Analysis Impact of FDI and Trade on Economic Growth: Evidence of West African Countries

Willy Tozoke Laou Man Cheong[*], HOU Junjun

School of Economics and Trade, Hunan University, 410079, Changsha China

Abstract		Review Article

This paper analyzes the impact of FDI and Trade on Economic growth in West Africa countries during the period of time from 1995 to 2015, Panel approach is employed. According to the results, the Foreign Direct Investment (FDI) is significant but the Openness Trade (OPN) is not significant at 5% level of significance. This will allow for more individual consideration of what the government should support and directive the FDI and Trade (OPN) on West Africa countries, to avoid this case and look for what helps the economy has developed.
Keywords: West Africa, GDP, FDI, Trade, Panel approach.

INTRODUCTION

In the context of globalization, the liberalization of international economic relations and the integration of national economies in the global economy have led to an increase in spectacular international trade and movement international capital. By definition, direct investments are investments by which resident entities of an economy acquire or have acquired a lasting interest in a resident entity of an economy other than that of the investor. The direct investment abroad, or foreign direct investment (FDI for short, translation of FDI acronym for Foreign Direct Investment), also known as International Direct Investment (IDI), are the international movements capital invested in the creation, development or maintenance of a foreign subsidiary and / or exercising control (or significant influence) over the management of a foreign company.

As the driving force behind the multinationalization of enterprises, FDI covers both subsidiaries abroad, cross-border mergers and acquisitions or other financial relations (in particular intra-group loans and borrowings).

As measured by balance of payments statistics, FDI has been very strong since the mid-1980s and have made a decisive contribution to the globalization of economies. FDI is also one of the main indicators the economic attractiveness of the countries.

Foreign Direct Investment (FDI), also known as International Direct Investment (IDI) by the OECD, is the international capital flow achieved. To create, develop or maintain a foreign subsidiary or to exercise control or significant influence over the management of a foreign company.

FDI is a driving force behind the multinationalization of companies and includes both the creation of subsidiaries abroad and cross-border mergers and acquisitions or other financial relationships, including intra-group loans and borrowings.

International trade is a powerful engine of economic development. An extensive empirical literature shows, with strong evidence, that increase in international trade can boost vital economic growth development in general. Linking producers and consumers in the countries, developing world markets, trade - exports and imports - fundamentally contributes to the flow of financial resources, technology and services needed to strengthen productive capacities in agriculture, industry and services and the structural transformation of the economy.

In this research, we study the case of West Africa which is a land-based region spanning the entire western part of sub-Saharan Africa. It roughly includes the coastal countries north of the Gulf of Guinea to the Senegal River, the countries covered by the Niger River Basin and the countries of the Sahel hinterland.

The Economic Community of West African States (ECOWAS) today comprises 16 countries in the

sub-region, namely Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mauritania, Mali, Niger, Nigeria, Senegal, Sierra-Loone and Togo.

Due to lack of data, .in our study, we could take just nine West African countries that are Benin, Burkina Faso, Ivory Coast, Ghana, Liberia, Nigeria, Senegal, Sierra Leone and Togo. Below are graphs representing FDI and openness trade in those nine West African countries?
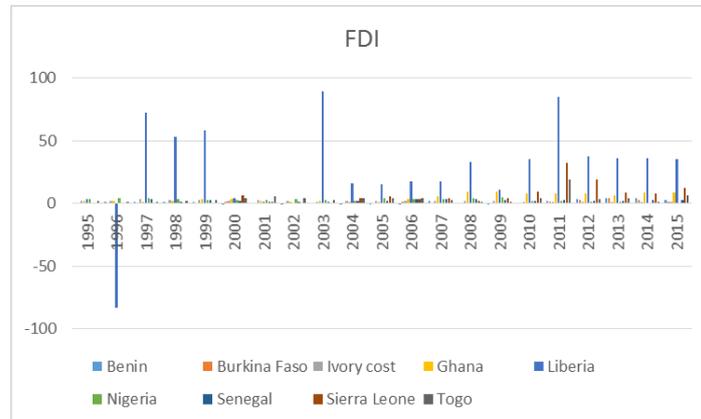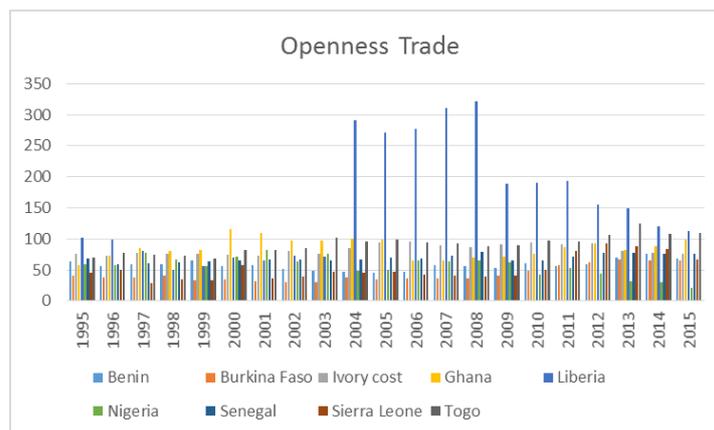

