

The Moderation Role of Corruption in the Relationship between Foreign Direct Investment and Economic Growth in Sub-Saharan African Countries

Gideon Nyamweya Mokaya¹, Winnie Iminza Nyamute¹, Kennedy Okiro¹ & Laura Nelima Barasa^{1,2}

¹ Department of Finance and Accounting, University of Nairobi, Kenya

² Department of Economics, Population & Development Studies, University of Nairobi, Kenya

Correspondence: Gideon Nyamweya Mokaya, Department of Finance and Accounting, University of Nairobi, Nairobi, Kenya. Tel: 254-204-910-000. E-mail: gxmokaya@gmail.com

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Abstract

Foreign direct investment has recently become a major source of external financing among the developing countries. The Sub-Saharan Africa has become a major investment destination by the foreign investors. The literature shows that foreign direct investment contributes to economic growth through technological spillovers from developed countries to developing countries. In addition, FDI leads to the human capital development and employment creation. It also promotes international trade integration thus creating a competitive environment for local enterprises. Despite the increase in FDI in the Sub-Saharan Africa region, proportionate economic growth has not been realized. Corruption levels are also high in the region thus necessitating the need to investigate its role in the FDI economic growth nexus. Many studies have investigated the direct relationship between FDI and economic growth. There is also quite a number of studies that have studied the direct relationship between corruption and economic growth. However, a study on the moderating role of corruption on the relationship between FDI and economic growth is yet to be carried out. This study therefore investigates the moderating role of corruption on the relationship between FDI and economic growth in the Sub-Saharan Africa using data from 46 countries. The study uses fixed effects model. The study finds a negative and significant coefficient of the interaction term between FDI and corruption. This finding reveals that a corruption distorts the effectiveness of FDI in realizing economic growth. The study recommends the need for government to put in place strong institutions that deter corruption in the region.

Keywords: Sub-Saharan Africa, FDI, economic growth, corruption, moderation

1. Introduction

The flow of capital especially foreign direct investment from one region of the world has increased for the last two decades. The FDI has become a stable and largest component of capital flows among the developing countries. Recently, the FDI has become major source of development finance among the developing countries (Jugurnath, Chuckun, & Fauzel, 2016). Estimates for 2019 showed that external financing in form of FDI flows to developing economies remained stable at around USD 535 billion (Institute of International Finance, 2019). The total external finance to Africa namely FDI, portfolio investments, the official development assistance (ODA) and remittances rebounded by 20 percent reaching USD 216.5 billion in 2021 as illustrated in Figure 1.

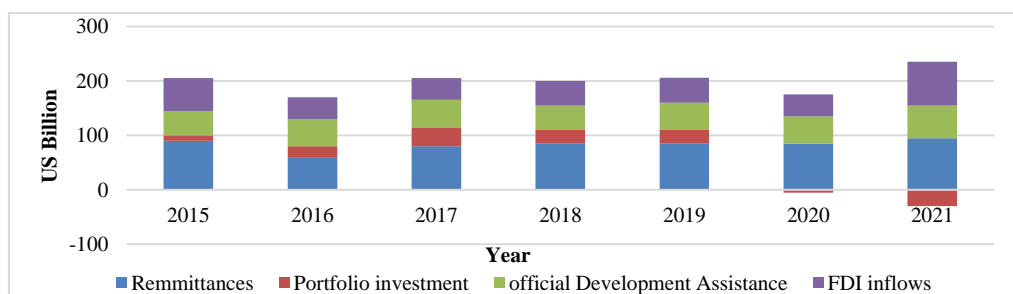


Figure 1.

The increase in the external finance was led by the FDI that rose more than double reaching USD 83 billion in 2021 compared to USD 39 billion in 2020 when COVID-19 pandemic put pressure on FD. Despite the strong rebound in 2021, FDI inflows to Africa accounted for only 5 percent of global FDI, up from 4 percent in 2020. Although FDI flows to Africa are still low, the increasing importance of Africa as FDI destination for global FDI flows depicts the increased appetite by foreign investors to invest in Africa. The largest country that received the largest share of the FDI inflows was South Africa, a county in the Sub-Saharan Africa. The country received FDI worth more than USD 40.9 billion. This accounted for about half of the total FDI inflows to Africa. The second country in terms of FDI inflows was Mozambique. The country attracted about USD 5.1 billion in FDI inflows translating to about 6.2 percent of the total FDI flows. The increase in FDI inflows in Mozambique in 2021 were majorly invested in the greenfield projects in country's energy sector. Other Sub-Saharan Countries that received substantial amount of the FDI inflows were Nigeria about 6 percent of Africa's FDI inflows) and Ethiopia (about 5 percent). Most of the bulk of FDI inflows in Sub-Saharan African countries were directed to projects in clean energy resources. Although FDI inflows to SSA increased in 2021, economic growth in 2022 decelerated (AfDB, 2023).

