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# GOVERNANCE AND FOREIGN DIRECT INVESTMENT- EVIDENCE FROM ECOWAS REGION

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APPLIED ECONOMETRICS TERM PAPER



SAMPLE

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## **SECTION 1: INTRODUCTION**

### **1.1 Background of the study**

A plethora of literatures abound on the attainment of economic growth for an economy. Besides developmental assistance, investment plays a key role as a source of growth in an economy. Globally, Foreign Direct Investment (FDI) has been instrumental in achieving capital formation and has grown rapidly over the years and has made inroads into the African continent with wide adoption as a strategy for economic development like the first world nations.

As such, most African countries have deemed it fit to improve on their business climate in order to attract more FDI to their economies. Examples of such policies are the ease of doing business, tax holidays, subsidies, pioneer status, reduced interests on loan amongst other measures.

These incentives which emanate as dividends of good governance in a country increases and fosters healthy competition among industries, leads to productive means and efficient use technology. FDI inevitably improves the integration of host country into global economy and promotes growth. One of the pillars for launching the NEPAD was to accelerate FDI inflows to the region (Funke and Nsouli, 2003).

In 2020, FDI inflow to Africa was \$38.952 billion while it was \$82.991 billion in 2013 (UNCTAD, 2022). This represents an increase of 113.06% of FDI inflows to Africa. This increase reflects the relative improvement in economic growth and strong corporate performance in many parts of the world (UNCTAD, 2022). Reinvested earnings accounted for more than 30% of total FDI inflows due to rising earnings of foreign companies in Africa. Increased interest in Africa's Natural endowment and a more favorable business climate has been adduced as some of the reasons for this improved fortune. FDI increases growth in the wake of the anticipated gains of

FDI, many studies have been conducted. For instance, Ndikumana and Verick (2008), findings reveal that impact of FDI have significant positive effect on economic growth. Other findings give contrary evidence, as detailed in the works of Ajide *et al*, 2014. Their findings reveal that only three indicators of governance (Control of corruption, political stability and government effectiveness) matter for growth.

However, despite the gains accruing to Africa between 2020 and 2021, West African countries' ability to attract FDI inflow rose by 48.28% reflecting an increase from \$9.340billion to \$13.849billion (UNCTAD, 2022). Thus, West Africa's share of FDI as a percentage of 2020 total inflow to Africa declined from 23.91% to 16.69% in 2021.

The supporting data in table 1 reveals that ECOWAS region's share as a percentage of all developing nation's FDI is very minimal with an average of 4.29% between 2015-2021, which is a decline from 5.47% averaged between 2010-2014, thus, sustaining the pattern of average decline since 2010.

The highest shares of FDI to ECOWAS region was 5.66% on an average basis between 2005 and 2009. The Americas continent attracted greater share of FDI than Africa as a whole, while Asia's average (\$19,667.2) could only edge out Africa (\$16,183.88) between 2000-2004 as seen in the table below. ECOWAS region witnessed a remarkable improvement to its average FDI in 2009 (\$9,888.71), which is a 268.99% rise from 2004 (\$2,679.91), and further solidified the improvement in 2014 (\$13,961.90).

**Table 1**-Annual averages of FDI inflow in developing economies and some selected regions.

(Million Dollars) 2000-2021

YEAR	AFRICA	AMERICAS	ASIA	ALL DEV. ECON	ECOWAS	ECOWAS (% SHARE)
2000	10,381.77	79,825.65	26,789.58	116,997.00	2,094.81	1.79
2001	19,972.56	72,783.76	14,535.61	107,291.93	1,998.05	1.86
2002	14,761.26	56,379.49	16,297.28	87,438.04	2,845.93	3.25
2003	18,156.99	45,621.37	16,656.37	80,434.73	3,240.86	4.03
2004	17,646.79	68,135.42	24,057.17	109,839.38	3,219.89	2.93
<b>AVERAGE</b>	<b>16,183.88</b>	<b>64,549.14</b>	<b>19,667.20</b>	<b>100,400.22</b>	<b>2,679.91</b>	<b>2.67</b>
2005	29,260.31	77,178.62	21,237.23	127,676.16	6,284.10	4.92
2006	34,593.72	74,048.25	17,051.94	125,693.91	6,865.08	5.46
2007	50,863.88	117,191.10	40,174.03	208,229.02	9,436.21	4.53
2008	58,391.18	138,883.90	45,887.32	243,162.40	12,241.16	5.03
2009	56,866.29	86,014.86	25,567.27	168,448.42	14,616.99	8.68
<b>AVERAGE</b>	<b>45,995.08</b>	<b>98,663.35</b>	<b>29,983.56</b>	<b>174,641.98</b>	<b>9,888.71</b>	<b>5.66</b>
2010	47,242.96	160,756.04	15,230.50	223,229.50	11,873.90	5.32
2011	46,440.86	201,248.69	16,668.07	264,357.62	18,449.56	6.98
2012	57,086.83	202,057.36	20,244.97	279,389.17	14,891.70	5.33
2013	50,637.14	186,351.08	26,912.64	263,900.86	13,091.64	4.96
2014	54,497.57	163,181.17	27,352.49	245,031.23	11,502.70	4.69
<b>AVERAGE</b>	<b>51,181.07</b>	<b>182,718.87</b>	<b>21,281.73</b>	<b>255,181.68</b>	<b>13,961.90</b>	<b>5.47</b>
2015	57,922.12	152,838.53	18,416.13	229,176.79	9,688.71	4.23
2016	46,249.86	136,221.21	43,451.39	225,922.46	11,454.63	5.07
2017	40,175.95	153,536.21	44,161.31	237,873.48	9,524.80	4.00
2018	45,384.22	151,978.39	43,659.93	241,022.53	7,329.33	3.04
2019	45,678.07	158,744.18	40,752.35	245,174.61	9,976.45	4.07
2020	38,952.20	86,171.55	43,750.84	168,874.59	8,412.40	4.98
2021	82,990.54	134,457.78	71,086.81	288,535.13	13,826.38	4.79
<b>AVERAGE</b>	<b>51,050.42</b>	<b>139,135.41</b>	<b>43,611.25</b>	<b>233,797.09</b>	<b>10,030.39</b>	<b>4.29</b>
<b>SOURCE (UNCTAD, 2021)</b>						

**Table 2-** Computed annual averages (2000-2021) of governance indicators computation for representative countries in three continents and ECOWAS region.

	<b>Germany</b>	<b>USA</b>	<b>South Africa</b>	<b>ECOWAS Region</b>
<b>Control of Corruption</b>	1.82	1.40	0.11	-0.6
<b>Voice &amp; Accountability</b>	1.39	1.12	0.65	-0.32
<b>Regulatory Quality</b>	1.60	1.47	0.40	-0.65
<b>Govt. Effectiveness</b>	1.56	1.53	0.29	-0.81
<b>Rule of Law</b>	1.66	1.55	0.03	-0.66
<b>Political Stability</b>	0.82	0.38	0.15	-0.54

Source: [www.govindicators.org](http://www.govindicators.org)

**Note:** Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)

From table 2 above, the indicators of governance reveal that ECOWAS' performance is poor relative to countries in other continent. Although, the two countries sampled on an average basis have moderate indicators for most results computed, countries in Africa are worse off with South Africa at the lower rung of strong tendencies, while the ECOWAS region on average has weak indicators. For instance, using the control of corruption index, America had the best statistics of -1.44 which is the greatest of the three continents while South Africa averaged 0.11 which indicates the least in terms of corruption control. The countries in ECOWAS region averaged -0.6 on the scale, which is worse than Africa's performance.

Also, the voice and accountability indicator shows a positive average for European and American countries with a result of 1.39 and 1.12 respectively, while South Africa showed an average of 0.65 which is the least average of the three countries from different continents in the table. ECOWAS countries had figures that are not encouraging and as such account for the inability to competitively attract FDI when compared with other nations and even developing nations of those continents. One cannot but ponder on the cause of the reduction in West Africa's share of FDI, when the Africa continent is counting its gains.

From the foregoing, it is vital to understand the effect of governance on FDI in the ECOWAS region. A research work that re-examines this inter relationship will not only provide appropriate policy focus that will adequately attract FDI to West African region but also provide basis for which governance indicators should be reformed and restructured in order to improve the impact of FDI-Growth nexus in the region.

