

External Trade Benefits and Poverty Reduction in English Speaking West African Countries(ESWACs): A Test of Panel Data Econometric Methods

¹Uzomba, Peter Chika; ²Ajie, H. A, Ph.D, Lb, Llb&³Gbosi, A. N, Ph.D

^{1,2,3}*Department of Economics, Faculty of Social Sciences, University of Port Harcourt, Choba, Port Harcourt, Rivers State, Nigeria*

Abstract: *This research examines the impact of external trade benefits on poverty reduction in five English Speaking West African Countries (ESWACs) from 1980 to 2013. These countries include; The Gambia, Ghana, Liberia, Nigeria and Sierra Leone). The study expressed external trade benefits (ETB) as increase in export earnings (EXE), trade openness (TOP), total government expenditure (TGE) and reduction in foreign exchange rate (FER), while poverty level is expressed as real gross domestic income (GNI) per capita current US Dollar. Theoretically, the study relied on five trade theories, in practice; the study constructs a balanced panel data structure (BPDS) and methodologically, departs from the classical OLS and 1st generation panel econometric techniques to adopting recently developed 2nd generation panel data econometric methods. The results of the study reveal that external trade benefits were not found to be significant enough to reduce the poverty level in ESWACs from 1980 to 2013. This implies that external trade benefits did not significantly increase GNI per capita in ESWACs within the period of study. Based on this result, the study therefore concluded that the impact of external trade benefits on poverty level is a trivial matter because external trade benefits have not comprehensively and significantly augmented the status of real gross domestic income (GNI) per capita current US Dollar of English speaking West African countries within the period of study. Following this conclusion we recommended, among others, that policy implication on the result of co-integration of the panel equation 2 is that more credible expansionary fiscal policy should be pursued as this will help to pump more money into circulation with the aim of creating and expanding employment opportunities that would be able to reduce poverty in the region and cut in public investment spending on agriculture and industrial sectors should be avoided so that the countries will be encouraged to produce locally and also export.*

Keywords: *External Trade Benefits, Poverty, ESWACs, Panel Data Econometric Methods, GNI.*

I. Introduction

1. General Overview

The increase in global integration awareness and the need for development of a nation is redirecting the attention of countries towards international trade sensitivity. The quest for economic growth and development of countries has caused an emergence of global trade relationship beyond domestic boundaries of nations which has enunciated varying dimensions of economic integration. Integrating into the world economy has, beyond reasonable doubt, proven a powerful and veritable instrument for economies to promote economic growth and development. This trend points to the need for countries to participate in the international market through external trade. This is because every economy is essentially part of the world, therefore this discuss on the external trade relation is inevitable in the life of a country. In this regards, Usman (2011) notes that the working of an economy in terms of growth rate and per capita income has been based on the domestic production, consumption activities and in conjunction with foreign transaction of goods and services. In the light of this, it therefore implies that according to Denise (2000) argued that international trade is the framework upon which the economic propensity of the developed countries rests. Judging from this view point, it follows that the benefits of external trade are many and far outweigh any risks (loss) that foreign competition may pose to the developing countries.

Economic theories and analyses inform that promotion of economic growth and development is one of the objectives of external trade. In this direction, evidence abound that earnings from external trade relations recorded by English Speaking West African Countries (ESWACs) have overtime appreciated and as such this has equally informed the increase in viability of external trade benefits in addressing development issues. Specifically, Gbosi (2004) reports that in 1997, the combined exports earnings from the English Speaking West African Countries (ESWACs) was about \$14 million and increased to \$16 billion in 2000, excluding that of Liberia which was reported unavailable.

Further, the aggregate export earnings for ESWACs in 2011 was \$92.866 billion, this also increased to \$98.598 billion in 2012 and maintained an increasing trend up to 2013 to the tune of \$101.533 billion. This increase in export earnings of these countries boosted the general government revenue as a percentage of GDP by 26%, 27% and 29% in 2011, 2012 and 2013 respectively. As part of governments' efforts in addressing development issues in ESWACs, the general total real government expenditure as percentage of GDP increased by 27.34%, 38.38% and 47.46% within the same three years respectively (Gbosi, 2011; and WAIFEM, 2014). Through economic activities, this increase in external trade benefits resulted in the expansion of markets with increase in GDP growth to the tune of 6.34%, 6.40% and 7.6% from 2011 to 2013 respectively, thereby suggesting higher degree of trade or economic openness within the same period.

Despite this significant increase in the economic benefits accrued from external trade relations in terms of increase in export earnings, real government expenditure, and trade openness, the ESWACs still experience all the trappings of underdevelopment. It is evidenced that external trade benefits have recorded significant increase, however the trappings of underdevelopment in terms of increase in poverty level still persists. It is against this backdrop that this study aims at investigating the impact of external trade benefits (measured in terms of export earnings, trade openness, export propensity, real government expenditure and foreign exchange rate) on poverty level in English Speaking West African Countries (ESWACs) from 1980 to 2013. Based on this, the study hypothesized that external trade benefits have not significantly reduced poverty level in ESWACs. The report of this study is documented in five sections. Section one centred on the introductory part, section two reviewed of related literature on the bases of theoretical and empirical review. Methodological issues were addressed in section three, section four considered data results presentation and analysis of results and lastly section five of the study gives the concluding remarks.

