

Determinants of foreign direct investment in ECOWAS countries: The roles of governance and human capital

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ABSTRACT

Against the backdrop of dwindling share of foreign direct investment (FDI) to sub-Saharan Africa region in the distribution of global FDI on the one hand, and the need to tread on a sustainable growth trajectory on the other hand, the study uncovers the determinants of FDI given due consideration to the roles of governance and human capital in some selected Economic Community for West Africa States (ECOWAS) countries. A panel data analysis is employed and estimated via different estimators namely: pooled OLS, fixed (FE) and random effects (RE) models. The standard F-statistics test favoured FE over pooled OLS while Hausman test also supported FE over RE respectively. On the whole, the results showed that per capita GDP, infrastructural quality, human capital and governance variables were the key predictors driving FDI to the region. Notably, the roles of human capital and governance variables were amplified when interacted with FDI in the models. Arising from these, are a few suggested recommendations for the attention of policy makers.

Keywords: Foreign direct investment, Governance, Human capital, Panel data models, ECOWAS

JEL Classification: C23, F35, G38

1. Introduction

The Africa in general, sub-Saharan Africa (SSA) in particular, is characterized and noted for her enormous socio-economic and political problems which ranged from: low per capita income; engendered by extreme levels and rates of poverty, stunted and lopsided growth pattern, protracted fiscal and current account deficits, persistent high inflationary trend, poor infrastructural facilities, volatile macroeconomic environment, incessant political and civil instabilities as well as prevalence of high chronic communicable diseases. Thus, getting out of the shackles has remained a daunting challenge at least for countries within the SSA region. These situations are particularly appalling as the resources with which to satisfy the requirements being imposed by the aforementioned problems are somewhat limited. Hence, makes the need for soliciting for external source of financing and other financially-related aid inevitable.

Of the financing sources however, Foreign Direct Investment (FDI) is most often sought at least for four major reasons: first, it confers unparalleled latent and overt benefits on the host environment¹; second, it is not as volatile as other forms of capital (e.g., short-terms capital), and hence, is less destructive; third, it is used in bridging the financing gap occasioned by saving-investment divergences; and lastly, it is perceptibly a preferable option, to the declining trends in the official lending² sources and other financial aid to the developing countries. Needless to say, there are dogged beliefs in the efficacy of FDI as a veritable source of fostering economic growth among the developing nations, especially the SSA region. As a consequence; there are growing demands by the region toward attracting substantial amount of FDI as a means of financing the tagged “lost growth”. In a bid to achieving this, several incentives as well as approaches have, previously been adopted, and these include but not limited to³: granting of tax holidays and subsidies, reduction in the rate of taxes, exemptions from import duties, accelerated depreciation allowances as well as deliberate compromise and modification of environmental standards. In spite of these barrage of incentives, meagre amount of FDI have been able to be attracted to the region as compared with other competing regions⁴. The meager amounts, coupled with declining trends of FDI to the region, possibly suggest that the flows of foreign capital are non-automatic regardless of incentive measures. By implications, certain salient factors are germane prior to its

¹like productivity gains, transfers of new technology, the introduction of new processes, management techniques, and technical know-how in the local market, employee training and international production networks and employment generation.

² Official lending to SSA region has declined substantially as a share of GNP from 6% in 1990 to 3.8% in 1998 while foreign aid per capita declined from an average of \$35 over 1989-92 to about \$28 over 1993-97 (World Bank,2000b). In addition, remittances were reduced by 8.3% in 2009 in Sub-Saharan Africa (World Bank, 2009).

³This also includes: adoption of FDI-specific regulatory frameworks by most countries within the region to support their investment related objectives and also some international investment agreements like bilateral investment treaties (BITs) and Double Taxation treaties (DTTs) were signed. BITs signed in Africa increased from 41 in 1970 to 772 in 2009. Similarly, DTTs signed increased from 68 in 1970 to 516 in 2009.

