IMPACT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH: EVIDENCE FROM SUB-SAHARAN AFRICAN COUNTRIES

GABRIEL EROMOSELE AKHIDUE
Department of Economics, Anchor University, Lagos, Nigeria
gakhidue@aul.edu.ng
LUKMON OLADELE ODERINDE
Department of Economics, Anchor University, Lagos, Nigeria
loderinde@aul.edu.ng
MATHEW ONALO AGBAWN
Department of Economics, Anchor University, Lagos, Nigeria
magbawn@aul.edu.ng

Abstract

This research examined the impact of foreign direct investment on economic growth in Sub-Saharan Africa. This study is important due to the present situation being faced in most SSA countries. The research work used a dynamic panel data model in analyzing 20 SSA countries with data spanning from 2010 to 2021. The findings show that FDI is positively related with economic growth and is a critical driver of economic growth in Sub-Saharan Africa. The research work also discovered a direct relationship between export and economic growth, while an inverse relationship was discovered between inflation and economic growth. It is therefore imperative that effort is made towards attracting investment into the region. The research study recommended that the government enact policies that will help attract capital inflow and encourage exports. Trade restrictions that could limit FDI inflow should be kept at a minimum level. Inflation should also be minimized due to its adverse effects on the economy.

Keywords: Aggregate output Growth, FDI, Sub-Saharan Africa, Generalized Method of Moments, Panel Data

JEL classification: E13, F23, F43

1. INTRODUCTION

Foreign direct investment (FDI) refers to an investment made by a company/individual in another country (Merajothu, 2020). This can be done in several ways, FDI could involve establishing a new company in the foreign country, purchasing shares in a foreign company, or through a merger with a foreign company

(Le, 2021). Since the 19th century, there has been a rapid growth in international trade and investment across the world. The importance of FDI in the world today therefore cannot be overstated; it plays a prominent role in various developing nations of the world. For majority of economies, especially developing economies to experience growth and development, there must be a significant level of FDI.

Increased FDI leads to enhanced economic growth; this is because the investment by the foreign company will help introduce new capital and technology into the economy. Its importance is not limited to developing economies alone, as even some of the developed countries have equally had their economies boosted through FDI. It was revealed that USA was the highest recipient of foreign direct investment, increasing by over 506 billion dollars in 2021 (Damgaard & Sanchez-Munoz, 2022).

A look at most advanced nations reveals the significant impact that FDI has had on these nations in ensuring economic growth and development, in countries like Britain, USA, France, and other world powers. The high rate of economic growth and development being experienced in these countries alongside the increased FDI inflow can hardly be thought of as a coincidence. Empirical evidence revealed how these nations have developed with the aid of foreign direct investment (Adegboye & Okorie, 2023; Asafo-Agyei & Kodongo, 2022; Ayenew, 2022). Most of these nations have seen the importance of FDI to a country's economy. Hence, policies are set up in order that help attract foreign investment.

However, a look at SSA countries reveals a slightly different situation; FDI has not had the same impact in the continent when compared to others. The political instability and insecurity that exists in SSA is a major reason for the limited success as regards FDI inflow and its impact on the SSA economies. The region has been able to attract foreign investors from different parts of the world, who have made promises of more investment. Some of them include the proposed investment of about $150 million by General Electric on three refineries in Nigeria in 2017, the proposed investment of about $40 million by the Chinese government in Nigeria in 2017 as well. An agreement was also reached between China and Ghana worth $10 billion with the aim of developing its bauxite industry in June 2017 (Purwins, 2022).

It has been widely acknowledged that the economic freedom level in a nation determines FDI inflow as well as growth (Brkić et al., 2020). In general, various nations and companies have invested in SSA, due mainly to the abundance of natural resources and raw materials, the low labor costs, large labor market, among other factors. Sub-Saharan Africa is greatly blessed with several natural resources, and minerals, also, the cost of hiring labor in the region is generally low because of the ease of getting unskilled or semi-skilled workers who may not be able to push for high wages.

Despite these investments, there is still a high rate of poverty in most SSA countries. UNCTAD (2021) reported that over 478 million Africans lived in extreme poverty in 2019. Therefore, there must be a deliberate effort towards understanding the reasons for the high poverty level in SSA, the steps that have been taken in the

past, and steps that need to be taken towards remedying the situation. The questions that arise and which will guide this study includes:

i. What is the impact of FDI on economic growth in four countries of Sub-Saharan Africa?
ii. What are the factors that determine foreign direct investment in Sub-Saharan Africa?
iii. What are the factors limiting the inflows of FDI to Sub-Saharan Africa?

