Group ADF-Statistic*	-6.4601	0.0000***

***Source**:* Author computation.
Note: Null Hypothesis: No cointegration. The asterisks *** implies the rejection of Null Hypothesis at 1 percent significance level Automatic lag length selection based on SIC

The results presented in table 5 reveal that the null hypothesis of no cointegration can be rejected at 1 percent level of significance. According to Pedron (2004), if more than half of seven tests reject the null hypothesis of no cointegartion then data have long run relationship. Therefore, data for this study are cointegrated because four tests reject the null hypothesis.

3.3.4 The Generalized Method of Moments (GMM)

The regression model comprises of dependent variable, independent variables and an error term. The error term or residuals are unobservable and have the tendency to correlate with regressors to impact dependent variable. These are unobserved heterogeneity which are the key sources of endogenous problems and are responsible for generating biased and inconsistent parameters especially when the study employs the OLS estimator. To account for the endogenous problems caused by unobserved heterogeneity, dynamic endogeneity and simultaneity (Hu & Izumida, 2008; Nguyen, Locke, & Reddy, 2015; Zhou, Faff, & Alpert, 2014), this study employed the GMM estimator to circumvent the likelihood of reporting spurious results.

It is widely acknowledged that GMM estiamtor generates consitent and unbiased estimates (Arellano & Bond, 1991; Blundell & Bond, 1998; Keong, 2007; Wintoki, Linck, & Netter, 2012). The superiority of the GMM emanate from the automatic use of lagged dependent variable and more significantly the GMM is attached with valid instrumental variables. The instrumental variables are argued to be valid because they are uncorrelated with regressors and thus, are relevant and exogeneous. The GMM estimator is a dynamic model rather than a static model because it can manage dynamic nature of performance (Wintoki et al., 2012). Thus, based on eqn.2, the GMM dynamic panel model for estimating parameters takes the following form.

$$\ln(FDI_{it}) = \alpha_0 \ln(FDI_{i,t-2}) + \alpha_1 \ln(PSMI_{it}) + \sum_{i=1}^{4} \gamma_i \ln(Z_{it}) + \varepsilon_{it} \quad (3)$$

Where $lnFDI$ stands for the natural logarithm of foreign direct investment in country i at time t; $\alpha_0 lnFDI_{i,t-2}$ stands for the natural logarithm of lagged foreign direct investment; γ_i is the coefficient for natural logarithms of control variables Z_{it} namely the natural resources, market size, physical infrastructure and inflation; $lnPSMI$ is the natural logarithm of public sector management and institutions; ε_{it} is error term. Note that to avoid model misspecification, the dependent variable has two lags for intention of capturing all the past information regarding the FDI inflows (Wintoki et al., 2012). The regression output by GMM is presented in table 6.

Table 6: The GMM Regression output

	Model 1		Model 2	
Variable	**Coefficient**	**Statistics**	**Coefficient**	**Statistics**
LnFDI(-1)	-0.2246	-8.4414*** (0.0000)	-0.2479	-6.2859*** (0.0000)
lnCPI	-0.0821	-1.9963** (0.0473)	-0.2118	-3.3109*** (0.0011)
lnGDPP	0.1192	2.8128*** (0.0054)	-0.2863	-4.2623*** (0.0000)
lnINFRAST	0.2966	14.2695*** (0.0000)	0.0109	0.2022 (0.8399)
lnNRR	0.6132	17.9785*** (0.0000)	0.7750	8.7286*** (0.0000)
lnPSMI			-0.2003	-2.0062** (0.0463)
S.E. of Regression	0.4568		0.5118	
J – Statistics	23.2021		21.3205	
Prob(J – Statistics)	0.2789		0.2635	

***Source*:** Author computation
The asteriks *** and ** imply significant at 1% and 5% level of significant respectively; p-value is in brackets.
The notation: lnFDI is the measure for FDI, lnCPI is a measure for inflation, lnGDPP is a measure for market size, lnINFRAST is measure for infrastructure, lnNRR is a measure for natural resources and lnPSMI is a measure for public sector management and institutions.

Initial discussion is based on the lagged dependent variable namely LNFDI (-1) which is negative and statistically significant at 1 per cent significance level. According to Flannery and Hankins (2013); Law and Azman-Saini (2008); Wintoki et al. (2012) the lagged dependent is supposed to be statistically significant to justify the validity of instruments used. Moreover, the validity of instrument is justified by the value of probabilities for J-statistics which are supposed to be above 10 per cent. Hence, the empirical results from the dynamic GMM estimator are appropriate for making statistical inferences.

The first model (Model 1) has examined the role of control variables available to the host country towards potential FDI inflows. The results show that all the variables inflation, market size, infrastructure and natural resources achieve the hypothesised signs and are statistically significant. The negative coefficient for inflation is significant at 5 percent significance level, while other variables are significant at 1 percent significance level. The negatively and statistically significant coefficient for inflation implies that unstable macroeconomic factor among the SSA low-income diverts potential FDI inflows. This result is in line with (Asiedu, 2002; Cleeve, 2012; Neuhaus, 2006; Yartey & Adjasi, 2007). Higher inflation rates implies unstable economic condition and hence rises uncertainty for potential FDI inflows. Thus, an increase of 1 percent in inflation deteriorates FDI inflows by 0.0821 percent.

