

Taxation, financial and regulatory environment as drivers of Foreign Direct Investment in Sub Saharan Africa

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Abstract

Despite its resource endowment, Sub Saharan Africa remains one of the poorest regions in the world, and despite being among the fastest growing economies, per capita income in the region remains the lowest globally. Foreign direct investment (FDI) is widely regarded as one of the key catalysts of growth. This study uses panel data from 46 Sub Saharan African countries from 1985 to 2023 to analyse the effects of taxation and other environmental factors on FDI. A fixed effects model indicates that lower taxation significantly influences FDI, and that the ease of importing, exporting, and starting a business also significantly influences foreign investment. A conducive financial environment, including the distribution of commercial bank branches, domestic credit to the private sector, lending rates, and deposit rates, is also found to significantly influence FDI. The analysis further shows that companies located in Sub Saharan African economies face higher tax burdens than firms elsewhere in the world, implying a need for governments in the region to adopt more competitive tax policies to attract foreign investment that can, in turn, generate employment and improve living standards. To the authors' knowledge, this is the first study to systematically examine the impact of taxation on FDI across the Sub Saharan African region.

Keywords: Sub Saharan Africa, Economic Growth, Foreign Direct Investment, Taxation, Business Environment, Panel Data

JEL Classification: F21, H25, O16, O55

1. Introduction

Africa is tipped to be the frontier in economic growth in the forthcoming years. This is because of the continent's natural resources endowment. The idea that these abundant natural resources can be the drivers for an industrial revolution across the continent is growing. The latest edition of the Economic Report on Africa (ERA 2013) sets out how the continent's future will be determined by how policies that promote commodity-based industrialisation are designed and implemented. Despite this, Africa is classified as one of the poorest continents in the world with a worrying degradation of natural resources, while some point to the resource curse theory (Sachs, 2001), others may point to poor governance. Sachs (2001) related growth in per capita income to the importance of primary products in the country's exports. Controlling for initial income and openness to trade, the study indicated a negative effect.

Since some rich resource countries, like Botswana and Malaysia, have done well economically, and, as such, some observers have expressed doubt over statistical evidence supporting the resource curse (Brunnschweiler and Bulte, 2008; Alexeev and Conrad, 2011). While I agree that political structures are paramount to the economic development, as most of the countries are beginning to become politically stable, it is important to observe the role of macroeconomic factors and foreign direct investment. This is because the region has seen a broad range of reforms in recent years (World Bank, 2013). In addition, infrastructure initiatives are opening new avenues of commerce, and new efforts towards regional integration and strengthened regulatory and legal systems are providing greater levels of transparency and accountability. Despite the economic downturn, foreign direct investment (FDI) has been robust, increasing by 5 percent to US\$50 billion in 2012 even as global FDI fell by 18 percent (United Nations Conference on Trade and Development, UNCTAD, 2013). Building on the work of Patrick et al. (2013), who examined the macroeconomic factors associated with FDI in Ghana, the objective of the study is to find how the economic and financial, regulatory and taxation environment enhance FDI in Sub-Saharan Africa.

Africa's gross domestic product (GDP), continues to grow much faster than the world average. For instance, while the world average grew by 3 percent in 2012, that of Africa was 4.5 percent in the same period (Africa Economic Outlook, 2014). Despite the rosy economic outlook, albeit to South Africa, the size of the stock markets of most Sub-Saharan Africa countries is relatively small compared to those in the developed markets. Regardless of recent rapid developments, the capital markets in emerging countries are still in the initial stage, with high barriers to international trade and capital flows and lack of alternatives for investors to invest and realise profits from their investments. Foreign direct investment (FDI) can be understood as a package of resources that complements the financial flows and makes a distinctive contribution to the development process. FDI projects typically involve a transfer of technology, capital and managerial skills and expertise from the source country to the recipient country.

Solow (1956) attempted to express a growth model into a simple production function and to explore key variables that could provide steady growth rates. In his model, Solow captured variables determining FDI in growth rates. On the other hand, within the endogenous growth theory, FDI flows may contribute, either directly or indirectly, to the economic growth of an economy. Wang (1990) discerns the effects of FDI activity into direct positive home-country effects, by stepping up production and transferring knowledge to local suppliers, and indirect effects by upgrading the quality of their workforce. In addition, FDI can help the economic prospects of Africa in several ways. FDI allows the transfer of technology — particularly in the form of new varieties of capital inputs — that cannot be achieved through financial investments or trade in goods and services. FDI can also promote competition in the domestic input market. Also, countries in receipt of FDI often gain employee training in the course of operating the new businesses, which contributes to human capital development. In addition, profits generated by FDI contribute to corporate tax revenues in the host country. Furthermore, foreign direct investment promotes exports and, hence, can have a positive impact on the country's balance of payment. However, there are, of course, socioeconomic costs, which FDI projects impose and which must, therefore, be weighed against the benefits. Foreign debt is likely to adversely affect the inflow of FDI because the debt overhang signals the possibility of future economic crises.

The Pooled, Fixed Effects and Random Effects results indicate that Capital Gain Tax (CGT) and Value Added Tax (VAT) have a negative significant effect on FDI. That is the lower the CGT and VAT, the more foreign companies are likely to be attracted to the candidate country. The results also indicate that lending rate is significant across all three models. That is the lower the lending rate, the more foreign firms are likely to be attracted to enter into that country. In line with this, the higher the domestic private credit, the higher the FDI.

The rest of the article is structured as follows; section 2 review the existing literature; section 3 is on the methodology and the data, section 4 is the analysis and discussion of the results and section 5 concludes.

