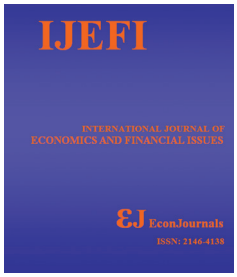

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The Impact of Fiscal Policy on Foreign Capital Inflows in Selected Sub-Saharan African Countries

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ABSTRACT

Foreign capital inflows (FCI) are essential for economic growth in developing countries. This study analyzes the impact of fiscal policy on FCI in 31 Sub-Saharan African (SSA) countries using panel data from 1985 to 2019 and the System GMM dynamic modeling approach. The findings show that when foreign direct investment (FDI) is considered an endogenous variable, the real interest rate (RIR), government expenditure (GE), tax rate (TA), and GDP growth rate positively affect FDI, while the real exchange rate (RER) and inflation (INF) negatively correlate with it. There is also a positive relationship between lagged FDI and current FDI. For foreign portfolio investment (FPI), government expenditure and RER significantly influence FPI positively, while the tax rate has a negative effect. Although the RIR, inflation rate, GDP growth rate, and lagged FPI correlate positively with FPI, these relationships are statistically insignificant. The study emphasizes the need for coordinated fiscal policies in SSA to attract more FCI for growth. It recommends reassessing tax systems for greater competitiveness, establishing bilateral tax treaties to reduce international double taxation, and improving expenditure on capital projects to support foreign investment.

Keywords: Foreign Capital Inflows; Fiscal Policy; System GMM; Sub-Saharan African countries
JEL Classifications: F2, H2, H3, H5

1. INTRODUCTION

In the context of globalization and economic integration, foreign capital inflows (FCI) have proven to be instrumental in promoting economic development, particularly in developing nations (Rao et al., 2020; Sahoo and Sethi, 2017; Kapingura, 2018; Lee et al., 2024). These inflows supply vital capital to productive sectors, thereby facilitating economic growth in regions characterized by capital scarcity. Foreign capital manifests in various forms, prominently including foreign direct investment (FDI), foreign portfolio investment (FPI), equity and debt flows (EDF), foreign aid (FA), and remittances (REM) (Sikandar et al., 2021; Todaro and Smith, 2012). This study specifically examines FDI and FPI, as extensive research has established their significant contributions to enhancing output and stimulating economic growth (Agbloyor, et al., 2014; Bilal et al., 2015; Nyauncho, et al., 2015; Onyinye, et al., 2018; Cantah, et al., 2018).

Government policies are often inconsistent and tend to serve a political agenda rather than promote investment and economic development (Akinmulegun, 2012). This inconsistency can result in financial or capital flight and overall inefficiency in the economy. In light of these challenges, scholars such as Adusah-Poku (2016) and Chorn and Siek (2017) have tried to explore alternative sources of capital beyond the domestic economy. They emphasize the importance of liberalizing financial systems to attract capital inflows to Sub-Saharan African countries (SSA). While there are various forms of capital flows, the extent to which the fiscal policy influences them remains unclear. This is because the level of foreign capital inflows especially in the SSA countries is still low (Calderon et al., 2019). For example, between 2000 and

2017, on average, FDI as a share of GDP was only 3.95%, while FPI recorded only 1.69% within the same period (Calderon et al., 2019). Even as a global share, the foreign capital inflow has been minimal and declining; for example, between 2000 and 2014, FPI and FDI inflows in SSA were only 1% and 2% of the global FPI and FDI flows, respectively (Chuhan-Pole et al., 2018).

This study is related to the literature on the relevance of macroeconomic stability as a driver of foreign capital inflows in SSA countries. However, it is essential to clarify that the study is not checking the success of economic policy in stabilizing the economy but whether fiscal policy is a driver of foreign investment inflows. In relating foreign capital inflows with some macroeconomic policies, several studies exist at a country-specific level but studies pooling sub-Saharan countries together are seldom in literature. The implication of conducting a country-specific study over a panel study on the concept of foreign capital inflows is that interaction among member countries is lost. Panel data contains more variability, information, and efficiency than pure cross-sectional or time series data. However, some reasons why researchers avoid panel studies on the concepts relating to foreign capital inflows and their determinants could not be unconnected with the difficulties encountered during panel-wide studies. Taking panel studies on the SSA region helps to discover gaps in the literature that could have been lost during country-specific studies. Few studies are concerned with the influence of macroeconomic factors on foreign capital's inward flows. Maryam and Mittal (2020), taking into account the case of BRICs countries over the period 1994-2018, as well as Singh and Jun (1995), based on a sample of thirty-one EMDE countries covering 1970-1993, found evidence that macroeconomic factors are significant for determining FDI inflows. Particularly regarding the effect of macroeconomic uncertainty on FDI in EMDE economies, the empirical evidence shows it is responsible for a bad climate that hampers FDI (Asamoah et al., 2016; Kinda, 2010).