Fig-1: Graph of FDI
Source: Author

Fig-2: Graph of Openness Trade
Source: Author

Foreign direct investment (FDI) in West Africa was thus impacted by the recent economic crisis of 2008, although there is now a slight recovery. According to UNCTAD (United Nations Conference on Trade and Development), investments in West Africa in 2011 reached an estimated level of 13.25 billion USD, against 11.31 billion in 2010. Over the last five years, FDI in this region were mostly attracted by the commodity sector. Nigeria accounted for 79% of total FDI in the region in 2005. But its share of regional investment fell by around 54%, with Ghana's new oil industry capturing a growing share of FDI: USD 860 million. In 2007 to 1.67 billion in 2011. The Nigerian Petroleum Industry Law should enhance transparency and governance in this sector. The Nigerian Ministry of Commerce and Investment announced for 2012 investments from three major oil companies, exceeding USD 4.5 billion. Nearly

70% of investments in the region go to the gas and oil sectors, the remaining 30% being captured mainly by real estate and telecommunications.

The main objective of the study is to measure the impact of FDI and Trade on Economic growth in West Africa countries. The study aims to: first, analyze the share of FDI and Trade on economic growth in West Africa; second, examine whether FDI and Trade have a positive or negative impact on West Africa's countries economic growth; third, determine other variable that influence on economic growth.

We apply our methodologies for identified variables (West Africa's economic growth and other four explanatory variables such as FDI, OPN (Openness trade), GOV(Government Final Consumption) and INF (Inflation) during the period

from 1995 to 2015 by combing nine West Africa's countries, which we deny the heterogeneity or individuality that may exist among the nine countries. We assume that all the countries are same but normally it does not happen or they are not same. We use the fixed effect model to allow for heterogeneity among nine West Africa's countries by allowing having its own intercept value. By combining nine West Africa's countries by pooling, we deny the heterogeneity or individuality that may exist among the nine countries. In Random effect model, our studied countries have a common value for intercept. Finally, we check which model is suitable between fixed effect model and Random effect model for our study by using Hausman test.

This paper is addressed to decision makers, investors, government and economists in terms of highlighting concept of FDI and Trade in West Africa countries and their contributions on economic growth.

Literature review
Here, we present literature reviews to provide an overview of our research fields. The purpose of literature reviews is to place each work in the context of its contribution to understand the research problem being studied, to describe the relationship of each work to others, to determine new ways to interpret research, to reveal any gaps that exist in the literature and to locate our own research within the context of existing literature.

Impact of the FDI on economic growth
Olajide, Johnson Taiwo, Fantola, Oluwatoyin Jubril, Ayansola and Olufemi Aderemi [1] analyze the factors of real GDP per capita growth in the countries of the Organization of the Petroleum Exporting Countries (OPEC) using a panel of twelve countries for the period 1986 to 2010. Combined Ordinary Least Squares (OLS), fixed effects (FE) and random effects (RE) models were used to assess the relationship between the CGDP and the other economic variables used. The result showed that the price level of consumption (pc) and the share of investment (ci) are essential determinants of the CGDP contributing to the economic growth of the OPEC countries. The result also established that the exchange rate (Xrat), the price of GDP (p), the purchasing power parity (PPP) and ci have a positive influence on the CGDP. The test statistic revealed that the random effects model (RMS) estimator is more efficient than the OLS system and that there is no difference in significance between the fixed effects model (FEM) estimators and from REM.