2. Literature Review

Serge and Yaoxing (2010), who conducted research in Cote D'Ivoire, stated that the increase in the FDI in different parts of the world has boosted the economy of the developing countries. In their study, they stated that FDI helps the countries to move toward the track of growth and development and increases their trading activities. FDI helps to employ more opportunities for those organisations which are operating at smaller scale. It provides employment opportunities, advancement in the technology and also offers development in the social and cultural factors of the country. However, Serge and Yaoxing do not state what are the factors which enhance the economy of the world's developing countries through foreign direct investment.

To fill this gap, this work attempts to analyse the factors and aspects which increase the economy of the developing countries as a result of FDI. There are two different types of spillovers because

of FDI - horizontal and vertical. The foreign companies which are investing in the developing countries use their qualified and skilled employees to train the domestic labour force (OECD, 2002). Through their training and developmental activities, they train the labour and employees and this assists them to contribute their efforts toward the growth of the economy.

In a similar way to vertical spillovers, the foreign affiliates train the domestic companies and they also permit them to use their resources. This helps them to increase their productivity and efficiency in their business, which ultimately results in a contribution toward the enhancement of the economy. Domestic companies can use the production of foreign companies in their production, which improves the productivity of the local producers. It assists them to offer greater quality of products and services in the market. The presence of FDI and international trade in developing countries also promotes a huge level of development in the countries (Zaman, Shah and Khan, 2012). There is increase in the development of technology, infrastructure and the education system and improvement in the quality of the products and services offered by the local and domestic companies.

Atkinson and Brandolini (2003) stated that the international trade of the country will not obtain any favourable advantage when the investing activities of the country are not excellent. FDI has emerged as one of the significant factors in the economic development of developing countries (Marinova and Marinov, 2003). Satomi (2007), in a study on Macro Determinants of Foreign Direct Investment Inflows to Japan from 1989 to 2002 used pooled, fixed effects and random effects estimates comparatively. The results suggested that FDI into Japan is inversely related to trade flows, such that trade and FDI are substitutes. Moreover, the results also suggested that FDI increases with the home country's political and economic stability. In addition, the authors noted the importance of exchange rates, relative borrowing costs and labour costs in explaining that FDI flows are sensitive to the econometric specification and estimation approach. They found a positive relationship between source country size and foreign direct investment, because larger economies imply greater availability of capital resources and intangible assets (technical knowledge and marketing expertise) that can also be used.

Many researches and studies also reveal that trade openness is one of the important aspects which increase the growth of the economy. However, some studies also explain that the growth rate of the economy varies from country to country (Schutter, Swinnen and Wouters, 2012). This variation may occur due to difference in developing and developed countries. This indicates that there is difference between the rate of growth when these factors are adopted by the developing and developed countries of the world.

High inflation and external debt rate, as well as government deficits, are assumed to increase uncertainty, worsen the business climate and, consequently, reduce growth (Fisher, 1993). However, besides their direct contribution to growth, adverse macroeconomic conditions can

generate uncertainty that not only could discourage the entrance of foreign capital, but also reduce the productivity effect of FDI (Jallab et al., 2008). Easterly (2005) considered that institutions reflect “deep-seated social arrangements like property rights, rule of law, legal traditions, trust between individuals, democratic accountability of governments, and human rights.” In addition to its direct contribution to growth, the institutional system also plays a role as a main attractor of FDI. Good institutions lead to reduced investment-related transaction costs, which include corruption. In addition, FDI involves high sunk costs that are affected by insecurity and by the effectiveness of the legal and political systems (Demekas et al., 2007).

3. Data and Methodology

For the empirical investigation, the panel data analysis is utilised and effectively applied to a dataset consisting of 46 Sub-Saharan Africa spanning the period from 1985 to 2023. The term ‘panel data’ refers to the pooling of time series and cross-sectional observations of countries on the same individual variables over several time periods (Baltagi, 2005). Panel data allow one to account for the heterogeneity of the entities being observed. In addition, because of the ‘huge data set’, there is more variability and, hence, less collinearity among the variables. I extract the data from world bank database. This is an audited and verified database and hence the reliability is not in question. Table 1 below shows all the variables used in the study and their definition.

Table 1. Variables Measurement

Variable	Proxy	Measurement/definition	Classification
Foreign Investment	Direct FDI	Direct investment equity flows in the reporting economy.	
Inflation	INFL	The annual percentage change in the cost to the average.	Economic and Financial
Lending rate	L.Rate	Commercial Interest rate on borrowing.	Environment
Number of Commercial Branches	C. Branches	Commercial bank branches are retail locations of resident commercial banks and other resident banks that function as commercial banks.	
Interest on Deposit	D.INT	Commercial Interest rate on deposits.	

Saving as a SAVING	Gross savings are calculated as gross percentage of GDP
	national income less total consumption, plus net transfers.
Domestic Credit to Finance (% of GDP)	D.CREDF Domestic credit provided by the financial sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net.
Gross Domestic GDPG	% Growth of GDP. GDP = private consumption + gross investment + government investment + government spending + (exports – imports).
Product Growth	
Consumer as CONSUM	Final consumption expenditure is the percentage of GDP
	sum of household final consumption expenditure (private consumption) and general government final consumption expenditure (general government consumption) as a percentage of GDP.