II. Theoretical Framework and Empirical Literature

This study anchored on certain trade theories, which include the mercantilist trade theory, the absolute cost advantage trade theory, comparative advantage trade theory, the productivity theory of trade and the vent-for-surplus theory. These theories maintained the earlier idea on foreign trade is to earn foreign earnings that would boost the revenue frontier of a trading country and using such earnings thought government expenditure to pursue the welfare of the nation. According to the theories as noted by Usman, the most important way for a nation to become rich and powerful is to export more than its import, so as to be able to improve on the status of the welfare (poverty reduction) of its nation. Having seen exports as one of the ways to increase a nation's wealth, mercantilism therefore did not favour free trade. The reason is that in their Mercantilist tenet the word wealth was fixed. Therefore, a nation's gain from trade was at the expense of its trading partners and for the improvement of the economic status of the nation by addressing the poverty question. This arouse the interest of Usman (2011) to note that despite the criticism faced by the foundation of external trade is still alive today, because new trade theories now emphasized employment rather than holding some gold. Hence, the theory also postulates that exports are beneficial as jobs are provided domestically and imports are considered bad as jobs are taken away and transferred to the foreign workers.

Mustafa as documents in Zahoor, *et al* (2012) assessed the implication of globalization for poverty and agriculture in Pakistan. He suggested that there is adverse impact of globalization on agriculture and poverty. Hadass and Williamson (2003) reported that the empirical evidence between economic growths, terms of trade and export over the period 1870 – 1940. The report revealed strong disassociation among economic growth, terms of trade and exports. Further, Sheikh and Rahpoto (2009) analyzed the gains of Pak-India trade and probable economic cost in exporting a variety of consumable commodities like dates, leather cotton made garments in two scenarios. They found an appraisal of the implications of SAFTA which allow competitiveness, attain specialization and diversify their export. It was suggested that under the combine policy reform of the SAFTA Pakistan would experience the maximum welfare gain.

Baldacci, Guin-Siu, and De Mello (2003) uses a covariance structure model for 94 developing countries for the period 1996 to 1998 to evaluate the effectiveness of government expenditure on education. The results of the study signify that public spending on education alone does not improve social outcomes and adult illiteracy and gender inequality worsen social outcomes. They suggest the removal of these unfavourable social conditions in addition to public spending to accelerate human development. In a similar vein, de Mello and Pisu (2009) estimate the social production function for 5,591 Brazilian municipalities with the use of structural equation models with latent variables. While the results point out that government spending affects education positively, they find that income is the central determinant of education's product. The findings also reveal that empirical analysis should not focus solely on public expenditure on education but should include spending on non-education programmes as they are pertinent to educational outcomes.

Orji (2012) studied the dynamics of African trade in historical perspective. His study traces the evolution and potentialities of African trade spanning various stages ranging from crude barter of the communal epoch, the undercurrents of the Trans-Saharan and Trans-Atlantic slave trades and legitimate commerce cum the

economic underpinnings of colonial and neo-colonial distributive exchange obvious implications for surplus production, market economy, inter-group relations, class formation and provides a bulwark for erstwhile Eurocentric ideas that portrayed African indigenous economies as banal and barely subsistent. The nexus between external trade and the integration of Africa into the world capitalist system on the one hand and creation of dependency and underdevelopment will be delineated.

III. Analytical Framework

Model Specification

Onuchuku and Adoghor (1999) have it that in econometric studies, economic theory should come first in a form of functional relationship. This is because the hypothesis to be modelled or to be tested is about economic behaviours. Therefore, the effort here is to explain as much as possible about the process underlying our panel data. Our concern was to specify the models with which economic phenomenon was explored empirically. In this regards, Koutsoyiannis (1977) posits that model specification involves the determination of the dependent and explanatory variables which included in the model; a priori or theoretical expectations about the signs and the size of the parameters of the function.

The a priori definition informed the basis for evaluating the result of this study and the mathematical form of the models. The models were built for each dependent variable in a panel data analytical technique using aggregated data. Based on this, we proceeded to specify the functional relationship of the panel data regression as follows using pool data technique. Hence, panel data regression models are specified in a functional relationship as follows:

$$\text{POL} = f(\text{EXE}, \text{TOP}, \text{TGE}, \text{FER}) \quad (3.1)$$

From the above functional (true or population) models or relationship between the dependent and explanatory variables, the mathematical form of the models are formalized as follows:

$$\text{POL}_{it} = w_0 + w_1 \ln \text{EXE}_{it} + w_2 \ln \text{TOP}_{it} + w_3 \ln \text{TGE}_{it} + w_4 \text{FER}_{it} + U_{it} \quad (3.2)$$

In equations 3.1,

$i = 1, 2, 3, 4, 5$ (The five English speaking West African countries – The Gambia (code 1), Ghana (code 2), Liberia (code 3), Nigeria (code 4) and Sierra Leone (code 5).

$t = 1, 2, 3, 4, 5, \dots, 34 = 170$ (5 x 34) observations

Where:

Subscript i (ith subject) and t denote the cross section of the five countries and time period for the variables (34 years) respectively. This therefore suggests that the data will be pooled together to produce total observation of 170, with constant regression coefficient for all the five countries. Where:

POL = Poverty Level (expressed as Gross National Income per capita current US Dollar)

EXE = Export Earnings

TOP = Degree of Trade Openness

TGE = Total Government Expenditure

FER = Foreign Exchange Rate (expressed as official exchange rate)

U = Stochastic Term. This is with the assumption of constant and variable are normally distributed. The error

term is assumed to be different over time and countries.

Note that: the estimation of panel data regression models is founded on the assumptions that the intercept and slope coefficients are constant across time and space and the error term captures differences over time and countries; the slope coefficient are constant but the intercept varies over countries; the slope coefficients are constant but the intercept varies over countries and time; and all coefficients vary over countries (Gujarati and Sangeetha, 2007).