Gui-Diby, Steve Loris [2] studies the effect of foreign direct investment (FDI) on economic growth in Africa and shows estimates based on panel data from 50 African countries for the period 1980 to 2009, as well as the method of the generalized moment of the system.

(SYS-GMM) estimators proposed by Blundell and Bond [3]. It shows that FDI inflows had a significant impact on the economic growth of the African region during the period under review. The result also shows that although the low level of human resources did not limit the impact of FDI, this impact on economic growth was negative from 1980 to 1994 and positive from 1995 to 2009.

Hudea, Oana Simona, Stancu and Stelian Stancu [4] question the existence of a direct and positive impact of foreign direct investment on economic growth. Their study focused on seven Eastern European countries, between 1993 and 2009, and is based on fixed and random MLS/GMM panel estimates, cointegration analysis and panel causality. The results demonstrate a direct and positive influence of foreign direct investment on gross domestic product, both in the short and long term, thus reducing the technology gap with more developed countries, but they also generate reverse causality ranging from GDP to FDI.

Kholis Muhammad [5] analyzes the impact of FDI on economic growth in Indonesia from 2006 to 2010. The method of analysis was applied Pooled Least Square (PLS). The variables in this study are economic growth, growth of FDI, export growth and import growth. Using panel data model, one should know how the presence of FDI influence to promote economic growth in Indonesia. Calculation results showed that the growth of FDI and imports had a negative effect on economic growth, while export growth had a positive effect on economic growth. These results mark the main engine of economic growth still depends on exports.

Tiwari, Aviral Kumar Mutascu Mihai [6] study the impact of FDI on economic growth of Asian countries. They conducted their analysis in panels for the period 1986-2008. They also studied the non-linearity associated with foreign direct investment and exports in the economic growth process of the Asian countries taken as sample. They found that foreign direct investment and exports improved the growth process. In addition, labor and capital also play a very important role in the growth of Asian countries.

Femmy M. Soemantri [7], Nury Effendi [7], examines the influence of foreign direct investment (FDI) on economic growth using detailed sectoral data on FDI inflows to Indonesia over the period In general; FDI would have a positive impact on economic growth. Whereas, when taking into account the difference in average growth performance from one sector to another, the positive impact of FDI is no longer apparent. When looking at different impacts from one sector to another, the results of the estimates show that the composition of FDI also determines its effect on economic growth, with some sectors showing a positive impact of FDI and a sector showing a significant negative impact of FDI inflows (such as extractive industries). This means that

the influence of FDI on economic growth depends on the sector or domain in which the enterprise is concentrated in the host country.

Trade on economic growth

Borojo, Dinkneh Gebre, Jiang, and Yushi [8] show that trade openness between China and Africa has a powerful positive effect on African countries' GDP growth by examining the impact of opening trade in Africa. China and the economic growth of 38 African countries for the period 1995 -2013 after control of endogeneity. When trade opening between Africa and China is linked to Africa's institutional quality and human capital, its impacts are positive and significant. As a result, it needs Africa's strong domestic absorptive capacity to take advantage of the effects of trade with China on improving technology.

Olasode, Olaleye Samuel, Raji, Olajide Alde, Adedoyin, Abikoye Olubukunola, Ademola, Ishola Saheed [1] discuss the impact of trade opening on economic growth using a new measure of trade proposed by Squalli1 and Wilson [9]. Contrary to the vast majority of the literature, the new measure of trade openness explains not only the share of trade in its country's GDP, but also the relative size of its trade compared to world trade in a given year. Using this innovative method of measuring openness, this article examines the impact of trade opening on economic growth. They use the country dataset and cover the period from 1971 to 2011. They use the estimator of the common correlated effect measures group (CCEMG) developed by Pesaran [10] and applied by Cavalcanti *et al.* [11] which takes into account the heterogeneous nature of the countries of the world.

