IMPACT OF FOREIGN DIRECT INVESTMENT ON TRADE INTEGRATION IN AFRICAN BLOC-ECOWAS

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Abstract: In this paper, author studied the impact of FDI on trade integration in African bloc-Economic Community of Western African States(ECOWAS) . Author collected data on growth, FDI, and intra bloc export and import from UNCTAD,UNO. He has used simple regression,semi-log regression models, Granger causality test(1969), Bai-Perron model (2003), Johansen model (1988,1996).Also ,he used correlation matrix for intra bloc analysis.The paper concludes that during 1980-2016, FDI in ECOWAS has 3 structural breaks .FDI and growth have no cointegration in ECOWAS yet they have bi-directional causality . All the intra bloc export and import during 1995-2016 have been significantly increasing and they are significantly positively related with FDI inflows. Correlation coefficients of the intra bloc export and import of the 5 blocs are significantly positive. FDI has greater impact in accelerating trade integration in ECOWAS.

Keywords: Foreign Direct Investment, Growth, Trade Integration, Financial Integration.

JEL Code-C32,C58,F15,F36.

Introduction: Trade integration through trade creation establishes various forms like free trade area,custom union,common market and economic union respectively.In the world trading order,regional trading blocs under multilateralism is of special importance today.Presently there are 14 trading blocs in Africa in which 9 blocs are active where performance of ECOWAS(consisting of countries eg,Cape Verde,Gambia, Guinea,Guinea Bissau,Liberia,Mali,Senegal,Sierra Leone,Benin,Burkina Faso,Ghana,Ivory Coast,Niger,Nigeria,Togo) is very much important and dynamic towards the process of economic integration.The Abuja Treaty proposed the establishment of a CFTA by 2017, and integration into a single customs union with a common currency, central bank and parliament by 2028. Continental economic integration would be achieved through establishing a single trade and investment area, removing tariff, nontariff and other barriers to the movement of goods, services, capital and people, and achieving competitive trade in goods and services in the global market. The economic integration process in African blocs in recent years have taken several agendas in which Continental Free Trade Area in 2017, regional customs unions in 2019,African Customs Union in 2023, African Common Market in 2028, and African Economic Monetary Union will complete in 2034 which is at last extended to 2063.

In this context, author attempted to examine the impact of FDI on trade integration in ECOWAS during 1995-2016.

Review of Literature: African Development Bank(2010) studied how liberalizing intraregional exchange controls and strengthening the regulation and supervision of securities markets would also attract FDI into the regions. The partners would be beneficial if they cover the policies of (i) coordination of regional and national strategies, (ii) technical assistance and capacity building at both national and regional levels, and (iii) financing of regional financial infrastructures. Following Chinn-Ito index, Amadou(2014) comments that most African countries remain relatively closed. Out of the 52 African countries, only 12 had a positive index as of 2011 (about 23 percent), and 16 countries (about 30 percent) had an index above the average value (the index values range from a minimum of -2.0 to a maximum of +2.5).Lovegrove(2007)tried to verify the regional financial integration in the East African Community (EAC) and the Economic Community of West African States (ECOWAS) where the links between finance and economic growth is needed and bank support could be provided for financial

