Institutional Quality, School Enrolment and Mobile Subscribers in Economic Community of West African States (ECOWAS-5): Impact on FDI using Panel Data

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ABSTRACT

Basically, the quality of institution, human capital (school enrolment) and infrastructure (mobile subscribers) are significant determinants of foreign direct investment (FDI). With exception of few studies on corruption, however, empirical research on the link between infrastructure, human capital and FDI remain limited. Particularly in the context of Economic Community of West African States (ECOWAS). This paper aims to examine the linkage between infrastructure (mobile subscribers, corruption, school enrolment), and Foreign Direct Investment (FDI) among selected ECOWAS countries using panel data techniques for the period of 1990-2015. The methodology carried out to achieve this objective involves the panel unit root, panel cointegration and fully modified ordinary least square (FMOLS). The result indicates that, there is long run relationship among the series. Corruption and infrastructure are negatively significantly related with FDI at the long run in the selected ECOWAS countries. The empirical evidence indicates that feeble level of institutions (corruption) and infrastructure impedes FDI inflows in the selected ECOWAS countries. The results confirm that FDI enhancement through role of institution, school enrolment and infrastructure (mobile subscribers) exist not only in the transition nation but also in the selected ECOWAS countries.

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1. Introduction

Institutional quality attributes which include freedom of economic activities and prudency of countries’ governance are acceptable determinants of Foreign Direct Investment (FDI). The multinational corporations (MNCs) steadily move from market-seeking FDI and resource-seeking FDI to efficiency-seeking FDI due to these factors (Dunning, 2002). The inflow of FDI is definitely perverse in Africa due to immense poverty while domestic savings and income continue to be low (Shahbaz&Rahman, 2010). These elements are linked with the reinforcing flows of foreign aid, the slightest advantage of Africa in world business and the mass volatility of capital flow that quickly signal for the compelling need to enhance the right type of FDI (Afolabi&Bakar, 2016).
However, with rising importance of FDI, the west African countries need to learn to attract FDI potentially (Rjoub, Aga, AbuAlrub & Bien, 2017; Dupasquier and Osakwe, 2003; Anyanwu, 2006; Azman-Saini, Baharomshah and Law, 2010). These studies further reveal that FDI exhibit a greater achievement in the economic development process i.e. domestic savings support, creation of employment and growth, assimilation into the global economy, adoption and adaptation of modern technologies, improvement of competitiveness, advancement of local suppliers, and promoting skills of local labour force (Azam & Ahmed, 2015; Azam & Gavrila, 2015).

The ECOWAS region comprises of 15 countries with a population of over 300 million and the countries are privileged with natural resources such as oil, gas and minerals in commercial quantity. Notwithstanding, the inflow of FDI to Africa recently shows less inflow to developing nations including ECOWAS. Africa’s FDI inflow revived from $2.2 billion in 1980 to $15 billion in 2004 and eventually stood at $54 billion in 2015. Africa’s percentage in addition to ECOWAS world flows declined from 2.3% in 1980 to 1.5% in 2004 and also declined more by 7% in 2014 (UNCTAD, 2015). The interminable downturn of the inflow poses a critical menace to ECOWAS countries’ economy. The quality of infrastructure in respect of i.e: transportation, power intensity, mobile subscribers poses a serious issue to assembling manufacturing and service as well as minimizes the cost of business transaction (Regional Outlook report, 2014) Moreover, profitable and productive as well as intriguing investors will consider decrease in administrative hindrances, boost of both tangible and human capital (Regional Outlook report, 2014). Thus there is necessity to examine the role of above traditional determinants of FDI. World Bank (2000) examined that around $2 trillion is wasted yearly due to fraud and misdeed, which accumulates to around 5% of GDP globally.

According to the Global Financial Integrity (GFI), sub-Saharan Africa along with ECOWAS nations faced huge loss due to illicit capital outflow which is leveled at around 4.0% of GDP (Zubair, Nor’Aznin, & Azam, 2017). However, the spurious misinformation of trade operations recorded to be the largest part of financial illicit outflow from developing nations. This represents 83.4% of all flows illicitly (Zubair, Nor’Aznin, & Azam, 2017). Apart from the acceptance of the impact of openness in attracting FDI inflows, several authors underlined the influence of other policy variables i.e. quality of infrastructure and the stability of macroeconomics as determinants of FDI inflow (Rjoub, Aga, AbuAlrub & Bien, 2017; Gol and Kashani, 2012; Antras and Helpman, 2004).

