

EFFECT OF FOREIGN DIRECT INVESTMENT AND EXCHANGE RATE ON ECONOMIC GROWTH IN SOME WEST AFRICAN COUNTRIES (1980-2020)

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ABSTRACT

This study examined the effect of foreign direct investment and exchange rate on economic development in 13 West African countries (Republic of Benin, Burkina Faso, Cote d'Ivoire, Gambia, Ghana, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo) between 1980-2020. The data were sourced from UNCTAD and World Bank development indicators (2021) using the variables of Foreign Direct Investment (FDI), exchange rate, external debt servicing, inflation rate, and GDP per capita as measurement of economic growth. The panel regression technique and pedroni's cointegration were employed to examine the longrun relationships among these variables. Panel Pedroni's cointegration and fully modified and dynamic OLS (Ordinary Least Squares) analytical approaches were also used. The study found economic growth had a negative relationship with exchange rate, external debt, and inflation rate. The study also found a positive relationship between FDI and economic growth. The study recommends economic policies that reduces exchange rate and increases FDI to improve the Economic Growth of 13 West African countries.

Keyword: Foreign Direct Investment, Exchange Rate, and Economic Growth.

INTRODUCTION

Even though research has been conducted on this subject in African countries of contributing factors to a nation's economic growth, only a few researchers have explored the impacts of key macroeconomic and institutional variables on economic development. This study of 13 West African countries (Republic of Benin, Burkina Faso, Cote d'Ivoire, Gambia, Ghana, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo) focused on examining FDI's contribution to GDP per capita, specifically in the context of the exchange rate as a key intervening variable. Many of these West African countries are import-dependent for both

consumables and capital goods, and they are basically mono-product-based economies with their export sectors dominated by primary products. As they were often vulnerable to unanticipated commodity price movements, resulting in unpredictable exchange rate movements and volatility, the inclusion of the exchange rate as an intervening variable is thus important to this study.

As early as the 1980s, Meese and Rogoff (1983) showed that movements and volatility in exchange rates have been largely unpredictable among African countries. Many have often suffered from fundamental current account imbalances of payment and trade deficits, beginning with increases in importation, FDI outflows, insecurity challenges, and a decrease in exportation and ending in a foreign exchange gap between them and their developed counterparts in Europe and other continents. As a result, to address these deficits, pressures, and problems, majority of these African countries adopted either fixed or managed floating exchange rate systems. However, they still have not been protected from global shocks, explaining volatility in their exchange rates. However, following the trend of the relationship among FDI, exchange rate and economic development in the literature, it has been observed and noted that the relationship between FDI, exchange rate and economic development has been negative and unfavorable in most developing countries, including the 13 West African countries of this study. This contrasts with most developed countries, where FDI and exchange rate variables have both positive and negative effects on output growth and economic development (Schiff & Valdes, 1998). It explains why disparities and declines in economic development have become pressing issues and problems in West Africa in the past decades. Various stakeholders and political holders in this region have started to push for an increase in foreign direct investment flows and the need to regulate the volatility in exchange rates since the adoption of the flexible exchange rate system in this region. Consequently, many have also actively craved for urgent needs in diversification through improvement in industrialization, real investment, agricultural productivity, manufacturing productivity, and consumption of locally made goods through import restrictions.

While some studies have found a positive impact of FDI and exchange rates on economic development (Abimbola & Oludiran, 2018; Azman et al., 2010; Vu & Noy, 2009; Bang et al., 2007; Imodu, 2012), others have not, and they blamed partly on the adoption of different methodological approaches, variables used, area of scope covered and the theoretical framework of analysis adopted. As a result, there is no consensus in the literature regarding the relationship between FDI and economic development.