sector regionalization initiatives in each region as priority areas.Graduate School of Development Policy and Practice (2017) assessed that two key shifts in Africa's trade integration occurred in June 2015.[1]The signing of the Tripartite Free Trade Area Agreement between COMESA, EAC and SADC, and [2]The formal launch of the Continental Free Trade Area negotiations, covering trade in goods and services, investment, intellectual property rights and competition policy. This study observed that Intra-African imports as a share of the continent's GDP rose from around 2.7% in 1995 to around 4.5% in 2013.Although this is low compared with regions such as the Americas (6.7%),Asia (17.9%) and Europe (21%).Only SADC (from 3.6& of GDP in 1995 to 5.7% in 2014) and COMESA (from 0.8% in 1995 to 1.8% in 2014) have seen substantial increases in the share of intra-regional trade in GDP. Several RECs have reduced tariffs on intra-regional imports to a relatively low level. Out of Africa's RECs with free trade areas, EAC has a zero average applied tariff on imports within the bloc, while SADC and ECOWAS intra-regional tariffs are higher (3.8 and 5.7%). COMESA, EAC,ECOWAS and SADC have all adopted measures to facilitate transport and reduce non-tariff barriers. Intra-African trade remains relatively low, however, because of weaknesses in manufacturing. Though data are limited on intra-African foreign direct investment, it appears that such flows represent only a fraction of Africa's GDP. ECA and the AfDB are working together to establish the African Central Bank, the African Monetary Fund, and the African Investment Bank. Chauvin & Gaulier (2012) tried to show that African regional integration has nevertheless been slow due to several factors such as overlapping membership, the lack of authority and bureaucratic sophistication to deal with bigger powers, political turmoil in some countries etc. Therefore, Africa's alliances have concentrated more on liberalizing trade within the region than with the rest of the world. Ntara(2016) found that intra-Africa trade is still low, despite the existence of numerous trading blocs, and that few of these contribute to regional trade creation. Poverty rates are still high and GDP does not seem to be positively influenced by the trading blocs. Ebaidalla & Yahia (2013) studied on intra-trade integration within COMESA. They found that COMESA countries trade below their potentials perform poorly in terms of regional trade integration compared to ASEAN member states. As such, they proposed the adoption of effective trade facilitation measures to bolster economic and trade integration. Singh and Singh(2015) reviewed the achievements and prospects of the different trade blocs focusing mostly on Southern African Development Community (SADC). They suggested SADC for achieving free trade bloc, such as [i]The measurement of inflation should be harmonized between member countries, [ii] Legal, regulatory and supervisory framework of financial institutions within SADC should be harmonized, [iii] SADC countries may consider a suitable monetary framework for a regional central bank, [iv]The effect of economic integration on the social and economic progress of the member nations should be reviewed periodically.

Hartzenberg(2011) stated that ECOWAS performs worst on the GCI indicators in comparison to other RIAs. They are strongest on institutions and innovation, and weakest in the areas of health,education, and infrastructure development. Some of the most problematic factors for doing business in the bloc include access to finance, corruption, burdensome tax regulations, and inadequate supply of infrastructure. He comments that the importance of non-tariff barriers (NTBs) should not be underestimated. The most important NTBs hindering regional trade in the east and southern African region (COMESA, the EAC and SADC) include customs procedures and administrative requirements, technical standards and the lack of physical infrastructure. This is of particular importance to agricultural trade within the region. Bhowmik(2008)verified the feasibility of common currency in the process of economic integration in SACU during 1985-2005through OCA criteria and concluded that SACU has good prospect to introduce common currency. Bhowmik(2009) also tested the scope of common currency in ECOWAS through OCA criteria during1990-2006 and found that there is limited scope for common currency yet Franc dominates the zone where convertibility and payment system are still to be reformed. Even, the macro fundamentals are uneven. Bhowmik (2014) studied the causes of success and failures of 14 African blocs through macro fundamendals, OCA criteria, welfare gains of blocs and intra-bloc trade etc during 1990-2006.

Objective of the Paper: In this paper, author endeavors to study the impact of foreign direct investment inflows on trade integration in regional trading bloc-ECOWAS in Africa during 1995-2016 including the patterns and trends of foreign direct investment inflows of the bloc during 1980-2016.

Data and Methodology: Author applied semi-log linear regression regression model to find out trends and used Bai-Perron model (2003) to show structural breaks of foreign direct investment inflows of the five blocs from 1980-2016. Granger(1969) model was applied to verify causality. Johansen model (1988,1996) was used to show cointegration and Vector Auto Regression . Multivariable regression model was used to clarify the relationships among FDI inflows, growth, intra bloc export, intra bloc import respectively. Cross correlation matrix was used to show intra-bloc relationships in trade integration.The data of FDI inflows, growth rate , intra-bloc export, intra-bloc import, have been taken from United Nation Conference on Trade and Development from 1980-2016 and 1995-2016.Economic Community of Western African States(ECOWAS)was established in1975 whose members are Cape Verde,Gambia, Guinea,Guinea Bissau,Liberia, Mali,Senegal,Sierra Leone,Benin,Burkina Faso,Ghana,Ivory Coast,Niger,Nigeria,and Togo respectively.Assume, x_5=FDI inflows of ECOWAS, y_5=growth rate of ECOWAS.X_{05} is the Intra-bloc export of ECOWAS and x_{15} are the intra bloc imports of ECOWAS respectively. Also,it is known that The Central African Economic and Monetary Community (CEMAC), Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC),and Economic Community of Central African States (ECCAS).

Major Findings of the Paper:

Patterns of FDI in ECOWAS: The FDI inflows of Economic Community of Western African States (ECOWAS) during 1980-2016 has been growing at the rate of 14.22% per year significantly .There are three structural breaks of FDI inflows of ECOWAS during 1989,2002 and 2007 respectively which are shown in Table 1.