However, the second model (Model 2) has different result on market size and perhaps explains the real situation pertaining the SSA low-income economies. The introduction of public sector management and institutions in the model converted the coefficient of market size from positive to negative. The market size as measured by GDP per capita becomes negatively and statistically significant at 1 percent significance level. Meanwhile, the coefficient of public sector management and institutions is negative and statistically significant at 5 percent significance level. The negative relationship between market size and FDI indicates that the domestic markets in SSA low-income countries are small and are small in terms of absorptive capacity. The purchasing power in the small domestic markets do not promote scale economies necessary to promote potential FDI. This result is in similar argument with (Asiedu, 2006; Morisset, 2000; World Bank, n.d.).

Thus, the efficiency of government services, accountability and level of corruption in SSA low-income countries are among the reasons for the small absorptive capacity. The public sector cluster scored low CPIA score in 2015 of 0.3 which is below the average score of 3.2 (World Bank, 2016). Moreover, the weak performance of public sector cluster was contributed by weak performance of transparency, government accountability and corruption which scored 2.7 (World Bank, 2016). Thus, an increase of 1 percent in market size will deteriorate FDI inflow in SSA low-income countries by 0.2003 percent. In general, the domestic financial markets are potential vehicles for foreign investors to borrow domestically. However, domestic markets among SSA low-income countries are less developed to afford huge borrowing demands by foreign investors to expand their operations.

Moreover, the negatively and statistically significant of public sector management and institutions towards FDI inflows implies weak public sector among the SSA low-income countries. The laxity to enforce the ingredients of new public management (NPM) has negative consequences among the SSA low-income economies. The NPM model requires an emphasis on accountability through engaging in delegation, decentralisation, results-oriented and agencification for reducing bureaucracy. Thus, weak public sector management and institutions contribute towards low FDI inflows in SSA low-income economies. In general, successful institutions and governance for potential FDI inflows are measured based on the displayed level of accountability and transparency (Sumanjeet, 2015).

Note that public and private sectors are the tools for improving standard of living. The partnership in these sectors are of paramount towards fighting rampant corruption because corruption is not confined only to public sector it hits even the private sectors (Hodgson & Jiang, 2007). Thus, corruption has to be fought from both directions because corrupion is argued as obtacle for entry FDI inflows and thus corruption facilitate informality.

4. Conclusion and Policy Implications

This study examines the direct role played by governments of the SSA low-income countries to attract potential FDI inflows in their responsibilities as advocates of public sector management and institutions for poverty reduction. The study employs panel data of 24 SSA low-income economies for the period 2005-2015. Panel unit root IPS and Fisher-ADF tests were employed to test data stationarity for further conduct of panel cointegration analysis by Pedroni (2004). Data for this study are stationary and have long-run relationship which is necessary and sufficient condition for policy implications and forecasting.

Results of this study reveal that public sector management and institutions in SSA low-income economies are negatively and statistically significant toward FDI inflows at 5 percent level of significance. This implies that public sector among SSA low-income countries is overwhelmed with lack of transparency, accountability and corruption in delivering public services. Transparency in this perspective refers to the failure to reveal crucial information and institutional climate pertaining to making investment decision. The lack of transparency creates mask bribery and exaggerated transaction costs which are hostile for FDI inflows. In reality no single nation in the world can declare that is corruption-free however, the degree of corruption among countries is different. It is also claimed that the level of corruption among SSA low-income economies is very high. According to the corruption perception index (CPI) 2016, the extent of corruption in public sector among SSA low-income countries stands at an average of about 30 from 2012-2016 (0 = highly corrupt, 100 = very clean) in a sample of 176 countries (Transparency International, 2017). The low score of 30 implies weak public institutions and governance in delivering public goods or services.

Thus, results of this study alert the governments and policy makers in SSA low income countries to undertake meticulous measures by strengthening public institutions that adhere to the rule of law and accountable for offering human development goods or services, safety and fairness to general public. The failure of public sector instigates catastrophe for the wellbeing of private sector and market mechanisms. Moreover, public sector is supposed to build friendly environment for private sector to prosper which in turn triggers potential FDI inflows among SSA low-income countries. In general, friendly environment that include regulatory quality, rule of law and control of corruption are central factors for public sector and private sector to work together.

Furthermore, transparency and accountability should be brought together for combating corruption in public services. Sound domestic policies and governance play significant roles towards FDI inflows to the host country. The persistence of corruption and lack of transparency in delivering public services among SSA low-income states deteriorate viable investments and create poor disproportionately and eventually hinders efforts to eradicate poverty. In addition,

there should not be illusion or myth among SSA low-income countries authorities that, corruption is attached to low income instead of poor governance. Thus, persistent endemic corruption in the region jeopardises accountability among government officials and weakens efforts for poverty reduction.

Appendix A: 24 SSA Low-Income Economies

S/N	Country	S/N	Country
1	Benin	13	Madagascar
2	Burkina Faso	14	Malawi
3	Burundi	15	Mali
4	Central African Republic	16	Mozambique
5	Chad	17	Niger
6	Comoros	18	Rwanda
7	Congo Democratic Republic	19	Senegal
8	Ethiopia	20	Sierra Leone
9	Gambia	21	Tanzania
10	Guinea	22	Togo
11	Guinea-Bissau	23	Uganda
12	Liberia	24	Zimbabwe

Source: World Bank Income Classification (2016).

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