Apriori Expectation

Economic trade theories suggest that external trade benefits are an engine of economic growth and propeller of development. Thus, as poverty level is regarded as a development indicator, it is therefore, expected that the external trade benefits proxied by export earnings, trade openness, export propensity, real government expenditure and foreign exchange rate should be negatively related to poverty level by way of improving the status of GNI per capita US Dollars of the citizenry in ESWACs.

Methods of Data Analysis

After structuring the data in panels using pool data technique, we adopted an up-to-date method known as 2nd Generation Panel Data Econometric using CIPS Unit Root Test, ECM Panel Co-integration, Pedroni Dynamic Ordinary Least Square (PDOLS) and Fully Modified Ordinary Least Square (FMOLS), Common Correlation Effects Mean Group (CCEMG), Augmented Mean Group (AMG), Average Correlation Coefficient (ACC) estimators as proposed by Pedroni (2007), Westerlund (2004) and Pesaran (2006). Before these main tests, descriptive and correlation matrix statistical test was conducted and the result were reported before the results of the main tests.

Given the evidence of panel co-integration, the long-run relationships among POL, EXE, TOP, TGE and FER, we applied the Westerlund (2007) estimator by expressing the ECM equation thus:

IV. Data Presentation and Analysis

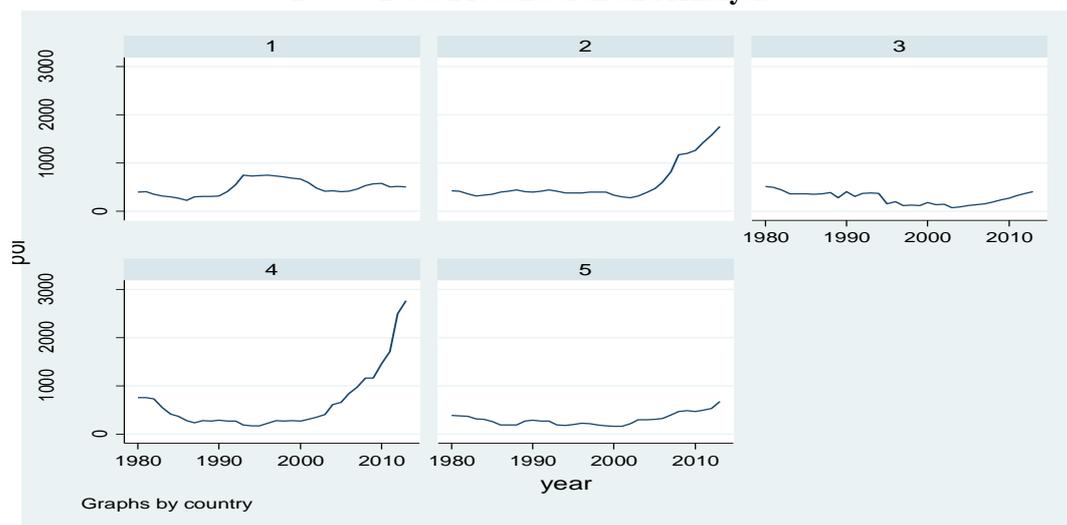


Figure 4.1: BalancePanel Data Structure (BPDS) Plot of Poverty Level (POL – expressed in GNI per capita) in ESWACs, 1980 to 2013

Figure 4.1 shows the graphical trend analysis of balanced panel data structure of export earnings from the five (5) English speaking West African countries (ESWACs) from 1980 to 2013. From the five ESWACs, there are five codes that represent them in the structure. Codes 1 – 5 represent, alphabetically, Gambia, Ghana, Liberia, Nigeria and Sierra Leone. The figure shows that the panel data are structured in four averages. Specifically, in Gambia (code 1), the highest poverty level (expressed in GNI per capita) was \$750 representing -2.67% rate of change in 1993 and 1996 while the lowest poverty level (expressed in GNI per capita) was \$230 in 1986 respectively. In Ghana (code 2), the highest poverty level (expressed in GNI per capita) was \$1760 representing -70.45% rate of change in 2013 and the lowest poverty level (expressed in GNI per capita) was \$280 representing 14.29% in 2002 rate of change respectively.

In Liberia (code 3), the highest poverty level (expressed in GNI per capita) was \$520 representing 0.00% rate of change in 1980 and the lowest poverty level (expressed in GNI per capita) was \$80 representing 12.50% rate of change in 2003 respectively. Nigeria (code 4) had the highest poverty level (expressed in GNI per capita) of \$2760 representing as 23.9 in 2013 while the lowest poverty level (expressed in GNI per capita) was \$170 representing was 3.2% in 1994 and 1995 representing -85.87% and 0.00% and 35.29% respectively. In Sierra Leone (code 5), the highest poverty level (expressed in GNI per capita) was \$680 representing 4.8% in 2013 whereas the lowest poverty level (expressed in GNI per capita) was \$1760 representing was \$160 in 2001 representing not available (NA) and 37.50% respectively.

Table 4.1: Pesaran (CIPS) panel unit root test with cross sectional and first difference mean included for the study variables.

Variable	Method	CIPS	CV 10	CV5	CV1	Decision on Order of integration stationary
EXE	2 nd generation Pesaran CIPS	-3.916	-2.070	-2.190	-2.410	Stationary I(1)
TOP	2 nd generation Pesaran CIPS	-3.002	-2.070	-2.190	-2.410	Stationary I(1)
TGE	2 nd generation Pesaran CIPS	-4.369	-2.070	-2.190	-2.410	Stationary I(1)
FER	2 nd generation Pesaran CIPS	-2.392	-2.070	-2.190	-2.410	Non Stationary I(0)
POL	2 nd generation Pesaran CIPS	-1.466	-2.070	-2.190	-2.410	Non Stationary I(0)

Note: CV = Critical Values. All tests in our study use Akaike’s Information Criterion (AIC) for the selection of lags and length.