Tax	rate	on	TAX.INT	Taxes on international trade include	Taxation
International Trade %				import duties, export duties, profits of	environment.
of revenue				export or import monopolies, exchange	
				profits, and exchange taxes as a	
				percentage of revenue.	
Capital Gain Tax			CGT	Tax on chargeable disposal by a	
				chargeable person.	
Corporation Tax			CT	A tax imposed on the net income of the	
				company.	
Value Added Tax			VAT	A consumption tax placed on a product	
				whenever value is added at each stage of	
				the supply chain, from production to the	
				point of sale.	
Number of Days			PRE.TAX	The time, in hours per year, it takes to	
Preparing Tax				prepare, file, and pay (or withhold) three	
				major types of taxes: the corporate	
				income tax, the value added or sales tax,	
				and labor taxes, including payroll taxes	
				and social security contributions.	

Number of documents to Export	D.EXP	Total number of documents one requires or completes on exporting.	Regulatory environment.
Number of days Enforcing contract	ENF.CON	The number of calendar days from the filing of the lawsuit in court until the final determination and, in appropriate cases, payment.	
Number of days to register business	T.BUSI	The number of calendar days needed to complete the procedures to legally operate a business. If a procedure can be speeded up at additional cost, the fastest procedure, independent of cost, is chosen.	
Number of days to Export	T.EXP	The average number of days to clear direct exports through customs.	
Number of days to import	T.IMP	The average number of days to clear direct imports through customs.	
Cost of Exporting	C.Export	Cost for customs clearance and inspection on exporting.	

Cost of Importing	C.Import	Cost for customs clearance and inspection on importing.
Cost of remittance	C.Rem	The average of the total transaction cost in percentage of the amount sent for sending USD 200 charged by each single remittance service provider (RSP) included in the Remittance Prices Worldwide (RPW) database to a specific country.

3.1 The Static Model

The use of pooled time series and cross-sections allows us to consider the unobserved and time-invariant heterogeneity across different countries. For the estimation of the models, a dataset consists of N , which is spatial units, denoted as $i = 1, \dots, N$ observed at T time periods, as denoted $t = 1, \dots, T$. Therefore, the total number of observations is $T \times N$. Then, y is a $(TN \times 1)$ vector of endogenous variables, X is a $(TN \times k)$ matrix of exogenous variables, which does not include a column of units for the constant term. Given this, a generic pooled linear regression model by ordinary least square procedure can be written as:

$$y_{it} = \beta_0 + \sum_{N=1}^N \beta_1 X_{it} + \varepsilon_{it} \quad (1)$$

where y_{it} is the dependent variable, β_0 is the intercept term, β_i is a $k \times 1$ vector of parameters to be estimated on the explanatory variables, and x_{it} is a $1 \times k$ vector of observations on the explanatory variables, $t = 1, \dots, T$, $i = 1, \dots, N$ is a random error term. Pooled OLS enables the researcher to capture the variation of what emerges through time or space simultaneously.

The specification in equation (1) suggests a linear panel data model. The associated assumptions to the model that we consider are:

- The error term is normally distributed and has zero mean and standard deviation. ε_{it}^2 , $\varepsilon_{it} \sim \text{i.i.d. } (0, \sigma_{\varepsilon}^2)$

- Similar variances across countries, $s_i^2 = s_e^2 \quad \forall i$
- Zero covariances across countries, $\text{Cov}(e_{it}, e_{js}) = 0$ for $i \neq j$

If the homogeneity hypothesis is rejected, the estimates based on the pooled model will lack meaning:

$$\begin{matrix} Y_1 & X_1 & \varepsilon_1 \\ Y_2 & X_2 & \varepsilon_2 \\ \vdots & \vdots & \vdots \\ Y_N & X_N & \varepsilon_N \end{matrix} = \begin{matrix} \beta \\ \beta \\ \vdots \\ \beta \end{matrix} + \begin{matrix} \varepsilon \\ \varepsilon \\ \vdots \\ \varepsilon \end{matrix} = X\beta + \varepsilon \quad (2)$$

However, if the difference between β 's, though significant, is thought to be small, then one could consider a trade-off of accepting some bias in order to reduce variances. If the departure of homogeneity is so great, then this could result in serious distortion in the conclusion, hence proceeding with the choice of the best alternative static specification that links to the pros and cons of each specification. The fixed effect model assumes that although the intercept may vary across the countries, each individual intercept does not vary from time to time. Therefore, the intercept β_{lit} means that it is time invariant. Therefore, the fixed effect model can be expressed as:

$$y_{it} = \beta_{lit} + \sum_{N=1}^N \beta_1 X_{it} + \varepsilon_{it} \quad (3)$$

Also, the common slope coefficients and constants may not be fixed, but random. In this case, the random effects model would be appropriate. In a nutshell, random effect is a compromise between pooling under complete homogeneity and pooling with common slope coefficient, but with the intercept, which may vary by the cross-section. That is, all of the elements in the coefficient vector, slopes as well as intercepts, are random variables rather than fixed parameters. Under the assumption of intercepts for the cross-section, which are random variables, and slope coefficients, which are fixed parameters, the vector would represent slopes only, while the random error term would have two components. Thus:

$$\begin{matrix} \mu_i & \eta_{i1} \\ \mu_i & \eta_{i2} \\ \vdots & \vdots \\ \mu_i & \eta_{iT} \end{matrix} + \begin{matrix} \varepsilon_i \\ \varepsilon_i \\ \vdots \\ \varepsilon_i \end{matrix} \quad (4)$$

The μ_i represents randomness which is due to the choice of the cross-section, while η_{it} represents the randomness stemming from cross-section and time.