The bottomline is that, this paper adds to the frontier of knowledge in a number of ways. First, it is an addition to the existing literatures on the impact of institutions, human capital (school enrolment) and infrastructure (mobile subscribers) on FDI. The limited inflows of FDI especially in the context of ECOWAS region are examined with the use of panel time series methodology. This has added another dimension to the present study. Second, this paper employs institutional quality variable (corruption) in the examination of target and source countries in order to take both pull and push factors into account. For instance, a lower level of corruption in ECOWAS’ nations, could be a source of attraction for the MNCs, but a higher level of corruption in the source nations could be a source of repulsion (Rjoub, Aga, AbuAlrub & Bien, 2017).

This study also explores the impact of corruption, school enrolment and mobile subscribers on FDI of the selected ECOWAS countries from 1990-2015 with the use of panel data. The rest of this paper elaborate the theoretical and empirical literature and elaborates methodology and data for the empirical analysis. The last section namely results discusses analysis of findings and their implications for policy.
2. Literature Review

FDI is a crucial element to economic growth and development, specifically in view that, it is the vital driver of the technology transfer and competitiveness (Rjoub, Aga, AbuAlrubi & Bien, 2017). Since FDI contributes to creation of jobs and economic growth which will indirectly reduce poverty, especially in relation to income. Therefore, this income will be used by states to finance infrastructure and development of services. Specifically, most of the benefits of these income can be direct and indirect. Corporate income which companies paid to state and natural resource sector revenue from FDI, all constitute the direct income, while the income that improve the tax base at all overall level is viewed as indirect income. Moreover, the research conducted by Chen and Hambright (2016) explored the same in their study on China.

Notwithstanding, as corruption spread all over the world, it is a disturbing policy interest of the government because, the corruption increases cost of doing business (Zubair et al. 2017). The outcome of the investigation on FDI flow from US to Africa by Nnadozie and Osili (2004) revealed, that the performance of infrastructural quality on FDI is significantly low. Evidence from Anyanwu and Erhijakpor (2004) testified that, mobile infrastructures, GDP and trade openness extremely increase inflow of FDI into Africa as against, export processing zones, capital gains tax and credit to the private sector which are negatively significant. Presentations by Sekkat and Veganzones-Varoudakis (2007) signified that, infrastructural quality, trade openness and robust political and economic situations are essential for South Asia, Africa, and the Middle East in alluring FDI (Iamsiraroj, 2016). Oladipo (2008) explored the principles of Nigeria’s FDI inflow from 1970-2005 and revealed that, potential market size, the degree of export orientation, administering and enabling environment toward the contribution of infrastructural quality, human capital, and ensuring macroeconomy stability are vital principles of inflow of FDI (Iamsiraroj, 2016). The justification of infrastructural quality, competent infrastructure is recommended to re-enforce new technologies and to ease correlation amidst domestic firms and FDI (Busse, Erdogan, & Mühlen, 2016; Iamsiraroj, 2016).

Furthermore, corruption boost apprehension, as long as corruption accessions are not reinforced in the courts of law. Foreign investors would aim to avert venturing into business in countries with immense corruption. However, a positive effect of corruption on inflow of FDI may exist. Bearing in mind the difficulty in regulation and bureaucratic flaws, corruption may surpass efficient bureaucracy by aiding the procedure of decision making (Bardhan, 1997; Iamsiraroj, 2016). In the study of Azam and Lukman (2010), Azam (2010) and Azam and Emirullah (2014) they indicated that trade openness, infrastructure, inflation, urbanization, human capital, corruption, market size and political stability are the most vital factors of the inflow of FDI.

According to Kumar (2001), testing a particular yardstick for infrastructure as well as corruption index in inflow of FDI modelling, can not only capture the actual impact but combing other variables like real exchange rate and interest rate (Zubair & Aladejare, 2017). Kenya, Obwona and Egesa (2004) indicated that, productive and appealing investors have not been eager to invest in Uganda due to lack of quality infrastructure, technological knowhow and the land locked nature of the Uganda. In the study of Morisset (2000), he concluded that, good infrastructural quality and well boosted human capital in Mali and Mozambique brought a major breakthrough in FDI.