Decision rule: (a) if CIPS statistics > CV at any level of significance we fail to reject the null of unit root, suggesting that the variables are non-stationary and integrated order zero I(0) (b) if CIPS statistics < CV at any level of significance we reject the null of unit root, suggesting that the variables are stationary; integrated of order one I(1).

Source: An extract from the result output (See Appendix D – Result Output processed with Stata Version 12)

Table 4.1 documents the Pesaran CIPS panel unit root test result with cross sectional and first differences of the mean included for the variables. The lags criterion division Portmanteau is chosen with AIC. From the result, the CIPS statistical values of EXE, TOP, TGE, FER and POL are -3.916, -3.002, -4.369, -2.392, and -1.466 respectively. These values are comparatively less than the critical value (CV) at 10%, 5% and 1% which has the values of -2.070, -2.190 and -2.410 respectively. From this result, the null of unit roots is strongly rejected for the series of EXE, TOP and TGE.

This implies that the series are integrated of order one, I(1) suggesting that there is unit roots in EXE, TOP, TGE across the countries and along the period of study. On the other hand, the CIPS statistical values of FER and POL are -2392 and -1.466 respectively. By comparing these values with the critical values of -2.070, -2.190 and -2.410 at CV 10%, 5% and 1% respectively, it is clear that the CIPS values are greater than the critical values for POL, but CIPS value of FER is greater than 1% critical value. Based on the null unit root hypothesis for FER and POL expressed in cross sectional and first differenced form, it implies that the series (FER and POL) are integrated to order zero, I(0). Therefore, there is no unit root in FER and POL and they are non-stationary within the ESWACs in the given time and cross sectional dimensions considered in this study. However, our results are not sensitive to the cases of a constant and a trend.

Having established the nature of the hypothesis in the unit roots of the series which produced mixed results, we now proceeded, with a feeling of confidence, to the panel co-integration tests to explore whether there is a long-run equilibrium relationship between external trade benefits (EXE, TOP, TGE and FER) and poverty level. Before the panel co-integration is reported, it is important to restate the research hypotheses in null forms, in order to enable us test them. Again, the hypotheses are presented according to each balance panel data structure equation.

This null hypothesis means that poverty level did not co-integrate with external trade benefits in ESWACs from 1980 to 2013. But before reporting the table that contains the result of the test that should enable us to either reject or not to reject the null hypothesis we recast the panel data econometric equations as follows:

$$Pol_{it} = w_0 + w_1 \ln EXE_{it} + w_2 \ln TOP_{it} + w_3 \ln TGE_{it} + w_4 FER_{it} + U_{it} \tag{4.2}$$

Table 4.2: Result of the panel co-integration based Westerlund (2007) tests for poverty level equation.

Poverty Level Model (Equation 4.2)

Results for H0: no co-integration

With 5 series and 4 covariates

Average AIC selected lag length: 2

Average AIC selected lead length: 1

Statistic	Value	Z-value	P-value
G _t	-0.798	2.567	0.995
G _a	-0.858	2.836	0.998
P _t	-1.265	1.855	0.968
P _a	-0.632	1.677	0.953

Note: Without constant and constant and trend terms.

Source: An extract from the result output (See Appendix D – Result Output processed with Stata Version 12)

Table 4.2 reports the Westerlund test (estimator result of no co-integration between poverty level and external trade benefits. The result reveals that the percentage values (pv) of the two group statistics of G_t (0.995) and G_a (0.998) and that of the panel statistics of P_t (0.968) and P_a (0.953) strongly should not reject the null hypothesis of no co-integration between the dependent and independent variables in the balance panel data structure. This therefore suggests that increase in external trade benefit did not lead to decrease in poverty level in ESWACs from 1980 to 2013. Therefore, there is no co-integration between the dependent and independent variables in the balance panel data structure within the period of study. We fail to reject the null of no co-integration because the statistical evidence shows that the *p-values* of the group statistics (G_t and G_a) and the panel statistics (P_t and P_a) are greater than the 5% level of significance, thereby suggesting that it is not statistically significant. As a confirmation to this test, Pedroni’s co-integration test is equally conducted and the result is reported below.

Table 4.3: Result of the Panel Co-integration based Pedroni (2004) for poverty level (POL) equation

2 nd Generation Test Model	Statistic	Value Panel	Z-value (Group)
AlaPedroni (2004)			
Within Statistics:	Panel ν	0.63	-180.2
	Panel ρ	1.304	-105.3
	Panel pp	1.744	-535.9
	Panel adf	8.405	-0.063
Between Statistics:	Group ρ	8.801	-55.3
	Group pp	0.872	-9.848
	Group adf	-1.418	-6.901

Note: Equation 4.2 is the conventional econometric specifications for panel co-integration.

The result of the Pedroni’s test is time demean. Time demean is used to mitigate the impact of cross-sectional dependence. It is a transformational technique in unit root used to subtract the cross-sectional averages for each period from the original data.

Source: An extract from the result output (See Appendix D – Result Output processed with Stata Version 12)

Table 4.4 reports the results of the Pedroni co-integration test for poverty level equation on the bases of seven statistics in the manner of Pedroni (2004). The *p-values* of the seven statistics have figures that are greater than the default 5% level of significance, except for group_{adt} (-1.418). This therefore strongly suggests that the null hypothesis of no co-integration should not be rejected. This strongly suggests that there is no long run equilibrium relationship between poverty level (expressed in terms of Gross National Income (GNI per capita) and external trade benefits in ESWACs within the period of consideration. The estimates indicated there is the presence of no co-integrating relation, hence we proceed to report the result of the coefficient estimation of the co-integrating unit to enable us get the individual coefficient of the parameters. This is done by using the DOLS and FMOLS of the 2nd generation estimators. The result is present below.