⁴ For instance, in 1970, Africa’s share in the global FDI inflows was 9.5% and this had dropped precipitously to only 4.4% by 2010. Likewise, the share of Africa in developing countries’ FDI inflows which was 32.8% in 1970 steeply dropped to 9.6% in 2010. Furthermore, SSA’s share of world FDI which stood at 1.3% in 1992 fell below 1.0 % between 1995 and 2000 but marginally rose to about 1.2 % in 2006. In comparative terms, however, the shares of the Asia and Pacific as well as the Latin America and the Caribbean regions in the world FDI stocks which were 19.4% and 9.5% in 1992 remained at 19.9% and 6.4% respectively in 2006 (UNCTAD,2008).

attraction. These include but not limited to: domestic economy's trade, human capital policies, physical capital accumulation, market size, natural resource endowment, financial sector development and institutional factors among others⁵.

Recent empirics in the development finance literature have placed a much higher premium on the useful role of institutions as crucial both in the determination and, in mediating in FDI-growth interactions. Of institutional qualities however, governance has been accorded a more prominent role capable of promoting or deterring FDI into a country. This apart, the impact of governance has been argued to have both direct and indirect impacts on FDI. The former can directly affect the willingness of agents to invest abroad whereas the latter affect economic variables that may in turn lower the propensity of agents to invest. As a corollary, FDI flows have been found to be sensitive to human capital, health of the workforce, and the quality of public infrastructure (see Mody and Srinivasan, 1998, and Globerman and Shapiro, 2002 for more narratives). If governance affects those variables, it will doubtless also affect FDI. Kaufman et al. (1999b) also documents that defective institutions tend to be associated with lower adult literacy rates and a worse health status. Mauro (1998) equally reports that weaker institutions result in larger public investment in unproductive assets, and lower expenditures devoted to the maintenance of past projects.

It is noteworthy however, to mention that most of the documented evidences are related to developing regions like Asia and Latin America that hardly shared similar socio-economic and cultural characteristics with that of Africa continent. Thus, it would be quite misleading and erroneous replicating their policy recommendations for Africa with a distinct socio-economic setting. Thus undertaking this study for the region is important for the following reasons: (i) Africa, sub-Saharan Africa in particular, have had long histories of bad governance record (ii) Undeniably, the continent operates at the lowest handle of developmental ladder thus ranking low in the sphere of socio-economic and development indicators like education, health status etc (iii) the continent is in dire need of development finance in fostering her crippled economic growth. The pertinent issues however, are: What are crucial factors determining FDI locations in ECOWAS region? To what extent does governance determines FDI? To what extent does human capital determines FDI? To what extent do the interaction between governance and human capital variables determine FDI? The study, specifically, hopes to offer answers to the following questions with respect to some selected ECOWAS countries⁶ in SSA region.

The rest of the paper is structured as follows. Section 2 contains a succinct review of the literature on the determinants of FDI. Section 3 presents the methodology which houses the empirical model specification and estimation technique dataset. The results are presented and discussed in section 4. The final section succinctly concludes.

⁵ See, Lipsey & Zejan (1994), Balasubramanyam, Salisu & Sapsford (1996), Borensztein, De Gregorio & Lee (1998), Azman-Saini, Baharumshah & Law (2010), and Bengoa & Sanches-Robles (2003).

⁶ Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Mali, Nigeria, Senegal and Togo, respectively. They are so selected based on data crippled availability consideration.

2. Literature review

The section is neither intends to repeat nor conduct an exhaustive review on the main determinants of FDI as espoused in the development finance literature but to rather, selectively delve into some areas that are considered germane to the main theme of the study. Notwithstanding, attempts will be made to present an apt review of probable factors that are most likely to induce FDI into the host environment, after which beam a searchlight on the roles of governance and human capital as means of attracting FDI locations.

The theoretical literature on the determinants of FDI stems from the work of Dunning (1977, 1981) which provide a comprehensive analytical framework based on ownership advantages, location advantages and benefits of internationalization (OLI) paradigm. On the basis of this, previous studies can be categorized into two categories. One category focuses on analyzing the determinants that are endogenous to Multinational corporations (MNC) such as the size of the firm, and basically asks why a firm becomes a foreign investor. The second category examines the FDI drivers that are exogenous to investors such as the location advantages of the host country, market size and labour costs. Apart from the apt theoretical exposition, some selected empirical literature on the determinants of FDI is discussed in turn in what follows:

