Impact of Exchange Rate Regimes on Economic Integration in the ECOWAS (1980-2017)

Oladunjoye Opeyemi Nathaniel,[*] Olagbaju Ifeolu Oladiran[**] and Akinbobola Temidayo Oladiran[***]

Abstract
The study investigated the impact of exchange rate regimes on economic integration in the ECOWAS from 1980 to 2015. Secondary annual data were used for the study. Annual data on variables such as trade openness, real gross domestic product, per capita income, transport cost, common language, tariff and exchange rate covering the period from 1980 to 2018 were sourced from the World Development Indicators (WDI) of the World Bank, 2017 edition. Data collected were analysed using econometrics technique of panel panel fixed effect model. The study found that the coefficients of per capita income ($\beta_2 = 0.22; p < 0.05$); transport cost ($\beta_3 = 1.65; p < 0.05$); common language ($\beta_5 = 0.41; p < 0.05$) and exchange rate regimes ($\beta_6 = 0.13; p < 0.05$) positive and significant effect on economic integration in the ECOWAS while coefficients of real gross domestic product ($\beta_1 = -0.19; p > 0.05$) and tariff ($\beta_4 = -0.12; p > 0.05$) have a negative effect of economic integration in the ECOWAS. The result implies that a unit increase in exchange rate regimes will lead to 0.13% deepening of the economic integration in the ECOWAS. The study concluded that exchange rate regimes plays an important role in promoting economic integration in the ECOWAS.

Keywords: Exchange Rate Regimes, Economic Integration, ECOWAS

JEL: F31, F15

[*] Department of Economics, Faculty of Social Sciences,Obafemi Awolowo University,Ile-Ife, Nigeria.
[**] Department of Economics, Faculty of Social Sciences,Obafemi Awolowo University,Ile-Ife, Nigeria.
[***] Department of Economics, Faculty of Social Sciences,Obafemi Awolowo University,Ile-Ife, Nigeria

1. Introduction

There has been a resurgence of interest in economic integration and several regional blocs around the world have been assessing the possibility of establishing common markets and monetary unions after the birth of euro in 1999 (Falagiarda, 2010). This led some African regional groupings into adopting economic integration as one of their medium and long term goals. Economic integration arrangements usually evolve from simple cooperation on and coordination of mutually agreed aspects amongst a given number of countries to full integration of the economies in question (Coulibaly & Gnimassoun, 2013). In Africa, a good number of economic integration arrangements have a long history of existence, some of which even date as far back as pre-independence era (ECA, 2012).

The integration initiatives were stimulated by the general small size of the individual economies leading to a desire of promoting economies of scales in production and distribution, as well as the need to have more influence on the global market (Rusuhuzwa & Masson, 2013). The establishment of the Economic Community of West African States (ECOWAS) in 1975 was premised on the need to promote cooperation and integration in economic, political, social and cultural activity in the fifteen West African States of Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

The economic integration efforts in the ECOWAS member countries was deepened in the 1980s and 1990s in which the ECOWAS Community extended economic cooperation among member states in order to achieve a common market and a single currency as some of the objectives (Ojo, Wampah & Obaseki, 2004). Also, an economic component was added to the West African Monetary Union (WAMU) which was established in 1962 by the francophone countries of West Africa which become the West African Economic and Monetary Union (WAEMU) in 1994. The ECOWAS introduced its economic and monetary programme (EMCP) in 1987 with the objective of having a single currency in 1994, though the date was postponed later to 2003. In December 1999, a new initiative to ECOWAS economic integration led by Nigeria and Ghana came into being. The trust of the new initiative was to establish a second monetary zone called the West African Monetary Zone (WAMZ) by 2003 and subsequently merge the WAEMU and the second monetary zone by 2004 (Ndiaye & Korsu, 2014).