Besides, the extent of fiscal policy has still not gained much attention in terms of its impact on FDI in Sub-Saharan African countries, there are few studies on the relationship between fiscal policy and FDI. Thus, most studies have focused on the effects of fiscal policy on economic growth (Kofi Ocran, 2011; Makhoba et al., 2019; Burger and Calitz, 2020). Further, the previous studies focused on FDI as a proxy for capital flows. They ignored other forms of capital flows such as foreign portfolio investment, which is included in the current study. Against this background, this study therefore seeks to explore the impact of fiscal policy in influencing foreign capital inflows in selected SSA countries.

2. LITERATURE REVIEW

2.1. Theoretical Background

Two theoretical models, neoclassical and new Keynesian theories, were established to explain fiscal policy's effects.

Keynesians believe that increasing government expenditure and reducing tax rates effectively stimulate aggregate demand. During periods of economic slowdown, Keynesians advocate for using this strategy to establish a foundation for long-term economic growth and full employment. The New Deal's Premise was based on the idea that future deficits would be offset by an expanded economy during the preceding boom (Giavazzi and Pagano, 1990). Additionally, the Keynesian theory advocates for deliberate government fiscal policy interventions to achieve economic stability. The use of fiscal policy stabilization tools, such as government spending and taxation, is considered the primary macroeconomic tool, as opposed to monetary policy (Nkamare et al., 2016). The objective of Keynesian theorists is to increase spending in an economy and stimulate employment, income, and output aggregate spending. According to the Keynesian model, there exists a positive correlation between deficit spending and investment. As per the Keynesian theory, the implication is that the government can utilize its fiscal policy to manage economic instability (Ibi et al., 2016).

According to the neoclassical growth hypothesis, fiscal policy can only affect growth temporarily, and in the long run, the economy develops at the exogenously determined rate of technological advancement, which should be almost equal in all countries (Solow, 1956). This is noteworthy because, when comparing countries with nearly similar long-term growth rates, the long-term effects of fiscal policy are less significant (Gwartney et al., 1998).

2.2. Empirical Literature

Numerous empirical studies have scrutinized fiscal policy's impact on FCI expansion. A thorough literature analysis unveiled a spectrum of empirical evidence encompassing substantial and insignificant effects.

2.2.1. Empirical review of the relationship between fiscal policy and FCI

Ogege and Boloupremo (2020) investigated the impact of government fiscal policies on FDI in Nigeria during two distinct periods: Pre-military administration (1981-1999) and post-military administration (2000-2018). The study utilized the Augmented Dickey-Fuller test, Ordinary Least Square technique, and correlation analysis. The study's findings indicate a strong and consistent correlation between government expenditure and FDI during military and post-military periods. On the other hand, government domestic debt shows a negative and insignificant connection to FDI during both periods. Additionally, the findings suggest a positive but insignificant relationship between government tax revenue and FDI for both the military and post-military periods. Agbaeze et al. (2017) conducted a regression analysis to examine the impact of fiscal policy instability on FDI in Nigeria from 2000 to 2014. The analysis incorporated gross domestic product, FDI, government revenue, government spending, balance of payments, and total government debt. The study's findings indicate that the fiscal policy initiatives of the federal government have had a limited impact on FDI. Khalid and Selamat (2018) studied the link between FDI and fiscal and monetary policies in Malaysia. They analyzed data from 1977 to 2016 using a vector error correction model (VECM) to examine whether there was a causal relationship between the variables. The results showed a long-term relationship between FDI, fiscal, and monetary policies. Additionally, the study revealed a one-way

causal link between the variables. Bhasin (2014) examined the influence of fiscal policy on FDI inflows into India and several other Asian countries. The study employed a panel equation technique using the Least Squared Dummy Variables (fixed effects model). The findings indicated that fiscal policy variables seem to be insignificant. This suggests that while fiscal policy may support business activities, it is not the main factor influencing investment decisions.