The continent's economic growth in the real Gross Domestic Product (GDP) was 3.8 percent in 2022, a drop from 4.8 percent in the year 2021 but more than the world economic growth average of 3.4 percent. The economic growth slowdown was associated mainly to tightening of the global financial conditions. The supply chain disruptions brought about by Russia's invasion of Ukraine also contributed to global economic slowdown. The growth was also affected by the residual effects of COVID-19 pandemic and increasing adverse impact of climate change and extreme weather events. While the contraction of economies were broad-based where 31 of the 54 African countries posted weaker economic growth rates in 2022 as compared to 2021, the African continent performed better than other regions of the world in 2022. The SSA boasts rich natural resources and world's largest free trade area. The region also boasts a 1.2 billion person market. The region has a great potential of forging a new development path by making use of its natural resources and people. Economic growth in the region remains uneven across the sub-regions. While the East Africa recorded a growth rate of 1.8 percent in 2023, West Africa grew by 3.3 percent. On average, the SSA's economic performance is still low when compared to largest countries on the continent. The low economic growth is attributed to transportation bottlenecks that hinder economic activities in South Africa. In Nigeria, low economic growth can be linked to challenges associated with its oil sector (World Bank, 2024). The region also faces high corruption levels. The average Corruption Perceptions Index (CPI) score for SSA is 33 out of 100. Over 43 of the 48 SSA countries scored below 50 an indication of high corruption level in the region (CPI, 2021). The region aims at supporting pre-pandemic fastest growing countries of the SSA region back to their growth trajectory. The five SSA countries to be put back in the league of the world's 10 fastest-growing countries include Côte d'Ivoire, Benin, Rwanda, Tanzania and Ethiopia (AfDB, 2022). The high levels of corruption may be hindering the effectiveness of FDI on realizing economic growth in the region.

Previous research has majorly focused on the role of FDI on economic growth in Sub-Saharan Africa (Ayenew, 2022; Nketiah-amponsah & Sarpong, 2019; Jugurnath, Chuckun, & Fauzel, 2016; Babu, Kiprop, Kalio, & Gisore, 2014). Other studies have focused on the role of FDI on economic growth among the developing countries (Makiela & Ouattara, 2018; Wajid & Zhang, 2017). Other studies concentrated on the role of FDI on economic growth among specific countries. These include Kanegbu and Chizea (2017) and Ozekhome (2017) that focused on Nigeria, Jilenga et al. (2016) on Tanzania. A few studies have studied the direct role of corruption on economic growth (Spyromitros & Panagiotidis, 2022; Shittu, Hassan, & Nawaz, 2018). However, regarding the moderating role of corruption on the relationship between FDI and economic growth, a lot is yet to be done. This study addresses this research gap by empirically studying the moderating role of corruption on the relationship between FDI and economic growth of the SSA countries. The study employs fixed effect panel data model using data collected from World Bank database.

2. Literature Review

FDI is major development finance among the developing countries. The FDI contributes to economic development of these countries both directly and indirectly. The FDI has the advantage of leading to technological spillovers from developed countries to developing countries. In addition, FDI leads to human capital development, employment creation, international trade integration. The FDI also create a competitive environment for enterprises (Kobrin, 2005; and OECD, 2002). According to Romer (1993) FDI is an important tool in filling the idea gap. The author avers that multinational organizations have the advantage of reducing the knowledge gap that exists between the developed and developing countries. This is through the transfer of knowledge from developed countries to the host developing countries.

However, contrary to the above advantages of FDI, OECD (2002) raised the shortcoming of FDI on the host countries. The authors aver that FDI may deteriorate host country's Balance of Payment (BOP) brought about by the repatriation of the profit. In addition, new knowledge brought about by the multinational enterprises may lack positive linkage with already established local enterprises. The FDI may also be harmful to the environmental leading to social disruptions. Multinational enterprises may harm competition in the host country's market. The multinational enterprises may also crowd-out the domestic investment brought about by them having superior technology, human capital, and top notch managerial skills that domestic competitors do not have (Markusen & Venables, 1999; Kumar, 1990).