Marelli, Enrico, Signorelli, Marcello [6] analyze the economic growth of China and India in terms of their integration into the global economy. We begin with a discussion of some stylized facts about their recent economic growth, the most important institutional reforms, especially trade relations, and their impact on their economic development. They then provide a descriptive analysis of economic growth, openness of economies and trade specialization, comparing the characteristics and trends of the two countries (taking into account data on trade and foreign

direct investment). They also estimated some econometric relationships between economic growth and trade / openness. They initially used a panel data model for both countries, to estimate with fixed effects; to test for inverse causality, they estimated the 2SLS fixed effects model (with the inclusion of specific instrumental variables). The influence on economic growth (in terms of GDP per capita) of their variables of interest - openness and FDI - remains positive and statistically significant in all specifications, which confirms their conclusions even if they treat these variables as endogenous variables. The results show the positive effects of the openness and integration of the global economy on the growth of both countries. Note that the strong growth of these two "giants" has helped contain the initial impact of the recent global crisis and now supports the recovery of the global economy as a whole. Other important policy implications are discussed in the final section.

Maswana Jean-Claude [12] study exports to growth driven by China and imports coming from growth assumptions from China by using the version of Toda-Yamamoto non-Granger causality tests combined with cointegration and bootstrap of Johannes. The results seem to underestimate the importance of the export-led growth assumption, while suggesting that Africa could benefit from China's growth through imports of capital goods incorporated in the technology. In this sense, the findings corroborate recent views that global trade gains depend less simple effects of trade as the ability of countries to properly position along the global value chain.

Analytic Framework

In this study, the panel data method has used, and we will use three models: Pooled regression model (PRM), fixed effect model (FEM) and random effect model (REM). To know the best models to apply in the analysis, two tests will be used: the first test (LM test) Lagrange multiplier proposal from Preusch and Pagan in [13]. This test is applied to choose between (PRM), (FEM) or (REM), the second test is Hausman test [14], to choose between (FEM), (REM). Using a variety of studies applied to different models in the estimation of FDI on economic growth in addition to the use of different methodologies, accordingly, the standard model in this study, the general equation is as follows:

$$GDP = (\text{FDI}, \text{OPN}, \text{GOV}, \text{INF})$$

Thus, our growth function becomes:

$$GDP_t = C + \beta_1 FDI_t + \beta_2 OPN_t + \beta_3 GOV_t + \beta_4 INF_t + \varepsilon_t ...(1)$$

Where:
GDP$_t$: Economic growth (proxy for Gross domestic product in period t, (current price USD)
FDI$_t$: Foreign direct investment in period t, (current price USD)
OPN$_t$: Openness trade in period t, (current price USD)

GOV$_t$: Government Final Consumption in period t, (current price USD)
INF$_t$: Inflation in period t, (current price USD)

By taking the ln to GDP, the equation becomes:

$$\ln\text{GDP}_t = C + \beta_1 FDI_t + \beta_2\, \text{OPN}_t + \beta_3\, \text{GOV}_t + \beta_4\, \text{INF}_t + \varepsilon_t \ldots (2)$$

The Pooled OLS Regression Model
It can clarify the compound regression model as follows:

Suppose pooled regression model homogeneity of variances random error between the countries under study limits ($\sigma_i^2 = \sigma_t^2$), together with zero covariance between countries $Cov(\varepsilon_{it}it, \varepsilon_{js}) = 0$ for $i \neq j$. The model also assumes the formation fixed limit transactions ($\alpha_{i,s}$) and slope coefficients (β,s) for all countries.

Result of Pooled OLS Regression Model
In this test, we pool the 189 observations together and realize the regression model, neglecting the nature of cross-sectional data and time series.

Table-1: Result of Pooled OLS Regression

Ln GDP	Coef.	Std.Err	t	P>| t	
FDI	-.0940226	.0746438	-1.26	0.209
OPN	.1776634	.0755767	2.35	0.020
GOV	.0460149	.0738298	0.62	0.534
INF	.0103427	.0731733	0.14	0.888
Cons	81.70016	15.37847	5.31	0.000

Number of obs = 189, F (4, 184) = 1.57, Prob > F = 0.1850, R-squared = 0.0329, Adj R-squared = 0.0119, Root MSE = 54.377

We can see that GDP is a dependent variable and FDI, OPN, GOV and INF are the independent variables, and here, only OPN is a significant variable because of its probability that is less than 5% and FDI, GOV, INF are not significant variables because their probabilities are more than 5%. But for the time being, we shall not accept the result of this pooled regression model. For we see that the thirteen countries are not same. Then now, we shall develop Fixed Effect model and we are assuming that our thirteen countries have different intercept.