Pamba (2022) examined the symmetric effects of FDI inflows into South Africa using the linear autoregressive distributed lag (ARDL) bound testing method from 1980 to 2020. The linear ARDL results confirm that tax revenue and government expenditure have positive links with FDI. Rădulescu and Druica (2014) conducted a study using linear regression to analyze how fiscal policy affected the attraction of FDI in Romania from 2000 to 2010. The study found that fiscal factors, particularly direct taxes, had a relatively minor immediate impact, but were more significant in the long term. The researchers suggested that Romania should prioritize improving non-financial factors such as infrastructure, legal and political stability, as these have a substantial influence on the investment environment. Only after addressing these non-financial determinants can fiscal stimulus play an important role in attracting FDI. Magdalena and Elena (2018) analyzed time series data from 2000 to 2010 to study how fiscal and monetary policies impacted FDI attraction in Romania. They investigated macroeconomic policies in the context of a crisis, considering that FDI inflows helped with economic recovery and growth. The empirical analysis findings showed that monetary factors like inflation and interest rates attract FDI inflows, while fiscal factors, especially direct taxes, seem to have less immediate impact but play a significant role in the long term. To investigate the relationship between government fiscal policies and FDI. Norashida et al. (2019) conducted a study in seven countries, which included Indonesia, Malaysia, Thailand, Singapore, the Philippines, China, and India. The study aimed to determine the impact of government expenditures on FDI inflows into the host economy. They collected panel data from the study countries between 1982 and 2016. The researchers used Pooled Mean Group analysis to examine the relationship between government spending and FDI inflows, while also considering control variables such as capital, market size, infrastructure, and macroeconomic stability. The findings of the study revealed that government spending contributes to FDI inflows in the long run.

2.2.2. Empirical review of the relationship between Tax and FDI

The study by Seils and Adeniyid (2023) investigated the relationship between FDI and corporate tax rates relative to other determinants within the European Union compared to Ireland. A panel regression analysis was employed. The result showed that there is a positive correlation between corporate tax rate, labor force, and FDI inflow in Ireland. Amadou et al. (2020) conducted an empirical investigation into the effects of adjustments in Corporate Income Tax (CIT) rates on FDI net inflows in Africa. They used a dynamic spatial Durbin model with fixed effects. The findings suggest that reductions in CIT rates lead to an increase in FDI net inflows in the host country as well as in neighboring countries, both in the short and long term. Jeza et al. (2016) conducted a study on the link between FDI inflows and tax revenues in Ethiopia. The research examined both overall and specific tax income levels, including personal tax, company tax, trade tax, and business profit tax. The study utilized an Auto-Regressive Distributed Lag model and an error correction model to analyze data from 1974 to 2014, with a structural break in 1989. The results indicate that FDI negatively affects overall tax collection in both the short and long term. The impact of FDI on specific tax revenue components showed mixed results. Covering the period from 1995 to 2014, Bayar and Ozturk (2018) conducted a study on the relationship between FDI inflows, economic growth, and total tax revenues in 33 OECD countries. Using the panel cointegration test of Westerlund-Durbin-Hausmann (2008) and the panel causality test of Dumitrescu and Hurlin (2012), the researchers found a connection between FDI, economic growth, and total tax revenues. They also identified a one-way causal relationship between FDI inflows and total tax revenues.

2.2.3. Empirical review of the relationship between government expenditure and FCI

When examining the relationship between different factors, economists use statistical methods such as the unit root test, co-integration test, and error correcting mechanism (ECM). In a study by Azolibe et al. (2020), they analyzed the Nigerian government's infrastructure spending and investment efforts from 1994 to 2018. The results of the co-integration test showed that the variables in the models had long-term relationships. The study found that government spending on road, transportation, defense, and health infrastructure positively related to domestic investment and FDI, according to the short-run coefficients of the error correction estimates. In a study conducted by Othman et al. (2018), the impact of host country government expenditures on FDI inflows was examined using Pesaran et al.'s (2001) Pooled Means Group (PMG) analysis. The research spanned from 1982 to 2014, and panel data from 24 developing countries was utilized. The empirical findings indicated that in the long run, government spending effectively increases FDI inflows. Additionally, the findings suggested that market size plays a significant role in FDI inflows. Othman et al. (2018) conducted a study using panel data from seven countries spanning the years 1982-2016. The research investigated the influence of government expenditure on FDI inflows in the host country. The countries examined were Malaysia, Indonesia, Singapore, Thailand, the Philippines (ASEAN-5), India and China. The study employed the Pooled Mean Group (PMG) method developed by Pesaran et al. (2001), with market size, capital, macroeconomic stability, and infrastructure as control variables. The results of the analysis indicate that government expenditure has a significant long-term impact on FDI inflows. In their 2016 study, Shah and Iqbal conducted an analysis using annual time series data from 1972 to 2013 to explore the relationship between government spending and FDI in Pakistan. They utilized several tests including the Phillips Perron test, cointegration test, Granger causality test, and ordinary least square approach. The study focused on government health spending, development spending, defense spending, and education spending as independent variables, with FDI as the dependent variable. The findings revealed a significant positive