The argument in favour of the random effects model is that the fixed effects model often results in a loss of degrees of freedom and eliminates a large portion of the total variation in the panel. Another argument is that β_i combines a total of several factors specific to the cross-sectional units and, as such, they represent 'specific ignorance'. Hence, β_i can be treated as a random variable by much the same argument that η_{it} represents 'general ignorance' can be treated as a random variable. On the other hand, there are two arguments in favour of the use of the fixed effects model. The first, common in the analysis of variance literature, is that, if the analysis wants to make inferences about only this set of cross-sectional units, then we should treat β_i as fixed. On the other hand, if we want to make inferences about the population from which these cross-sectional data come, then β_i should be treated as random.

To identify the best estimator, the Hausman test is used. It is assumed that both the "random effects" and the "fixed effects" panel estimators are consistent under the assumption that the model is correctly specified and that the parameters are independent of the "individual-specific effects" (the "random effects" assumption). In this case, the random effects estimator is also asymptotically efficient. The difference between the random effects and the fixed effects estimators will, thus, tend to be small. On the other hand, if the random effects assumption fails, but the model is otherwise correctly specified, then the fixed effects estimator remains consistent, but the random effects estimator is inconsistent. The difference between the random effects and the fixed effects estimators may, therefore, be large. A comparison of the random and fixed effects estimators can, thus, shed light on the correctness of the random effect assumption. In other words, the Hausman test checks a more efficient model against a less efficient but consistent model to make sure that the more efficient model also gives consistent results. The test is based on two hypotheses:

$$H_0 : E(x_{itci}) = 0 \text{ vs } E(x_{itci}) \neq 0$$

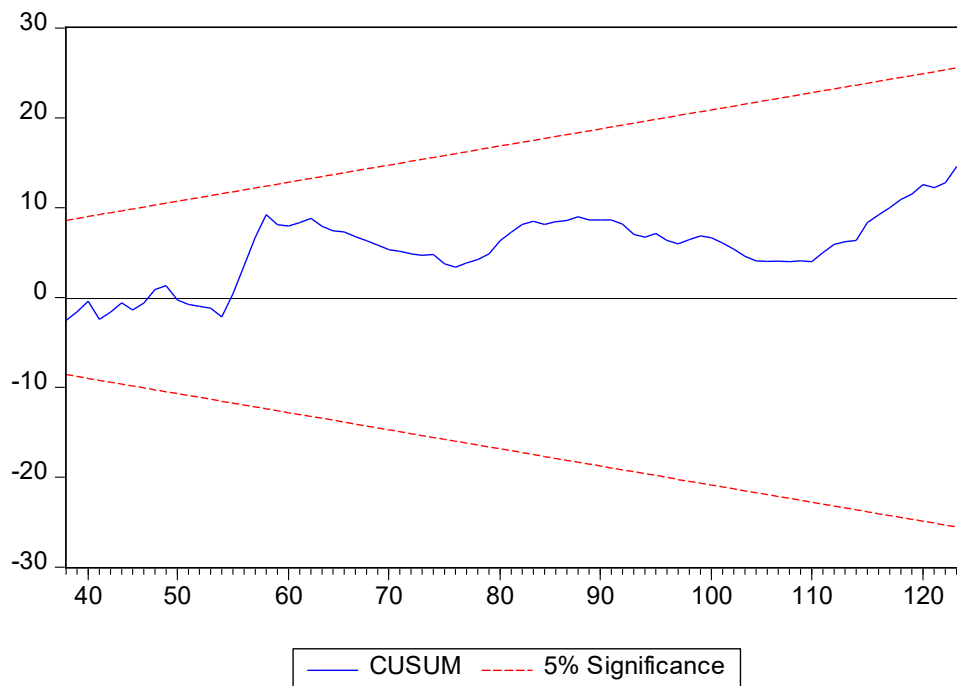
$$FE : y_{it} = \alpha_i + x'_{it}\beta + \mu_{it} \Leftrightarrow E(y_{it} | x_{it}, \alpha_i) = \alpha_i + x'_{it}\beta \quad (5)$$

$$RE : y_{it} = x'_{it}\beta + \varepsilon_{it} \Leftrightarrow E(y_{it} | x_{it}) = x'_{it}\beta \quad (6)$$

In order to evaluate the stationarity of the variables in the model, a unit root test was used, which is applicable to balanced panel data (Fisher-type tests based on augmented Dickey–Fuller). Stationarity means that the mean, variance and autocorrelation of a variable do not change with time. The problem with non-stationarity is that the standard Ordinary Least Square (OLS) regression procedure can lead to incorrect conclusions. This can be in a situation where the R squared is very high (say >0.95) while the variables are not significant. The results indicate that

all the variables are stationary. Likewise, in using recursive regression to test for structural stability, as shown below, there is no strong evidence to suggest a structural break.

Figure 1. Recursive regression test on structural breaks



To confirm the result that there was no significant structural break, I test the effect of the 2008 global financial crisis. Using the Chow test, as shown in Table 2 below, the results confirm that there was no significant break. Considering the 2008 financial crisis affected most of the countries, African banks were not significantly impacted, perhaps because of lack of connectivity with banks in the West.