LITERATURE REVIEW

The Exogenous Growth Theory and Model

Exogenous Growth Theory, the theoretical foundation of this work, was developed by Robert Solow in 1956 and 1957. It is also known as the Neo-Classical Growth Model or the Solow-Swan Neo-Classical Growth Theory. It came to succeed the traditional classical growth theories that was dominated by the Harrod-Domar model. In contrast to the traditional Harrod-Domar classical

growth model, which placed emphasis solely on national savings and capital stock to explain growth and investment, the Solow neoclassical growth model gives special consideration to not only labor but also to technology as key factors explaining growth and development. According to Solow-Swan, an increase in output at a given time is the result of one or more of the following three important variables: an increase in labor supply and quality (due to population growth and educational advancement), an increase in capital (due to savings and investment), and an improvement in technology (Todaro and Smith, 2012). This suggests that the claim of the theory is relevant to our study because economic growth and development depend greatly on the expansion and improvement of the accumulation of labor force (human capital), capital stocks (physical capital), and technological progress (knowledge). Accordingly, using the Cobb-Douglas production function to explain the relationship between FDI and economic growth, we postulate that FDI increases the host country's capital stock, human capital, and technology, which will ultimately have an impact on both economic growth and development.

In a nutshell, Solow-Swan's neo-classical growth theory demonstrates how FDI fosters economic growth and furthers development by boosting the volume and effectiveness of investment in the host nation. Consequently, the FDI is a comprehensive, practical package that combines financial resources, human resources, skill transfers, production methods, managerial abilities, the products and services themselves, marketing expertise, other company organizational processes, and even advertisements (Mahembe & Odhiambo, 2014).

Solow-Swan's growth model was not without critics. Initially, they assumed that technologies were exogenous or stemming from outside a country so that a nation desiring them could not obtain them. They did not consider technological exchange or transfer. They also did not account for technical advancement. Thirdly, both believed all nations would have equal access to technical advancement because it occurs at random. This is obviously not true; otherwise, all nations would have reached an equivalent degree of scientific advancement.

METHODOLOGY

Model Specification

In adopting the Solow-Swan Neoclassical Growth Model—with further explanation, clarification, modification and development through the works of other scholars such as Romer's (2009)—as the theoretical framework in expressing the relationship among FDI, exchange rate and economic development, we specified this relationship as follows:

$$GDPK = f(ITO, MEV) \dots\dots\dots (1).$$

Where:

GDPK = Real Gross Domestic Product Per Capita proxied for Economic Development

FTO = Investment and Trade Openness Variables proxied by FDI and Trade openness

MEV= Macroeconomic Variables; proxied by exchange rate, inflation rate and external debt servicing.

The model is further modified and expanded to include FDI and trade openness (proxies for investment and trade liberalization), exchange rate (EXR), inflation rate (INF) and external debt proxied by external debt servicing (EDS) are key macroeconomic variables (MEV) that affect economic growth and development.

The explicit form of the model is:

$$GDPK = \beta_0 + \beta_1 FDI + \beta_2 TO + \beta_3 EXR + \beta_4 INF + \beta_5 EDS + \mu \dots \dots \dots (2)$$

Where $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ and β_5 are parameters to be estimated, and

μ_t is the stochastic error or noise term.

Thus, the *a priori* expectations would be: $\beta_1 > 0, \beta_2 > 0$ or $\beta_2 < 0, \beta_3 > 0, \beta_4 < 0, \beta_5 < 0$.

Additionally, when the equation expressed as a panel form regression equation and the natural logarithms of both sides of the equation for the 13 chosen West African countries are taken, the following result would be obtained:

$$\ln GDPK_{it} = \beta_i + \beta_1 \ln(FDI_{it}) + \beta_2 \ln(TO_{it}) + \beta_3 \ln(EXR_{it}) + \beta_4 \ln(INF_{it}) + \beta_5 \ln(EDS_{it}) + \mu_{it} \dots \dots \dots (4)$$

Where:

$$i = 1, \dots, N; t = 1, \dots, T$$

Where:

β_i is a fixed effect reflecting time differences between countries.

β_1 is the measure of foreign direct investment growth in country *i* at time *t* proxied by FDI.

β_2 is the measure of trade growth due to openness in country *i* at time *t* proxied by trade openness.