Asiedu (2002) explored whether factors that affect FDI in developing countries affect countries in Sub-Saharan Africa (SSA) differently. Using data for 32 African countries for the period 1970 to 1999, in which the dependent variable is (Net FDI flows)/GDP and independent variables are GDP growth, openness, infrastructure, Return to investment, inflation, Africa dummy, political stability, interactions. She found that factors that drive FDI to developing countries have a different impact on FDI in SSA. Specifically, infrastructure development and higher return on capital promote FDI to non-SSA countries and not SSA countries. Openness to trade promotes FDI to both SSA and non-SSA countries. Onyeiwu and Shrestha (2004) used a dataset for 29 African countries over the period 1975 to 1999 and the dependent variable is FDI inflows/GDP and explanatory variables are GDP growth, openness, international reserves, natural resource respectively. They identified economic growth, openness of the economy, international reserves and natural resource availability as the key FDI determinants. Additionally, contrary to other studies, political rights and infrastructure were found to be unimportant for FDI flows to Africa.

Krugell (2005) also explored the determinants of FDI for a seventeen Africa countries over the period spanning from 1980 to 1999. Using FDI inflows/GDP as a dependent variable whereas Past FDI, market size and growth, infrastructure constituted the independent variables. He eventually concluded that found that FDI is determined by past FDI, market size and infrastructure.

Suliman and Mollick (2009) used a panel data regression data fixed effect model to identify the determinants of foreign direct investment (FDI) for a large sample of 29 Sub-Saharan African countries from 1980 to 2003. They tested whether human capital development defined by either literacy rates or economic freedom, and the incident of war affect FDI flows to these countries. Combining these explanatory variables in combination with control variables, it was found that the literacy rate (human capital); freedom (political rights and civil rights) and the incident of war are important FDI determinants. The results confirm their expected signs; FDI inflows respond positively

to the literacy rate and to improvements in political rights and civil liberties; war event, by contrast, exerts strong negative effects on FDI.

Using dynamic panel data estimation techniques, Sichei and Kinyondo (2012) provided panel data evidence on the determinants of foreign direct investment (FDI) for a sample of 45 African countries over the period 1980 to 2009. The study's dependent variable is the log of FDI stocks to nominal GDP, and the independent variables are: real GDP growth rate, the existence of natural resources, the degree of openness, number of bilateral investment treaties, the number of double taxation treaties, the existence of FDI-specific regulatory regime, the number of years the current president has been in power, is whether there is a limited period before elections or not, whether the president is a military officer or not, COMESA a Common Market for Eastern and Southern Africa (COMESA) dummy, the SADC a Southern African Development Community (SADC) dummy, the East African Community (EAC) dummy, ECOWAS is the Economic Community of West African States (ECOWAS) dummy, the ECCAS is the Economic Community of Central African States (ECCAS) dummy, CENSAD is the Community of Sahel-Saharan States (CENSAD) dummy, the UMA and IGAD is the Intergovernmental Authority on Development (IGAD) dummy. However, the explicit introduction of year dummy variables introduces time-specific fixed effects. They identified a number of factors that affect FDI flows in Africa, including, agglomeration economies, natural resources, real GDP growth, and international investment agreements.

Amornmekin and Suriya (2013) suggested that the investor protection may be another factor to attract foreign direct investment especially in the telecommunications sector. Moreover, Amornmekin and Suriya (2014) extended that the increase of foreign shareholding in the company will may enhance foreign investors to invest more into the telecommunications sector and bring more competitive environment that may lead to the benefits of consumers through the decrease of service prices. Additionally, the flourishing industry especially the sector that supply the infrastructure to support the economy, e.g., telecommunications, will not only benefit just the consumers but also the export competitiveness of the country (Dechumnouyporn and Suriya, 2013).

Undeniably, various strands of knowledge both theoretical and empirics, has emerged querying on the likely factors capable of attracting foreign direct investment into the host country. The lists kept increasing without limit to date. What can be inferred however, from the resulting empirical outcomes for each of these factors, shows they are still largely characterized by irregularities and controversies. By implication, the discourse on determinative factors of FDI is still ongoing, hence unresolved.