In view of the establishment of the second monetary zone, the West African Monetary Institute (WAMI) was set up and started operation in 2001 with the view to preparing the stage for launching the single currency of the Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra Leone by 2003. Given the development on the macroeconomic convergence criteria set for the establishment of the WAMZ and some policy and institutional harmonization issues, it was clear by 2003 that there was need for shifting of the establishment date. The date was shifted to 2009 and later to 2015 while the merging of the second monetary zone and that of the WAEMU was set for 2020 (Ndiaye & Korsu, 2014). The increasing efforts by member states for economic integration in the ECOWAS region through the use of ECOWAS Trade Liberalization Scheme (ETLS) which is the instrument expected to produce the free trade area of the region while the joint ECOWAS-WAEMU Common External Tariff (CET) is the instrument expected to produce the custom union of the region.

The major benefits of economic integration are the reduction in transaction costs, economies of international reserve, the elimination of exchange rate risk and the region-wide price harmonization. On the other hand, the costs of an economic integration are related to the loss of sovereignty over monetary and exchange rate policy, especially in the case of asymmetry shocks that make the same monetary policy inappropriate for all member countries of an economic union. Indeed, in economic integration, member countries lose unilateral control over monetary policy instruments and exchange rate policy that may be crucial in dealing with country specific macroeconomic shocks (ECA, 2012).

In the same vein, the choice of exchange rate regime has also joined the subject of ongoing debate in international economics following the collapse of the Bretton Woods system of fixed exchange rate regime in the early 1970s, the wave of financial crises in the 1990s and the introduction of the euro in 1999 has also led to a continued debate about the exchange rate regimes most suitable to particular country or groups of countries (Cruz-Rodriguez, 2013). This debate has been renewed because of two main factors. First, unsustainable exchange rate regimes were widely perceived to have been one of the causes in the series of economic crises, including the exchange rate mechanism (ERM) crisis in 1992, the Mexican peso crisis (1994-1995), and the Asian crisis (1997-1998), Argentine crisis (1999-2002) (Bailliu, 2003), as well as the supreme crisis of the 2008 and the current euro crisis (Agyapong & Adam, 2012).

This has led some economists to suggest that, in a world of increasing international capital mobility, only the two extreme types of exchange rate regimes are likely to be sustainable, that is, either a fixed exchange rate regime or a flexible exchange rate regime. Also, new development over the past decade, such as the European Economic and Monetary Union (EMU), dollarization in Ecuador and El Salvador, and currency board in Hong Kong and Estonia, have reinforced the view that fixed exchange rate may be the best exchange rate arrangement for some countries (Bailliu, 2003).

In the case of West Africa, a number of exchange rate policies have also been adopted to improve the external competitiveness of the ECOWAS as well as expedite actions towards economic integration and introduction of a single currency in the region. To a large extent, these policies have their roots in the empirical validity of purchasing power parity hypothesis, which implies price level equality across the various integrating countries. As a result, countries in West Africa are being viewed as an interesting group by those who hold unto the bipolar view because there exists the fixed exchange rate regime and floating exchange rate regime among ECOWAS member countries as they move towards implementing full economic integration.

Furthermore, the on-going financial crises in the EU has given credence to the empirical arguments on the viability of economic integration since studies such as Bayoumi & Eichengreen (1993), Eichengreen (1993), von Hagen & Newmann (1994), and De Grauwe & Vanhaverbeke (1993) have all questioned the economic motivation of the emergence of Euro and doubted the European Union's suitability for economic integration. While, some other studies argued from a positive perspective that the goal of EMU emergence is more political rather than economic and that economic integration can be implemented despite its difficulties (Alesina & Grilli, 1992; and, Feldstein, 1997). Hence, the recent surge in the call for economic integration among the major trading blocs and regions of the world.

Consequently, the creation of Economic Community of West African States (ECOWAS) in 1975 was viewed as the step towards the realization of an economically integrated West Africa (Ezekwesili, 2011). In that regard, the choice of exchange rate regime is a topic of interest for all countries. The existing exchange rate regime arrangement among the integrating ECOWAS member countries where the CFA countries operate a relatively fixed exchange rate regime while the WAMZ countries operate flexible exchange rate regime has made the need to investigate the role of exchange rate regimes vis-à-vis the drive for economic integration among ECOWAS countries a viable empirical exercise. This is in line with the view of Duspasquier, Osakwe & Thangavelu (2006) that the exchange rate regimes is one of the major challenges of economic integration among the ECOWAS member countries.