The study of the relationship that exists between governance and growth has emerged and is premise upon the increasing interest in the governance as a concept in the developed countries and by international development agencies. Based on this reality, developing nations have got to up their game in terms of ensuring good governance to boost investments and investors' confidence in their host economy and attract capital flows. FDI boosts capital formation and enhances the quality of capital stock. Though, FDI has been criticized because of its crowding out effect of the indigenous companies.

## 1.2 Statement of the Problem

Although the literature has made important advances in uncovering the political, institutional and social determinants of economic growth, the governance-matters approach to development is not without problems. Paying lip service to good governance in Africa and specifically West Africa has been the bane of growth and development in the region.

Thus, investment cannot thrive in an environment with weak institutional framework and governance structure that does not guarantee Returns on Investment (ROI), talk more of attracting FDI inflow. In term of some of the indicators for attracting foreign investment, African countries are far behind some of its competitors in other continents of the world, as revealed in Tables 1 and 2. For example, measures such as world bank ease of doing business ranking, electricity generation per person, state of infrastructures, legal and court reforms, corruption, just to mention a few are relatively on the adverse side when compared with other advanced nations. For instance, in China, data released by the International Energy Agency (IEA) reveal that in 2022, electricity production amounted to 758,489.18 GWh while Canada had 61,518.82GWh in the same year.

In comparing these statistics with Africa countries such as Ghana, Nigeria, Niger, Benin, the capacity for electricity production is miserably low. Nigeria in September 2021 had 4.7GWh (IEA report, 2022) with an estimated 85 million people without electricity, which represents about 40% of the population.

Also, Nigeria's access to electricity as a percentage of the population stood at 55% (World Bank, 2020) while Benin had 41.41% in the same period with Ghana at 85.87%. The relative statistics between Ghana and Nigeria shows that the latter has more electricity access as a percentage of population. Overall, the poor state of electricity is a key factor that explains the low attraction of FDI to ECOWAS region.



The problem of insecurity has become a hydra-headed dragon that has bedevilled the ECOWAS region and as result, dissuade investors foreign investors investing in the economy. For the activities of the militant group Boko Haram whose ideology of zero tolerance for western education in Nigeria and Niger has ward off prospective investors who are scared of being kidnapped for a ransom upon release, maimed and even killed.

If host countries in the region think that foreign investors are not aware of all these vices, then they are shying away from reality. Investors pay world class consultancy firms, fees to advise them on where they should put their money. These challenges are not only peculiar to Nigeria and Niger but have had impact on all West African countries. ECOWAS' FDI Inflow has been swinging with no definite stability for progression. In 2019, the region's FDI figure stood at \$9,976.45 million and declined by 15.68% (\$8,412.4 million) in 2020 and subsequently rose by 64.35% (\$13,826.38), which is a low compared to all time peak FDI attained in the ECOWAS region in 2011 and stood at \$18,449.56 million.

In 2020, the Africa Economic Outlook (AEO) projected Guinea to remain in debt distress despite the promising improved economic performance in the same year. It matured into a resilience economy against COVID-19, which might have deterred some investors in the past, GDP growth rate of 6.4%, improvement in public finance due to digitization of its financial system etc. Despite these economic gains, FDI, especially from mining investment need to be shored up to finance current account deficit that stood at 4% of GDP 2021 (AEO, 2022). Guinea ranks 150th out of 180 countries in Transparency International's Corruption Perceptions Index, 2021 and 175th out of 184 countries in the United Nations Development Programme (UNDP,2022) Human Development Index (HDI). Infrastructure, public utilities and government services remain insufficient, and the private sector is still small.

Furthermore, most ECOWAS countries rank low in infrastructural development. For instance, Nigerian airport is ranked 86<sup>th</sup> in the world, 163<sup>rd</sup> among the league of nations for internet host, telephone lines are moribund with only GSM market in operation. This is in sharp contrast with places like Dubai, Hong Kong, and Singapore that attract investors are known for their world class infrastructures such as functional transport system, stable power supply, robust internet facilities, superior telecommunication channels etc.

These attractive destinations for FDI in the world did not attain the enviable status on a platter of gold, they were intentional about having the best infrastructures and this was facilitated by good governance and stable environment. The foreign investors are not philanthropists but are profit maximizing and risk minimizing capitalist looking for conducive environment for investment of their capital.

To improve the global economy and make all countries a safe haven for investors, good governance which is key for attracting inflow of investment has been stressed a lot by transparency international's Corruption Perception Index (CPI), Freedom House's Freedom in the World Country Rating, the World Bank Group's International Country Risk Guide (ICRG) Indicators and Country Policy and Institutional Assessment (CPIA) Indicators and more recently, the World Governance Indicators which is a systematic approach for measuring institutions. It is developed as a large set of aggregate indicators of Governance and is expected that it would enhance the quality and widen the scope of the studies on the determinants and consequences of good and bad governance (Kaufmann *et al.*, 2005).

### **1.3 Objective of the Study**

The broad objective of the study is to examine the impact of Governance on FDI inflow into ECOWAS countries. Specifically, the study intends to;

- i. Determine the relative importance of governance on FDI attraction in ECOWAS region.
- ii. Ascertain if Governance has any effect on FDI-Growth nexus in ECOWAS region

### **1.4 Research Questions**

- i) What is the relative importance of governance on FDI attraction in ECOWAS region?
- ii) Does governance have any effect on the FDI-Growth nexus in ECOWAS region?

### **1.5 Justification of the Study**

Considering the low volume of FDI inflow to ECOWAS region occasioned by governance issues, the need to tackle this malaise of regional concern has become more pertinent. For instance, there has been fluctuations the FDI statistics of African countries over the years and the West African countries have been adversely affected by this trend.

Togo, has had terrible dwindling fortunes as revealed by the UNCTAD report of 2021. Togo in 2020 witnessed recorded a negative FDI of -\$59.207 million, which is a decline from the \$345.70 million of 2019. According to global insight business conditions and risk indicators, available data shows that the control of corruption has not improved considerably in ECOWAS region. In 2019 and 2020, the aggregate estimate for control of corruption as reported by world

governance indicator is -7.38 and -7.02 respectively. This trend of negative indicators has persisted since 1996 and needs improvement so as to instill confidence in prospective investors looking to bring business into countries in the region. As such, governance issues have played a role in declining FDI and the need to address these issues in ECOWAS countries and improve their developmental rankings in the comity of nations justifies this study.

Other regions in Africa countries in the Southern region have performed better when compared with ECOWAS countries. Governance permeates all nooks and crannies of the economy and as such, plays a great role in determining if the country is palatable for foreign investors. For instance, the workings of the legal systems in place, property rights ownership, freedom of visits are some of the determinants of good investments inflow. A report released by the Freedom House showing the ratings for economic freedom of the world, reveals that southern African countries are better rated using some indices. Of the 176 ranked countries on economic freedom index by Heritage Foundation, Guinea-Bissau ranked 165<sup>th</sup> and was the least rated country in ECOWAS in year 2023. Using the legal enforcement of contracts as a yardstick for considerations noted by any investor, Guinea-Bissau and Gambia ranked 171<sup>st</sup> and 129<sup>th</sup> respectively, while the trio of Zimbabwe-169<sup>th</sup>, Zambia-130<sup>th</sup>, Namibia-64<sup>th</sup> and Angola-186 (all southern Africa countries) did not convincingly edged out their counterparts in the western part using this measure.

On the business freedom by Heritage Foundation, measure, most West African countries recorded nil, while the southern nation's statistics if viewed by foreign investors will most likely be appealing to them for investment than ECOWAS countries. Protection of property rights also swung in the favour of the southern countries in the same report made available for 2020. From the foregoing, the need to observe what was done right in terms of governance and improve ratings for ECOWAS region justifies the study.

Again, a new phenomenon by Fraser institute is governance, thus, the need to look at this key indicator of economic freedom and fully utilize its potential in fostering economic growth, justifies the study. It is evolving and ECOWAS region needs to exploit it.

Previous studies have not studied ECOWAS region in an in-depth way, thus giving rise to this study. This study has become essential because, good governance that provides an enabling environment for proper economic functioning in advanced countries should not be eluding Africa. Thus, Africa and most importantly ECOWAS region being the focus of this study should not be left out of the gains accruing to countries with good governance system. The need to look at what was done right in countries attracting good FDI annually and replicate same in Africa, justifies the essence of the study.

Furthermore, studies pertaining to this are limited. The topic has not been fully exploited especially as regards ECOWAS region. Raheem and Oyinola (June, 2013) studied seven countries in the region and results obtained using the Threshold Autoregressive (TAR model) shows 'positive impact of FDI and Governance on economic growth process'. Alejandro Pérez-Segura on FDI and Human Development: What Is The Role Of Governance? Was a study conducted on selected countries across the globe? His result also established a direct relationship between FDI, Governance and HDI. A need arises to test if the impact will be the same using more countries in ECOWAS region justifies this study.