The Fixed Effect Model
The fixed effect model is simply a linear regression model in which the intercept terms vary according to the individual units i.

$$Y_{it} = \alpha_1 \delta_{1it} + \alpha_2 \delta_{2it} + \ldots + X_{it}\,\beta + \varepsilon_{it}\ldots.(3)$$

Where it is usually assumed that all X_{it} are independent of all ε_{it}, we can write this in the usual regression framework by including a dummy variable for each unit i in the model:

$$Y_{it} = \sum_{j=1}^{N} \alpha_j d_{ij} + X_{it}\,\beta + \varepsilon_{it}\ldots.(4)$$

Where d_{ij} = 1 if i=j and 0 elsewhere. We therefore have a set of N dummy variable in the model. The parameters $\alpha_1\ldots\ldots\ldots,\alpha_N$ and β can be estimated by ordinary least squares in equation (3). The implied estimator for β is referred to as the Least Squares Dummy Variable (LSDV) estimator. It may, however, be numerically unattractive to have a regression model with so many repressors.

by letting them have their own intercept values Fixed-effect (within) regression

Result of fixed effect or lsdv model
The fixed Effect or LSDV model allows a heterogeneity or individuality among thirteen countries

Table-2: Result of LSDV

lnGDP	Coef.	Std.Err	t	P>| t	
FDI	.1763189	.0386979	4.56	0.000
OPN	.0436535	.0430254	1.01	0.312
GOV	.0641279	.0367891	1.74	0.083
INF	.0016605	.0331369	0.05	0.960
Cons	67.85273	7.316146	9.27	0.000

Number of obs = 189, Number of group = 9, Obs per group: min = 21, Avg = 21.0, Max = 21, F (4, 176) = 6.91, Prob > F = 0.0000

Prob >F = 0.0000 is less than 5%, it means that all the coefficients of this model are not equal to Zero. When the probability (Prob>F) is significant that means our model is acceptable and fitted and the coefficients are not equal to Zero. The probability of FDI variable is 0.000, FDI is significant because its probability is less than 5%, and the FDI here can explain the lnGDP. OPN variable probability is 0.312, so OPN is not significant because its probability is more than 5%, the OPN here cannot explain the lnGDP. GOV probability is 0.083, it is not significant because of its probability that is more than 5%, and the GOV here cannot explain the lnGDP. INF variable probability is 0.960, it is not significant because its probability is more than 5%, and then the INF cannot explain the GDP.

FDI and OPN variables are significant to explain the lnGDP. GOV, INF variables are not significant and cannot explain lnGDP.

The Random Effect Model

It is generally assumed in regression analysis that all factors that affects the dependent variable, but which have not been included as repressors can be appropriately summarized by a random error term. In our case, this conducts is to the assumption that the αi are random factors, independently and identically distributed over individuals. Thus, we write the Random Effects Model as,

$$Y_{it} = \mu + X_{it}\,\beta + \alpha i + \varepsilon_{it}, \varepsilon_{it}\ \square\ IID(0,\sigma_{\varepsilon}^2); \alpha_i\ \square\ IID(0,\sigma_{\alpha}^2).....(5)$$

where $\alpha i + \varepsilon_{it}$ is processed as an error term composed of two components: an individual specific component, that will not vary over time, and a remainder component, that is assumed to be uncorrelated over time, this is all correlation of the error terms over time is attributed to the individual effects. It is assumed that α_i and ε_{it} are mutually independent and are independent of X_{js} (for all j and s). This implies that the OLS estimator for μ and β from (5) is unbiased

and consistent. The error components structure implies that the composite error term $\alpha i + \varepsilon_{it}$ exhibits a particular form of autocorrelation (unless $\sigma_{\alpha}^2 = 0$).