The broad objective of this study is to examine the impact of foreign direct investment on economic growth in some selected Sub-Saharan African countries. The specific objectives are to:

i. Assess the relationship between foreign direct investment and economic growth in four selected Sub-Saharan African countries.
ii. evaluate the factors that determine the level of foreign direct investment in Sub-Saharan Africa
iii. identify the factors hindering foreign direct investment in Sub-Saharan Africa

2. LITERATURE REVIEW

2.1. THEORETICAL REVIEW

2.1.1. HARROD-DOMAR THEORY

The Harrod–Domar model is a classical Keynesian model of economic growth. It is used in development economics to explain an economy's growth rate in terms of the level of saving and productivity of capital, the model stresses the importance of savings and investment as key determinants of growth. In other words, for an economy to experience growth, there must be a deliberate effort to increase the level of investment in form of domestic and foreign investment, also there must be a significant level of savings in the economy by the populace, as this in turn makes more funds available for potential investors.

It suggests that there is no natural reason for an economy to have balanced growth. The model was developed independently by Roy Forbes Harrod in 1939 (Blume & Sargent, 2015), and Evsey Domar in 1946 (Domar, 1946). The Harrod–Domar model was the precursor to the exogenous growth model (Hagemann, 2009).

The model implies that economic growth depends on policies to increase investment, by increasing saving, and using that investment more efficiently through technological advances. The model concludes that an economy does not "naturally" find full employment and stable growth rates.

2.1.2 SOLOW-SWAN MODEL

This is also known as the neo-classical growth model. Robert Solow (Solow, 1956) and Trevor Swan (Swan, 1956) propounded this theory. They developed what eventually became the main model used in growth economics in the 1950s. This

model assumes that there are diminishing returns to capital and labor. Capital accumulates through investment, but its level or stock continually decreases due to depreciation.

Lipsey & Chrystal (2015) posit that it is based on the following assumptions:

1. One composite commodity is produced
2. There are constant returns to scale.
3. The two factors of production, labor and capital, are paid according to their marginal physical productivities.
4. Prices and wages are flexible.
5. There is perpetual full employment of labor.

Due to the diminishing returns to capital, with increases in capital/worker and absent technological progress, economic output/worker eventually reaches a point where capital per worker and economic output/worker remains constant because annual investment in capital equals annual depreciation. This condition is called the 'steady state'.

In the Solow-Swan model, if productivity increases through technological progress, then output/worker increases even when the economy is in the steady state. If productivity increases at a constant rate, output/worker also increases at a related steady-state rate. Consequently, growth in the model can occur either by increasing the share of GDP invested or through technological progress. At whatever share of GDP invested, capital/worker eventually converges on the steady state, leaving the growth rate of output/worker determined only by the rate of technological progress.

2.1.3 ENDOGENOUS GROWTH THEORY

During the mid-1980s, due to a dissatisfaction with prevalent theories of growth, Paul Romer launched a new beginning of growth theory in 1986, where he tried to explain the growth process in a different manner (Romer, 1994). Paul Romer, along with some other economists omitted technological change; instead, growth in these models is due to indefinite investment in human capital, which had spillover effect on economy and reduces the diminishing return to capital accumulation (Barro & Martin, 2004).

The endogenous growth theory holds that economic growth is primarily the result of endogenous and not external forces (Romer, 1994). The main objective of the endogenous growth theory is to make the technological progress an endogenous variable that will be explained within the model, which gives rise to the name "endogenous growth theory". The model assumes that a large proportion of economic growth is due to a total independent process of technological progress in which the low capital-labor ratios will lead to high rates of investment. FDI represents capital inflow into an economy in the form of financial capital and helps in increasing human capital.

Thus, policies that promote FDI would bring about economic growth by making the host country more appealing to foreign investors. Foreign direct

investment has a positive impact on the economy as it supplements domestic investment, creates employment, and provides a high level of technological expertise.

2.2. EMPIRICAL REVIEW

Since the 1980s, foreign direct investment (FDI) inflow has grown significantly in most SSA countries (Adegboye & Okorie, 2023). This is because most SSA countries have made policies targeted at reducing the barriers to FDI and most of them offer varying tax incentives as well as subsidies in a bid to attract FDI. The importance of FDI in SSA has grown tremendously recently. Several studies have been done with a view to establishing the effect of FDI on economic growth.

Ugonna & Emmanuel (2022) analyzed the relationship between FDI and economic growth in Nigeria between 1990 and 2021. The study employed the Ordinary Least Square approach. He discovered a significant effect of FDI on economic growth.