Also, the need to look at measures and indicators of governance prescribed by governing bodies, credible international agencies, and improve on these measures or yardstick connoting good

governance and replicating same in Africa and specifically ECOWAS countries, to make the region an investors' delight make the research study worthwhile.

## **1.6 Scope of the Study**

This study focuses on governance and its impact on FDI in ECOWAS countries. The geographic boundary is West Africa. The study is geared towards examining the issues surrounding good governance and the attendant effects between 2000 and 2021. As such, the study will cover the countries in the region.

## **SECTION 2: LITERATURE AND THEORETICAL REVIEW**

### **2.1 Theoretical Framework**

#### **Macro-Level Foreign Direct Investment Theories**

For a macroeconomic point of view, FDI is a particular form of capital flows from countries of origin to host countries and these capital flows are found in the balance of payments. Lipsey (2001) asserts that the macroeconomic theories try to explain the motivations of the investors for investment in foreign countries. The macro-level determinants that affect the host country's FDI flows are market size, economic growth rate, GDP, infrastructure, natural resources, political situation etc.

At the macro-level, we have capital market theory, dynamic macroeconomic theory, gravity approach to FDI and FDI theories based on institutional analysis etc.

(Woldemeskel, 2008).

At the micro-level, we have the theories like Existence of firm specific advantages (Hymer), FDI and oligopolistic markets, Theory of internalization etc. Some of the macro (Nos. 1-3) and micro (Nos.4-5) level theories are discussed below.

## **Capital Market Theory**

This is one of the oldest theories of FDI. According to this theory, FDI is determined by interest rates. Capital market theory is a part of portfolio investment (Iversen, 1935; Aliber, 1971). Boddewy (1985)

Capital market theory talked about three positions which attract FDI to the less developed countries (LDCs). First is the undervalued exchange rate, which allows lower production costs in the host countries. Second point is that since no organized securities exists, therefore long term investments in LDCs will often be FDI rather than purchase of securities. And the third position is that since there is limited knowledge about host countries' securities that is why it favours FDI which allows control of host country assets.

## **Dynamic Macroeconomic FDI Theory**

According to this theory, the timing of investments depends on the changes in the macroeconomic environment (Sanjaya Lall 1997). The macroeconomic environment consists of gross domestic product, domestic investment, real exchange rate, productivity and openness which are the determinants of FDI flows. This theory states that FDI is a long-term function of multinational companies' strategies.

## **Gravity Theory of FDI**

This theory stems from the Newton's law of universal gravitation to the study of human behavior and subsequently the so-called "gravity equation or model" has been widely used in the social science. In the

1860s, H. Carey was the first to apply the law. Later, social scholars have transferred the gravity equation to the empirical analysis of international trade flows. In particular, Tinbergen (1962) uses a simple form of gravity model of bilateral trade in analyzing bilateral trade flows. Since then, the gravity equation has also been applied to flows of people and capital (direct and indirect).

It explores that if two countries are very close in terms of geographically, economically, and culturally, then the FDI flows between the countries is the highest. The theory includes traditional gravity variables such as size, level of development, distance, common language, and other institutional variables such as shareholder protection (Pagano et al 2004) and openness to FDI flows (Shatz, 2001) as the determinant of FDI flows.

In analogy with the evolution of trade, the gravity theory has been used to model the international pattern of foreign direct investment. Empirically, several modifications have contributed to the improvement of the gravity theory such as the works of Mátyás (2000), Cheng and Wall (2001), and Egger (2000). Thus, a model built around the gravity theory can be used to investigate the determinants of foreign direct investment flows with special reference to the institutional factors.

Other authors contributed to the refinement of the definition of variables already considered in the analysis and adding new variables previously not considered. Anderson (1979) tries to derive the gravity equation assuming product differentiation. Bergstrand (1985) in exploring the theoretical determination of bilateral trade associates in gravity equations with simple monopolistic competition models. Helpman and Krugman (1985) use a differentiated product framework with increasing returns to scale. The differences in these theories help explaining the different specifications and results of empirical applications.



## Hymer's Theory

Theory of international operations, proposed by Hymer (1960) set the early stage of modern theories on Foreign Direct Investment. According to this theory, firms invest abroad because of certain firm specific advantages such as, access to raw materials, economies of scale, intangible assets such as trade names, patents, superior management, low transaction costs etc.

Hymer, whose theory explains why companies decide to go global and not just export their products into other markets, based his theory on the following arguments, which are, first of all, prospective FDI companies desired to remove conflicts. Again, he also argued that if one company controlled all the other enterprises rather than separate firms operating, it would yield better and quantitative results. Hymer, also argued that a few manufacturers benefited from a company's specific benefit over local firms. The theory lastly argued that the credit that earnings in one business are repeatedly inversely correlated with profits in another business.

If markets work effectively, and there are no barriers in terms of trade and competition, international trade is the only way to participate in the international market (Kindleberger, 1969). Therefore, the realization of direct investment is determined by some certain distortions, and these distortions were first noticed by Hymer. He believes that local firms will always be better informed about local economic environment and for FDI to take place, there must some conditions. These conditions are foreign firms must possess certain advantages that allow them such investments to be viable and host markets of these benefits have to be imperfect. Hymer claims that market imperfections lead to divergence from perfect competition in the final Product market and Multi-National Companies (MNCs) appear.

## **FDI and Oligopolistic Markets Theory**

This theory postulates that there are two foreign investors. One produces intermediate products and the other produces final products. The two investors decide independently whether or not they will enter a host country. The entry of either of the firms incurs some fixed costs and generates technological spill over for the local firms of the same sector and reduces the marginal cost of production (Lin and Saggi, 2010).

Hoenenand and Hansen (2009) opine that FDI is a defensive move in oligopolistic markets. Knickerbocker argued that risk-averse firms follow their main competitors to avoid any distortions in oligopolistic equilibrium. When one firm in an oligopolistic market moves, the other firms also react with counter moves at both domestic and international levels (Schenk, 1996). In oligopolistic markets, firms follow the actions of the market leader, if FDI is a move of the market leader then other firms also reacts by investing abroad and oligopolistic equilibrium sustains.

## **2.2 Literature Review**

Research works on FDI, and Governance have generated a lot of ripples and diverse opinions among different scholars. This section entails the review of the existing body of knowledge concerning the impact of Governance-FDI nexus debate. However, impact of Governance on FDI in ECOWAS region has not been exhaustively explored; therefore, this study intends to utilize updated data (2000-2021) to ascertain the interaction of the variables.

The role of Foreign Direct Investment (FDI) as a source of capital has become increasingly important to many emerging countries in the world, Sub-Saharan Africa (SSA) and ECOWAS countries in particular. FDI inflow has been critical because of its potential and actual benefits to growth, employment generation, technological know-how, enhanced efficiency and

competitiveness, supplements to domestic savings and integration into the global economy (Asiedu, 2002)

The empirical evidence to date on the effects of FDI on economic performance is that of differing result. Some studies indicate a positive impact of FDI on economic growth (Ghura, *et al* 1996; Bengoa *et al* 2003; among others) while other studies report otherwise (Carkovic and Levine, 2003; Durham, 2004).

Other group of studies suggest that the effect of FDI on a host country's economy is dependent on certain factors such as the country's absorptive capacity in terms of its human capacity, the country's the level of development, (Borensztein *et al.*, 1998; Mengistu and Adams, 2007), its sectoral pattern (Dutt, 1997) and its financial development (Alfaro, *et al.*, 2006).

Therefore, given the unresolved nature of the nexus between FDI-Growth, the significance of governance (that is, institutions through which those reforms were channeled) come to mind. Moreover, evidence from recent literature confirm the role of good governance in engendering sustainable economic growth and development (Roy, 2005; Verspagen, 2012).

Mengistu and Adams (2007), using Ordinary Least Squares (OLS) and Fixed Effects (FE) estimation techniques, the study finds that FDI is positively and significantly correlated with economic growth. The study also finds that FDI has had a greater impact in Asia than in other developing countries investigated the interaction that exists between FDI, governance and growth to know this relationship. Also, they found out that the two most important determinants of economic growth are FDI and institutional infrastructure.