Table 2. Chow Breakpoint Test: 60

Null Hypothesis: No breaks at specified breakpoints

Varying regressors: All equation variables

Equation Sample: 1 124

F-statistic	1.103510	Prob. F(25,67)	0.3639
Log likelihood ratio	40.34574	Prob. Chi-Square(25)	0.0269

		Prob. Chi-	
Wald Statistic	27.58775	Square(25)	0.3272

I estimate the model using pooled OLS, fixed (FE) and random (RE) effects after testing for heteroskedasticity and serial correlation using the Breusch Pagan with White test procedure as a possible remedy. The Akaike information criterion for FE is smaller than that for the pooled OLS. Therefore, the FE is a better estimator than the pooled OLS, indicating that there are fixed differences across Africa. Using the Hausman test between the FE and the RE, the result indicates that FE is more appropriate, implying that the differences between the countries do not vary greatly from period to period. However, the results from the three estimation methods are reported for meaningful comparison. I also test whether the regression is correctly specified. As shown in Table 3 below using the Ramsey regression equation specification error test (RESET) test, the F-statistic takes the form of:

$$F_{(M;N-k-1)} = \frac{(SSR_{\hat{Y}} - SSR_{\hat{Y}^2}) / M}{SSR_{\hat{Y}^2} / (N - K)} \quad (4)$$

$$= \frac{(SSR_R - SSR_{UR}) / M}{SSR_{UR} / (N - K)}$$

where SSRs are the sum of squared residuals for the respective regressions; SSR_R is the sum of squared residuals of restricted regression; and SSR_{UR} is the sum of squared residuals of unrestricted regression. M is the number of restrictions; N is the number of observations; and K is the number of parameters estimated in the unrestricted equation. The F test is compared with the p value; the regression is correctly specified and does not include irrelevant variables. The inclusion of an irrelevant variable may result in correlation with other variables, which could cause multicollinearity.

Table 3. Ramsey RESET test

F-statistic	0.359443	Prob. F(1,24)	0.5544
Log likelihood ratio	0.520301	Prob. chi-square(1)	0.4707

4. Results and Analysis

Table 4 shows the descriptive statistics. I concentrate on the key headline variables in the discussion. The average corporation tax is 22 percent while the maximum is 55 percent in Africa. In terms of corporation tax, the minimum corporation tax rate is 15 percent and the mean is 22



Table 4. Descriptive statistics

	CGT	C.Br anche	C. Exp	C.Im p	C Rem	CT	D.Ex p	D.Im p	D .inter est	D.Cr edit	Enf. Cont	FDI	GDP G	Cons um	INF	L.Rat e	Pre Tax	Reg Prop	S.Rat e	TOIT	T.BU SI	T.EX P	T.IM P	VAT
mean	22.4	9.03	2000	2815	17.3	21.6	8.3	8.8	9.3	16.6	736	2.39	4.5	61.9	110	21.3	228	88	21	14.7	31.9	35	11	10.7
Max	54	34	3145	4670	20	40	11	13	14.7	84	1296	40	22.6	94.5	5399	21.8	282	335	77	33.9	83	68	20	17.3
Min	13	1.5	824	820	9.3	14	6	6	2.5	-79	425	-6.9	-24.7	17.9	-29.2	7.8	140	10	-37.5	2.5	4	19	6	1.1
stdD	8.9	9.8	700	1270	3.2	6.6	1.5	1.8	1.9	30	227	4.9	5.6	16.6	572	28.7	52	70	16.6	6.4	21.9	11.2	6.5	3.8

FDI (Foreign Direct Investment); CGT (Capital Gain Tax), C. Branches (Number of Commercial Banks); C. Export (Cost of Export); C. Import (Cost of Import), C. Rem (Cost of Remittance); CT (Corporation Tax); D. INT (Interest on Deposit); D. EXP (Number of Document Exporting); D.CREDF (Domestic Credit to Finance); ENF.CON (Number of Days Enforcing Contract); GDPG (Gross Domestic Product growth); CONSUM (Consumer as percentage of GDP); INFL (Inflation); L.Rate (Lending Rate); PRE.TAX (Number of Days Preparing Tax); REG.PRO (Number of Days Registering Property); SAVING (Saving as a percentage of GDP); TOIT(Tax rate on International Trade); T.BUSI (Number of Days to Register Business); T.EXP (Number of Days to Export); T. IMP (Number of Days to Import), VAT (Value Added Tax)

Table 5: Marginal corporate rate across the world

Average top marginal corporate tax rate by region		
Region	Average rate	Weighted average
Africa	28.77	28.08
Asia	20.86	26.67
Europe	18.7	26.1
North America	24.71	37.04
South America	27.92	32.12

Corporation tax is imposed on the companies' profits. The higher the rate, the less the profit that will be left for the company to invest. The knock-on effect is that this will lead to less employment. The corporation tax rate is one-way countries compete for FDI. For example, most governments on the Central and East European countries adopted 10-year tax holidays and a significant reduction of the income tax in the 1990s which proved to be useful and real increased the inflow of FDI to candidate countries (Milan and Stanislav, 2002).

In comparing the total tax on profit across the world, Table 6 below shows that companies located in Sub-Saharan Africa pay higher (47%) total tax on profit compared with the world average of 40 percent. Table 5 shows that North America imposes least tax (32%) on total profit compared with other regions.

Table 6. World total tax on profit comparison

Region	Tax revenue % GDP	Time to prepare tax	Total tax on Profit
World	14.3	25	40
East Asia &	11.5	192	34
Europe &	19.0	190	38
North America	10.9	153	32
South Asia	9.8	284	40
Sub-Saharan Africa	16.2	304	47

In comparison with the rest of the world, in 2019, again it took longer to register business in Sub-Saharan Africa. Likewise, Sub-Saharan Africa is above the average in registering property and enforcing a contract.

As shown in Table 7, it takes 27 days (on average) to start a business compared with just four days in North America. The longer it takes to start a business, the costly it is because of the process. However, it can be seen that it is quicker to enforce a contract in Sub-Saharan Africa than in North America which takes 1099 days.