In addition to these theoretical contradictions, previous empirical studies have posted mixed results. For example Jugurnath et al. (2016) investigated the role of FDI on economic growth in SSA using a panel of 32 countries for the period running from 2008 to 2014. In using Generalized methods of moments (GMM) the study's results showed a positive and significant relationship between FDI and economic growth. In another study Nketiah-amponsah and Sarpong (2019) applied the system GMM to examine the role of FDI and infrastructure on economic growth in SSA. The study's findings showed that FDI positively affects economic growth when interacted with a host country's infrastructural development. Makiela and Ouattara (2018) also employed system GMM in conducting a study in developed and developing countries for the period running from 1970 to 2007. In their finding, it was revealed that FDI CONTRIBUTES positively to economic performance of the host countries. In a country specific study, Mohd and Muse (2021) used VAR model to study the role of FDI on economic growth in Ethiopia. The study used data running from 1981 to 2017. In their findings, FDI was found to have a positive effect on the country's economic growth both in short and long run. In a similar study Nguyen (2020) investigated the role of FDI on economic growth in Vietnam for period running from 1997 to 2018. The study's results showed a positive and significant relationship between FDI and economic growth in Vietnam.

In contrast to the above findings, Katerina, John, and Athanasios (2004) while studying the role FDI on economic performance of 17 transition economies by including 17 countries failed to establish a meaningful relationship. The study used time series data running from 1995 to 1998. In a similar study, Herzer, Klasen, and Nowak-Lehmann (2006) did not find a meaningful relationship between FDI and economic growth among 28 developing countries. Dinh, Vo, Vo, and Nguyen (2019) on the other hand showed that FDI has a negative effect on host countries economic growth in the short run. In the long run the FDI was found to have a positive effect on economic growth of the host countries. The authors used panel data for developing countries for the period running from 2000 to 2014. The study adopted Vector Error Correction Model (VECM) and Fully Modified Ordinary Least Square (FMOLS) model. Khobai, Hamman, Mkhombo, Mhaka, Mavikela, and Phiri (2018) while studying the role FDI on growth in South Africa obtained similar results. The study employed quantile regressions for the period running from 1970 to 2016.

3. Methodology

3.1 Estimation Techniques

The study employed Fixed Effects panel data method. The method serves as robustness checks in controlling for heterogeneities among the countries of study. The technique is most suitable in the event of dependence among the cross sections. The method has also been adopted in various studies that used panel data (Mohsin et al., 2021).

3.2 Variables and Expectations

To achieve the study's objectives, three variables were used. These variables were economic performance GDP per capita (GDPPC) which was used as measure of countries of economic performance. The independent variable used in the study was FDI inflows denoted as FDI. The study also used Corruption Perception Index (CPI) as a moderating variable. The three variables were obtained from the World Development Indicators (WDI).

The study considered 46 countries of the SSA region. Two countries namely South Africa and Nigeria were excluded due to the fact that they have quite large GDP per capita when compared to their counterparts in the SSA region. The study also excluded Western Sahara and Reunion due to lack of consistently recorded data.

3.3 Model

The study included the interaction term between FDI and corruption. The interaction term is important in establishing the moderation role of corruption on the relationship between FDI and economic growth among SSA countries. The specified model is shown in the following equation.

$$\ln GDPPC = \alpha_0 + \alpha_1 FDI_{it} + \alpha_2 CPI_{it} + \alpha_3 \ln(FDI_{it} * CPI_{it}) + \delta_i + \varepsilon_{it}$$

Where, \ln shows the natural logarithm; δ represents fixed effects for every SSA member country considered in this study; α_0 , α_1 , α_2 and α_3 are parameters to be estimated and ε is the disturbance term. The disturbance term is assumed to be normally distributed. The natural logarithm was used to reduce large absolute values. This was aimed at ensuring the variables used in the analysis had magnitudes that were close to each other. The sign of the coefficient of interaction term, α_3 is used to evaluate whether corruption improves or distorts the role of FDI inflows on SSA economic performance.

4. Results

4.1 Pre-Estimation Results

Table 1 shows the descriptive statistics. Furthermore, it shows the correlation coefficients between target variables CPI and FDI.

Table 1. The summary of descriptive statistics

Summary Statistics						The Pairwise Correlation
Variables	Observations	Mean Values	Standard Deviation	The Minimum Values	The Maximum Values	FDI inflows
Per capita GDP	1 102	516.30	309.70	99.80	11646	-
FDI	1 079	700.20	1331.70	0.10	10029	1.0
CPI	864	2.5	0.970	1.50	6.50	0.38 ***

Note. * p<0.1, ** p<0.05, *** p<0.01.