Table 4.4:Result of DOLS and FMOLS Test for coefficient Estimation of co-integrating relationship (long run equilibrium for poverty level equation)

DOLS Hom. Panel data Co-int. Estimation results	Number of obs = 150
Group variable: countryid	Number of groups = 5
Wald chi2(4) = 7.32	Obs per group: min = 34
Prob> chi2 = 0.120	avg = 34
	max = 34
	R-squared = .0973
	Adj R-squared = -0.0139

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
lnexe	60.16776	37.66568	1.60	0.110	-13.65561 133.9911
lntge	76.01577	42.60634	1.78	0.074	-7.491122 159.5227
fer	.0267619	.1116096	0.24	0.810	-.1919888 .2455126
lntop	-2.981105	48.84758	-0.06	0.951	-98.7206 92.75839

Source: Extract from the result output (See Appendix D – Result Output processed with Stata Version 12)

Table 4.5 presents the result of the dynamic OLS (DOLS) and fully modified OLS (FMOLS) tests conducted in the manner of Pedroni (2004). The result reveals that the coefficients (w_{1it} , w_{2it} and w_{3it}) of the parameters of EXE, TGE and FER are greater than the 5% level of significance. However, the coefficient (w_{3it}) of the parameters of TOP is less than 5% level of significance. This means that export earnings, total government expenditure and foreign exchange rate are not significant, except for degree of trade openness (TOP).

The sign of the coefficients of EXE and TGE is not consistent with the fundamentals of economic theory, thereby suggesting that they are impotent in stimulating poverty reduction in ESWACs within the period of consideration. Unlike what we have in the case of unemployment equation, the deviation of the coefficient of TOP from the stipulations of the fundamental economic theory shows that within the period of study external trade benefits have not properly injected into the real sector to the level that they would be able to reduce poverty level in ESWACs. Further, it is suggested that within the period of study the volume of imports outweighed the value of export, thereby pointing at unfavorable balance of term. The values of the coefficient of the parameters shows that external trade benefits did not significantly reduce poverty in English speaking West African countries within the period of study.

This impotency of the EXE and TGE to reduce poverty level is confirmed by the very low R^2 value of 0.0973. This also means that in the economies under study, global shocks in term of spill over and dynamic feedback effects, imported inflation, global financial crisis, unfavourable international politics, recession have been strongly suspected to be responsible for this. Thus, any increase in the external trade benefits may hardly spur poverty reduction in ESWACs. The confirmation of these empirical facts is the coefficient of the parameters that are insignificant, hence necessitating the conduction of error correction mechanism (ECM) Panel co-integration test in the manner Westerlund (2007) specification. The result is reported below.

Table 4.5: Mean Group Panel Co-integration Error Correction Model without a constant and a constant and trend for poverty level equation.

$$\Delta POL_{it} = W_1^{POL} + \lambda^{POL}(W_i EXE_{i,t-1}^{POL} - W_3^{POL} TGE_{i,t-1} - (W^{POL} FER_{1,t})) + \sum_{j=i}^n o^{POL} \Delta POL_{i,t} + \sum_{j=1}^a \phi_{ij}^{POL} \Delta EXE_{+i,t,j} + \sum_{j=i}^n \delta_{ij}^{POL} \Delta TOP_{i,t,j} + \sum_{j=i}^k \omega_{ij}^{POL} \Delta FER_{t,t,j} + U_{ij}$$

Calculating Westerlund ECM panel co-integration tests

Mean-group error-correction model

Short run coefficients apart from the error-correction term are omitted as lag and lengths might differ between cross-sectional units

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	

lnexe						
L1.	-10.14484	39.77571	-0.26	0.799	-88.1038	67.81411
lntop						
L1.	54.02399	66.32037	0.81	0.415	-75.96156	184.0095
lntge						
L1.	4.371601	7.739868	0.56	0.572	-10.79826	19.54146
fer						
L1.	3.328842	2.932984	1.13	0.256	-2.419701	9.077386
pol						
L1.	-1.064087	.1407871	-0.76	0.450	-.3823464	.1695291

Estimated long-run relationship and short run adjustment						

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	

ec						
lnexe	358.9051	253.5488	1.42	0.157	-138.0414	855.8516
lntop	45.12959	535.4555	0.08	0.933	-1004.344	1094.603
lntge	-71.08288	66.57678	-1.07	0.286	-201.571	59.40522
fer	8.840882	7.457801	1.19	0.236	-5.776139	23.4579

SR						
_ec	-1.064087	.1407871	-0.76	0.450	-.3823464	.1695291

Source: An extract from the result output (See Appendix D – Result Output processed with Stata Version 12)

Table 4.5 presents the mean group panel co-integration error correction for poverty level model. The interpretation of the result in table 4.15 is considered from the point of view of short-run fluctuations around an already established long run equilibrium relationship. From the result, it is evidenced that only the coefficient value of total government expenditure (TGE) has the expected sign of negative; hence, it means, by that sign, that, as TGE increases poverty level should reduce. This suits within the economic theoretical framework. Also, from the result, the estimated long-run relationship and short run adjustment shows that the error correction possess the expected negative sign with the coefficient value of -0.1064087.