Ajide *et al* (2014) revealed that not so much FDI has been attracted into the African continent, except for a few countries for reasons such as: negative image of the region, bad governance, large scale corruption and corrupt practices, foreign exchange shortages and an unfriendly macroeconomic policy environment, among others. Using macroeconomic data on 27 SSA economies and six indicators of governance, their panel data findings showed that control of corruption, political stability, and government effectiveness matter for the influence of FDI on economic growth in SSA

It is a wide perception amongst development economists that countries with relatively good governance tend to grow faster, while countries with relatively bad governance tend to grow at slower pace. Accordingly, elements of good governance are expected to play a crucial role in determining the direction of FDI inflow and growth rate of an economy. However, despite its likely role in influencing FDI and economic performance, the qualitative nature of governance makes it difficult to measure accurately. In spite of the measurement challenges, series of governance indicators such as the Country Policy and Institutional Assessment (CPIA) indicator, the International Country Risk Guide (ICRG) indicator, the political right and civil liberties index (Freedom House), the corruption perception index (Transparency International), the Worldwide Governance Indicators (WGI) have been developed differently to improve measurement difficulties.

The WGI which is one of the most carefully constructed and most widely used indicator (Maurseth, 2008) aims at aggregating existing sources about governance to construct new and more reliable composite indicators. It shows the estimated governance scores ranging between approximately -2.5 and 2.5 and the percentile rank of ranging from 0 (lowest) to 100 (highest) ranks. The WGI is made up of aggregate indicators of six broad dimensions of governance: Voice

and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption.

Most studies conducted have shown that an adverse outcome of the six indicators of governance results in a negative impact on FDI. Kaufman *et al* (2002) find that corruption reduces FDI inflows for a sample of transition economies.

Carstensen *et al* (2003) use a macroeconomic risk ranking found in Euromoney to estimate a panel data model of the determinants of FDI into Central and Eastern European countries. The less risky the country by the Euromoney ranking, the more attractive is the country for FDI.

Farooque *et al* (2009) based their argument on a sample of 173 countries and the time frame was from 1996 to 2007 adopted both OLS and TSLS as estimation technique. The result indicated that both FDI and governance are interdependent i.e., they are co-deterministic.

Globerman, *et al* (2004) in their research on the determinant of both inward and outward FDI concluded that the importance of governance on FDI and economic growth relationship as it is very important in attracting FDI in whatever form. The study noted that outward FDI is not a cause of poor and/or low level of governance rather "...as part of a process that promotes international specialization of production and trade with the associated efficiency gains that economist traditionally associate with economic specialization".

## SECTION 3: THEORETICAL FRAMEWORK AND METHODOLOGY

### 3.1 Theoretical Framework

This study seeks to assess the impact of governance on FDI in ECOWAS region. That is, it wants to know the effect governance indicators have on FDI in the fifteen ECOWAS countries. Therefore, the theoretical underpinning of this study is based on the FDI-Growth nexus hinges on the neo-classical growth models. That is, the class of economists are pro-FDI and is popularly referred to as the modernization theory. This modernization theory is made up of the neo classical and endogenous growth models.

The neo-classicist model which is an extension to the 1946. Harrod–Domar model that included a new term, productivity growth. Important contributions to the model came from the work done by Solow and by Swan in 1956, who independently developed relatively simple growth models opine that a sustained increase in capital investment increases the growth rate temporarily because the capital-labour ratio increases, but the additional unit of capital is assumed to decline and the economy eventually moves back to a long term path while real GDP is growing at the same rate as the work force plus a factor to reflect improving productivity.

The neoclassical growth model assume that technological progress and labour force are exogenous, and thus argues that FDI increases level of income only while it has no long run growth effect if it does not augment technology. Long run growth can only be increased through technological and population growth and if FDI positively influences technology, then it will be growth advancing (Solow, 1956)

The model makes the following *a priori* assumptions which are.

1. Output is a function of capital stock
2. The marginal product of capital is constant; the production function exhibits constant returns to scale. This implies capital's marginal and average products are equal.
3. Capital is necessary for output.
4. The product of the savings rate and output equals saving, which equals investment
5. The change in the capital stock equals investment less the depreciation of the capital stock

Premise on the assumptions stated above, and using the variables therein, the model has been expressed algebraically by the proponents as;

$$Y = f(K)$$

$$\frac{dY}{dK} = c \Rightarrow \frac{dY}{dK} = \frac{Y}{K}$$

$$f(0) = 0$$

$$sY = S = I$$

$$\Delta K = I - \delta K$$

Derivation of output growth rate:

An alternative (and, perhaps, simpler) derivation is as follows, with dots (for example,  $\dot{Y}$ ) denoting percentage growth rates.

First, assumptions (1)– (3) imply that output and capital are linearly related. That is, the proportionality implies that the capital-elasticity of output equal to unity. These assumptions thus generate equal growth rates between the two variables.

That is,

$$Y = cK \Rightarrow d \log(Y) = d \log(c) + d \log(K).$$

Since the marginal product of capital,  $c$ , is a constant, we have

$$d \log(Y) = d \log(K) \Rightarrow \frac{dY}{Y} = \frac{dK}{K} \Rightarrow \dot{Y} = \dot{K}.$$

Next, with assumptions (4) and (5), we can find capital's growth rate as,



$$\dot{K} = \frac{I}{K} - \delta = s \frac{Y}{K} - \delta$$

$$\Rightarrow \dot{Y} = sc - \delta$$

In summation, the savings rate times the marginal product of capital minus the depreciation rate equals the output growth rate. Increasing the savings rate, increasing the marginal product of capital, or decreasing the depreciation rate will increase the growth rate of output; these are the means to achieve growth in the Harrod–Domar model.

The significance of the model is that although the Harrod–Domar model was initially created to help analyze the business cycle, it was later adapted to explain economic growth. Its implications were that growth depends on the quantity of labour and capital; more investment leads to capital accumulation, which generates economic growth (Robert, 2009). The model carries implications for less economically developed countries (LDCs), where labour is in abundant supply in these countries, but physical capital is not, slowing down economic progress. LDCs do not have sufficiently high incomes to enable sufficient rates of saving; therefore, accumulation of physical-capital stock through investment is low.

The model implies that economic growth depends on policies to increase investment, by increasing saving, and using that investment more efficiently through technological advancements.

## 3.2 Methodology

As available in economic literatures of studies that have been done in relation to impact of governance on FDI-growth nexus, this study adopts the methodology that best suits the theoretical underpinning of the study. Thus, in order to arrive at econometrically sound findings for fifteen ECOWAS nations, spanning a period of twenty-two years (2000-2021), we employ the use of Panel data analysis.

### 3.2.1 Model Specification

The primary aim of this study is to examine the impact of governance on FDI in ECOWAS region. Thus, the specification of the model is formulated as follows:

$$y_{it} = \alpha_i + \beta'x_{it} + \varepsilon_{it}$$

$$FDI_{it} = f(GOV_{it}, CONTROL_{it})$$

$$FDI_{it} = f(VA_{it}, PS_{it}, GE_{it}, RQ_{it}, RL_{it}, CC_{it},)$$

$$FDI_{it} = a_0 + a_1 VA_{it} + a_2 PS_{it} + a_3 GE_{it} + a_4 RQ_{it} + a_5 RL_{it} + a_6 CC_{it} + a_7 INF_{it} +$$

$$a_8 LNPOP_{it} + a_9 TOP_{it} + a_{10} GDP_{it} + \varepsilon_{it}$$

$$FDI_{it} = a_0 + a_1 GOV_{it} + a_2 INF_{it} + a_3 LNPOP_{it} + a_4 TOP_{it} + a_5 GDP_{it} + \varepsilon_{it}$$

Where:

$Y_{it}$  = Dependent variable (FDI)

B,  $\alpha$  = Independent variables

$V_{i=1, \dots, N}$  country of observation.

$V_{t=1, \dots T}$  years of observation

$FDI_{it}$ = Inward FDI

$\varepsilon_{it}$ = Error term

$GOV_{it}$  represents governance indicators like political instability( $PS_{it}$ ), Government Effectiveness ( $GE_{it}$ ), Voice and Accountability ( $VA_{it}$ ), Rule of Law ( $RL_{it}$ ), Regulatory Quality ( $RQ_{it}$ ) and Control of Corruption ( $CC_{it}$ ) respectively.  $CONTROL_{it}$  represents a set of economic controls like inflation (INF)-a measure of macroeconomic stability, population (POP), trade openness (TO), Gross Domestic Product (GDP).