More recently, the role of institution has been an emerging area of focus in the development finance literature. Though, quite a handful number of empirical works has been done on institutional-FDI nexus⁷ but little still exists on the roles of governance (a component of institutional framework) on the one hand, and examining its interaction with human capital variables on the other hand. Intriguingly, the previous studies' result on the role of governance on FDI are found to be somewhat mixed. Unequivocally, three distinct lines of outcomes can be distilled from the barrage of empirical expositions that have thus far delved into such relationship. The common ground shared by these broad classifications is that governance matters in FDI attraction

⁷ Busse & Hefeker (2007), Alfaro, Kalemli-Ozcan & Volosovych (2008), Javorcik & Wei (2009), Ali, Fiess & MacDonald (2010), Buchanan, Le & Rishi (2012).

but with each charted different paths in terms of outcomes. The first line of researchers supporting the positive impact of governance on FDI include Schneider and Frey (1985); Edwards (1991); Hines (1995), Rodrik (1996); Mody and Srinivasan (1998); Globberman and Shapiro (2002); Jensen (2003); Méon and Sekkat (2004); and Busse and Hefeker (2007). The second category of researchers contends that the negative relationship exists between governance and FDI (Resnick (2001), Li and Resnick (2003), Egger and Winner (2005) and the last set of researchers' arguments can be pegged around insignificant or at best fragile impact of governance on FDI. Examples include Wheeler and Mody (1992), Gastanaga et al. (1998), Asiedu (2002), Bevan and Estrin (2004) respectively.

Given the brief empirical expositions, it can thus be inferred that the debate on governance-FDI nexus is still emerging as well as controversial. In light of the foregoing, we hope to contribute to the ongoing debate by providing answers to the questions earlier posed in the introductory part.

3. Data description and methodology

The study employs panel data framework to explore the determinants of foreign direct investment by specifically controlling for the roles of governance and human capital indicator (like secondary school education enrolment rates) in conjunction with some standard control variables as espoused in the empirical literature. These include per capita GDP, credit extended to the private sectors, degree of openness and infrastructural quality variable like number of telephone lines per 1000 people. The panel data analysis helps to explore cross-sectional and time series data simultaneously. Panel data analysis has been used with assumption of constant coefficients as well as in fixed and random effect setting. Common constant method is quite restrictive so more insight can be achieved through inclusion of fixed and random effects in the method of estimation. Constant coefficient model assumes that the intercept and slope terms are constant and there are no differences among the data matrices of the cross sectional dimensions. The model of the study is presented in the following equation.

$$\left(\frac{FDI}{GDP}\right)_{it} = \alpha + \varpi_1 LPCGDP_{it} + \varpi_2 INF_{it} + \varpi_3 OPN_{it} + \varpi_4 TEL_{it} + \varpi_5 SEDU_{it} + \varpi_6 GOV_{it} + \varpi_7 (SEDU * FDI)_{it} + \varpi_8 (GOV * FDI)_{it} + \mu_t \text{-----} (1)$$

where

$\left(\frac{FDI}{GDP}\right)_{it}$ is the ratio of foreign direct investment to gross domestic product in country *i* at time *t*; $LPCGDP_{it}$ is the natural log of per capita gross domestic product in country *i* at time *t*; INF_{it} is inflation which is a measure of macroeconomic stability; OPN_{it} is the degree of openness measured by export plus import divided by gross domestic product in country *i* at time *t*; TEL_{it} is number of telephone lines per 1000 people (a measure of infrastructural facilities) in country *i* at time *t*; the level $SEDU_{it}$ is the natural log of secondary school enrolment rate(a measure of human capital development) in country *i*

and GOV_{it} is the average of each dimension of governance index⁸ and these include voice and accountability (VA), political stability (PS), government effectiveness (GE), rule of law (RL), regulatory quality (RQ) and control of corruption (CC). It is calculated by dividing the sum of each dimension of governance index by the total number of the governance dimensions $\left(\frac{(VA + PS + GE + RL + RQ + CC)}{6} \right)$; ϖ_i measures the relative effects of each of the explanatory variables on FDI; μ_i represents the unobserved country-specific effect and ε_{it} is the error or disturbance term. $(SEDU * FDI)_{it}$ is interaction term between secondary school education enrolment rate and foreign direct investment, where $(GOV * FDI)_{it}$ is the interaction term between governance and foreign direct investment, respectively.