Table 7. Starting business, registering property and enforcing a contract (days)

Region	Procedure starting business (Days)	Registering property (Days)	Enforcing contract (Days)
World	21	51	637
East Asia & Pacific	21	64	526
Europe and Central Asia	10	22	526
Latin America & Caribbean	31	67	741
Middle East and North Africa	20	33	669
North America	4	16	199
South Asia	16	111	655
Sub-Saharan Africa	27	60	669



Table 8. Correlation of variables

	CGT	C.Branches	C. Ex	C.Imp	C.Re m	CT	D.Int	D.Exp	D. Credf	Enf.C ont	FDI	GDPG	Cons	INF	L.Rate	Pre.Ta x	Reg.Pr op	Savin g	Tax Int	T Busin	T.Exp o	T.Imp	VAT
CGT	1.00																						
C.Branches	0.063	1.000																					
C.Exp	0.155	-0.488	1.000																				
C.Imp o	-0.014	-0.669	0.923	1.000																			
C.Re m	0.210	-0.897	0.743	0.809	1.000																		
CT	0.088	-0.197	0.578	0.508	0.334	1.000																	
D.Inte	0.501	0.001	0.027	-0.019	0.117	0.074	1.000																
D.Exp	0.029	-0.488	0.155	0.454	0.409	0.129	0.153	1.000															
D.Cre df	-0.248	0.554	-0.515	-0.422	-0.676	-0.050	-0.046	0.153	1.000														
Enf. Cont	0.677	-0.310	0.117	0.057	0.435	0.401	0.461	0.209	-0.263	1.000													
FDI	0.146	0.265	-0.204	-0.259	-0.257	-0.115	0.246	-0.116	0.223	0.039	1.000												
GDPG	0.012	0.220	-0.250	-0.271	-0.262	-0.284	0.037	0.124	0.067	-0.197	0.087	1.000											
Cons	-0.690	-0.230	-0.158	0.072	-0.066	0.207	0.364	0.312	0.409	-0.252	-0.210	-0.211	1.000										
INFL	0.346	-0.004	0.005	-0.015	0.078	0.067	0.867	0.154	-0.006	0.340	-0.112	0.006	-0.243	1.000									

Dependent variable, FDI (Foreign Direct Investment). Independent variables; CGT (Capital Gain Tax), C. Branches (Number of Commercial Banks); C. Export (Cost of Export); C. Import (Cost of Import), C. Rem (Cost of Remittance); CT (Corporation Tax); D. INT (Interest on Deposit); D. EXP (Number of Document Exporting); D.CREDF (Domestic Credit to Finance); ENF.CON (Number of Days Enforcing Contract); GDPG (Gross Domestic Product growth); CONSUM (Consumer as percentage of GDP); INFL (Inflation); L.Rate (Lending Rate); PRE.TAX (Number of Days Preparing Tax); REG.PRO (Number of Days Registering Property); SAVING (Saving as a percentage of GDP); TAX.INT(Tax rate on International Trade); T.BUSI (Number of Days to Register Business); T.EXP (Number of Days to Export); T. IMP (Number of Days to Import), VAT (Value Added Tax).



When examining the interaction between the FDI and the selected variables, the data largely support the existing literature. Table 8 indicates that, there is a negative association between the cost to export, import, corporation tax, documents to export, and inflation on FDI. The longer it takes to export, the more it may deter foreign entry into the country. This is because it is likely that companies will produce more than domestic consumption or export for further processing. The results also show that there is a positive correlation between FDI and domestic credit to finance. It can also be seen that countries that are growing economically tend to attract more FDI. In terms of the availability of credit, the lower the bank lending rate, the more it is likely to attract FDI.

Table 9. Main Results

Variable	Pooled OLS	Random Effect	Fixed Effect
C	38.24390**** (4.026869)	50.91668*** (4.377036)	51.86743 (4.346510)
CGT	-0.169778*** (0.026653)	-0.186455*** (0.026653)	-0.192241*** (0.025882)
C.Branches	0.231578*** (0.052816)	0.383575*** (0.052816)	0.413576*** (0.055734)
C.EXP	-0.001325 (0.001075)	-0.000779 (0.001057)	-0.001676 (0.001114)
C.IMP	-0.002801*** (0.000733)	-0.003188 (0.000719)	-0.004896*** (0.000759)
C.REM	-2.199182*** (0.243846)	-2.426832*** (0.239208)	-2.449449*** (0.237433)
CT	-0.102173 (0.090238)	-0.205216* (0.088880)	-0.219258* (0.088237)
D.INT	0.244749*** (0.029278)	0.151986* (0.027080)	0.218807** (0.028741)
D.IMP	-1.116789** (0.012145)	-2.4123461** (0.034153)	-2.717490** (0.330355)
D.EXP	-0.438743 (0.292305)	-2.572760 (0.493705)	-2.886919** (0.492324)
D.CREDF	0.058853*** (0.007062)	2.611469*** (0.008488)	-2.717490** (0.009517)
ENF.CON	0.002807* (0.001491)	0.000384 (0.001440)	0.029435* (0.001440)
GDPG	0.016610* (0.018664)	0.066784* (0.019080)	0.046736 (0.019167)
CONSUM	0.100984*** (0.013805)	0.001613** (0.013521)	0.002770** (0.013669)
INFLA	-0.002418* (0.000295)	-0.045116 (0.000289)	-0.025670** (0.000289)
L.RATE	-0.252842** (0.017701)	-0.093017** (0.016406)	-0.075955*** (0.017155)
PRE.TAX	-0.006782 (0.005597)	-0.002874** (0.006050)	-0.002636 (0.006029)
REG.PRO	-0.020025* (0.005347)	-0.205803 (0.005440)	-0.241244 (0.005500)
SAVING	-0.060433* (0.009310)	-0.017641*** (0.009158)	-0.014124*** (0.009333)
TAX.INT	-0.276828 (0.037513)	-0.002129 (0.036442)	0.004774*** (0.036601)