β_3 is the measure of exchange rate index with respect to the US Dollar in country i at time t proxy by real exchange rate.

β_4 is the measure of inflation rate in country i at time t .

β_5 is the measure of debt borrowings in country i at time t proxied by external debt servicing and

μ_{it} represents the stochastic error or noise term.

Estimation Technique

This research used both descriptive and econometric techniques. The data were first tested for stationarity using the Levin, Lin and Chu (2002) and Im, Pesaran, and Shin (2003) panel unit root tests. Based on the results of the test, the panel data series approach was then adopted using Pedroni's panel cointegration procedure, the Fully Modified Ordinary Least Square (FMOLS) proposed by Phillips and Hansen (1990) and Dynamic Ordinary Least Square (DOLS) proposed by Stock and Watson (1992) to examine the relationships and impacts of the exchange rate and FDI on economic development in the 13 selected West African countries. The use of FMOLS and DOLS lies in their advantages, super consistency and robustness over Ordinary Least Square (OLS) in providing optimal and better estimates of cointegrating regressions. FMOLS and DOLS provide more superior regression estimates than those provided by OLS estimator and can account for small sample bias and endogeneity bias than OLS that is only consistent in the presence of a large finite sample. They also take account of the serial correlation, heteroskedasticity and endogeneity problems in the regressors that may result from the existence of a cointegrating relationship that are usually associated with the OLS estimator and technique. FMOLS and DOLS both help to take consideration of the non-stationary status of the series and ensure that those variables do not enter into the model in their explosive manner. Lastly, recent research shows that both techniques help to produce estimates of a unit root in time series regression that are hyper consistent, super consistent and robust because of their rate of convergence which exceeds that of the OLS estimator since it is faster. It therefore allows for the usage and inclusion of stationary variable series at levels with the stationary series at first difference thereby allowing the combinations of both $I(0)$ and $I(1)$ variable series just like the ARDL technique for estimation.

As a result, the study will look at the effects of FDI and exchange rates on GDP per capita as well as the long-term relationships between the variables. In examining the long-term relationship, the study intends to make use of the co-integration method to analyse the long term relationship of the panel data and individual country data, and OLS method for the impact of the variables on the economic growth of the selected 13 West African countries. Studying the long-term link between FDI, exchange rate, and economic development raises crucial theoretical and empirical questions regarding the selection of the most effective technique.

Sources of Data

This study basically sourced the data of Central Bank Statistical bulletin, National Bureau of Statistics, World Bank Development Indicators, United Nations Conference on Trade and Development (UNCTAD), World Bank Governance Indicators and World Bank International Debt for the exchange rate, FDI, GDP per capita, external debt servicing, inflation rate and trade openness of the 13 selected West African countries between 1980 to 2020. As for the selection of the 13 West African countries, they were drawn from eight Francophone countries from the entire 10 francophone countries in the region (i.e., Republic of Burkina Faso, Cote d'Ivoire, Senegal, Benin, Guinea Bissau, Niger, Togo and Mali) and all five Anglophone countries in West Africa (i.e., Republic of Nigeria, Gambia, Sierra Leone, Liberia and Ghana) giving an 80% representation of the countries in the region of West Africa.

Description of Variables and a Priori Expectation

From the literature, the measurements of the different variables of the model for the study are as follows:

Variable	Definitions	Expected Signs
GDP per capita	Economic development	Positive (+)
Foreign Direct Investment (FDI)	FDI net inflows	Positive (+)
Exchange rate	Rate of exchange of dollar value	Positive/Negative (-/+)
External debt	External Debt servicing	Negative (-)
Inflation rate	Consumer Price Index	Negative (-)
Trade openness	Total trade as a share of GDP	Positive (+)

Source: Author's Computation.