From the panel data model specification above, in order to decide if the appropriate model to be used, we run the Hausmann test to ascertain if the Fixed Effect (FE) or Random Effect (RE) is appropriate for the model.

**Table 3. HAUSMANN TEST FOR FE OR RE MODEL**

	COEFFICIENTS		(b-B)	STANDARD ERROR(SE)
	b	B		
	FE_EST	RE_EST	DIFFERENCE	SE
POPULATION	2.063631	2.063631	0	0
TRADE OPENESS	0.004029	0.004029	0	0
INFLATION	-0.00014	-0.00014	0	0
GDP GROWTH	0.004517	0.004517	0	0
GOVERNANCE	-0.17205	-0.17205	0	0

*Source: Estimated Stata result*

From table 3 above, the Hausmann test shows that there is no difference between the FE estimate and the RE estimate and with a probability of 0.00 from the result in Appendix 5, the Fixed Effect will be preferred over the Random Effect (RE) model for values not different from zero. Hence, the Fixed Effect will be used in the panel data model estimation.

In addition, the choice of the FE model can be reiterated from the result of the Bruch-pagan LM test in Appendix 6. It tests for the presence of heteroskedasticity in the residuals of panel data. Specifically, the null hypothesis is that the individual specific effect does not differ from zero (assumption of homoskedasticity), while the alternative hypothesis is that the variance is not zero (heteroskedasticity).

The result shows that the test statistics,  $\chi^2(01)$ , is 75.02, which shows that there exists heteroskedasticity in the residuals.  $\text{Prob} > \chi^2$  is lower than the significance level of 0.05, evidencing that the null hypothesis is rejected and conclude that not RE estimation, but FE is ideal for this panel data model.

### **3.3 Sources and Measurement of Data**

The data for this study is obtained from the secondary source. Data was collated on the six governance indicators. The average of the governance indicators was taken to get the Governance variable used in the model. Also, inflation (INF), population (LNPOP), trade openness (TOP), Gross Domestic Product growth rate (GDP), which are World Development Indicators (WDI) were obtained from world databank of the World Bank and other affiliate groups of the Bank.

The variables of interest like FDI are measured as total FDI inflow as a percentage of GDP. Economic growth is measured by GDP growth rate. Trade openness (summation of export and import), which is measured as a percentage of GDP reflects the degree to which an economy

liberalizes its borders with its trading partners'. Inflation is also measured in percentages, and it captures macroeconomic stability, which is key in the consideration of investors before committing finances into an economy.

From table 4 below, the summary statistics shows the overview of the cross-sectional panel dimension, that is, across countries in 15 ECOWAS region for the 22 years under observation. Thus, the structure of the panel data collated is such that it has 330 observations. However, only 305 observations were reported in the stata result as secondary data for trade openness on Liberia was missing from various data sources explored to obtain it. Similarly, inflation and GDP growth had one missing observation, thus accounting for 329 observations each.

The output includes the Maximum, Minimum, Mean and Standard Deviation. The FDI, population, trade openness, inflation, GDP growth, governance and are the variables of the panel data, which was used, and results analysed next section.

Each of the variables have summary statistics relating to the *global* sample as well as statistics for individual units and for every period *within* each individual. In other words, the output of each variable has summary statistics for the overall sample, between and within.

**Table 4. SUMMARY OF VARIABLES**

Variables	Mean	Standard Deviation	Min	Max	Observations
FDI Overall	8.192848	0.9415262	0	11.89	N=330
Between		0.6260664	7.014546	9.661364	n=15
Within		0.720785	0.5928485	11.79194	T=22

POPULATION Overall	16.14582	1.275997	13.04	19.18	N=330
Between		1.306895	13.16864	18.90773	n=15
Within		0.1709201	15.76536	16.53536	T=22
TRADEOPENESS Overall	60.25095	21.30723	16.35	132.38	N=330
Between		17.96431	35.87318	100.2823	n=15
Within		12.32754	20.26095	113.7864	T=22
INFLATION Overall	6.701581	12.20665	-7.9	100.61	N=330
Between		5.951562	1.071818	21.83182	n=15
Within		10.75867	-10.03751	93.84658	T=22
GDP Overall	4.410486	4.883863	-30.15	40.18	N=330
Between		1.250491	2.272857	7.428636	n=15
Within		4.732613	-28.01237	37.16185	T=22
GOVERNANCE Over all	-0.5955455	0.4891235	-1.58	0.76	N=330
Between		0.4691547	-1.124091	0.4854545	n=15
Within		0.1821674	-1.204636	-0.1628182	T=22

*Source: Stata output of World bank.org data.*

## SECTION 4: PRESENTATION AND ANALYSIS OF RESULTS

### 4.1 Presentation of results

This section analyses the data used and interpretation of major findings on the impact of governance on FDI in ECOWAS countries. It employs panel analysis in which fixed and random effects (see appendix) are estimated and the Fixed Effect (FE) was adopted based on the Hausmann test. It enables one to observe the behaviour of the variables across countries as well as explore the behaviour of countries with respect to a variable. Table 4 below presents the result.

**TABLE 4. ESTIMATION RESULT FROM THE FIXED EFFECT MODEL**

Fixed Effect(Within Regression)					No. of Observations:305	
Group Variable: Id					No. of groups:14	
R-squared					Obs. Per group	
Within=0.2487					Min.=20	
Between=0.5857					Avg.=21.8	
Overall=0.3012					Max.=22	
Corr(U <sub>i</sub> , X <sub>b</sub> )=-0.9738					F(5,286) =18.93	
					Prob.>F=0.0000	
FDI	Coefficient	Std. Error	t.	P> t	95% confidence interval	
Population	2.063631	0.2278595	9.06	0.000	1.615138	2.512125
Trade Openess	0.0040294	0.0031456	1.28	0.201	-0.0021621	0.102208
Inflation	-0.0001391	0.0034665	-0.04	0.968	-0.0069621	0.006684
GDP Growth	0.0045174	0.0086897	0.52	0.604	-0.0125866	0.0213213
Governance	-0.1720476	0.2227736	-0.77	0.441	-0.6105313	0.2664361
Constant	-25.62625	3.670956	-6.98	0.000	-32.85177	-18.40073
sigma_u	2.2719775					
sigma_e	0.64601611					
rho	0.92519798	(fraction of variance due to u <sub>i</sub> )				
F test that all u <sub>i</sub> =0:F(13,286)=10.97						Prob.>F=0.0000

*Source: Stata result from data culled from World bank.org.*

The variance components of the model are  $\sigma_u$ ,  $\sigma_e$  and  $\rho$ .  $\sigma_u$  is the standard deviation of the between group error term, and it measures the variation of group specific means around the overall mean of FDI. It accounts for unobserved heterogeneity across countries in ECOWAS region that is not captured by population, trade openness, inflation, GDP growth and Governance. In specific terms, the deviation of the group mean from the overall means is 2.2719775 units.

$\sigma_e$  connotes the standard deviation of the within group error term. It accounts for the variation of FDI around its group specific means and can be termed as the residual variation within each group after considering the FE. The typical deviation of individual observations from their group means is 0.64601611 units.

$\rho$  is the proportion of variation due to the individual specific term, as seen by 92.5% as explained by individual while the remainder can be attributable to idiosyncratic error. The high value of  $\rho$  does suggest that the Fixed Effect model is ideal for the data collated and leaving out individual level heterogeneity may result in inconsistent estimates.

The within  $R^2$ , which measures the proportion of variance in FDI explained by the independent variables and individual fixed effects, is 0.2487, while the between  $R^2$  measures the proportion of variance in FDI explained by the independent variables and group level variables is 0.5857. Overall, the  $R^2$  is 0.3012 and it measures the proportion of variance in the dependent variable (FDI) explained by the independent variables and all other variables.

The correlation between the error term and the predicted value  $Xb$ , shows a high negative correlation at -0.9443. This may be as a result of the missing data on trade openness for Liberia



From the estimated regression result (FE-within), table 4 above only the coefficient of independent variable- population is statistically significant (p-value 0.000), while from the p-values of trade openness (0.201), governance (0.441), GDP (0.604) growth and inflation (0.968), they are not statistically significant at 5% level as their values are greater than the standard p-value of 0.05.

The positive coefficient of population implies that a unit increase in population will lead to a 2.063631 increase in FDI into the ECOWAS region holding individual FE constant. Also, one unit increase in trade openness will give rise to an increase in FDI by 0.0040 units holding individual FE constant. A unit increase in governance will lead to a 0.1720-unit decline in FDI into ECOWAS region units holding individual FE constant.