	-0.042341**	-0.074606**	-0.060702**
T.BUSI	(0.012431)	(0.012154)	(0.012071)
	-0.072073	0.198016	0.234871
T.EXP	(0.033134)	(0.033627)	(0.033449)
	-0.043482	-0.035219	-0.032396**
T.IMP	(0.102377)	(0.098069)	(0.099188)
	-0.223617**	-0.014576***	-0.000112***
VAT	(0.092559)	(0.092165)	(0.092106)
Adj. R squared	0.647067	0.564879	0.674630
F-statistic	33.49711	69.53995	35.17847
DW	1.885101	1.844238	1.928145
AIC	5.616658		5.590
Hausman test		Chi sq. 2.131	
		Prob. 0.0131	

Dependent variable, FDI (Foreign Direct Investment). Independent variables; CGT (Capital Gain Tax), C. Branches (Number of Commercial Banks); C. Export (Cost of Export); C. Import (Cost of Import), C. Rem (Cost of Remittance); CT (Corporation Tax); D. INT (Interest on Deposit); D. EXP (Number of Document Exporting); D.CREDF (Domestic Credit to Finance); ENF.CON (Number of Days Enforcing Contract); GDPG (Gross Domestic Product growth); CONSUM (Consumer as percentage of GDP); INFL (Inflation); L.Rate (Lending Rate); PRE.TAX (Number of Days Preparing Tax); REG.PRO (Number of Days Registering Property); SAVING (Saving as a percentage of GDP); TAX.INT(Tax rate on International Trade); T.BUSI (Number of Days to Register Business); T.EXP (Number of Days to Export); T. IMP (Number of Days to Import), VAT (Value Added Tax).

It is important to note that remittances are more stable than private debt and portfolio equity flows. The global average cost of sending US\$200 was about 7.4 percent in the fourth quarter of 2019, down slightly from the previous quarter and 0.6 percentage points below the end of 2014. Sub-Saharan Africa, with an average cost of 9.5 percent, remains the highest-cost region. This could be the one the factors that inhibit substantial FDI to Sub-Saharan Africa.

4.1 Taxation

In terms of taxation, CGT, CT, VAT and tax on international trade, the higher the rate, the less the FDI. Also, as shown in Table 9, CGT, VAT and Tax on international trade are significant at 1 percent in negatively influencing FDI, while CT is significant at 10 percent. It worth noting that, of the three, the fixed effect model suggests VAT seems to have a minimum impact, while, a one percentage increase in CT rate leads to a 21 percent decrease in FDI. Worse again is that Sub-Saharan Africa countries have a higher CT rate compared with other regional grouping. As shown in Table 5, above, companies located in Sub-Saharan Africa suffer a higher tax on total profit compared with those situated in the rest of the world. As noted in the previous work by Gordon and Hines (2002), the results indicate tax policies are obviously capable of affecting the volume

and location of FDI, because higher tax rates reduce after-tax returns, thereby reducing incentives to commit investment funds. The variability in elasticity estimates may not be surprising, given the degree of heterogeneity in the data employed in this work. That is, the sensitivity of FDI to taxation would vary and depend on host country conditions and taxation policies. However, empirical evidence shows that multinational firms (MNFs thereafter) do react to tax incentives, be they embedded in tax rules (which avoid double taxation problems through credit or exemption schemes) or tax rates (Hines, 1999). For example, some companies may use transfer pricing and intra-firm transaction rules of cancellation to shift profits where taxation is the lowest. Nevertheless, for MNFs operating where there is a double taxation agreement or treaty, they should be less sensitive to tax incentives because repatriated profits are then subject to home-country taxation, the MNFs being refunded for the tax bill paid abroad.

4.2 Economic growth and inflation

As expected, as the economy of the country measured by the GDP grows, the more attractive it is for foreign companies. The fixed effect model suggests that, a 1 percent increase in the economic growth will lead a 5 percent increase in the FDI. Like this work, many studies have noted that economic growth is an incentive for FDI inflows (Mohamed and Sidiropoulos 2010; Jiménez 2011; Kandil 2011). This could be attributed to many reasons. For example, cost efficiency of production and the realisation of economies of scale and scope in production are closely linked with market size (Blonigen et al., 2007). Also, a growing market can be attractive to FDI because of the likelihood that a larger market will enable a more efficient scale of production through the realisation of economies of scale (Agosin and Machado, 2007). In addition, growing economies provide a prospect of viable investment returns. On the other hand, Tsai (1994) and Jensen (2003) indicated a negative association between economic growth and FDI, which they attributed to scaling effect. That is, economies that grow at a faster rate than the growth in FDI will experience a decrease in FDI as a percentage of GDP. Similarly, inflationary economies tend to impact FDI negatively. However, the three models tend to suggest that the effect is not very significant. This is in line with Wijeweera and Mounter (2008) who refuted the perception that a long-run theoretical relationship exists between the level of inflation and the FDI inflow. Accordingly, then, one may argue that ‘inflation targeting’ could indeed be credited to some extent with the heightened levels of FDI inflow. As the result indicates that inflation is just significant at 5 percent, this implies hyperinflation may discourage foreign investors from entering the economy, and, consequently, a lower level of FDI, because the value of the local currency may be eroded.