Common constant method is quite restrictive so more insight can be achieved through inclusion of fixed and random effects in the method of estimation. In the fixed effect method the constant is treated as section-specific so fixed effect model allows for different constants for each section. The applicability of fixed effect model has been tested by using Standard F test. The null hypothesis is that all the constants are same and therefore common constant model can be used.

$$F = \left\{ (R_{FE}^2 - R_{CC}^2) / N - 1 \right\} / \left\{ (1 - R_{FE}^2) / (NT - N - K) \right\}$$

If calculated value is greater than F critical value, we reject the hypothesis that all constants are same. In fixed effect model, the cross sectional effect is captured through dummy D_i which represents the countries.

$$\left(\frac{FDI}{GDP} \right)_{it} = \alpha + \varpi_1 LPCGDP_{it} + \varpi_2 INF_{it} + \varpi_3 OPN_{it} + \varpi_4 TEL_{it} + \varpi_5 SEDU_{it} + \varpi_6 GOV_{it} + \varpi_7 (SEDU * FDI)_{it} + \varpi_8 (GOV * FDI)_{it} + \sum D_i + \mu_i \text{-----} (2)$$

An alternative method of estimation is random effect model which assumes that the constants for each section are not fixed but are random. Fixed effect model assumes that

⁸ Each is conceptualized by Kaufmann et al., (2010) as follows: *Control of Corruption* (CC) captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. *Political Stability and Absence of Violence* (PS) measures the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism. *Government Effectiveness* (GE) captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. *Regulatory Quality* (RQ) captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. *Rule of Law* (RL) captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. *Voice and Accountability* (VA) captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media

each country differs in its intercept term whereas random effect model assumes that each country differs in error term.

$$\left(\frac{FDI}{GDP}\right)_{it} = \alpha + \varpi_1 LPCGDP_{it} + \varpi_2 INF_{it} + \varpi_3 OPN_{it} + \varpi_4 TEL_{it} + \varpi_5 SEDU_{it} + \varpi_6 GOV_{it} + \varpi_7 (SEDU * FDI)_{it} + \varpi_8 (GOV * FDI)_{it} + \nu_i + \mu_t \text{-----} (3)$$

The choice between fixed effect and random effect model is made through Hausman Test (1978). That is based on the idea that under the hypothesis of no correlation, both OLS and GLS are consistent and OLS is inefficient, while under the alternative, OLS is consistent but GLS is not.

$$H = (\beta^{FE} - \beta^{RE})' [Var(\beta^{FE}) - Var(\beta^{RE})]^{-1} (\beta^{FE} - \beta^{RE}) \rightarrow \chi^2(k)$$

If the value of H statistic is large, the difference between estimates is significant, so null hypothesis that random effect model is consistent is rejected and fixed effect estimators are used. If the value of H statistics is small then random effect estimators is more appropriate.

In term of apriori expectation, per capita GDP measures the size of the market, hence a positive relationship is hypothesized between the two in the literature. SEDU⁹ is used as a surrogate for human capital development and is expected to induce more foreign direct investment into the host environment. In addition, the presence of a stable macroeconomic environment, the degree of country's openness as well as her level of integration into world economy, good infrastructural facilities coupled with good institutional framework are inducers to attracting FDI into any economy. As a consequence, each moves hand in hand with FDI. The data set used in this study is sourced mainly from World Development Indicators and World Bank's Worldwide Governance Indicators (WGI) respectively. The selected countries include Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Mali, Nigeria, Senegal and Togo, respectively.

4. Empirical analysis and the results

Table.1 presents descriptive statistics of the variables of interest in ECOWAS countries. We observe that foreign direct investment as a ratio of GDP ranged from 0.07 (lowest) percent for Burkina Faso in 2004 to 17.5 (highest) for Niger in 2010. The overall average for the subregion stood at 3.54 percent of GDP. The per capita GDP ranged from as low as \$166.6 (for Niger in 2004) to as high as \$1958.89 (for Cape Verde in 2010). The overall mean average for the regional bloc however stood at \$470.25 as can be observed from the table. In terms of human capital development, the secondary education enrolment rate is 35.5, with the highest and lowest being 6.83 and 87.52 for both the Cape Verde (in 2010) and Niger (in 2002) respectively. For the governance index, we observe that the performance of Cape Verde (0.52 in 2007) surpasses other

⁹ Although supported by limited evidence, education at the tertiary school level appears to be the level of education necessary for attracting relatively high value-added efficiency seeking FDI but due to the problem of missing data, we result to employing secondary education enrolment rate instead.

countries within the bloc while Nigeria can be ranked as the least performer as indicated by the range of -1.25 (in 2002). The average of governance index for the subregion presents a picture which leaves so much to be desired as negative values of each dimension of governance far outweighs the positive values.