In addition, the need for economic integration is on the increase because payments for international transactions necessarily involve exchange of currencies and which often lead to exchange rate risks. Despite the small size of ECOWAS economies, the region is characterized by a remarkable multiplicity of currencies where fifteen member countries of ECOWAS use over 10 currencies and most of them are not convertible (Yehoue, 2005). The lack of convertibility contributes to the high costs of

transactions in the sub-regions, since it costs money and time to exchange one currency for another. However, even where currencies are convertible, exchange rate variability constitutes another sets of risks that impede inter-regional trade. Hence, economic integration becomes important in addressing the problems of exchange rate regimes and variability that often impede trade flows among the ECOWAS countries.

The remainder of this study is organized as follows. Section 2 reviews the literature. Section 3 gives the methodology of this study. Section 4 presents and discusses the results. Section 5 concludes and offers recommendations.

2. Literature Review

The exchange rate regime choice is now a topic of continuing empirical discuss in international finance. The discussion has been reintroduced recently as a result of the exchange rate regimes unsustainability were generally observed to have been the major cause in the various financial crises in the world, thus, the experimentations with the new exchange rate policies over the previous years, such policies as the dollarization in El Salvador and Ecuador, formation of European Economic and Monetary Union (EMU) and the adoption of currency board in Estonia and Hong Kong have all strengthened the viewpoint that fixed exchange rate regime may perhaps be the best exchange rate system for some economies (Bailliu, 2003). In general, Cruz-Rodriguez (2013) noted that there are three main approaches under which exchange rate regimes choice may be considered. This include the performance of the economy criterion, optimal currency area criterion as well as the currency crisis criterion.

Ghosh, Gulde, Ostry & Wolf (1997) investigate the effect of nominal exchange rate regime on inflation and economic growth covering 135 nations. The result recommended that both the level form and the deviation in inflation is significantly lesser under fixed exchange rate regime rather than flexible exchange rate regime. Conversely, their study fail to find a viable nexus between economic growth and exchange rate system. Also, Ghosh, Gulde & Wolf (2002) established that there is a negative relationship between fixed exchange rate regimes and inflationary pressure, but does not find evidence of a strong association between exchange rate regimes and growth rate in the economy. On the other hand, Levy-Yeyaty and Sturzenegger (2001, 2003b) revealed that developing nations with fixed exchange rate regimes are linked with lesser inflation rate than developing nations operating flexible exchange rate system, but that the fixed exchange rate system are associated with declining growth rate.

Rogoff *et al.*, (2003) studied the relationship between exchange rate regimes and economic performance. The study found that for economies at a comparatively high economic development and integration stage, fixed exchange rate system provides some anti-inflation credibility gain without compromising economic growth goals. In contrast, for developed economies that are not a member of currency union, reasonably floating exchange rate system seems give higher rate of growth in the economy without negatively affect credibility.

In contrast, Husain, Mody & Rogoff (2005) found that developing economies operating fixed exchange rates experienced lower rate of inflation than developing economies operating flexible exchange rate system. Likewise, De Grauwe & Schnabl (2005) analyzed the influence of the exchange rate regime on output and inflation in the South Eastern and Central Europe. The study showed that there a significant influence of fixed exchange rates on low rate of inflation along with a highly significant positive effect on the stability of exchange rate on real economic growth. Furthermore, Coudert & Dubert (2005) examined the remarkable aspects of the de facto exchange rate regimes in the Asian economies. The result showed that fixed exchange rates are linked with declining growth rate than flexible exchange rate system, even though, the fixed exchange rate systems are related with better macroeconomic performance with regards to inflation.