Taylor (2020) investigated the effect of FDI in economic growth in Tanzania from 1988 – 2017. The study made use of the ARDL bound test for cointegration and ECM. The research work discovered a positive impact of FDI on economic growth and therefore recommended that the government should provide incentives that will help attract foreign direct investment.

Ijirshar & Andohol (2022) investigated the effect of investment on economic growth in West Africa, the scope was 1986 – 2018, using 14 countries. The study made use of the Pooled Mean Group (PMG) estimator, it discovered that the interactive impact of domestic investment and fragility slows down economic growth in Sub-Saharan African countries. It therefore recommended that Sub-Saharan African governments should make conscious efforts to improve growth by enhancing human capacities and improving transparency in the government.

Evans & Jing (2020) analyzed the flow of FDI to ECOWAS countries with a sample of 16 countries using the quantitative method. The study discovered a positive relationship and recommended that efforts should be made to increase the inflow of FDI. Similarly, Adedeji & Ahuru (2016) used the panel estimate approach for Sub-Saharan African nations in their study on foreign direct investment and economic growth in developing countries. The analysis supported the widely held beliefs that FDI, or foreign direct investment, promotes economic expansion. Using time series data from global development indices for ten chosen Sub-Saharan African (SSA) nations, for the period 2008 to 2013. Pooled OLS panel multiple regression analysis result showed that while FDI stimulates growth in SSA positively, it is not a significant predictor of growth performance in SSA. According to the report, SSA nations should work to employ suitable and accommodating policies in order to raise their proportion of global foreign direct investment.

All these point to the fact that FDI is generally believed to positively impact economic growth.

There are several factors that determine FDI. One of the major reasons a multinational corporation would want to invest in other nations is the need to minimize cost in its production activities. A country with low labor cost, transport cost, and in general low production cost is an attraction for foreign investors. The low cost of labor in Sub-Saharan Africa is a major reason for the level of foreign investment that comes into the region as it presents an opportunity for the foreign firms to produce with minimum costs.

A study by Saucedo et al. (2020) showed that low wage rate, as well as low employment level, helps attract FDI. He concluded that low wage rate, employment, and human capital are sources of competitive advantage. Adedoyin, *et al* (2020) discovered a negative impact of transportation costs on foreign direct investment, they revealed that policy efforts to reduce transportation barriers both within and across countries are even more important today.

Another major determinant is the market size in a country which is usually linked with the size of the population. Multinationals will rather invest in countries or regions where the size of the market is large, as this will ensure that they are able to make a higher profit at the end of the day. Moosa & Merza (2022) examined the impact of market size on FDI and discovered that the market size of a country serves as an attraction to foreign investors. Aderemi et al. (2022) in their panel data analysis similarly established that market size has a positive impact on FDI. This has been to the advantage of most Sub-Saharan African countries as most of them (for example, Nigeria) are highly populated.

The economic policies set up by the government in a country goes a long way in determining the level of FDI inflow into that country, the tax rate, as well as the interest rate are examples. When the interest rate is set at a low level, it serves as an impetus to bring in more FDI (Karahan & Bayir, 2022). Nations with economic policies that are not favorable to foreign investors will tend to bring in very few FDI.

All these point to the fact that FDI is generally believed to have a positive impact on economic growth. At the end of this research work, it will be discovered what the results will tell us as to the relationship between foreign direct investment and economic growth in Sub-Saharan Africa.

3. METHODOLOGY

3.1. THE MODEL

The study made use of the general aggregate production model. It is assumed that there is symmetry for all the industries, which means that the various industries use similar quantity of labor and capital. It is specified thus:

$$GDP_t = A_t K_t^{\alpha} L_t^{\beta} \quad (1)$$

Where:
GDP = Gross Domestic Product
A = Total Factor productivity

K = Capital
L = Labor
α = Capital's output elasticity (share of output attributed to capital)
β = Labor's output elasticity (share of output attributed to labor)

Total factor productivity which measures technological change or progress and human capital accumulation is endogenized. The following researchers Fosu & Magnus, 2006; Oderinde & Isola, 2011; Abendin & Duan, 2021 assume that the impact of foreign direct investment (FDI) possibly operates through the total factor productivity A_t. Therefore, we assume further that A_t is a function of FDI and other key macroeconomic variables like export (EXP), inflation (INF) among others and some exogenous factors C_t which remain constant Thus:

$$A_t = f(FDI_t, EXP_t, INF_t, C_t) = FDI_t^{\emptyset} EXP_t^{\delta} INF_t^{\gamma} C_t \quad (2)$$