Table.1: Summary statistics

Variable	Mean	Median	Minimum	Maximum
FDIGDP	3.54532	2.34926	0.0749537	17.5006
PCGDP	470.250	305.422	166.664	1958.89
INF	5.09467	2.33311	-3.09978	26.6749
OPX	67.3598	66.9594	29.9926	123.701
SEDU	35.5908	32.1456	6.83847	87.5273
TEL	2.68701	1.01281	0.184348	15.5894
GOV	-0.375928	-0.285042	-1.25073	0.529579

Variable	Std. Dev.	C.V.	Skewness	Ex. kurtosis
FDIGDP	3.60968	1.01816	1.98515	3.87736
PCGDP	431.060	0.916663	2.32169	4.21266
INF	5.80724	1.13986	1.21805	1.25216
OPX	24.8156	0.368403	0.288661	-0.905044
SEDU	20.3234	0.571030	0.893171	0.391204
TEL	4.44913	1.65579	2.36564	3.81604
GOV	0.459283	1.22173	-0.163841	-0.544474
TEL	0.194673	15.1237	1.50708	0.000000
GOV	-1.16402	0.479149	0.554766	0.000000

The macroeconomic performance outlook captures by inflation rate presents Ghana has the most hit with the rate of inflation rising to 26.7 in 2003 whereas Senegal in the same year suffers from deflationary trend as the rate plunged into a negative region of -3.09. The overall average of the rate of inflation for the subregion is quite satisfactory since it falls within the acceptable range of single digits. Cape verde also records the highest level of development in terms of infrastructural quality given her 15.5(in 2003) telephone lines per 1000 people while Niger is less than satisfactory with 0.18 during the same period. It is never out of place to describe the overall performance of the region as generally poor as indicated by 2.68 number of telephone lines per 1000 people.

Apart from the summary statistics in Table.1, Table.2 also presents the results of the estimated panel models in equations 1, 2 and 3. From the table, it is observed that all the explanatory variables with respect to each of the estimators namely: pooled OLS, fixed and random effects, conform to theoretical predictions of conveying the expected signs but with the exceptions of degree of openness and infrastructural quality variable (TEL) which has contradictory signs. In fact, virtually all of the variables significantly affect foreign direct investment except for inflation and degree of openness variables.

Table.2: The regression results when the dependant variable is the FDI as a Percentage of GDP

Variables	Pooled OLS	Fixed effects	Random effects
Constant	-2.4444 (-2.5313)**	-3.7591 (-2.2132)**	-2.6525 (2.9985)***
LPCGDP	0.7876 (3.1571)***	0.9432 (2.9874)***	0.7939 (3.0017)***
INF	-0.0257 (-0.9120)	-0.0174 (-0.4631)	-0.0543 (-0.3675)
OPN	-0.0030 (-0.1330)	-0.0197 (-0.2705)	-0.0342 (-0.1155)
TEL	-0.3483 (-1.9250)*	-0.2426 (-2.2103)**	-0.4325 (-2.4321)**
SEDU	0.1315 (2.9663)***	0.1741 (2.5478)**	0.0897 (2.9645)***
GOV	-10.9195 (-5.0577)***	-8.0996 (-3.1337)***	-10.9758 (-4.6503)***
SEDU*FDI	0.2695 (1.8097)*	0.1613 (2.7249)**	0.3324 (2.6097)**
GOV*FDI	0.1275 (2.2145)**	0.2115 (2.5910)**	0.1879 (2.3499)**
R-SQUARED	0.54	0.51	0.52
No of Observation	81	81	81
F-Statistics ¹		27.87***	
Hausman test			23.59***

Note: ***, ** & * indicate 1%, 5% & 10% level of significance; Standard F-test¹ to choose between Pooled OLS & Fixed Effect Models; Hausman Test to choose between Fixed and Random Effects and T-ratios are in parenthesis.