FINDINGS

Results of the Descriptive Statistics

Table 1: Summary of Descriptive Statistics

	EXR	LFDI	INF	LGDPK	LTO	LEDS
Mean	18.175	4.061	11.553	9.391	5.807	12.683
Median	6.305	4.372	5.388	8.635	3.870	10.503
Maximum	10.827	8.841	18.702	21.098	11.485	4.288
Minimum	2.327	2.841	10.936	11.533	6.320	1.683
Std. Dev.	3.170	1.121	9.983	4.085	2.358	0.731
Skewness	5.431	4.589	3.603	0.663	0.6766	0.812
Kurtosis	3.327	2.150	2.438	3.038	3.717	2.578
Jarque-Bera	9.544	1.332	7.056	5.126	6.797	4.106
Probability	0.120	0.110	0.183	0.191	0.261	0.128
Sum	2586.3	1.955	533.9	49.815	231.65	93.921
Sum Sq. Dev.	27.262	5.980	11.043	7976.9	18.105	18.154
Observations	479	479	479	479	479	479

Source: Author's computation.

Table 1 above provides a summary of the statistics used in this investigation. The use of panel data necessitates the use of descriptive statistics analysis in the study's pre-estimation test. These tests

are used to either confirm or disprove the choice of a model. The standard deviation of any variable should be equal or close to zero, according to the rule of thumb, which suggests that for our chosen series to be less volatile, the variation from the mean must be modest over time. On that basis, all of the variables in Table 1—real exchange rate, foreign direct investment, inflation rate, GDP per capita, trade openness, and external debt servicing—have values of 3.17, 1.121, 9.983, 4.085, 2.358, and 0.731, respectively, all of which not significantly statistically different from zero over time. The most volatile variable in the series is inflation, with a standard deviation of 9.983, whereas the least volatile series is external debt servicing. The mean value of the GDP per capita is 9.390, while the mean value of the exchange rate is 18.175 and LEDS is 12.683. The mean values of FDI, INF, GDPK, and TO were 4.061, 11.553, 9.391, and 5.807, respectively.

The Skewness looks at the spread of the data in terms of how close or far these data values are to the mean. The closer the data values are to the mean, the closer are the deviation from the mean (SD) to zero. With the exception of GDP per capita, trade openness, and foreign debt service that are negatively skewed (mesokurtic), all of the other variables are normal and the majority of them are skewed favorably (platykurtic).

In terms of the Jarque - Bera Test, 3 conventional levels of statistical significance namely 1%, 5% and 10% are the bench marks. Therefore, the decision is that, if the computed probability values for the test are greater than the chosen probability values, we accept the null hypothesis; otherwise, we reject. Most of the computed probability values for the series in Table 1 (9.544, 1.322, 7.056, 5.126, and 6.796) are higher than the 1%, 5%, and 10% chosen probability values for the Jarque-Bera statistic values of significant levels. It means that all the variable series are normally distributed and that we accept the null hypothesis at 1%, 5%, and 10% significant levels.

Results of the Correlation Analysis

Table 2: Correlation Results

	EXR	LFDI	LGDPK	INF	LEDS	LTO
EXR	1.000					
LFDI	0.347	1.000				
LGDPK	0.034	0.006	1.000			
INFR	0.051	0.032	0.072	1.000		
LEDS	0.391	0.219	0.119	0.032	1.000	
LTO	0.175	0.064	0.099	0.218	0.187	1.000

Source: Author's Computation

Table 2 displays the findings of the correlation analysis, which is crucial to determining the degree of relationship between the variables utilized in the panel regression study. The analysis is particularly important to determine the type of association among FDI, exchange rate and GDP per capita inclusive of the other macroeconomic variables which have implication for their inclusion in the same models. The results showed that the correlation coefficients between these variables are moderate and can co-exist in the same model.