Result of random effect model

These are our nine countries that have common mean value for the intercept. Now we shall apply Hausman Test to check which model is the best (Fixed Effect or Random Effect).

Table-3: Result of Random effect

lnGDP	Coef.	Std.Err	t	P>| t	
FDI	.1734191	.0384876	4.51	0.000
OPN	.0453731	.0427255	1.06	0.288
GOV	.0636753	.036589	1.74	0.082
INF	.0017754	.0329957	0.05	0.957
Cons	67.99693	20.95437	3.24	0.001

Number of obs = 189, Number of group = 9, Obs per group: min = 21, Avg = 21.0
Max = 21, Wald chi2 (4) = 27.32, Prob > chi2 = 0.0000

Prob>chi2= 0.0000 is less than 5%, so our model is acceptable, and it means that all coefficients of this model are not equal to zero. Here we can see that the probability of FDI variable is 0.000, FDI is significant because of its probability that is less than 5%, and the FDI here explain the lnGDP. OPN variable

probability is 0.288, OPN is not significant because of its probability that is more than 5%, and then here OPN cannot explain the lnGDP. GOV probability is 0.082, it is not significant because of its probability more than 5%, and the GOV here cannot explain the ln GDP. INF variable probability is 0.957, it is not significant

because of its probability that is more than 5%, and the INF also cannot explain the GDP. Only FDI variable is significant to explain the lnGDP. And OPN, GOV, INF variables are not significant and cannot explain lnGDP. We have restored this random effect model in memory as before to check which model is appropriate? Fixed effect or random effect? We shall use the Hausman test to check.

The Hausman Test
The Hausman test allows choosing between the fixed effect model and the random effects model.

The null hypothesis is that the preferred model is the random effects model vs the alternative which is the fixed effects model. It essentially tests whether the unique errors (ui) are correlated with the regressions; the null hypothesis is that they are not.

Result of Hausman Test

Hypothesis
Null Hypothesis: Random-effect model is appropriate
Alternative Hypothesis: Fixed-effect model is appropriate

If we get statistically the significant P-value, we shall use fixed effect model, otherwise Random-effect model.

Table-4: Result of Hausman Fixed

	(b) Fixed	(B) Random	(b-B) Difference	Sqrt(diag(v_b-v_B)) S.E.
FDI	.1763189	.1734191	.0028998	.0040283
OPN	.0436535	.0453731	-.0017196	.0050712
GOV	.0641279	.0636753	.0004526	.0038319
INF	.0016605	.0017754	-.000115	.0030564

Chi2 (4) = (b-B)' [(v_b-v_B) ^ (-1)] (b-B) = 0.57, Prob>chi2 = 0.9665

As shown in the table above, the Random effects model is more appropriate than the fixed effects model. So, the study was analyzed using the results of fixed effects models:

$$\ln GDP = 67.85273 + 0.1763189 FDI_t + 0.0436535 OPN_t + 0.0641279 GOV_t + 0.0016605 INF_t..(6)$$

The probability value is 0.9665; this value is higher than 5%, so we cannot reject the null hypothesis. Rather we accept the null hypothesis, it means that Random Effect model is appropriate to explain the outcome.

When we estimated the Random effect again, the probability of FDI variable is 0.000, so FDI is significant because its probability is less than 5%, the FDI here explain the lnGDP. And the coefficient is positive, its means that there is a positive relationship between FDI and lnGDP. And OPN variable probability is 0.288, it is positive but it is not significant because of its probability that is more than 5%. And then here OPN cannot explain the lnGDP.

According to the Hausman Test, the Random effect is appropriate because when we go back to Random effect test we can prove that Pro>chi2 = 0.0000 is significant.