long-run relationship between government spending on health, education, and development and FDI. Conversely, the study found that defense spending had a detrimental effect on FDI.

3. DATA AND METHODS

The empirical analysis is based on 30 years (1990-2019) from 31 selected sub-Saharan African countries. We select this span due to two reasons. First, due to data unavailability. Second, we limit the span to 2019 due to the exclusion of the COVID-19 spread effect. Due to the COVID effect, the countries may face volatility in an inflow of foreign investment and thus the inclusion of 2020 can create biased analysis and policies as well. Similarly, the motivation behind selecting sub-Saharan African countries is that these economies have almost similar socioeconomic features to some extent. The data on macroeconomic variables including FDI, FPI, Tax revenue, government expenditure, and other control variables were sourced from the Central Banks of specific countries, the World Bank's WDI, The IMF's International Financial Statistics (IFS) database, the balance of payments yearbook, the relevant large public datasets of UNDP, the OECD database and UNCTAD. All data were expressed in percentages or indices.

3.1. Variables of the Study

In the current empirical analysis, the foreign direct investment (FDI) inflow and foreign portfolio investment (FPI) are included as dependent variables, depending upon the fiscal policy, and a list of control variables including Inflation rate (INF), Real exchange rate (REXC) and GDP growth rate.

3.1.1. Foreign direct investment (FDI)

FDI is a form of business ownership or investment in one country by an entity based in another country. According to Todaro and Smith (2012), FDI is a form of foreign capital aiming to accelerate economic development. FDI inflows (% of GDP) will be used in this study (Tsaurai and Odhiambo, 2012). This is because FDI inflows (% of GDP) capture relatively significant and recent changes in the behavior of FDI (Globerman and Shapiro, 2002). Moreover, the measure seems to be more appropriate for assessing the kinds of features of an economy that attract investors.

3.1.2. Foreign portfolio investment (FPI)

Foreign portfolio investment (FPI) is another form of foreign capital inflow aimed at accelerating economic growth. It deals with investment in categorising assets such as bonds, stock, and cash equivalents (Otiwu, 2018). Generally, foreign portfolio investment (FPI) can be described as investment activities at international dimensions through various passive ownership of securities or assets such as foreign stocks, bonds, and other financial assets, with the investor having no active management participatory role or control of the securities issued, but which aims at maximising benefit and minimising risk. FPI inflow (% of GDP) was used in this study because it contains all the value of inward investment indirectly owned by non-resident investors in the reporting economy. Furthermore, this indicator has been used by several previous studies (Bilal et al., 2015; Nguyen and Lee, 2021).

The study uses tax revenue (TAX) and government expenditure (GEX) measures to see whether the fiscal policy is prudent in the countries.

3.1.2.1. Tax revenue (TAX)

Taxation is without hesitation one of the most effective tools of fiscal policy for governments in terms of revenue generation. Taxation is, without question, the most important factor in determining a government's income collection.

3.1.2.2. Government expenditure (GEX)

Government spending is the most effective component in fiscal policy. Government spending refers to money spent by the government on purchasing goods and providing services like education, healthcare, social security, and defense.