Result of the Unit Root Test

The sequence of integration is often checked, and the stationarity of the variables is confirmed, using the unit root tests of stationarity (see Table 3 below). This study used the Levin, Lin and Chu (2002) test (LLC) and Im, Pesaran, and Shin (2003) panel unit root test (IPS) version to guide against biased and inconsistent results since such biased results could be misleading and inaccurate for policy makers. These tests are based on Levin, Lin and Chu (LLC) and Im, Pesaran, and Shin (IPS) tests. The LLC and IPS tests assumed homogeneity in the dynamics of the autoregressive (AR) coefficients for all panel members. In particular, the LLC test assumes that each individual member in the panel shares the same AR (1) coefficient, but allows for individual effects, time effect and possibly a time trend.

Table 3: Results of Panel Unit Root Tests

Variable	Levin, Lin and Chu (LLC)			Im, Pesaran, and Shin (IPS)			Decision
	Level	First Difference	I(d)	Level	First Difference	I(d)	
LTO	-1.6201	-9.1203	I(1)	-2.8404	-10.0103	I(1)	I(1)
LGDPK	-1.9775	-10.8120	I(0)	-2.4050	-9.6194	I(0)	I(0)
LFDI	2.3014	-9.3210	I(1)	-12.1030	-6.4602	I(1)	I(1)
LINF	-4.2920	-8.672	I(1)	-6.9082	-9.5671	I(1)	I(1)
LEDS	-3.3037	-6.2198	I(1)	-2.2106	-5.5498	I(1)	I(1)
LEXR	2.7832	-7.1489	I(1)	2.3526	-9.6423	I(1)	I(1)

(All variables are estimated at both trend & intercept.)

Source: Authors' Computation.

The LLC test, also known as a pooled Dickey - Fuller test or an ADF test, is employed when lags are included by assuming the null hypothesis that of non-stationarity. The model only allows for heterogeneity in the intercept. In addition, the test by Im et al. (2003) is not as restrictive as the LLC test, as it permits heterogeneous coefficient. Hence, it is also called 'heterogeneous panel unit root test'. Further, the IPS test allows individual effects, time trend, and common time effects.

With the exception of GDP per capita (LGDPK), which was stationary at level, the outcome (see Table 3) demonstrates that all the variables were stationary at the first difference.

All variables are therefore non-stationary and integrated with level order I(0) and first difference order I(1). Applying the cointegration test comes next after it has been determined that all variables are integrated at an order of one and zero. The cointegration among the variables in this study was examined using the Pedroni's panel cointegration technique.

Cointegration Analysis, Results, and Interpretations

Table 4: Pedroni's Residual Cointegration Test

Test Statistic	No Trend & Intercept	Only Trend	Both Trend & Intercept
Panel V-Statistic	2.313*	-0.164	2.249*
Panel Rho-Statistic	2.155*	0.432	0.581
Panel PP-Statistic	-3.234*	-2.282*	-2.293*
Panel ADF-Statistic	-6.032*	-2.096*	-2.643*
Group Rho-Statistic	0.312	1.253	1.395
Group PP-Statistic	-2.714*	-1.892**	-2.922*
Group ADF-Statistic	-2.261*	-0.216	-2.494*

* and ** indicates significance at 5 and 10%.

Source: Authors' Computation.

There is a long-run relationship between trade openness (a proxy for trade liberalization), foreign direct investment (a proxy for financial liberalization), external debt servicing (a proxy for external borrowings), inflation rate, GDP per capita, and exchange rate index in the 13 selected West African countries, according to the results of the panel cointegration using seven test statistics in Table 4. We, therefore, reject the null hypothesis of no cointegration at 5% and 10% chosen significant levels. The findings here are consistent with those of past studies (Goldberg & Kolstad, 1995; Kiyota & Urata, 2004; Brzozowski, 2006; Bailey & Tavlas, 1991; Kiyota & Urata, 2004; Meese & Rogoff, 1983; Egwaikhide et al., 2008).

Analysis and Interpretation of the Empirical Results of the Fully Modified (FMOLS) and Dynamic Ordinary Least Square Regression (DOLS)

Table 5: Panel Long Run Estimates and Elasticities of FMOLS and DOLS Regressions.