The negative sign in governance coefficient suggests a lacuna in the quality of governance in the ECOWAS region, thus accounting for the reduction in the amount of FDI inflow into region. Overall, the model is significant from the F-test and it indicates that model is a good fit for the data.

However, the between regression of the FE model, which is a regression on a group of means, is estimated and the result shown in Appendix 9. It reveals the coefficient of governance is not statistically significant, implying that there is no significant relationship between governance and FDI when controlling for other variables at the group level. It also means that at the group level, governance does not have effect on FDI-growth nexus from the second research question that was posed earlier. The coefficients of inflation, GDP and trade openness are not statistically significant at 5% level, from the result of the P-values, which are higher than 0.05 level of significance.

A variant of the Fixed Effect (FE) model with Generalized Estimating Equation (GEE) population averaged mean “pa”- controls for unobserved time-invariant heterogeneity across the units in the panel. A GEE shows the response and explanatory variables, and it accounts for the within-group correlation in the longitudinal panel.

The output (GEE) in Table 5 below, shows that the coefficient on governance (-0.4417) is statistically significant with a p-value of 0.019. A unit increase in governance give rise to a -0.4417 decline in FDI. This addresses the first research question of the relative importance of governance in attracting FDI into ECOWAS countries. Also, with a positive coefficient of 0.6776 and a p-value of 0.000, population is statistically significant in affecting the level of FDI inflow into the ECOWAS region. In the same vein, trade openness also has statistical significance under the GEE population-averaged model of FE. With a 0.032 and 0.0065, p-value and coefficients respectively, a unit increase in trade openness results in a 0.0065 rise in FDI for ECOWAS nations.

In contrast, GDP growth and inflation are not statistically significant with p-values of 0.916 and 0.429 respectively exceeding the 0.05 significance level.

**TABLE 5 ESTIMATION RESULT OF GEE POPULATION-AVERAGED MEAN-FE MODEL**

```

GEE population-averaged model      Number of obs      =      305
Group variable:                    id      Number of groups   =      14
Link:                              identity Obs per group:
Family:                            Gaussian      min =      20
Correlation:                       exchangeable      avg =      21.8
                                          max =      22
                                          Wald chi2(5)      =      57.97
Scale parameter:                   .7087596      Prob > chi2      =      0.0000

```

logfdi	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
gov	-.441726	.1881484	-2.35	0.019	-.8104901	-.0729619
lnpop	.677695	.0988367	6.86	0.000	.4839786	.8714113
gdpgrowth	-.0009591	.0090556	-0.11	0.916	-.0187078	.0167895
inflation	-.0028287	.0035759	-0.79	0.429	-.0098374	.0041799
tradeopeness	.0065629	.0030616	2.14	0.032	.0005624	.0125635
_cons	-3.418634	1.625569	-2.10	0.035	-6.604691	-.2325775

*Source: Stata result from data culled from World bank.org.*

## SECTION 5: CONCLUSION

Considerable attention has been given to the level of FDI attraction in the ECOWAS region, based on the widespread assumption that good governance is essential for its growth and ultimately economic development in the long run. In effect, economic growth is affected by its good institution of governance and is not only important in establishing efficient markets but is indeed a vital determinant of economic performance.

Our empirical result under the GEE population-averaged model of FE shows that governance indicators are necessary to drive high volume of FDI into ECOWAS region. This is proven by the statistical significance in the FE model, with a direct relationship between FDI and governance.

However, for policy implications, improved and quality governance does not necessarily imply that government should utilize large investments of taxpayers' fund. Indeed, improved governance might be more consistent, in many cases, with a smaller economic and regulatory role for government. As well, any set of policies that broadly promotes good governance and indirectly economic growth, will increase inward FDI by encouraging a higher level of real GDP. As such, policymakers should provide an enabling environment for investments to thrive, reduce bureaucracy and provide tax incentives. Thus, contributing to economic development in the ECOWAS region in the long run.

The coefficient of population, which is positive and statistically significant indicates that larger population, that is, market size is a key consideration in attracting more volumes of FDI. Therefore, policies that increase population size such as internal promotion of population growth

and immigration programmes should be implemented to boost FDI and in the long run economic growth.

The significance of trade openness from the GEE, population-averaged mean (FE model) suggests that policy makers in the region should give adequate attention to programmes that promote trade, such as trade liberalization as well as explore other trade related incentives that can attract FDI into the ECOWAS region.

Furthermore, owing to the statistical insignificance of inflation control, though important in ensuring economic stability, based on the result, it should not be at the fore of economic policies meant to boost FDI into ECOWAS region. Likewise, from both results GDP growth should not be aggressively pursued at the expense of other economic policies that have high potential to boost FDI inflow into ECOWAS region.

This study is limited by the non-availability of data for Liberia on the Trade openness variable. With the availability of data for the country, results might have been more significant and robust than the 305 observations that was examined.

## REFERENCES

- Ajide Kazeem (2014), "Determinants of foreign direct investment in ECOWAS countries: The roles of governance and human capital," *The Empirical Econometrics and Quantitative Economics Letters* ISSN 2286 – 7147, Volume 3, Number 2 (June 2014), pp. 61 - 74.
- Alege and Ogundipe (2014)," Foreign Direct Investment And Economic Growth In ECOWAS, *Covenant Journal of Business and Social Sciences (CJBSS)* Vol. 5, No. 1, January, 2014.
- Alfaro, L., A. Chanda, S. Kalemli-Ozcan, and S. Sayek (2006), "How Does Foreign Direct Investment Promote Economic Growth? Exploring the Effects of Financial Markets on Linkages," NBER Working Paper, 12522, National Bureau of Economic Research.
- Aliber, R. (1971). Z.(1970). A Theory of Direct Foreign Investment. *the international Corporation*, 16-50.
- Asiedu, E. (2002), "On the Determinants of FDI to Developing Countries: Is Africa Different?" *World Development*, 30(1), 107-119
- Bengoa, M., and B. Sanchez-Robles (2003), "Foreign Direct Investment, Economic Freedom and Growth: New Evidence from Latin America," *European Journal of Political Economy*, 19, 529-545.
- Bergstrand, J.H., Egger, P., 2007. A knowledge-and-physical-capital model of international Trade flows, foreign direct investment, and multinational enterprises. *Journal of International Economics* 73, 278–308.

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? *Journal of international Economics*, 45(1), 115-135.

Carkovic,*et al* (2002), “Does Foreign Direct Investment Accelerate Economic Growth?” University of Minnesota Working Paper, SSRN 314924.

Carstensen, K. and Farid, T. (2003), “Foreign Direct Investment in Central and Eastern European Countries: A Dynamic Panel Analysis”, Kiel Institute for World Economies.

Durham, J. B. (2004). Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment on economic growth. *European economic review*, 48(2), 285-306.

Dutt, A. K. (1997). The pattern of direct foreign investment and economic growth. *World development*, 25(11), 1925-1936.

Funke, M. N., & Nsouli, M. S. M. (2003). The New Partnership for Africa's Development (NEPAD) Opportunities and Challenges.

Ghura, D., and M. Hadjimichael (1996), “Growth in Sub-Saharan Africa,” IMF Staff Papers, 43(3).

Globerman, S., and D. Shapiro (2002), “Governance Infrastructure and U.S. Foreign Direct Investment,” *Journal of International Business Studies*, 1-36.

Hoenenand, A. K. and M. W. Hansen (2009), Oligopolistic competition and foreign direct investment. [Online] Available: [http://openarchive.cbs.dk/bitstream/handle/10398/7956/WPs-2009\\_no.10.pdf](http://openarchive.cbs.dk/bitstream/handle/10398/7956/WPs-2009_no.10.pdf) [accessed on 17th march, 2013] 12.

Hymer S.H (1960), “The International Operations of National Firms, PhD thesis, MIT (published by the MIT Press)

International Energy Agency—IEA report ,(2022).