A list of control variables included in this study are the Inflation rate (INF), real exchange rate (RER), real interest rate (RIR), and Gross domestic product growth rate (GDPGrowth). The inclusion of the inflation rate is in line with Sahoo (2017) and it is in order to be able to determine the trade relationship and how prices attract capital flows and determine the level of investment in the economy. This measure is commonly used in the literature (Okonkwo et al., 2015) and is further included to capture the possible effects of macroeconomic instability in SSA countries. The impact of the inflation rate on foreign capital inflows is expected to be positive, negative, or insignificant. While the exchange rate is the price of each country's currency expressed in another country's currency, the real exchange rate (RER) between two nations' currencies is the product of the nominal exchange rate and the ratio of prices between the two nations. For instance, the dollar cost of a Rand (Ibrahim and Amin, 2005). The impact of the real exchange rate on foreign capital inflows is expected to be positive, negative, or insignificant. The gross domestic product growth rate (GDPGrowth) was adopted to examine how the growth of the economy attracts FCI. In this study, the role that GDP growth plays in stimulating capital inflows is further elaborated in line with Ehigiamusoe and Lean (2019). Furthermore, the GDP growth rate is included to assess the validity of the view that stabilizing output and inflation can attract FDI and FPI (Sahoo, 2017). The GDP growth rate is expected to have a positive effect on foreign capital inflows.

3.2. Estimation Techniques: System GMM

System GMM has been considered the most appropriate method of estimation because it accounts for the dynamics of the study's model and the model's endogeneity problem control. To enhance the estimators' performance in any panel data, the dynamic panel model is an appropriate technique to be adopted (Oyedokun et al., 2009). The system GMM is the best approach suitable for this estimation (Arellano and Bond, 1991). The feedback from past or current shocks relative to the current value of the dependent variable is enhanced when a fixed effects model with static specification interacts with autoregressive coefficients along with the lagged value of the dependent variable (Oyedokun et al., 2009). The system GMM is the specification for such a specification. A spurious regression is prevented by the dynamic specification from being run as the temporal autocorrelation in the residuals is

eliminated. Thus, the following is the system GMM model that has been found suitable to describe the impact of fiscal policy on FCI in SSA countries:

$$\delta_{it} = \partial_{it} + \alpha\delta_{it-1} - \partial_2 TAX_{2it} - \partial_3 GEX_{3it} - \partial_4 RIR_{4it} - \partial_5 INF_{5it} - \partial_6 RER_{6it} - \beta_{it} - \partial_7 \Delta GDPGrowth_{7it} \quad (1)$$

Equation (2) is a result of the modification of equation (1) in a dynamic panel data form with the inclusion of the lagged value of the dependent variable

Subsequently, equation (2) is obtained by taking the first difference of equation (1) as follows:

$$\Delta\delta_{it} = \partial_1 + \alpha\Delta\delta_{it-1} - \partial_2 \Delta TAX_{2it} - \partial_3 \Delta GEX_{3it} - \partial_4 \Delta RIR_{4it} - \partial_5 \Delta INF_{5it} - \partial_6 \Delta RER_{6it} - \partial_7 \Delta GDPGrowth_{7it} - \pi_{it} \quad (2)$$

By avoiding a possible correlation between δ_{it-1} and π_{it}, Z' has been introduced as an instrumental variable. Therefore, through the matrix transposition of the explanatory variable, the model that will correlate with both will be obtained.

The multiplication of the vector form of equation (2) by Z' leads to equation (3) below

$$Z\Delta y_{it} Z'\Delta\delta_{it} = \partial_1 + Z'(\Delta\delta_{it-1})\alpha - Z'(x_{it})\partial - Z'\Delta\pi_{it} \quad (3)$$

Regressing equation (3) produces one-step consistent GMM estimators by adopting the generalized least square (GLS).

Though, as advanced by Blundell et al. (2001) further input on the methods adopted by Arellano and Bond (1991) has been developed over time. The new method is otherwise known as system-GMM. The difference between the new method and the initial GMM is that SYS-GMM is more cautious in adopting the instrumental variables. The approach was built to handle the possible problem of weak instrumental variables that might probably emerge in GMM. Consequently, SYS-GMM could produce more efficient and consistent parameter estimates, particularly when larger time periods are involved in the model. Consequently, this informed the preference for the SYS-GMM estimator in this study.

Where Y_{it} is the vector of endogenous variables capturing FCI; ∂_1 is the vector of the constant term; i denotes the SSA countries; Δ represents the first difference operator. As earlier stated, the endogenous variables are the FDI and FPI for country i at time t, while the explanatory factors are TAX, GEX, RIR, INF, RER, and GDPgrowth. Based on *a* priori expectation, a positive association is anticipated between FCI and GEX, RIR, RER, INF, and GDPgrowth while a negative link is expected between FCI and TAX.