Variables	FMOLS			DOLS		
	Coefficients	t-values	Prob	Coefficients	t-values	Prob
LTO	- 0.468**	- 2.776	0.050	- 0.127***	- 2.624	0.101
LFDI	0.523*	2.063	0.012	0.298***	2.917	0.080
INF	- 0.318**	- 2.365	0.042	- 0.529**	- 3.241	0.050
LEDS	- 0.327***	- 3.473	0.091	- 0.439***	- 2.696	0.081
EXR	- 0.211*	-2.198	0.045	- 0.139*	-5.39	0.021
R - Squared = 0.925			R - Squared = 0.971			

Adjusted R - Squared = 0.915

Adjusted R - Squared = 0.951

Durbin - Watson = 1.9927

Durbin - Watson = 2.1827

, ** and * indicates significance at 1%, 5% and 10%.*

Source: Author's Computation.

Table 5 above shows that the estimated long - run elasticities for trade openness were 0.468 and 0.127 respectively. It was observed that the estimated elasticities of this variable do not have the expected a priori signs but was statistically significant at both 5% and 10% respectively. Thus, trade openness indeed exerted negative effect and decreased GDP per capita in the 13 selected West African countries and was negatively significant at both 5% and 10% respectively based on the FMOLS and DOLS panel regression techniques. This implies that a 1% percentage change in trade openness would translate into 46.8% and 12.7% decrease in GDP per capita. It also implies that trade openness does not translate to improvement in economic growth and development in the 13 selected West African countries. These findings corroborate the findings of past studies (Igbal et al, 2013; Onakoya, Fasanya & Babalola, 2012).

The implication of the above negative findings is that even though trade openness is an important determining variable of GDP per capita, it does affect the economic development negatively in this region of Africa. This might be because the manufacturers and investors in these countries were unable to compete with existing imports due to over reliance on imported products and primary products that had both made imports to be costly in this region. As such, despite the advantages of trade and financial globalization, trade openness has not been favorable in certain African regions.

Foreign direct investment, external debt servicing, inflation rate, and exchange rate were, however, significant variables affecting economic development in the 13 West African countries. FDI showed a large impact on GDP per capita. According to the DOLS and FMOLS methodologies, this suggests that a 1% shift in FDI would result in rises of 52.3% and 29.8% in the GDP per capita in the chosen nations. The policy implication of this result is that FDI growth would translate into economic development in this region. This finding corroborates the findings in earlier studies (Abimbola & Oludiran, 2017; Vu & Noy, 2009; Bang et al., 2007; Imoudu, 2012; Weinhold, 2001) and negates the findings in the studies by (Eregha, 2018; Canare, 2017). This supports the hypothesis that an increase in FDI flows increases and promotes economic growth and development by boosting manufacturing productivity, upgrading technology capabilities, and transferring money to this region.

The results also suggest that exchange rate has strong negative significant effect on GDP per capita in this region of West Africa. This implies that the exchange rates in these selected countries especially in terms of appreciation do not translate into improvement in GDP per capita, indicating that there has not been a stable policy in the exchange rate management by the central banks of these 13 West African countries and so frequent fluctuations in exchange rate in terms of appreciation and depreciation cannot be described as a pure economic gift for this region. Therefore, the exchange rate variable is an important determining variable and significantly affects negatively the growth of GDP per capita in this region. A unit change in the exchange rate in terms of depreciation will cause about 21% and 14% decrease/fall in the growth of GDP per capita through exports decline and imports increase. It negates the a priori theoretical proposition sign which states that exchange rate should be positive in value in relationship with GDP per capita. The result here corroborates findings of earlier studies (Eregha, 2018; Canare, 2017).

Furthermore, our empirical findings also showed that there is hugely negative significant impact of inflation rate on GDP per capita in the 13 selected West African countries. Thus, a 1% percentage change in the inflation rate leads to about 31.8% and 52.9% fall in the GDP per capita. This finding aligns with those of previous studies (Onakoya et al., 2012; Adenikinju, 2005). This implies that uncontrolled increases in the general level price due to inflation do not translate into improvement in economic development (GDP per capita).