- Kaufmann, D, Kraay, A and Massimo Mastruzzi. (2005). "Governance Matters IV: Governance Indicators for 1996- 2004." World Bank Policy Research Paper. No. 3630: 1-60
- Kindlerberger, C. (1969). *American Business Abroad: Six Lectures on Direct Investment*. New Haven: Yale University Press.
- Lall, S. (1997). *Attracting foreign investment: new trends, sources and policies* (Vol. 31). Commonwealth Secretariat.
- Lin, P., & Saggi, K. (2010). FDI in a Two-Tier Oligopoly: Coordination. *Vertical Integration, and Welfare*. [Online] Available: <http://www.ln.edu.hk/econ/staff/plin/ier-ms22870-revision.pdf> [accessed on 17th march, 2013].
- Maurseth, P. B. (2008). Governance indicators: A guide.
- Mengistus, B. and Adams, S. (2007) "FDI, Governance and Economic Development in Developing Countries", *The Journal of Social, Political and Economic Studies*. Vol. 32 Number, 2 pp. 213-241
- Ndikumana, L., & Verick, S. (2008). The linkages between FDI and domestic investment: Unravelling the developmental impact of foreign investment in Sub-Saharan Africa. *Development Policy Review*, 26(6), 713-726.
- Robert E. Lipsey (2001), *Foreign Direct Investment and the Operations of Multinational Firms: Concepts, History and Data*
- Roy, D.K. (2005), "Governance and Development: The Challenges for Bangladesh," *The Bangladesh Development Studies*, 31(3 & 4), 99-136
- Raheem Ibrahim, Kazeem Ajide and Oluwatosin Adeniyi (2014)," *Governance and Foreign Direct In Sub-Saharan Africa*.
- Raheem Ibrahim and Mutiu Oyinlola (June 2013)" *Foreign Direct Investment, Governance and Economic Growth Trilogy: New Evidence from ECOWAS Countries*.



Schenk, C. R. (1996). Exchange Controls and Multinational Enterprise: The Sterling–Dollar Oil Controversy in the 1950s. *Business History*, 38(4), 21-40.

Shatz, H. J. (2001). Expanding foreign direct investment in the andean countries. *CID Working Paper Series*.

Solow, R. M. (1956). A contribution to the theory of economic growth. *The quarterly journal of economics*, 70(1), 65-94.

UNCTAD, (2022), World Investment Report. (New York and Geneva: United Nations Conference on Trade and Development).

Verspagen, B. (2012), “Stylized Facts of Governance, Institutions and Economic Development: Exploring the Institutional Profiles Database,” UNU-MERIT Working Paper, 36.

#### URLs

<https://unctadstat.unctad.org/EN/Infographics.html>

<https://www.heritage.org/index/ranking>

<https://archive.doingbusiness.org/en/data/exploretopics/enforcing-contracts>(World Bank group)

<https://www.govindicators.org>

## APPENDIX

### APPENDIX 1

```
. xtset id year
      panel variable:  id (strongly balanced)
      time variable:  year, 2000 to 2021
              delta:  1 unit
```

.

### APPENDIX 2

```
. su logfdi gov lnpop gdpgrowth inflation tradeopeness
```

Variable	Obs	Mean	Std. Dev.	Min	Max
logfdi	330	8.192848	.9415262	0	11.89
gov	330	-.5955455	.4891235	-1.58	.76
lnpop	330	16.14582	1.275997	13.04	19.18
gdpgrowth	329	4.410486	4.883863	-30.15	40.18
inflation	329	6.701581	12.20665	-7.9	100.61
tradeopeness	305	60.25095	21.30723	16.35	132.38

## APPENDIX 3

. xtdescribe

```

id: 1, 2, ..., 15          n =      15
year: 2000, 2001, ..., 2021 T =      22
Delta(year) = 1 unit
Span(year) = 22 periods
(id*year uniquely identifies each observation)

```

```

Distribution of T_i:  min      5%      25%      50%      75%      95%      max
                    22      22      22      22      22      22      22

```

Freq.	Percent	Cum.	Pattern
15	100.00	100.00	11111111111111111111
15	100.00		XXXXXXXXXXXXXXXXXXXX

## APPENDIX 4

. xtsum logfdi lnpop tradeopeness inflation gdpgrowth gov

Variable		Mean	Std. Dev.	Min	Max	Observations
logfdi	overall	8.192848	.9415262	0	11.89	N = 330
	between		.6260664	7.014546	9.661364	n = 15
	within		.720785	.5928485	11.79194	T = 22
lnpop	overall	16.14582	1.275997	13.04	19.18	N = 330
	between		1.306895	13.16864	18.90773	n = 15
	within		.1709201	15.76536	16.53536	T = 22
tradeo~s	overall	60.25095	21.30723	16.35	132.38	N = 305
	between		17.96431	35.87318	100.2823	n = 14
	within		12.32754	20.26095	113.7864	T = 21.7857
inflat~n	overall	6.701581	12.20665	-7.9	100.61	N = 329
	between		5.951562	1.071818	21.83182	n = 15
	within		10.75867	-10.03751	93.84658	T-bar = 21.9333
gdpgro~h	overall	4.410486	4.883863	-30.15	40.18	N = 329
	between		1.250491	2.272857	7.428636	n = 15
	within		4.732613	-28.01237	37.16185	T-bar = 21.9333
gov	overall	-.5955455	.4891235	-1.58	.76	N = 330
	between		.4691547	-1.124091	.4854545	n = 15
	within		.1821674	-1.204636	-.1628182	T = 22

## APPENDIX 5

```
quietly xtreg logfdi lnpop tradeopeness inflation gdpgrowth gov,fe
```

```
estimates store fe_est
```

```
quietly xtreg logfdi lnpop tradeopeness inflation gdpgrowth gov
```

```
estimates store re_est
```

```
hausman fe_est re_est
```

	—— Coefficients ——		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe_est	(B) re_est		
lnpop	2.063631	2.063631	0	0
tradeopeness	.0040294	.0040294	0	0
inflation	-.0001391	-.0001391	0	0
gdpgrowth	.0045174	.0045174	0	0
gov	-.1720476	-.1720476	0	0

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(0) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
= 0.00

Prob>chi2 = .

(V\_b-V\_B is not positive definite)

## APPENDIX 6

. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

logfdi[id,t] = Xb + u[id] + e[id,t]

Estimated results:

	Var	sd = sqrt(Var)
logfdi	.9183001	.9582798
e	.4173368	.6460161
u	.1275675	.3571659

Test: Var(u) = 0

chibar2(01) = 75.02  
Prob > chibar2 = 0.0000

## APPENDIX 7

```
. xtreg logfdi lnpop tradeopeness inflation gdpgrowth gov,fe
```

```
Fixed-effects (within) regression      Number of obs   =       305
Group variable: id                    Number of groups =       14
```

```
R-sq:                                Obs per group:
    within = 0.2487                      min =       20
    between = 0.5857                     avg =      21.8
    overall = 0.3012                      max =       22
```

```
corr(u_i, Xb) = -0.9738                  F(5,286)         =      18.93
                                          Prob > F         =      0.0000
```

logfdi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnpop	2.063631	.2278592	9.06	0.000	1.615138	2.512125
tradeopeness	.0040294	.0031456	1.28	0.201	-.0021621	.0102208
inflation	-.0001391	.0034665	-0.04	0.968	-.0069621	.006684
gdpgrowth	.0045174	.0086897	0.52	0.604	-.0125866	.0216213
gov	-.1720476	.2227736	-0.77	0.441	-.6105313	.2664361
_cons	-25.62625	3.670956	-6.98	0.000	-32.85177	-18.40073
sigma_u	2.2719775					
sigma_e	.64601611					
rho	.92519798	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(13, 286) = 10.97                      Prob > F = 0.0000
```

## APPENDIX 8

```
. xtreg logfdi gov lnpop gdpgrowth inflation tradeopeness,pa
```

```
Iteration 1: tolerance = 1.0001201  
Iteration 2: tolerance = .34539824  
Iteration 3: tolerance = .14843771  
Iteration 4: tolerance = .08632939  
Iteration 5: tolerance = .05730918  
Iteration 6: tolerance = .0410076  
Iteration 7: tolerance = .03079775  
Iteration 8: tolerance = .02392354  
Iteration 9: tolerance = .01904982  
Iteration 10: tolerance = .01545802  
Iteration 11: tolerance = .01273028  
Iteration 12: tolerance = .01060861  
Iteration 13: tolerance = .00892602  
Iteration 14: tolerance = .00757013  
Iteration 15: tolerance = .00646282  
Iteration 16: tolerance = .00554827  
Iteration 17: tolerance = .00478567  
Iteration 18: tolerance = .00414455  
Iteration 19: tolerance = .00360173  
Iteration 20: tolerance = .00313935
```