3. Methodology and Data

The Model Specification

To determine the framework given ahead and the set up of ECOWAS, with the variation of FDI inflow in Africa. The following estimating technique was used for institutional Development and mobile
subscribers in ECOWAS-5 (Nigeria, Ghana, Togo, Senegal and Cote d Ivoire).

\[ \text{FDI}_{it} = \beta_0 + \beta_1(\text{Infra})_{it} + \beta_2(\text{GDPPC})_{it} + \beta_3(\text{Inflation})_{it} + \beta_4(\text{REER})_{it} \\
+ \beta_5(\text{Trade Openness})_{it} + \beta_6(\text{Corr})_{it} + \beta_7(\text{Schoolenrol})_{it} + \mu_{it} \]

where \( i \) denote countries, \( t \) denotes time, and the variables are defined as:
- \( \text{FDI}_{ij} \) denotes the net FDI inflows as % of GDP,
- Infrastructure is fixed and mobile subscribers (per 1000 people)
- GDPPC is gross domestic product per capita (US$),
- Human capital is Schoolenrolment,
- Inflation is the annual inflation rate,
- Exchange Rate is the official exchange rate to the US$ (annual average),
- Openness is openness index - total trade (% of GDP),
- Corro denotes Corruption perception Index
- \( \beta \) is a vector of coefficients, and
- \( \epsilon_{ij} \) represents the myriad other influences on FDI, assumed to be well behaved.

Precise observation on Vector X as the determinants of the inflow of FDI in ECOWAS countries identifies quality of Infrastructure as important factor. Sekkat and Veganzones-Varoudakis (2007) asserted that the underpinning factor for FDI inflows in emerging economies is infrastructural development. As intermediary to this variable subscribers of mobile lines as well as main mobile lines per 1000 persons was used (Calderon and Serven, 2008, Busse, Erdogan, & Mühlen, 2016; Khadaroo and Seetanah, 2007). Invariably infrastructural development like Information and Communication Technology are now penetrating in accommodating regional producers into alluring vertical FDI in manufacturing and services as well as communication chain (Addison and Heshmati, 2003). The study by Kinoshita and Campos (2003) authenticated that acceptable and reputable Infrastructures are paramount predicament for foreign investors to accomplish victoriously, heedless of the type of FDI. The adoption of main telephone lines is because of its necessity in empowering connection between host country and foreign investors.

Nelson and Phelps (1966) argued that for a nation to experience a long run sustainable economic growth, it will depend on the stock of well educated labour that is able to comprehend cutting edge technology and introduced absorptive capacity, which are innovatively productive. Furthermore, the new growth theory highlights the significant impact of human capital build-up, to justify output growth rate which includes investment in human capital and also regarded to as a critical component of long run economic growth. In addition, the endogenous growth theory, human capital are regarded to as a key determinant of economic growth (Akinlo, 004; Benhabib and Spiegel, 1994; Mankiw, Romer and Weil, 1992; Barro and Sala-i-Martin, 2004) further stressed the significance of human capital to growth in developing and developed nations. For the purpose of this study, schoolenrolment was used to represent human capital.

Gross domestic product per capita: Absolutely, a large level of “credit to sectors that are private” is a gesture of domestic capital that is abundant (Busse, Erdogan, & Mühlen, 2016). Kinda (2010) Huge domiciliary credit to the private sector, likewise entails the degree of domestic capital. Similarly, foreign capital in the pattern of FDI would not be needed. Positioned by earlier studies, this paper used gross domestic product per capita (US$) as proxy for Domestic Income per person. Fernández-Arias and Hausmann (2000) established the interconnection among private credit and foreign capital in the inflows of FDI.

Inflation and exchange rate: These studies used Inflation as an index of macroeconomic instability (Busse, Erdogan, & Mühlen, 2016; Buckley, Clegg, & Wang, 2007; Zubair & Aladejare, 2017) inferred that, strong macroeconomic condition supports FDI by displaying low investment liability. Huge real exchange rate expense proportionate to the US dollar, and that entails an undervalue currency, will allure more FDI in the time overturn basically deter foreign investment. That is why, exchange rate lead us to
decompose the aftereffect of comparative wealth and proximate labor outlay on FDI inflow (Busse, Erdogan, & Mühlen, 2016). Hence, a reduction of a country’s exchange rate will spur the comparative wealth of foreign firms and allow more foreign acquisition of domestic assets. Supplemenarily, a reduction of a country’s rate of foreign exchange will allow capital inflow, as foreign economies endeavour to accept advantage of approximately economical domestic labor. This paper utilizes annual inflation rate as a proxy for inflation.