Finally, a unit change in external debt servicing caused the GDP per capita in these 13 West African countries to decrease by 33% and 44%. This suggests that the coefficients of debt growth measured by the external debt service rate were -0.327 and -0.439, respectively, and that they were negative and significant. This is in line with the theoretical prediction made a priori that

an increase in external borrowing, if improperly directed toward capital infrastructure and projects, may impede and inhibit GDP per capita growth in terms of development. Additionally, this result is consistent with earlier research (Onakoya et al., 2012; Osidipe, Onuchuku, Otto, & Nenbee, 2013)). All of the aforementioned findings point to the existence of cointegration among the variables in this study, which is supported by table 4's empirical Pedroni cointegration results showing that there is a long-term relationship between the variables.

CONCLUSION & RECOMMENDATION

This study examined the impact of FDI and exchange rate on economic development in 13 West African countries. The first overall result showed that there is a long run relationship (i.e. panel cointegration exists) among the three key variables of exchange rate, FDI and economic development. It implies that these key three variables and the other controlled variables (inflation rate and external debts) converge in the long run and that cointegration and long run relationship exist among all the variables of this study. Secondly, the correlation analysis of the levels of association among the variables are moderate and can co-exist in the same model in this study. This implies that all the variables would converge and co-exist in the long run in this region. Thirdly, that exchange rate, trade openness, inflation rate, debt services exert adverse effects and negative influences on GDP per capita with the exception of FDI which posed favourable positive influence and effects. Finally, there is a significant and positive/direct relationship between foreign direct investment (FDI) and GDP per capita in the west African region in the long run, implying that policies that would promote FDI growth would translate into economic development and improved GDP per capita.

This study thus recommends the need for governments to improve the state of infrastructures and security, reduce exchange rate and inflation, enhance competitiveness, and sustain foreign policies that would attract more FDI inflows into their countries. They must be pragmatic in institution buildings, and must promote locally produced goods so as to utilize their locally produced raw materials which will invariably reduce imports and produce export growth in these countries. This will further stimulate private investment, innovations and increased productivity for the country.