CONCLUSION
The study aimed to analyze the impact of FDI and Trade on Economic growth in West African countries during the period of 1995 to 2015. through a form of panel data which includes economic growth measured by LGDP as the dependent variable, and a number of independent variables, which included Foreign Direct investment (FDI), Openness trade (OPN), OPN (Openness trade), GOV(Government Final

Consumption) and INF (Inflation) on nine (9) West Africa countries. The results, show us the probability of FDI variable is 0.000, so FDI is significant because its probability is less than 5%, the FDI here explains the lnGDP. And the coefficient is positive, its means that there is a positive relationship between FDI and lnGDP. And OPN variable probability is 0.288, it is positive but it is not significant because of its probability which is more than 5%. So here OPN cannot explain the lnGDP. The study demonstrates that foreign direct investment in West African countries influences economic growth positively. An increase in FDI is positively correlated with an increase of economic growth in West Africa countries. However, according the results, Trade is not significant while the role of trade show us that trade is a powerful catalyst of economic development and can boost vital economic growth development in general. Linking producers and consumers in the countries, developing world markets, trade - exports and imports - fundamentally contributes to the flow of financial resources, technology and services needed to strengthen productive capacities in agriculture, industry and services and the structural transformation of the economy. It means that the trade supposed to be significant but in our case here, there is a problem. The non-application of the principle of free practice within the ECOWAS Customs Union further favors these informal forms of transactions. And the result is whole areas of the market satisfied from imports from the international market. These supplies largely relate to

low-end products, recovery and more and more counterfeiting.

These phenomena must be put in perspective with the ambitions of the African Continental Free Trade Area, which aim to increase intra-African trade. Indeed, if deep reforms are not made in the countries, the African market could become easy prey for multinationals and counterfeit producers, who have the ability to flood it with products of all kinds.

The governments of West African countries should be strict in the transparency of managing the FDI; especially on Trade to productive activities in order to avoid the adverse influence of FDI and Trade on West Africa economic growth. Fight against corruption should be made in this region and more incentive should be given to investors. Thus, efforts should be directed towards policies that will improve economic growth, such as business environment, and openness, so a better and positive impact on imports, which plays a crucial role in economic growth

REFERENCE

1. Akhvlediani T, Śledziewska K. What determines export performances in hightech industries. Working Paper Delab UW. 2015.
2. Amber Li, Yao & Zhu, Linke. Sources of relatedness between industries and revealed comparative advantage: Evidence from China. Stockholm, Sweden: Stockholm School of Economics.2014.
3. Blundell R, Bond S. Initial conditions and moment restrictions in dynamic panel data models. Journal of econometrics. 1998 Nov 1;87(1):115-43.
4. Hudea OS, Stancu S. Foreign direct investments, technology transfer and economic growth. A panel approach. Romanian Journal of Economic Forecasting. 2012 Feb;15(2):85-102.
5. Kholis M. Dampak foreign direct investment terhadap pertumbuhan ekonomi Indonesia; Studi makroekonomi dengan penerapan data panel. Jurnal Organisasi dan Manajemen. 2012 Mar 10;8(2):111-20.
6. Tiwari AK, Mutascu M. Economic growth and FDI in Asia: A panel-data approach. Economic analysis and policy. 2011 Sep 1;41(2):173-87.
7. Effendi N, Soemantri FM. Foreign direct investment and regional economic growth in Indonesia: A panel data study. In The 6th Irsa International Conference, Regional Development in The Era of Decentralization: Growth, Poverty, and Environment, Bandung. 2003 Jul.
8. Borojo DG, Jiang Y. The Impact of Africa-China Trade Openness on Technology Transfer and Economic Growth for Africa: A Dynamic Panel Data Approach. Annals of Economics & Finance. 2016 Nov 1;17(2).
9. Squalli J, Wilson K. A new measure of trade openness. The World Economy. 2011 Oct;34(10):1745-70.
10. Pesaran MH. Estimation and inference in large heterogeneous panels with a multifactor error structure. Econometrica. 2006 Jul;74(4):967-1012.
11. Cavalcanti D, Aolita L, Boixo S, Modi K, Piani M, Winter A. Operational interpretations of quantum discord. Physical Review A. 2011 Mar 31;83(3):032324.
12. Maswana JC. Can China trigger economic growth in Africa? An empirical investigation based on the economic interdependence hypothesis. Chinese Economy. 2009 Mar 1;42(2):91-105.
13. Hamdan BS. The effect of exports and imports on economic growth in the Arab countries: A panel data approach. Journal of Economics Bibliography. 2016 Mar 18;3(1):100-7.
14. Hausman JA. Specification tests in econometrics. Econometrica: Journal of the econometric society. 1978 Nov 1:1251-71.