4.3 Ease of doing business key variables

Other than taxation, there are several variables attributed to ease of doing business that may influence FDI. Examining the ease of starting business, registering property, ease of importing and exporting indicate the significant impact on influencing FDI. As indicated in Table 8 above, the longer it takes to register business and property, the more likely it to be a disincentive for foreign



companies setting their foothold in the country. Although registering property is not significant, the duration it takes to register business is significant at 1 percent. Similarly, the ease attributed to importing and exporting is important in influencing FDI. The results indicate a negative association implying the greater the difficulty (time, cost and number of documents), the more it is likely to deter FDI. The difficulty in importing or exporting in Sub-Saharan Africa could be attributed to embryonic adoption of technology. That is, most of Sub-Saharan Africa countries are yet to adopt technology in clearing of goods and, hence, most operations are manual and mechanical. Surprisingly, the results indicate that the longer it takes to enforce a contract, the more it is likely to attract FDI. Although not very significant, one could attribute the positive coefficient to the rigour and investor protection. That is, one may assume, the longer it takes, the more likely all the loophole have been closed and, hence, an investor is more protected that in one which is hurriedly done.

4.4 Financial environment

A conducive financial environment is fundamental for economic growth. This is because the financial industry acts as a conduit between financial surplus and financial deficit. Therefore, one would expect foreign companies to assess how financial supportive the environment is. Table 8 and 9 above show that there is a positive significant association between the number of branches with FDI. That is, the more commercial bank branches, the more the FDI. This could be because of ease to access to financial facilities, both withdrawing and depositing, or other financial services such as consultancy. Similarly, the results indicate a positive significant association between deposit rate and FDI. This implies that higher interest rates increase the value of a given country's currency. The higher interest rates that can be earned tend to attract foreign investment, increasing the demand for and value of the home country's currency. Conversely, lower interest rates tend to be unattractive for foreign investment and decrease the currency's relative value.

Sub-Saharan Africa has the lowest deposit, but highest lending interest rates. For example, the lending interest in Zimbabwe in 2019 was up to 18 percent down from almost 300 percent in 2005. This was after intensive financial reforms in the country. Overall, Africa's banking has been going through a lot of financial reforms, but the deposit remains much lower compared with the rest of the world. This is part of a deliberate policy by central banks to discourage saving and encourage borrowing. It has also been a way of boosting the stock markets and, thus, creating a wealth effect for individuals and boosting confidence. A higher lending interest rate could be attributed to riskiness of the market. However, the impact on FDI needs to be examined and a balance be drawn.

This research demonstrates the relation between domestic credit growth and international capital flows. The research indicates a positive and significant impact of domestic credit to finance and FDI. Net capital flows and domestic credit growth have been separately identified as important sources of macroeconomic imbalances, such that it is highly relevant to understand any inter-connections between these variables. There is a sizeable body of work on the macroeconomic

effects of credit booms, for example, Mendoza and Terrones (2012). On the other hand, Gourinchas and Obstfeld (2012) noted that too much credit may lead to a financial crisis in the long run. To mitigate the financial crisis, the regulatory arm may weaken the connection between monetary aggregates and credit growth. Interestingly, the results indicate a significant negative association between saving and FDI. This implies that FDI tends to flow where there is high marginal propensity to consume. Significant work has been done on saving and economic growth. For example, Gavin et al. (1997) examined the impact of saving behaviours on economic growth in Latin America and concluded that higher growth precedes higher saving rather than the reverse. It is only after a sustained period of high growth that saving rates increase and may do so with a delay that can be quite significant.

5. Conclusion

This study investigated the determinants of Foreign Direct Investment (FDI) across the 46 Sub-Saharan countries from 1985 to 2023. FDI has been identified as an important catalyst of economic development through technological transfer, cutting-edge management practices and other benefits. Even though Sub-Saharan Africa is richest in natural resources endowment, the continent remains behind in the economic development front. Although it is the poorest continent, it is one of the fastest growing economies in the world because of the number of structural adjustments programmes across the continent. That is, in 2019, the GDP growth was 3 percent in Africa compared with 2.6 percent across the world average. However, within the same year, South Asia grew by 7.1 percent. That is double that of Sub-Sahara Africa. In terms of per capita growth, Sub-Saharan Africa was the lowest with 0.3 percent compared with that of South Asia, 5.7 percent, and the world average, 1.4 percent. FDI has been attributed to be one the factors that influence economic growth. The results indicate significant positive influence of number of commercial branches, the deposit interest rate and household consumption. On the other hand, the fixed effect model suggests negative significant association of taxation (CT, CGT, VAT and international transaction tax). This implies the importance of lowering the tax rates to attract foreign entry. Additionally, tax breaks may act as a bait to foreign companies in setting the foothold. Companies based in Sub-Saharan Africa remain to be the most highly taxed in the world. This might be a difficult call, but it is important that the governments reduce the tax bands and widen the tax brackets to incentivise foreign companies. Lower tax rates afford the companies to reinvest the profit and, by a lower tax, few companies may attempt to identify aggressive tax planning, including tax evasion. The results also demonstrate the importance of ensuring the environment is easy to trade. The easier it is to set up a business, import or export and investor protection, the more investors are likely to be attracted to that country. Future research in a similar manner is recommended but taking account of the heterogeneity of countries.

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