Table1: Structural breaks of FDI of ECOWAS

Variable	Coefficient	Standard error	T statistic	Probability
		1980-1988....90bs		
C	471.11	93.8767	5.018	0.000
		1989-2001..130bs		
C	2156.538	166.617	12.943	0.000
		2002-2006...50bs		
C	4513.00	878.57	5.136	0.000
		2007-2016...100bs		
C	12774.0	1021.86	12.50	0.000

R^2=0.91 , F=112.08 , DW=1.568

In Figure1, the structural breaks of FDI in ECOWAS during 1980-2016 have been plotted clearly.

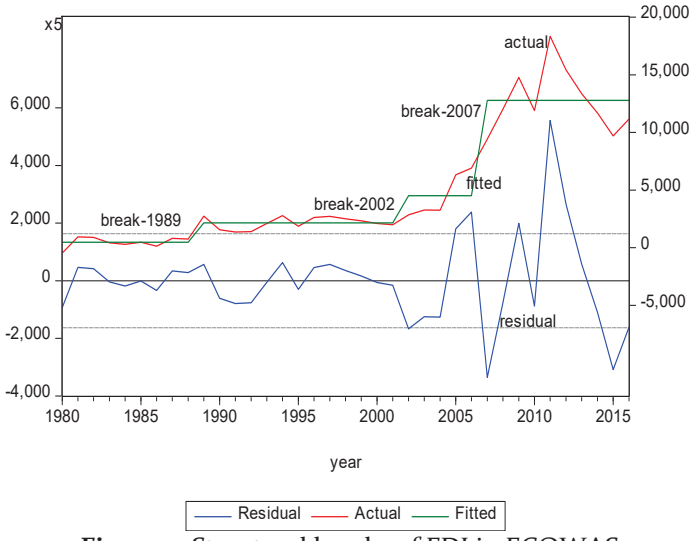

Figure 1: Structural breaks of FDI in ECOWAS
Source: Plotted by Author

The growth rate of ECOWAS has upward structural break in 1985 which is tabulated and is plotted below.

Table 2: Structural breaks of growth rate of ECOWAS

Variable	Coefficients	Standard Error	T statistic	Probability
		1980-1984....50bs		
C	-1.3760	0.6212	-2.21	0.033
		1985-2016...320bs		
C	4.8778	0.6799	7.1737	0.00

R^2=0.359,F=19.68*,DW=1.28, Source-Calculated by author

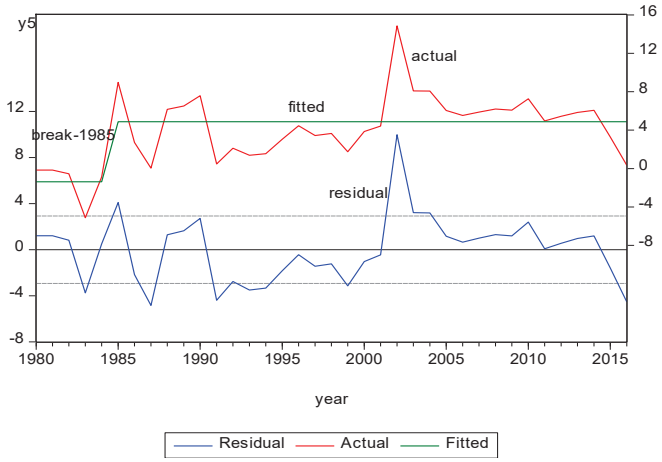

Figure 2: Structural breaks of growth rate of ECOWAS
Source: Plotted by author

Granger Causality test(1969) proved that there is bidirectional causality between growth rate and FDI during 1980-2016 in ECOWAS. It is tabulated below.

Table 3: Causality between FDI and Growth Rate

Y_5 does not Granger Cause X_5	36	1.22113	0.2771
X_5 does not Granger Cause y_5		0.42838	0.5173

Source: Calculated by author, x_5=FDI inflows of ECOWAS, y_5=growth rate of ECOWAS.