```
Iteration 21: tolerance = .00274338
Iteration 22: tolerance = .00240274
Iteration 23: tolerance = .0021085
Iteration 24: tolerance = .00185344
Iteration 25: tolerance = .00163167
Iteration 26: tolerance = .00143831
Iteration 27: tolerance = .00126933
Iteration 28: tolerance = .00112133
Iteration 29: tolerance = .00099147
Iteration 30: tolerance = .00087734
Iteration 31: tolerance = .00077689
Iteration 32: tolerance = .00068836
Iteration 33: tolerance = .00061024
Iteration 34: tolerance = .00054126
Iteration 35: tolerance = .00048027
Iteration 36: tolerance = .00042632
Iteration 37: tolerance = .00037856
Iteration 38: tolerance = .00033624
Iteration 39: tolerance = .00029874
Iteration 40: tolerance = .00026548
Iteration 41: tolerance = .00023597
Iteration 42: tolerance = .00020978
Iteration 43: tolerance = .00018653
Iteration 44: tolerance = .00016588
Iteration 45: tolerance = .00014754
Iteration 46: tolerance = .00013123
Iteration 47: tolerance = .00011675
Iteration 48: tolerance = .00010387
Iteration 49: tolerance = .00009242
Iteration 50: tolerance = .00008223
Iteration 51: tolerance = .00007318
Iteration 52: tolerance = .00006512
```



Iteration 53: tolerance = .00005796  
Iteration 54: tolerance = .00005158  
Iteration 55: tolerance = .00004591  
Iteration 56: tolerance = .00004086  
Iteration 57: tolerance = .00003637  
Iteration 58: tolerance = .00003238  
Iteration 59: tolerance = .00002882  
Iteration 60: tolerance = .00002566  
Iteration 61: tolerance = .00002284  
Iteration 62: tolerance = .00002033  
Iteration 63: tolerance = .0000181  
Iteration 64: tolerance = .00001611  
Iteration 65: tolerance = .00001434  
Iteration 66: tolerance = .00001277  
Iteration 67: tolerance = .00001137  
Iteration 68: tolerance = .00001012  
Iteration 69: tolerance = 9.011e-06  
Iteration 70: tolerance = 8.022e-06  
Iteration 71: tolerance = 7.142e-06  
Iteration 72: tolerance = 6.358e-06  
Iteration 73: tolerance = 5.661e-06  
Iteration 74: tolerance = 5.040e-06  
Iteration 75: tolerance = 4.487e-06  
Iteration 76: tolerance = 3.995e-06  
Iteration 77: tolerance = 3.557e-06  
Iteration 78: tolerance = 3.167e-06  
Iteration 79: tolerance = 2.819e-06  
Iteration 80: tolerance = 2.510e-06  
Iteration 81: tolerance = 2.235e-06  
Iteration 82: tolerance = 1.990e-06  
Iteration 83: tolerance = 1.771e-06  
Iteration 84: tolerance = 1.577e-06

Iteration 85: tolerance = 1.404e-06  
 Iteration 86: tolerance = 1.250e-06  
 Iteration 87: tolerance = 1.113e-06  
 Iteration 88: tolerance = 9.910e-07

GEE population-averaged model  
 Group variable: id  
 Link: identity  
 Family: Gaussian  
 Correlation: exchangeable  
 Scale parameter: .7087596

Number of obs = 305  
 Number of groups = 14  
 Obs per group: min = 20  
 avg = 21.8  
 max = 22  
 Wald chi2(5) = 57.97  
 Prob > chi2 = 0.0000

logfdi	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
gov	-.441726	.1881484	-2.35	0.019	-.8104901	-.0729619
lnpop	.677695	.0988367	6.86	0.000	.4839786	.8714113
gdpgrowth	-.0009591	.0090556	-0.11	0.916	-.0187078	.0167895
inflation	-.0028287	.0035759	-0.79	0.429	-.0098374	.0041799
tradeopeness	.0065629	.0030616	2.14	0.032	.0005624	.0125635
_cons	-3.418634	1.625569	-2.10	0.035	-6.604691	-.2325775

## APPENDIX 9

```
. xtreg logfdi gov lnpop gdpgrowth inflation tradeopeness,be
```

```
Between regression (regression on group means)   Number of obs   =       305
Group variable: id                               Number of groups =       14
```

```
R-sq:                                             Obs per group:
    within = 0.0004                               min =       20
    between = 0.7884                              avg =      21.8
    overall = 0.2212                              max =       22
```

```
sd(u_i + avg(e_i.)) = .3830632                  F(5,8)          =       5.96
                                                    Prob > F        =     0.0137
```

logfdi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
gov	-.3859806	.3219771	-1.20	0.265	-1.128461	.3564999
lnpop	.4724366	.1171186	4.03	0.004	.2023605	.7425126
gdpgrowth	-.0150918	.1297111	-0.12	0.910	-.3142062	.2840225
inflation	.0377089	.0229275	1.64	0.139	-.0151619	.0905797
tradeopeness	.0021452	.0077662	0.28	0.789	-.0157637	.0200542
_cons	-.0058073	1.754888	-0.00	0.997	-4.052587	4.040972

ST

## APPENDIX 10

```
. xtreg logfdi gov lnpop gdpgrowth inflation tradeopeness, re theta
```

```
Random-effects GLS regression           Number of obs   =       305
Group variable: id                     Number of groups  =        14

R-sq:                                Obs per group:
    within = 0.1669                      min =         20
    between = 0.6544                     avg  =        21.8
    overall = 0.3431                      max  =         22

Wald chi2(5) =       61.08
corr(u_i, X) = 0 (assumed)              Prob > chi2       =       0.0000
```

		theta		
min	5%	median	95%	max
0.6251	0.6251	0.6402	0.6402	0.6402

logfdi	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
gov	-.482511	.1752475	-2.75	0.006	-.8259899	-.1390322
lnpop	.5837526	.0820461	7.11	0.000	.4229453	.74456
gdpgrowth	-.0008991	.0092335	-0.10	0.922	-.0189964	.0171981
inflation	-.0026591	.0036306	-0.73	0.464	-.009775	.0044568
tradeopeness	.0064971	.0030271	2.15	0.032	.0005641	.0124301
_cons	-1.916098	1.360649	-1.41	0.159	-4.582922	.7507251
sigma_u	.35716594					
sigma_e	.64601611					
rho	.23410992	(fraction of variance due to u_i)				

## APPENDIX 11

```
. reg logfdi gov lnpop gdpgrowth inflation tradeopeness
```

Source	SS	df	MS	Number of obs	=	305
Model	100.275645	5	20.055129	F(5, 299)	=	33.52
Residual	178.887586	299	.598286242	Prob > F	=	0.0000
				R-squared	=	0.3592
				Adj R-squared	=	0.3485
Total	279.163231	304	.918300103	Root MSE	=	.77349

logfdi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
gov	-.554413	.1066965	-5.20	0.000	-.7643841	-.3444419
lnpop	.4380986	.0356404	12.29	0.000	.3679608	.5082363
gdpgrowth	.0040024	.00993	0.40	0.687	-.0155391	.0235439
inflation	.0030826	.0036634	0.84	0.401	-.0041266	.0102919
tradeopeness	.0050985	.0024163	2.11	0.036	.0003433	.0098536
_cons	.4308874	.6274937	0.69	0.493	-.8039761	1.665751

## Summary table: Demand

Regional breakdown of electricity demand, 2019-2024

TWh	2019	2020	2021	2024	Growth rate 2020	Growth rate 2021	CAAGR 2022-2024
Africa	732	717	757	842	-2.1%	5.6%	3.6%
Americas	6 166	5 978	6 207	6 373	-3.0%	3.8%	0.9%
<i>of which United States</i>	4 187	4 054	4 185	4 214	-3.2%	3.2%	0.2%
Asia Pacific	11 985	12 243	13 239	14 919	2.1%	8.1%	4.1%
<i>of which China</i>	7 202	7 498	8 242	9 368	4.1%	9.9%	4.4%
Eurasia	1 421	1 389	1 471	1 543	-2.2%	5.9%	1.6%
Europe	3 601	3 458	3 609	3 704	-4.0%	4.4%	0.9%
<i>of which European Union</i>	2 733	2 614	2 720	2 771	-4.4%	4.1%	0.6%
Middle East	1 123	1 120	1 160	1 236	-0.3%	3.6%	2.1%
<b>World</b>	<b>25 028</b>	<b>24 904</b>	<b>26 444</b>	<b>28 618</b>	<b>-0.5%</b>	<b>6.2%</b>	<b>2.7%</b>

Notes: CAAGR = compound average annual growth rate. For the entire period the European Union reflects the current 27 member states. Differences in totals are due to rounding.

Source: IEA analysis based on data from IEA (2022), [Data and statistics](#).

SAMPLE