Trade openness: The result of trade openness is an objective for investment pattern (Zubair, 2017). Previous researchers have determined negative outcome of trade openness on FDI inflow, that is market-seeking. The rationale is that, the tariff jumping principle which specify that MNCs that pursue to work for local markets can resolve to establish subdivision in the host economy. It is, challenging for them to import produce into their economies hence, generate capital inflows toward the aforesaid country (Mijiyawa, 2012, Anyanwu, 2012). Some studies revealed that, countries that are unhindered for foreign investment earned higher FDI (Asiedu (2002), Noorbakhsh et al. (2001), Morisset (2000), Aizenman and Noy (2006), and Anyanwu (2012). In these paper total trade as a % of GDP to proxy openness to trade.

Corruption: A balance in the existence of an advantageous climate in a macroeconomic sense, corruption and policy making rules can impede international business men from putting in their interest in an economy (Rivlin, 2001, p.191). Aside from boosting the gain of accomplishing investment, corruption lags the procedure of attaining the business license mandatory for running business in the foreign country. Time-series indexs for corruption for many developing countries are very scares. Transparency International inaugurate the compilation of data on corruption by 1995, though the World Bank’s indicator for Institute’s governance are accessible for the period 1996-2002. This paper used GDP % of government expenditure to proxy corruption and policy making rules. The basis for applying this measure is that, a large number of government officials generate advantage for abuse of treasure by their officials.

This paper utilises Secondary data also employ time series formula to form a break even data for panel from 1990 to 2015. The panel is annual data for the inflow of FDI for West Africa from ECOWAS-5 countries. The compilations of the data are accumulated and authenticated from distinct basis i.e., Direction of Trade Statistics, and World Development Indicators, International Financial Statistics by International Monetary Fund (IMF), and political rating group (PRSG).

4 Findings and Discussion
4.1 Panel Unit Root
The outcome of the panel unit root tests conducted for the variables (GDP per capita, FDI, Corruption, Reer, Infrastructure Quality, human capital(schoolenrolment), Inflation and Trade openness). Looking at Table 4.1 below, the variables show non-stationary at levels. Therefore, Levin, Lin and Chin unit root, as well as Im, Pesaran and Shin were tested again for the variables at first differenced. The outcome indicated the variables are stationary at I (1).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level</th>
<th>First Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Levin-Lin-Chu</td>
<td>Im-Pesaran-Shin</td>
</tr>
<tr>
<td>FDIinflow</td>
<td>-0.3846</td>
<td>-0.8867</td>
</tr>
<tr>
<td>Gdppercapita</td>
<td>2.7359</td>
<td>-1.2912</td>
</tr>
</tbody>
</table>

Table 4.1
Panel Unit Root Test
4.2 Panel Cointegration Test for heterogeneous panels
The hypothetical panel technique showed in table 4.2 pick up the analysis of cointegration result among the variables after the use of pedroni technique. Four of the seven tests repudiate the null hypothesis of no-cointegration after the use of ADF group test and Phillips-Perron. Accordingly, the panel technique indicated that, there is cointegration between the variables employing 5 ECOWAS nations. Conclusively, there is statistical evidence for the determinant of FDI in ECOWAS-5 nations. Nonetheless, provided the variables are basically interelated at the longrun for the determinants of FDI hence, fully modified OLS will be examined to check more for long run interrelation among the variables (Pedroni, 1997, 2000,2004).

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel v-Statistic</td>
<td>-0.981</td>
</tr>
<tr>
<td>Panel rho-Statistic</td>
<td>0.289</td>
</tr>
<tr>
<td>Panel PP-Statistic</td>
<td>-2.491**</td>
</tr>
<tr>
<td>Panel ADF-Statistic</td>
<td>-2.289**</td>
</tr>
<tr>
<td>Group rho-Statistic</td>
<td>0.944</td>
</tr>
<tr>
<td>Group PP-Statistic</td>
<td>-3.669***</td>
</tr>
<tr>
<td>Group ADF-Statistic</td>
<td>-2.883***</td>
</tr>
</tbody>
</table>

Notes: All statistics are taken from pedroni (1999), *** and ** specifies the rejection of the null hypothesis of no-cointegration at 1% and 5% significance level.

4.3 Discussion of the result
GDP was made part of FDI determinants pattern to measure market size. The outcome in table 4.3 point out that, a percentage increase in GDP per capita spur the inflow of FDI by 2.76 per cent. The compelling and positive interrelation embodying GDP and FDI testify that, foreign nations market size is a determinant of inflow in ECOWAS-5 The outcome is in line with Liargova and Skandalis (2012) Frankel et.al (2004).