This result strongly supports the result of DOLS and FMOLS which points out that the explanatory variable are not strong enough to cause poverty to reduce in ESWACS. Uninterestingly, the -0.1064087 coefficient value of error correction model suggests that the speed of adjustment of the coefficient of the parameters is very low in terms of poverty reduction in ESWACS. In order to empirically establish the average long-run relationship in the cointegrating relation, we proceed to use the Pesaran (2006) cross sectional dependence (CD) test using CCEMG and ACC estimators. The result is reported thus:

Table 4.6: Common Correlation Effects Mean Group Estimation for Poverty Level Model AlaPesaran (2006)

All coefficients present represent averages across groups (countryid)	Number of obs	=	170
Coefficient averages computed as outlier-robust means (using rreg)	Number of groups	=	5
Mean Group type estimation	Obs per group: min	=	34
Mean Group type estimation	avg	=	34.0
Group variable: countryid	max	=	34
	Wald chi2(4)	=	14.08
	Prob> chi2	=	0.0070

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
Lnexe	-2.111588	11.43744	-0.18	0.854	-24.52855 20.30537
Intop	-33.93314	82.06216	-0.41	0.679	-194.772 126.9057
Intge	-18.0297	64.55204	-0.28	0.780	-144.5494 108.49
fer	-3.991607	3.12358	-1.28	0.201	-10.11371 2.130498
_cons	815.4366	1210.923	0.67	0.501	-1557.928 3188.801

Root Mean Squared Error (sigma): 153.2767

Residual series based on country regressions stored in variable: cce_res2

Source: An extract from the result output (See Appendix D – Result Output processed with Stata Version 12)

Table 4.7: Augmented correlation coefficients of residual series test for poverty level model.

Average correlation coefficients & Pesaran (2004) CD test	Group variable:
countryid	
Residual series tested: cce_res2	Number of groups: 5
	Average # of observations: 42.50
	Panel is: unbalanced

Variable	CD-test	p-value	corr	abs(corr)
cce_res2	-2.66	0.008	-0.144	0.309

Notes: Under the null hypothesis of cross-section independence $CD \sim N(0,1)$

Source: An extract from the result output (See Appendix D – Result Output processed with Stata Version 12)

Table 4.6 shows the coefficients of poverty level estimated on a long run basis using CCEMG estimator. The result of the CCEMG shows that the values of the constant and root mean squared error are 815.4366 and 153.2767 which are greater than the default 5% level of significance. This means that the result of the CCEMG estimator provides in favour of our specification shows the absence of cross sectional correlation, across the series in the equation. This also means that the common correlation effect of mean group of common factor of global business cycle shock or international shocks is adequately accounted as augmented in the group-specification linear trends.

Furthermore, the result of the augmented correlation coefficient of the residual series for poverty level equation in table 4.7 shows that the common correlation effect (CCE) has the values -2.66 for CD test which is less than the conventional 5% level of significance. Therefore it suggests that the null hypothesis of cross sectional independence is strongly rejected; hence, it is not statistically significant. Based on this, it cannot be rejected that within ESWACs there is no cross sectional dependence. This strongly supports the efficiency of the 2nd generation model in estimating the presence of cross sectional dependence within regions, sub-region, continent, intercontinental etc.

4.2 Discussion of Findings

Tables 4.1 to 4.7 document results which reveal that increase in external trade benefits was not found to be statistically significant enough in the reduction of poverty level in ESWACs from 1980 to 2013. It is also revealed in the tables that 76%, 57%, 0.01% and 12% percentage variability in poverty level is attributed to export earnings, total government expenditure, foreign exchange rate and degree of trade openness respectively. It is important to keep in mind that poverty level in our study measures the condition where people's basic needs for food, clothing and shelter are not being met. Also, it is expressed as gross national income (GNI) per capita current US Dollar of each of the study country. It is theoretically expected in our study that increase in external trade benefits should keep positive relationship with poverty level. That is, increase in external trade benefits should lead to increase in GNI per capita current US Dollar of the countries.

In line with this, our result in table 4.4 shows that export earnings (EXE), total government expenditure (TGE) and foreign exchange rate (FER) have positive coefficients, meaning that an increase in them will help to reduce poverty level, however, such is not found in our result. The positive coefficient for FER is a sharp deviation from a theoretical stand point. This is because increase in foreign exchange rate, particularly, dollars, which is a measurement unit for poverty in this study, will reduce the strength of the domestic currencies of these countries, thereby making it difficult for the citizens of these countries to be able to provide for their basic needs for food, clothing and shelters, and practically increases the number of people whose lives and associates with the undermining of a range of key human attributes. This has unfortunately made the prospect of these countries to be bleak with incessant increase in poverty level. As external trade benefits did not significantly and positively impact of poverty level, but the total government expenditure (TGE) possess the right sign as reported in table 4.11, it implies that increase in TGE can reduce poverty by increasing gross national income per capita.

Still in table 4.4, it is revealed that the speed of adjustment of poverty level to the long run equilibrium relationship with external trade benefits is about 11%, which means that poverty level related in undesirable predictable fashion to the regressors (EXE, TOP, TGE and FER) in our study. This result is a clear deviation from the theory of co-integration which addresses the issue of integrating short run dynamics with long run equilibrium that exists between the variables as shown in tables 4.1 and 4.3. Basically, our result is not in conformity with this theory because the theory demonstrates that if there is a meaningful long run relationship between the variables, the error correction model can describes the short dynamics in such a manner that it should be able to produce high statistical value that would imply high speed of adjustment to the long run equilibrium. This is not so in our case because the 11% value of error correction is considerably weak to accommodate the short-run dynamics.

In buttressing our findings with the results of other studies, Zdhoor, *et al.*, (2012) report that Mustafaer assessed the implication of globalization (external trade) for poverty and agricultural in Pakintan using econometric techniques. The findings of this study show that there is adverse impact of globalization on poverty and agriculture. Similarly, Hadass and Williamson (2003) gave an empirical evidence that economic growth, terms of trade and exports are favourable to poverty and income distribution in the developing countries. Corroborating the finding of our study, Sheikh and Rahpoto (2009) analysing the gains of Pak-India trade and probable economic cost in exporting a variety of consumable commodities. The result of their study reveals that specialization and diversified trade have not significant led to increase in the per capita income of the citizens of Pakista and India.