4. EMPIRICAL ANALYSIS

Table 1 offers a summary of statistics for all the study variables. The observed mean in relation to standard deviation values for all variables consistently collapsed within the minimum rather than the maximum range. The relatively low values exhibited by the standard deviations in all parts of the series indicate that data were clustered around the means and that only negligible amounts of the actual data were obtainable from the mean values in the series. Of importance are the FDI and FPI, the dependent variables in the model. The study found that their maximum values were 47.73754 and 104.2995, whereas the minimum values were as low as 0.0003019 and 0.0001425 with means of 3.057696 and 1.579035 closer to the maximum than the minimum. The standard deviation confirms the assertion, as it is closer to the mean. This result contradicts prior expectations that FDI and FPI are low in the SSA region. Whereas the values, in general, are relatively closer to the maximum, it demonstrates that FDI and FPI could likely impact growth in the region, provided the appropriate policy implementation.

Table 2 reports the result from the series FDI, INF, GEX, RIR, RER, FPI, GDP growth and TAX. From the result, it is clear that there is no problem of multi-collinearity in the model. All variables adopted show a positive correlation with FDI, with the highest value having <0.4. This shows the absence of multicollinearity among the variables.

4.1. Dynamic Panel Data Analysis

This section analyses the dynamic panel model of system GMM for the impact of RIR, INF, RER, TAX, GDP growth, and GEX on FDI and FPI. The findings in Table 3 indicate that GEX, TAX real interest rate, real exchange rate, inflation, and GDP are statistically significant. Further information in system GMM is the positive and non-significant association flowing from the lag of FDI to its dependent variable, revealing no consistent association in the endogenous variable from the past period to the current.

Table 1: Descriptive statistics

Variables	Observation	Mean	Standard deviation	Minimum	Maximum
INF	1054	24.98253	176.4266	0.0178712	4800.532
GEX	1054	56.05148	7.691133	37.083	74.51463
RIR	1054	45.2185	28.54896	3.42084	115.9565
RER	1054	34.27316	27.22613	0.49829	117.8827
FPI	1054	1.579035	6.208197	0.0001425	104.2995
GDPgrowth rate	1054	3.761919	4.692731	−28.09998	26.41732
FDI	1054	3.057696	4.656444	0.0003019	47.73754
TAX	1054	2.076712	1.705319	0.1536552	12.82599

INF: Inflation rate, RIR: Real interest rate, RER: Real exchange rate, FPI: Foreign portfolio investment, GDP growth: GDP growth rate, FDI: Foreign direct investment, TAX: Tax revenue, GEX: Government expenditure
Source: Own calculation

Table 2: Correlation analysis

Variables	FDI	INF	LEX	RIR	RER	FPI	HCI	GDPgrowth	Foodsec
FDI	1.0000								
INF	0.0383	1.0000							
GEX	0.2418*	−0.1195*	1.0000						
RIR	0.1610*	−0.0219	0.4053*	1.0000					
RER	0.1759*	−0.1016*	0.6102*	0.7320*	1.0000				
FPI	0.0196	−0.0044	0.0349	0.0612*	0.0806	1.0000			
GDPgrowth	0.0760*	0.0304	0.1180*	−0.0728*	0.0007	0.0048	−0.0007	1.0000	
TAX	0.2524*	0.0344	0.2058*	0.2615*	0.2900*	0.0096	0.2900*	0.0260	1.0000

Source: Author's calculation

Table 3: Dynamic panel-data estimation, one-step system GMM on foreign direct investment and the series

Number of obs=967			
No of instruments=13		No of groups=31	
Wald χ^2	11888.84	Obs per group:	Min=17
Prob > χ^2	0.000	Avg	31.19
Time variable	Year	Max	33

Variables	Coeff	SE	Z-statistics	P
L. FDI	0.0254249	0.0625488	−0.41	0.684
RIR	0.0293317	0.0148465	1.98	0.048
GEX	1.0558898	0.0468604	1.19	0.0233
RER	−2.04e-12	3.26e-13	−6.26	0.000
INF	−0.0186	0.0008886	−20.93	0.000
GDPgrowth	0.4687613	0.1032974	4.54	0.000
TAX	1.161974	0.3022071	3.84	0.000
Cons	−4.636113	2.669919	−1.74	0.082

Source: Author's own calculation. SE: Standard error, INF: Inflation rate, RIR: Real interest rate, RER: Real exchange rate, FPI: FOREIGN portfolio investment, GDPgrowth: GDP Growth rate, FDI: Foreign direct investment, TAX: Tax revenue, GEX: Government expenditure Source: Own calculation