The results showed that FDI rose from USD 0.10 million to 10028.20 million in SSA region for the period running from 1998 to 2021. The mean FDI during the study period was USD 700.21. The FDI had the highest standard deviation of USD 1331.67 million. This is an indication that the region has had a high variation in FDI inflows. These results conform to the literature showing that FDI has been increasing in the SSA region (Asafo-Agyei & Kodongo, 2022). The corruption perception index (CPI) runs from 1 to 10. The least score implied low level of corruption while the highest score of 10 implies high level of corruption. The average value of CPI in SSA region is 2.5 and the standard deviation is 0.970. The study also obtained the correlation coefficient between the explanatory variables. The coefficient of association ranges between -1 and 1. The closer the correlation coefficient is close to -1 or 1, the stronger the degree of correlation. The pairwise association between FDI and CPI is less than 0.5. This suggested absence of multicollinearity among the independent variables.

4.2 The Empirical Results

The empirical results are shown in Table 2.

Table 2. The moderating role of corruption on FDI inflows and economic growth linkage in SSA regression result

Dependent Variable : Natural log of GDP	
VARIABLES	Coefficients
Natural logarithm of FDI Inflows	0.00012** (0.0000634)
Corruption	-0.193 (0.388)
Interaction term between FDI and Corruption	-0.115** (0.040)
Constant	5.79*** (0.333)
Observations	863
Number of countries	36
Coefficient of Determination	0.37658
Probability of F	0.0532

Note. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

From the results in Table 2, it was revealed that the multiple regression model produced an Adjusted $R^2 =$

0.37658 indicating that corruption, the FDI inflows and the interaction term account for 37.65 percent of the variation in economic growth of Sub-Saharan Africa member countries. The probability of $F = 0.0532$ implied that all slope coefficients are statistically different from zero. In other words, corruption, FDI inflows and interaction term are jointly important in influencing economic growth among the SSA member countries.

5. Discussion

The results in Table 2 illustrate a positive relationship between FDI and economic performance. Specifically, the findings revealed that an increase in FDI by one percent leads to an increase per capita GDP by 0.00012 percent *ceteris paribus*. These results are in conformity to the endogenous growth theory stating that FDI accumulates the capital stock alongside domestic investment (Romer, 1993). In addition, FDI leads to human capital development, employment creation, and international trade integration. The FDI also create a competitive environment for enterprises (Kobrin, 2005; and OECD, 2002). However, the results depart from those by Dinh et al. (2019) and Khobai et al. (2018) that found a negative relationship between FDI and economic growth. The coefficient of the interaction term between FDI and corruption was negative and significant. This illustrated that corruption distorts the effectiveness of FDI in leading to economic growth in SSA region.

6. Conclusion, Recommendation and Policy Implications

The study results indicate that, corruption FDI and their interaction term are jointly important in affecting economic growth among SSA member countries. The study concludes that FDI and corruption are important determinants of economic growth in the SSA region. The results are in support of a positive relationship between FDI and economic growth. Therefore, the findings revealed that sustainable FDI can lead to better economic performance for countries in SSA region. The results of the interactive term between FDI and corruption showed that corruption reduces the effectiveness of FDI in boosting economic performance in the region. The study's results confirm that corruption impedes FDI from contributing positively to SSA member countries. For instance, corruption may increase cost of doing business in the region forcing foreign investors to consider other areas for investments.

Since corruption in SSA member countries is reducing the economic benefits of FDI, the study makes the following recommendation that the SSA region's governments needs to address corruption in order to boost FDI and eventually leading to economic growth. The countries are required to implement measures that emphasize on the improvement of institutions quality so as to reduce corruption thus providing favourable environment for fruitful investments. The government should also put in place sound economic policies that can encourage high GDP growth. In addition, policy makers need to put in place anti-corruption initiatives aimed at addressing poor governance. Such initiatives include putting in place anticorruption agencies that can enforce anticorruption policy thus deterring corruption. The government should also empower an independent media to report on corruption. The government should also implement curriculum that nurtures ethics and educate learners on the negative of corruption.

Authors' Contributions

Gideon Nyamweya Mokaya was responsible for the writing of the entire manuscript

Prof. Winnie Iminza Nyamute, Dr. Kennedy Okiro and Dr. Laura Nelima Barasa were responsible for advice in preparation of the manuscript as university Supervisors. The manuscript is part of PhD Thesis.

Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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