This implies that, GDP or in other words the market size plays an important role for FDI inflow to the five ECOWAS countries, which aligned with Hymer, Dunning’s eclectic role OLI paradigm theory and UNCTAD framework that firms look for larger prospects when opting for FDI decisions (market–seeking FDI motive), which is mainly to serve and meet demand of large population within five ECOWAS nations. Furthermore, infrastructure development and FDI inflow show a positive and significant relationship. The result indicates that one per cent increase in infrastructure development will lead to more FDI inflow. This finding is in line with Aseidu (2002). This indicate the significance of well- developed infrastructure(mobile subscribers) in reducing costs and increasing efficiency and effectiveness in order to stimulate FDI into the selected five ECOWAS countries, which is in line with the UNCTAD theory and framework by Hymer(1977).
<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>-0.010**</td>
<td>0.0023</td>
</tr>
<tr>
<td>Gdp per capita</td>
<td>2.76**</td>
<td>0.0198</td>
</tr>
<tr>
<td>Inflation</td>
<td>0.001**</td>
<td>0.0598</td>
</tr>
<tr>
<td>HC(Schoolenrol)</td>
<td>0.006***</td>
<td>0.017</td>
</tr>
<tr>
<td>Reer</td>
<td>1.84</td>
<td>0.6058</td>
</tr>
<tr>
<td>Trade openness</td>
<td>-0.010</td>
<td>0.2859</td>
</tr>
<tr>
<td>Corruption</td>
<td>-0.007**</td>
<td>0.0107</td>
</tr>
<tr>
<td>Adj R-squared</td>
<td>0.873</td>
<td></td>
</tr>
</tbody>
</table>

Notes: ***,**& * significance level at 1%,5% and 10%.

Moreover, the coefficient of corruption (institutional quality) shows a negative sign and was statistically significant. The negative coefficient of corruption variable for the selected ECOWAS countries implies that if selected ECOWAS countries corruption perception index on average were to improve by one percent FDI determinant will increase by 0.007%. This signifies the importance of institutional quality (corruption). This result is in line with corruption perception index submission which indicates that ECOWAS region is the most corrupt region in the world.

Similarly, the dominant view which indicate that governance which is good and highly commendable tend to concede higher FDI (Laporta et al. and World Bank 2002,Shapiro and Tang, 2004; Gani, 2007) However, rise in insecurity and high spending are primarily induced by poor governance (Cuervo-Cazurra, 2008) Due to the fact that, investments cannot be protected in an environment that is riddled with poor governance (Globerman and Shapiro, 2003). In conclusion, corruption tends to increase direct costs in form of delay in bureaucracy and bribery which create artificial bottlenecks in order to create more accommodating conditions for rent seeking activities.

The result revealed school enrolment is significantly positive denoting a surge in economic growth by 0.006% units will spur school enrolment (human capital) The new growth theory justify the significant contribution of human capital accumulation in order to sustain output growth which includes investment in human capital as a significant factor for long run economic growth. Mainly in the literature negative coefficient estimate for human capital on economic growth is very common (Islam, 1995; Benhabib and Spiegel 1994; Pritchett 2001) The findings for inflation rate is significantly positive implying inflation variable increased by 1% consequently, FDI inward tend to increase by 0.001%.

5. Conclusion

This study used FMOLS technique, to explore the interlink between infrastructure(mobile subscribers), corruption(institutional quality) and human capital(school enrollment) for the inflow of FDI among ECOWAS-5 nations. The findings revealed that,corruption(institutional quality),human capital(school enrollment) and infrastructure(mobile subscribers) and FDI are statistically significant for long run purpose and good infrastructural quality(mobile subscribers) is having statistically positive association with FDI.

However, FDI is assumed to be negatively related to corruption in the selected ECOWAS countries. The study established long run association with infrastructure (mobile subscribers), corruption and FDI in the ECOWAS countries. The findings for Corruption and FDI revealed a percentage change in Corruption, will lead to about 0.007 decrease in FDI. Moreover, the significant aftereffect of corruption, mobile subscribers and school enrollment on FDI in the long run implies that, international investors are driven
by future expectations of profitability, good educational system, adequate infrastructural facilities and free corrupt society.

Government need to provide a balanced and secured macroeconomic framework, boost amassment of human capital, accelerate privatization procedure, enhance business climate and expand predictability by taking measures to aggress bureaucracy and corruption for economic growth. Additionally, a steady anticorruption strategic viewpoint should be sustained and also there should be declaration on the disadvantageous ramification that corruption impacts on variables that are not growth productive, and not withstanding vital for viable, unbiased, and perfect economic progression.

Reference