Table 4: Hansen test of over-identifying restrictions

H_0: Over-identifying restrictions are valid	
Restrictions	**Values**
χ^2 (5)	13.68
P >χ^2	0.018

Source: Author's calculation

Table 5: Result of serial correlation

Method	Z-statistics result	P
Arellano-bond test for AR (1)	z=−5.23	Pr>z = 0.029
Arellano-bond test for AR (2)	z=0.95	Pr>z = 0.982

Source: Author's calculation

Table 6: Dynamic panel-data estimation, one-step system GMM on foreign portfolio investment and the series

Number of obs=681			
No of instruments=13		No of groups=31	
Wald χ^2 (6)	1828.67	Obs per group:	Min=4
P > χ^2	0.000	Avg	21.97
Time variable:	Year	Max	33

Variables	Coeff	SE	Z-statistics	P
L. FPI	0.6415767	0.0400726	16.01	0.000
RIR	0.07552	0.0552077	1.37	0.171
REX	0.0083768	0.0262971	−0.32	0.075
TAX	−0.0453943	0.0428638	−1.06	0.012
INF	0.039762	0.0376932	1.05	0.291
GDPgrowth	0.0885935	0.062944	1.41	0.159
GEX	0.1899588	0.1116798	−1.70	0.089
Cons	−1.632894	1.883195	−0.87	0.386

Source: Author's calculation. SE: Standard deviation

The findings in Table 4 show that the null hypothesis could be refuted; thus, restrictions on over-identification are invalid. Implicatively, the adopted number of instruments in the SYSGMM analysis model does not impact the SYSGMM estimators negatively. A better performance model is expected as the P-value is close to one. Therefore, the findings are adequate to make no restriction on over-identification. Moreover, the number of instruments is less than that of the countries (group). Based on information from the model diagnostics in Table 5, the Arellano-Bond SYSGMM estimator yields the most preferred estimates at AR(2). At the first level of AR(1) estimation, a degree of serial correlation could be expected; however, at the AR(2) estimate level, it should be corrected. Thus, a significance level may be expected at AR(1), which must be at AR(2). Lastly, the overall P-value is significant.

4.1.1. The dynamic results on foreign portfolio investment (FPI)

Table 6 provides the summary results of the dynamic system GMM model on FPI. The table shows that GEX and RER are positive and statistically significant in the model. TAX is negative and statistically significant in influencing FPI. While INF and GDP growth are positive, they are not statistically significant. This implies that these factors may not do enough to influence FPI in the SSA countries. Further information is about the positive and significant link flowing from the lag of FPI to its dependent variable, showing a consistent association from the previous period to the current in the endogenous variable.

Table 7 shows that the findings are adequate to make no restriction on over-identification. Moreover, based on information from the model diagnostics in Table 8, the Arellano-Bond SYSGMM estimator yields the most preferred estimates at AR(2). At the first level of AR(1) estimation, a degree of serial correlation could be expected; however, at the AR(2) estimate level, it should be corrected. Thus, a significance level may be expected at AR(1), which must be at AR(2).

5. DISCUSSION OF FINDINGS

Table 3 contains the outcome of the dynamic panel-data estimation on FDI and the corresponding series that followed. Table 6 is the result of the dynamic panel-data estimation on FPI and the series of factors that influence FPI in the model. The model exhibited

Table 7: Result of serial correlation

Method	Z-statistics result	P
Arellano-bond test for AR (1)	z=−5.23	Pr>z = 0.313
Arellano-bond test for AR (2)	z=0.95	Pr>z = 0.324

Source: Author's calculation

Table 8: Hansen test of over-identifying restrictions

H_0: over-identifying restrictions are valid	
Restrictions	**Values**
χ^2 (5)	6.99
P>χ^2	0.221

Source: Author's calculation

a mixed relationship. Categorically, two different scenarios are active in the outcome of this analysis:

(i) In the first scenario, all variables were statistically significant except the lag of FDI which is not statistically significant but directly related to FDI. The result for the government expenditure coefficient suggests that FDI responded positively and significantly to government expenditure i.e. increase in government spending leads to an increase in FDI. Government policy to increase spending on capital and recurrent projects boosted the inflows of FDI in the SSA countries. For government revenue, the result suggests its coefficient to be positively and statistically significant in influencing FDI, i.e. an increase in government tax revenue led to an increased inflow of FDI. It is assumed that the increase in tax rate which generated revenue for the government was used to provide public infrastructures and services to improve the business environment for operations, thus continuing the attraction of FDI. This finding is in line with the results of the studies conducted by Pamba (2022), Norlin and Nurul (2018), Mudenda (2015), Simões and Ventura (2014), and Seils and Adeniyid (2023) which found that tax revenue is positively correlated with FDI.