Again, Claudia (2002) proposes a micro-econometric investigation into the relation between subjective life satisfaction and income distribution, using a balanced panel survey of the Russian population (RCMS), running from 1994 to 2000, including 4096 individuals. The study shows that variables reflecting income distribution do not influence satisfaction through social comparisons. In this direction, Umme and Munshi (2012) also notes that two-thirds of the developing world, with a large concentration in Africa, that did not experience trade expansion due to a lack of sufficient outward orientation, performed poorly both in terms of growth and poverty reduction. Other studies looked at the relationship between openness and growth with the presumption that growth is good for the poor countries, but it does not have the capacity to reduce poverty level in such countries.

Our result appears not to be consistent with the classical trade theory and growth. This is because trade theory expects that the welfare of the people which is partly dependent on external trade benefits is very powerful in the production of commodities and therefore being able to produce reasonable sum of enjoyments with gains accruing to trading countries who symmetrically participate in external trade. In view of this, the conclusion of Rocardo on the merits of free trade in terms of an increase in real national income (as an index of poverty reduction) attained by an optimal allocation of resources on a worldwide basis (that is, the attainment of Pareto international efficiency), with trade as a positive sum game, is obviously not obtainable in external trade relations of the English Speaking West African Countries as the time of filling in our report. Further, our result from the panel equation 2 seems not to appreciate the significance of productivity theory expressed in Adam Smith's *Wealth of Nations* for developing countries. This is because the poverty level of ESWACs expressed in terms of gross national income (GNI) per capita US dollar is characterized with incessant decrease, thereby suggesting low income level in the hands of the citizens of these countries within the period of study.

In relation to the foregoing, Jhingan (2008) points out the tenets of productivity theory suggest that by widening the extent of the market, external trade improves the division of labour and thereby raises productivity within the trading countries which reflects the dynamic benefits from external trade. But in the economies of ESWACs this theory seems not to work because these countries production base is relatively weak and low, and lacks the capacity to compete favourable in the international market because of "monoculturistic" nature of the economy. Uninterestingly, this unpleasant situation has made Gbosi (2012) to notes that in West Africa, particularly in Nigeria today, more than 70% of a population of about 150 million people live below \$850 annually. According to him, many Nigerians and citizens of other West African Countries still live in absolute poverty in the midst of plenty.

This position is prevailing and prominent in the result as it regards the effect of external trade benefits and poverty. To confirm this with substantive empirical evidence, the gross national income per capita US dollar (GNI) in Gambia from 1980 to 2013 fell below \$850 per annum, the highest was \$750 in 1993. In fact, Gbosi (2004) reports that Gambia has about D340 per citizen with an alarming population growth rate of about 4.2 per cent per annum. In Ghana, the situation is almost the same for the whole period of 34 years, expect from 2008 to 2013 when their GNI per capita increase from \$1170 to \$1760, though insignificant in poverty reduction scale. Still within the period of study, it is also revealed that the average citizen of Liberia receive below \$850. The highest was \$520 in 1980 and since after that, the country has been experiencing sharp decrease in GNI per capita.

In Nigeria, the situation is somewhat different but average citizen received below and \$850 from 1980 to 2007; however, from 2008 to 2013 the reverse became insignificantly the case because GNI per capita rose from \$970 to \$2,760. The situation in Sierra Leone is quite unpalatable as the GNI per capita fell very far below \$850 from 1980 to 2013. The highest was in 2013. At the time of \$680 GNI per capita (see baseline panel data structure in appendix). It is evidenced that very low GNI per capital in the Gambia, Liberia and Sierra Leone grossly affected Ghana and Nigeria, because of the existence of common factor and the prevailing assumption of cross sectional dependent. It is also suspected that shocks in those countries and global wise must have transmitted the incidence of low GNI capita from the Gambia, Liberia and Sierra Leone to Ghana and Nigeria thereby making these two countries to experience the same problem with them at almost the same proportion. This possibility of global shocks transmission is strongly empirically supported in table 4.17 where we strong reject the null hypothesis of cross sectional independence and fail to reject the assumption of cross sectional dependence. From the foregoing, it could be deduced that poverty level expressed in terms of GNI per capita has fared well in the face of rising external trade benefits in English Speaking West African countries from 1980 to 2013, thereby suggesting unfavourable relationship between the two variables in the panel data equation 2.

V. Concluding Remarks

This present study attempts to empirically examine the short-run and long-run effects of external trade benefits on economic development of English Speaking West African Countries from 1980 to 2013. The study measured external trade benefits on the bases of export earnings (EXE), total government expenditures (TGE), degree of trade openness (TOP) and foreign exchange rate (FER) as a control, while poverty level expressed in GNI per capita US Dollars. Also this study employs the recently developed second (2nd) generation panel data econometric methods of unit root test, co-integration, dynamic OLS, fully modified OLS, common correlated effects mean group, augmented mean group, average correlation coefficients estimators as proposed by Pedroni (2007), Westerlund (2004) and Pesaran (2006).

By the application of these estimators the results of the unit root test reveal that EXE, TOP, TGE and UNRare stationary while that of FER and POL are non-stationary using CIPS estimator. The co-integration test result shows that external trade benefits (ETB) did marginally impact on unemployment, but increase in ETB was not found to be significant enough to reduce poverty level, ETB exerts positive effect on adult literacy rate, positive changes in ETB could not lead to positive changes in life expectancy rate and

increase in ETB was found to be slightly significant in improving the standard of living in ESWACs; although there is no co-integrating relations between external trade benefits and poverty level within the period of study. This implies that a correction in external trade benefits would reduce poverty level by 11%.