The intra FDI in five blocs in Africa during 1980-2016 showed high positive correlation coefficients which imply that FDI inflows in one bloc say ECOWAS has subsequent positive impact on other blocs like CEMAC,COMESA, EAC, and ECCAS respectively. This is shown in the cross correlation matrix below.(x_1=FDI in CEMAC, x_2=FDI in COMESA, x_3=FDI in EAC, x_4=FDI in ECCAS)

	X1	X2	X3	X4	X5
X1	1	0.80928485...	0.96305300...	0.95809279...	0.91915048...
X2	0.80928485...	1	0.89206139...	0.89181466...	0.87206702...
X3	0.96305300...	0.89206139...	1	0.95380110...	0.96177386...
X4	0.95809279...	0.89181466...	0.95380110...	1	0.92520195...
X5	0.91915048...	0.87206702...	0.96177386...	0.92520195...	1

Even, the correlation coefficients of intra bloc growth rates are significant for CEMAC and ECCAS,EAC and ECCAS,EAC and ECCAS only although all are positive. It means that only three blocs have good impact of intra bloc growth rates. Following correlation matrix shows the results.(y_1=growth rate of CEMAC ,y_2=growth rate of COMESA, y_3=growth rate of EAC, y_4=growth rate of ECCAS)

	Y1	Y2	Y3	Y4	Y5
Y1	1	0.13894492...	0.29530612...	0.68356009...	0.16153216...
Y2	0.13894492...	1	0.16961206...	0.26852030...	0.22917629...
Y3	0.29530612...	0.16961206...	1	0.60520685...	0.35687232...
Y4	0.68356009...	0.26852030...	0.60520685...	1	0.36920333...
Y5	0.16153216...	0.22917629...	0.35687232...	0.36920333...	1

Let us verify the impact of FDI on growth in ECOWAS so that we can understand the financial integration in each bloc.In ECOWAS,FDI affects growth positively during 1980-2016 which is not significant at 5% level.

$Y_5=3.010085+0.000207x_5$

(3.78)* (1.85)

$R^2=0.089$,F=3.45,DW=1.129,*=significant at 5% level.

Thus, it can be concluded that financial integration process is progressing positively in ECOWAS.These findings are more or less comparable with the study of Herve(2016) who found that FDI does not improve financial integration in WAEMU during 1980-2014 through econometric model using panel data analysis and also similar with the research of Soumia & Abderrezak (2013) who showed that FDI allows common currency and creation of free trade in three North African countries during 1980-2010 using OLS,2SLS and GMM respectively.

FDI and Trade Integration in ECOWAS: Intra bloc export of ECOWAS during 1995-2016 has been increasing at the rate of 9.18% per year significantly.

$Log(x_{05})=6.1278+0.091852t$

(28.07)* (11.46)*

$R^2=0.86$F=131.50* ,DW=0.51,x_{05}=intra bloc export of ECOWAS.*=significant at 5% level.

ECOWAS has significant positive impact of FDI and insignificant positive impact of growth on intra bloc export during 1995-2016.

$X_{05}=965.76+0.6407x_5+85.787y_5$

(1.34) (12.25)* (0.87)

$R^2=0.88$,F=75.36* , DW=1.29 ,*=significant ,x_5=FDI inflows ,y_5=growth rate

Johansen cointegration test among intra bloc export, FDI and growth verified that there is no cointegrating equation in Trace Statistic and Max Eigen Statistic during 1995-2016.

Table 4: Cointegration Test: FDI, intra bloc export and Growth in ECOWAS

Hypothesised no of CEs	Eigen value	Trace Statistic	0.05 CV	Prob**
None	0.5543	22.4957	29.7970	0.2717
At most 1	0.2145	6.3333	15.4947	0.6561
At most 2	0.0724	1.5035	3.8414	0.2201
		Max Eigen Statistic		
None	0.5543	16.1623	21.1316	0.2155
At most 1	0.2145	4.8298	14.2646	0.7632
At most 2	0.0724	1.5035	3.8414	0.2201

Source: Calculated by author ,*=denotes rejection of the hypothesis at 0.05 level,
**=Mackinnon-Haug-Michelis(1999)p value

Even, the Correlation matrix of intra bloc export among 5 regional blocs in Africa has significant correlation among the blocs which implies an increase in intra export in one bloc induced positive impact of intra export of other blocs.

	X01	X02	X03	X04	X05
X01	1	0.93219529...	0.84581831...	0.99250073...	0.94310848...
X02	0.93219529...	1	0.95468565...	0.93791202...	0.97460275...
X03	0.84581831...	0.95468565...	1	0.84498919...	0.91265194...
X04	0.99250073...	0.93791202...	0.84498919...	1	0.93631025...
X05	0.94310848...	0.97460275...	0.91265194...	0.93631025...	1

Where x_{01}=intra-blog export of CEMAC,x_{02}=intra-bloc export of COMESA,x_{03}=intra-bloc export of EAC,x_{04}=intra-bloc export of ECCAS.
Intra bloc import of ECOWAS has been increasing at the rate of 8.71% per year significantly during 1995-2016.