Combining equations (1) and (2), we get

$$GDP_t = C_t K_t^{\alpha} L_t^{\beta} FDI_t^{\emptyset} EXP_t^{\delta} INF_t^{\gamma} \quad (3)$$

From equation (3), by imposing constant returns to scale, our empirical methodology of panel regression model in a natural logarithm transformation takes the form as given below in equation (4):

$$lnGDP_{it} = C_{it} + \alpha lnK_{it} + \beta lnL_{it} + \emptyset FDI_{it} + \delta EXP_{it} + \gamma INF_{it} + U_{it} \quad (4)$$

3.2. SOURCES OF DATA

This study uses panel data for the 20 selected Sub-Saharan African countries covering the period 2010 – 2021. The countries included are Benin, Comoros, Cote d'Ivoire, Eswatini, Ethiopia, Ghana, Kenya, Lesotho, Madagascar, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Senegal, Sierra Leone, Tanzania, Togo, Zimbabwe. The number of countries and the scope are chosen due to availability of data. The study makes use of secondary sources for getting the required information. The data is sourced from World Bank (2023).

3.3. ESTIMATION TECHNIQUE

The research work makes use of panel data modelling. This methodology is chosen due to the fact that when time series and cross-sectional observations are combined, panel data is able to give data that are more revealing and offers more efficiency. It also helps control for some variables that are very important but are excluded (Gujarati & Porter, 2013). Due to the possibility of endogeneity bias as well as simultaneity bias, the researcher chose to employ the Generalized Method of Moments (GMM). This estimation method is appropriate for this study due to the structure of the data used (20 countries over 12 years).

Table 1: *Variables description, measurement and expected signs*

Variables	Description	Measurement/Proxy	Expected sign of coefficient
GDP	Real gross domestic products	Million dollars	
K	capital	Total gross fixed capital formation	positive
L	labor	employment to population ratio as proxy for labor	positive
FDI	Foreign direct investment	Million dollars	positive
EXP	Export	Million dollars	positive
INF	Inflation	Gdp deflator	negative

Source: Authors' compilation

4. RESULTS AND DISCUSSION

4.1. PANEL UNIT ROOT TEST

The study starts by performing a panel unit root test. The Fisher-ADF test was conducted to find the level of all variables in order to check whether the variables are stationary or non-stationary. If all the variables are stationary at their level, they would enter the model in their level form.

THE DECISION RULE – If the absolute calculated t-values of the variables exceed the critical t-values, then such variables are stationary, while they are not stationary if the absolute calculated t-values do not exceed the critical t-value. The result is reported below.

Table 2: *ADF-Fisher Panel Unit Root Test at Levels*

Variable	ADF Fisher Chi-square statistics	P-value	Conclusion
FDI	82.6131	0.0001	Stationary
GDP	35.3315	0.6803	Non-stationary
L	50.1745	0.1300	Non-stationary
K	46.6345	0.2183	Non-stationary
EXP	60.0481	0.0217	Stationary
INF	104.280	0.0000	Stationary

Source: Authors' computation

The result shows that all the variables are non-stationary at levels apart from foreign direct investment, export and inflation; therefore, we cannot reject the null hypothesis of unit roots for the variables at levels. As already established in the previous section, estimating non-stationary variables against each other will lead to

a spurious result; therefore, it is necessary to take the first difference of the variables, to check if stationarity for all the variables will be obtained.

Table 3: *ADF Panel Unit Root Test at First Difference*

Variable	ADF Fisher Chi-square statistics	P-value	Conclusion
FDI	185.765	0.0000	Stationary
GDP	105.941	0.0000	Stationary
L	104.458	0.0000	Stationary
K	150.871	0.0000	Stationary
EXP	170.737	0.0000	Stationary
INF	175.624	0.0000	Stationary

Source: Authors' computation

As can be seen from table 3, stationarity for all the variables was attained after taking the first difference of the variables. This implies that all the series are integrated of order one, i.e. I(1).

The annual data for the selected countries includes the following variables: Gross domestic product (GDP), Gross Fixed capital formation the proxy for capital(K), employment to population ratio as proxy for labor (L), inflation (INF), foreign direct investment (FDI), and export (EXP) for the period under review (2010 – 2021). The result is presented below:

Table 4: *GMM Regression Result (Dependent Variable – LnGDP)*

Variable	**Coefficient**	**Standard Error**	**t-value**	**Probability**
LnGDP (-1)	0.865260	0.007191	120.3242	0.0000
LnFDI	0.007565	0.002852	2.652201	0.0088
LnEXP	0.065750	0.006241	10.53462	0.0000
Ln L	0.271051	0.028614	9.472826	0.0000
Ln K	0.013265	0.007926	1.673588	0.0962
LnINF	-0.003367	0.000521	-6.461631	0.0000
Sargan test (p-value)		0.454366		
Arellano-Bond test for AR(1) p-value		0.0940		
Arellano-Bond test for AR(2) p-value		0.1746		

Source: Authors' computation

The coefficient of lagged GDP is 0.8653 which means that a 1% increase in the lagged GDP will cause GDP to increase by 0.87% and is also significant at the 5% level of significance based on the p-value of 0.00.