The cross sectional dependence test reveals that the common factors stresses the relevance of dynamic feedback effects or international business cycle shocks in explaining long run equilibrium relationship in cross sectional studies, as we have in the case of assessing the impact of external trade benefits on economic development across English Speaking West African Countries from 1980 - 2013. Thus there is no evidence of long-run equilibrium relationship between external trade benefits and economic development in the countries understudied from 1980 to 2013. Nevertheless, the study also recognizes the presence of heterogeneity, cross sectional dependence and differentials in the series among the ESWACs. Our findings are related to the literature on external trade but establish a balance between the optimistic and pessimistic trade theories or schools of thought in explaining the impact of external trade benefits on economic development in West African countries. This means that external trade partially serve as an engine of growth and propeller of development in developing countries, as evidenced in the results of the study.

By summing up our findings, we submit that external trade benefits have marginal significant impact on unemployment rate, adult literacy rate and standard of living but did not significantly and positively impact on poverty level and life expectancy rate. Therefore, we conclude that the impact of external trade benefits on economic development is a trivial matter because external trade benefits have not comprehensively and significantly augmented the economic development in English speaking West African countries within the period of study. Based on the findings, the study therefore recommended that policy implication on the result of co-integration of the panel equation 2 is that more credible expansionary fiscal policy should be pursued as this will help to pump more money into circulation with the aim of creating and expanding employment opportunities that would be able to reduce poverty in the region and the government of ESWACs should direct her total expenditures to provision of economic, social and physical infrastructural facilities that could improve the standard of living of citizens.

References

- [1]. Ajie, H. A. (2004). Export instability and external balance in developing countries. *International Journal of Economics*, 8(7): 123-134.
- [2]. Ajie, H. A. (2011). *Fundamentals of monetary economics*. Port Harcourt: PEARL PUBLISHERS.
- [3]. Ajie, H. A. & Uzomba, P. C. (2011). Exchange rate volatility and the prices of some selected agricultural products in Nigeria, 1970 – 2008. *African Journal of Humanities and Society*, 12(2): 184 – 199.
- [4]. Baldacci, E., Guin-Siu, M. T., & De-Mello, L. (2003). More on the effectiveness of public spending on health care and education: a covariance structure model. *Journal of International Development*, 15(4): 709-725.
- [5]. Denise, H. F. (2000). The benefits of free trade: a guide for policy makers. *Journal of Economics and Social Studies*, 8(2): 125 – 149.
- [6]. Gbosi, A. N. (1998). Unemployment policy in a depressed economy: the case of Nigeria. *Journal of Pedagogy and Development*, 5(1&2): 212-223.
- [7]. Gbosi, A. N. (2011). *International trade in theory and practice*. Port Harcourt: Amethyst Colleagues Publishers
- [8]. Gujarati, D. N. & Sangeetha, P. (2007). *Basic econometrics* (4th edition). New York: McGraw-Hill Companies.
- [9]. Kalu, I. E. (2001). *Issues in problems and policies of development*. Lagos: JECHNO CONSULT LTD.
- [10]. Koutsoyiannis, K. (1977). *Theory of econometrics* (2nd edition). New York: Palgrave Macmillan Publishers.
- [11]. Kpolovie, P. J. (2010). *Advanced research methods*. Owerri: Springfield Publishers.
- [12]. Miguel, D. R. (2006). A panel unit root and panel co-integration test of the complementarity hypothesis in the Mexican case, 1960-2001. Centre disillusion paper No. 942, Economic Growth Centre, Yale University.
- [13]. Njimanted, G. F. (2011). The dynamics of export earnings on domestic investments in Cameroon: on econometric investigation. *Africa Journal of Humanities and society*, 12(2):82-99.
- [14]. Onuchuku, O. & Adoghor, G. (1999). *Econometrics: an introduction to ordinary least squares regression analysis*. Owerri: Springfield Publishers.
- [15]. Orji, K. E. (2012). The dynamics of African trade in historical perspective. *African Journal of international trade and development*, 1(1): 18-28.
- [16]. Pedroni, P. (2007). Fully modified OLS for heterogeneous co-integrated panels. *Advances in econometrical*, 15(4): 93-130.
- [17]. Pesaran, M. H. (2006). Estimation and reference in large. Heterogeneous panels with a multifactor error structure. *Econometrical*, 74(4): 967-1012.
- [18]. Pisu, S. T. (2009). Simple tests for the null of no co-integration with structural breaks. *International Journal of Social Sciences*, 17(8): 125 – 138.
- [19]. Umme, H. M. & Munshi, N. I. A. (2012). Effects of trade liberalization on economic growth of developing countries: a case of Bangladesh economy. *International Journal of Humanities and Social Sciences*, 7(1): 251 – 267.
- [20]. Usman, O. A. (2001). Performance evaluations of foreign trade and economic growth in Nigeria. *Research Journal of Finance and Account*, 2(2): 47-63.
- [21]. West African Institute for Financial and Economic Management (WAIFEM), 1999 Annual Report.
- [22]. Westerlund, J. (2007). Testing for error correction in panel data. *Oxford bulletin of economics and statistics*, 69(9): 709-748.
- [23]. Tamuno, S. O. (2006). *A synoptic view of economic theories*. Port Harcourt: Harey Publications Company.
- [24]. Zahoor, H. J., Imran, Q., Anam, M., Saif-Ullaha, & Ashraf, I. (2012). Effects of international trade on economic growth: The case study of Pakistan. *International Journal of Academic Research in Development*. 1(2): 103 -114.