$Log(x_{15})=6.1199+0.0871t$
(20.12)* (7.81)*

R^2=0.75 , F=61.02* , DW=0.75 ,x_{15}=intra bloc import of ECOWAS ,*=significant
ECOWAS has significant positive impact of FDI and insignificant positive impact of growth on intra bloc import during 1995-2016.

$X_{15}=631.74+0.5548x_5+138.009y_5$
(0.59) (7.21)* (0.95)

R^2=0.73,F=26.39* , DW=1.29, *=significant at 5% level,x_5=FDI inflows,y_5=growth rate
Johansen cointegration test among intra-bloc import,FDI and growth observed that they have no cointegrating equation in Trace Statistic and Max Eigen Statistic during 1995-2016.

Table 5: Cointegration Test: FDI, Intra Bloc Import and Growth in ECOWAS

Hypothesised no of CEs	Eigen Value	Trace Statistic	0.05 CV	Prob**
None	0.5449	21.8327	29.7970	0.3079
At most 1	0.2113	6.0841	15.4947	0.6856
At most 2	0.0646	1.3358	3.8414	0.2478
		Max Eigen Statistic		
None	0.5449	15.7486	21.1316	0.2399
At most 1	0.2113	4.7482	14.2646	0.7732
At most 2	0.0646	1.3358	3.8414	0.2478

*=denotes rejection of the hypothesis at 0.05 level, **=Mackinnon-Haug-Michelis(1999)p value
Source: Computed by author

Moreover, Correlation matrix of intra bloc import among 5 regional blocs in Africa has significant correlation among the blocs which implies an increase in intra import in one bloc induced positive impact of intra import of other blocs.

	X11	X12	X13	X14	X15
X11	1	0.92064089...	0.91931499...	0.98074248...	0.89440535...
X12	0.92064089...	1	0.99044011...	0.92589517...	0.92872422...
X13	0.91931499...	0.99044011...	1	0.92111725...	0.92031808...
X14	0.98074248...	0.92589517...	0.92111725...	1	0.88151345...
X15	0.89440535...	0.92872422...	0.92031808...	0.88151345...	1

Where x_{11}=intra-bloc import of CEMAC,x_{12}= intra-bloc import of COMESA, x_{13}=intra-bloc import of EAC, x_{14}=intra-bloc import of ECCAS.

Therefore, we can conclude that intra-bloc export and import have positive and highly significant correlation coefficients among themselves which indicates that there is highly significant trade integration in ECOWAS including other four African blocs during 1995-2016.These findings are similar with the studies of Valde & Benzmer(2006),Tayyebi & Hortamani (2007) and Simonescu(2014) respectively. Valde & Benzmer(2006) verified that the relation between FDI and RTA among the blocs of SADC,ANDEAN,ASEAN, COMESA, NAFTA, MERCOSUR is positive and if FDI increases the trade GDP ratio increases too. Tayyebi & Hortamani(2007) used Gravity model and concluded that trade integration affects FDI positively in EU and ASEAN+3 during 1992-2003.In the short run,Simonescu(2014) studied that causality of FDI,export and import is bidirectional but in the long run,the causality is unidirectional in G7 countries in panel data analysis during 2002-2013.

Future Scope of Research and Limitations: There are many overlapping countries in the African blocs for which prediction of inter country analysis and policy prescription may be faultry.Other than FDI, there are many indicators that may affect trade integration. On the other hand, openness, exchange

rate, terms of trade, diversification index, extra-bloc trade share, inflation rate are other indicators which can affect trade integration of any bloc. Therefore, how much FDI would influence on the above variables in the bloc may be the area of future study. Moreover, if we would get all the data during the same time period from 1980 to 2016, then the analysis might be better.

Conclusion: The paper concludes that growth and FDI in ECOWAS have upward structural breaks .There is no interlinking between structural breaks of growth rate and FDI. The growth rate and FDI of ECOWAS during 1980-2016 showed bi-directional causality. Intra-bloc FDI inflows are highly correlated. Intra-bloc export and import have been increasing steadily and they are positively related in FDI but not with growth rate. Cross Correlations among intra-bloc exports and among intra-bloc imports are significantly high. Therefore, FDI has positive impact on trade integration in the ECOWAS during the study period 1995-2016.

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