The coefficient of FDI is 0.0076 which means that a 1% increase in the FDI will cause GDP to increase by 0.008% and is statistically significant at the 5% level of significance based on the p-value of 0.008. This relationship aligns with the discovery of Opeyemi (2020) who discovered a direct relationship between FDI and GDP in African countries.

The coefficient of export is 0.0658 which means that a 1% increase in the export will cause GDP to increase by 0.066% and is significant at the 5% level of significance based on the p-value of 0.00. This result is supported by the work of Abdulkadhim & Saeed (2017) who had a similar finding that export is positively related to economic growth

The coefficient of the proxy for labor is 0.2711 which means that a 1% increase in the L will lead GDP to rise by 0.271% and is significant at the 5% level of significance based on the p-value of 0.00. Hjazeen *et al*. (2021) in their work also discovered that employment has a direct impact on economic growth.

The coefficient of INF is -0.0034 which means that a 1% increase in the INF will cause GDP to fall by 0.003% and is significant at the 5% level of significance based on the p-value of 0.00. The findings by Idris & Bakar (2017) support the result in this study as to the negative relationship between inflation and economic growth.

The Sargan test p. value is 0.454366 which is above 0.25 which shows that the instruments used in this study are valid. First, the researcher used the Arellano-Bond test for zero autocorrelation in first–differenced errors which is done to determine the validity of the moment's conditions. The first-order serial correlation as well as the second-order test did not reject the null hypothesis. This means therefore that the moment condition is valid.

5. CONCLUSION

The research findings revealed that GDP in the previous year can have a direct impact on GDP in the current period as the money generated in the previous year can be used as a building block for the current year, leading to even higher GDP.

FDI has a positive impact on economic growth in Sub-Saharan Africa. Thus, it is pertinent for the government in Sub-Saharan African countries to make laws which will serve as an attraction for more capital inflow through foreign direct investment. The government of these nations should ensure the liberalization of trade in the region, they must equally ensure that trade openness is improved upon. Trade restrictions that could limit FDI inflow should be kept at a minimal level. The business environment must be made conducive for foreign investors; effort must also be made to ensure infrastructural development. The widespread violence in different countries in the region (e.g., Nigeria) should be put under control.

Export from the regression result is seen to have a positive effect on economic growth which conforms to a priori expectation. It is very important for the government in these countries to ensure that the local industries are encouraged in their bid to export goods. This can be done through granting of subsidies, tax rebates

and holidays, reduction in interest rates, and the provision of adequate investment infrastructure. This will provide local industries with more funds to produce and therefore export their products. There must also be deliberate effort towards the diversification of the economy. Most Sub-Saharan African countries depend largely on the export of one or two primary commodities in order to earn foreign exchange. Diversification of the economy will enable them to reduce the impact of trade shocks.

Employment ratio to population is a measure that shows the number of persons who are employed against the total working-age population which shows the efficiency of an economy in providing jobs for its populace. This is a major issue in Sub-Saharan Africa where the rate of unemployment is very high in most Sub-Saharan African countries. As is seen in the result and as expected, the employment to population ratio is positively related with economic growth which means that it is of benefit to African nations to make more efforts to ensure that jobs are sufficiently provided so as to help to boost growth in the region.

Gross fixed capital formation is seen to have a positive effect on economic growth which is line with apriori expectation. This is as expected, and it is recommended that the government in Sub-Saharan African countries put measures in place to ensure that there is conducive environment for businesses to thrive. Local industries must be encouraged and supported, when necessary, through soft loans and subsidies, especially to start-up firms. The tax rate should be at a minimal level, the interest rate payable from loans should also be kept at a minimal level. These measures will help improve the investment climate in the sub-region.

Inflation is seen to have a negative impact on economic growth as revealed by the result. Firstly, a high inflation rate will cause purchasing power of the consumers to reduce which can slow down economic growth and also reduce consumer spending. A situation where the inflation rate is very high can cause investment to fall and consumption as businesses and individuals now find it difficult to properly plan for the future. It is therefore recommended that the government in these countries make specific efforts to curb the inflation rate in the country.

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