REFERENCES

- Abimbola, L.N & Oludiran, A.S. (2018). Major Determinants of foreign direct investment in the West African Economic and Monetary Region. *Iranian Economic Review*, 22 (1), 121-162.
- Adenikinju, A. (2005) Analysis of the cost of infrastructure failures in developing economy: The case study of electricity sector in Nigeria. AERC Research Paper 148, African Economic Research Consortium, Nairobi.
- Akintunde, T.S., Akanbi, B.E., Oladipo, A.D., & Adedokun, D. (2021). Trade Openness and Manufacturing Sector Performance in Some Selected West African Countries: A Panel Study Approach. *Acta Universitatis Danubius Economica*, 17 (3), 286 – 300.
- Andrzej, B., Jacek, C., Jan H. (2005). On the Determinants of Foreign Direct Investment in Transition Economies. *Taylor & Francis Journals*, 48 (2), 6-28.
- Anyanwu, J.C. (2011, July). *Determinants of Foreign Direct Investment Inflows to Africa 1980 – 2007*, (African Development Bank Group Working Paper No. 136). <https://www.afdb.org/documents/workingpdf>.
- Bailey, M.J., & Tavlas, G.S. (1991). Exchange Rate Variability and Direct Investment. *The ANNALS of the American Academy of Political and Social Science*, 1 (1), 1 – 11.
- Bang, T., Lee, L.C., & Hui-Boon, T. (2007). Macroeconomic factors of Exchange rate Volatility: Evidence from four Neighboring ASEAN Economies. *Journal of Studies in Economics and Finance*, 24 (2), 266-285.
- Brzozowski (2006), Exchange Rate Variability and Foreign Direct Investment: Consequences of EMU Enlargement. *Eastern European Economics*, 44, 5 – 24.
- Canare, T. (2017). The effect of corruption on foreign direct investment inflows. In book: *The Changing Face of Corruption in the Asia Pacific*. DOI: 10.1016/B978-0-08-101109-6.00003-4
- Egwaikhide, F.O. & Udoh, E. (2008). Exchange Rate Volatility, Inflation Uncertainty and Foreign Direct Investment in Nigeria, *Botswana Journal of Economics*, 5 (7), 1 – 12.
- Eregba, P.B. (2018). Exchange Rate, Uncertainty and Foreign Direct Investment Inflow in West African Monetary Zone. *Global Business Review*, 1 (1), 1 – 9.
- Goldberg, L., & Kolstad, C. (1995). Foreign Direct Investment, Exchange Rate Variability and Demand Uncertainty. *International Economic Review*, 36 (4), 855 – 873.
- Im, K. S., Pesaran, M., & Shin, Y-C (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics*, 115 (1), 53-74
- Imoudu, E.C. (2012). The Impact of Foreign Direct Investment on Nigeria's Economic Growth; 1980 -2009: Evidence from the Johansen's Co-integration Approach. *International Journal of Business and Social Science*, 3 (6), 122 – 134.
- Iqbal, S., & Biochem, A. (2013). *Development of a Fast and Efficient CE Enzyme Assay for the Characterization and Inhibition Studies of α -glucosidase Inhibitors*, National Library of Medicine. (National Center for Biotechnology Information Working Paper).
- Kiyota, K., & Urata, S. (2004). Exchange Rate, Exchange Rate Volatility and Foreign Direct Investment. *The World Economy*, 27 (10), 1501-1536.
- Levin, A., Lin, C-F., & Chu, C-S. J (2002). Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of Econometrics*. 18 (1), 1 – 24.
- Mateev, M. (2009). Determinants of Foreign Direct Investment in Central and South-Eastern Europe: New Empirical Tests. *Oxford Journal*, 8 (1), 133 - 149.
- Meese, R., & Rogoff, K. (1983). Empirical exchange rate models of the seventies: Do they fit out of sample? *Journal of International Economics* 14, 3-24.

- Mahembe, E., & Odhiambo, N.M. (2014). Foreign direct investment and economic growth: A theoretical framework. *Journal of Governance & Regulation*. 3 (2) 63 – 70.
- Onakoya, A. B. O., & Fasanya, I., & Babalola, M. T. (2012). Trade openness and manufacturing sector growth: An empirical analysis for Nigeria. *Mediterranean Journal of Social Sciences* 3(11), 637-646.
- Osidipe O.A.O., Onuchuku. O., Otto, G., & Nenbee, (2019). Trade liberalisation and selected manufacturing sectoral groups in Nigeria. *World Journal of Innovative Research* 5 (6), 37-46.
- Phillips, P. C. B., & Hansen, B. E. (1990). Statistical inference in instrumental variables regression with I(1) Processes. *The Review of Economic Studies* 57 (1), 99-125.
- Romer, C.D. (2009). Fiscal policy and economic recovery. *Business Economics*, 44 (3), 132-135,
- Schiff, M., & Valdes, A. (1998). Agriculture and the macroeconomy. World Bank, Development Research Group, Trade and Rural Development Department, 31 – 37.
- Stock, J. H., & Watson, M. W. (1992). A procedure for predicting recessions with leading indicators: econometric issues and recent performance. Working Paper Series, Macroeconomic Issues 92-7, Federal Reserve Bank of Chicago.
- Todaro, M.P. & Smith, S.C. (2018). *Economic Development*, Pearson Publishers.
- Tristan, C, (2017). The Effect of Corruption on Foreign Direct Investment inflows: Evidence from a Panel of Asia – Pacific Countries. *Elsevier Journal on the Changing Face of Corruption in the Asia*, 5, 35 – 52.
- Vu, T., & Noy, I. (2009). Sectoral analysis of foreign direct investment and growth in the developed countries. *Journal of International Financial Markets Institutions and Money* 19(2):402-413.