First and foremost, a choice is made between the pooled OLS and Fixed effects (FE) using the standard F-statistics. We also estimated the model with the random effect (RE) approach using the Hausman test in which the level of statistical significance favours FE as the best model. However, by way of analysis, coefficient on per capita GDP is found to be positively correlated with foreign direct investment and as well statistically significant at a conventional 1% level. The simple explanation is that the size of the market is one of the reasons that attract foreign investors to ECOWAS member countries. This result is in tandem with many previous studies on FDI like Asiedu, 2002; Lipsey, 1999; Elbadawi and Mwegu, 1997; Onyeiwu and Shrestha, 2004; Krugell, 2005 and many others. By implication, foreign direct investors can employ the advantage of economies of scale benefits in the countries with larger market. Therefore, larger economy can absorb more foreign direct investment. This result has lent credence to market size hypothesis as espoused in theoretical explanation on what determines FDI. Inflation, a measure of the level of macroeconomic stability though conform to apriori expectation but statistically insignificant at whatever level of statistical significance. The result corroborates that of descriptive statistics in Table 1. This is unsurprising as each country within the regional bloc always strives to comply with the conditions (e.g like the maintenance of a single digit inflation rate) as being imposed by different regional bodies as well as other regional integrated arrangements. Examples include West African Economic and Monetary Union (Union Economique et Monétaire Ouest Africaine, (UEMOA); West Africa Monetary Union (WAMU) and a host of

others). Notably also is the fact that inflation conveys negative coefficients across the estimators thus corroborating its discouraging impacts on FDI. The coefficient on degree of openness is negative and insignificantly correlated with FDI in ECOWAS countries. The possible explanation for the negative coefficient may be likened with the belief that openness usually imposes unavoidable cost of crowding out domestic businesses owing to their superior technology. In terms of marginal effects, for each percentage point increase in the degree of openness, FDI tends to decline. This hovers around the ranges of -0.12-0.27 percentage points respectively.. However, against the a priori expectation, the coefficient on infrastructural quality denoted by TEL is negative. This result is unsurprising as sub-Saharan Africa (SSA) in general; ECOWAS in particular is still contending with serious infrastructural deficits. This is typical of African region. Human capital variable proxied by secondary school enrolment rate is positively and significantly correlated with foreign direct investment. By implication, this suggests that having the requisite human capital remains one of the fundamental criteria that attract FDI into the region. Our results suggest that an economy with high fraction of skilled workers is likely to be much more productive and more desirable on behalf of foreign investors. This result is consistently with the previous studies like Cheng & Wang (2000) and Cheng & Zhao (1995). Also, from the table, we observe the negative impact of bad governance on FDI across the estimators. This is not unexpected as each member country of ECOWAS contends with different problems of governance ranging from political unrest, flagrant abuses of fundamental human rights, supplanting of rule of laws by whims and caprices of the dictators and a host of other problems. More importantly, there is a strong complementarity effect between secondary school education enrolment rate and foreign direct investment (denoted by interaction term SEDU*FDI) and governance and foreign direct investment being signified as GOV*FDI. Therefore, human capital can improve the technology absorption capacity of host country. Thus, the implication is that having the requisite labour force and good governance structures are important prerequisites that guaranteeing the influx of FDI into the region.

5. Conclusions and policy recommendations

The study examines the determinants of foreign direct investment in some selected ECOWAS countries, with special reference to the roles of governance and human capital variable over the period 2002-2010. The important variables adjudged to be crucial to attracting FDI into the regional bloc were uncovered in a panel data setting of which a battery of methods like pooled OLS, fixed effects and random effects were applied respectively. Firstly, per capita GDP, secondary school enrolment rate and interaction terms between secondary school education enrolment rate and FDI, and between governance and FDI are found to be having significant positive impacts in attracting FDI into the region while inflation, degree of openness and infrastructural quality are found as having negative correlation with FDI across all the estimators. The relevance of human capital variable and governance factor became amplified with their interaction with FDI. It is however worth mentioning that while per capita GDP and human capital variable induce FDI on the one hand; inflation, degree of openness and infrastructural quality are drags on FDI on the other hand. On the basis of the empirical outcomes, it is therefore suggested that a requisite higher level of education is still required in order to induce more influx of FDI into the region since education at secondary levels exert significantly meaningful impacts. This can be achieved if quantum of state budgets can be channelled towards educational sector development.

The region should also institute as well as improve on governance structure under which FDI thrives. In addition, efforts should be directed towards the provision of good infrastructural facilities as non provision or the worsening state of these facilities could drive away the potential foreign investors who may have been contemplating investing in the region. The challenges may be circumvented provided concerted efforts are geared at investing in qualitative infrastructural facilities in the region.

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