Implicitly, while the real exchange rate exhibits inverse relationships, the reverse is the case with the GDP growth rate and real interest rate which exhibit a direct relationship. The direct nexus connotes that a unit increase in GDP growth rate and the real interest rate would cause FDI to increase in a flow with high frequency, but a negligible decline in FDI is expected with a unit increase in the real exchange rate. One can recall that there are direct associations between GDP growth rate and interest rate in explaining FDI. This implies that as the economies grow and the real interest rate improves in the region, it would attract more FDI. This result agrees with the findings of Liargovas and Skandalis (2012) and Nwosa and Adeleke (2017), who found a positive relationship between the determinants of FDI in those countries under investigation. This finding further supports the work of Ezeoha and Cattaneo (2012), Fowowe and Shuaibu (2014), Mowlaei (2018) and Alshubiri (2022). There are divergent views in the literature on the impact of inflation on foreign investment in the economy. Some studies have found a significant positive impact on the nexus (Baghebo and Apere, 2014; Waqas et al., 2015; Adeola, 2017), and others have found a long-run negative significant relationship, revealing that inflation erodes FDI in the economy (Ekeocha, 2008; Ezeanyeji and Maureen, 2019). Again, the expression by Kanu (2015) and Adem and Güvercin (2020) suggest that a moderate increase in general price levels boosts foreign investment inflows and the level of productivity in the economy. While the study observed a negative statistically significant link between inflation and FDI. This result supports the findings of Ekeocha (2008) and Ezeanyeji and Maureen, (2019), who revealed a negative link between FDI and inflation.

(ii) In the second scenario, where FPI assumed the endogenous variable. There are mixed results in the direction of the relationship as the real exchange rate and government expenditure both have a positive relationship with the FPI, whereas the tax rate is found to be significant but inversely related to the FPI. In this regard, the results agreed with the prediction of the Keynesian theory. The real interest rate, inflation rate, GDP growth rate, and lagged FPI are positively correlated but statistically insignificant. This suggests that, maybe these variables are not doing enough to influence FPI in the region.

6. CONCLUSION AND POLICY IMPLICATIONS

This study investigated the dynamic impact of fiscal policy on FCI from two perspectives of FDI and FPI, in the SSA countries using dynamic panel data analysis with annual data covering the period 1990-2019. Using the system GMM, the findings showed that Fiscal policy is important in attracting FCI inflows in SSA countries. Therefore, the expected transformations of the economy through the fiscal policy indicators under the period of the study covered are optimally realized. The study recommends that there is a need for a well-articulated and coordinated fiscal policy to attract more FCI in SSA for optimum growth and development. Developing countries of the world are competing with each other to attract FCI. In light of this, it is important to identify the determinants of FCI, so that policies are formulated accordingly and they lead to incremental. So, apart from the conventional determinants of FCI, this study focuses on the role of fiscal policy variables in influencing FCI. To provide a conducive environment for foreign investment, SSA countries should redesign their tax systems to make them internationally competitive. Bilateral tax treaties are a part of this exercise to alleviate the problem of international double taxation. Another important fiscal policy variable is the proportion of government expenditure that is developmental in nature. Therefore, the study concludes that the SSA government should improve the investment climate for foreign investors and create an enabling environment through favorable tax policy, and improved expenditure, especially on capital/development projects for example on the power supply and security of lives and properties for foreign investment to thrive.

Therefore, policymakers can consult these findings to assess the kind of foreign capital they can attract regarding the fiscal policy adjustment in their countries.

Despite its contributions, this study is not without limitations. Firstly, adding more variables and more SSA countries could have

made the study more robust; however, the non-availability of data meant this was impossible. Additionally, data on foreign portfolio investment is scanty, and it affected the performance outcome. In terms of future research, an avenue for exploration could involve a more detailed examination of individual Sub-Saharan economies, shedding light on the impact of specific fiscal policy on foreign capital inflow trends in each nation. Moreover, incorporating additional policies, such as monetary policy, and addressing the identified limitations, would contribute to a more nuanced and holistic understanding of the FCI landscape in the region.

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