Likewise, Bleaney & Francisco (2007) studied the association among exchange rate, inflation and economic growth in 91 developing economies. The study differentiate between three kinds of exchange rate regimes which includes the flexible, easily adjustable peg and the hard pegs. The result revealed that flexible exchange rate have growth rates similar to soft pegs that is slightly higher than the inflation rate; while the fixed exchange rate have lower rate of inflation and lesser growth rate than other exchange rate regimes. Furthermore, Petreski (2009) examined the nexus between exchange rate regime and economic growth in 169 nations. The study found that the exchange rate regime does not significantly explain the growth rate of the economies under study. Also, Klein & Shambaugh (2010) studied the impacts of exchange rate regimes on the nexus between inflation rate and economic growth. The study also found that fixed exchange rates can effectively help to ameliorate the problem of inflation in the economy. Also, the study found that there is minimal effect of exchange rate regime on economic growth in the longrun.

Empirical study by Hoffmann & Tillmann (2012) used panel OLS to examine the role of exchange rate regime in international financial integration. The evidence from OECD countries showed that international financial integration increases the national price level under floating exchange rate. While, the study by Frommel & Schobert (2006) investigate the relevance of exchange rate systems in Central and Eastern European economies. The result of the study showed that Slovenia followed a crawling peg to the Deutsche mark and later to Euro de facto, but the evidence is less clear for the Romanian regime. Similarly, the study also confirmed that the Polish and the Hungarian regimes are close to the announced de facto, although they found some degree of implicit euro targeting for the Czech Republic and Slovakia.

Similarly, D'Adamo & Rovelli (2015) used Balassa-Samuelson OLS to examine the significance of exchange rate regime in the real and nominal convergence process. The study showed that for nations that fixed or adopted the euro currency, the effect of an increase in the dual productivity growth (the difference in productivity growth between the tradable and non-tradable sectors of the economy) on the dual inflation differential is twice as large as that in flexible countries. The study concluded that in catching-up countries, too early adoption of the euro may foster excess inflation beyond what would be implied by B-S convergence only. Astorga (2012) also used unit root tests and error correction model to examine the mean reversion on long-horizon real exchange rate. The study found that unit root tests showed a very slow process of reversion to a constant mean in the original series, rejecting the strict PPP hypothesis. However, mean reversion is found after allowing for trends and structural breaks with a half-life average of 1.5 years for six countries. The study also found reversion to a conditional mean defined by the cointegrating relationship with an average half-life of 2.5 years.

Diez de los Rios (2009) used panel GMM examine the association among exchange rate regime, globalization and cost of capital in emerging markets. The study found that exchange rate regime system could help to reduce the cost of capital in emerging markets by reducing the currency risk *premia* demanded by foreign investors. While, Bangake, Desquilbet & Jedlane (2010) examine the impact of collective pegging on an external currency. The study showed that when domestic economy joins a monetary union and have its exchange rate is fixed to the large economy, as a result, the stability of its exchange rate is fixed to the large economy. Therefore, the stability of the domestic economy hinge on the variability of real and monetary shocks for the large economy. Furthermore, when an individual country within the currency union is greater than the average growth rate of money supply of large economy or it is somewhat problematic to discover a monetary rule within the currency union, thus, it is expedient to fix the single currency to that of the large economy.

Also, Darne & Ripoll-Bresson (2004) used OLS with ARIMA noise, missing observation and outliers (TRAMO) to investigate the exchange rate regime classification and real performance. The result of the

study confirmed that there is a significant association between exchange rate system and real performance and that de facto classification must be taken into account to advance empirical studies relative to the choice of exchange rate regime and its effects on real performance. While, Genc & Artar (2014) used panel cointegration to investigate the influence of exchange rates on exportables and importables in developing economies. The study established a longrun cointegrating association between effective exchange rates and terms of trade of developing economies.

In the same vein, Qureshi & Tsangarides (2012) used gravity model to investigate the exchange rate regime choice and trade in Africa. The study found that both currency union and pegs increase trade vis-à-vis more flexible exchange rate arrangements through channels in addition to reduced exchange rate volatility, however, the effect is almost twice as large for Africa. In addition, the trade-generating effect is nevertheless as large for Africa as that of currency union, signifying that pegs could present a viable option perhaps an alternative to currency unions to promote trade in the region. In the same vein, Levy-Yeyaty, Sturzenegger & Reggio (2010) used panel OLS to examine the endogeneity exchange rate regimes. The study tested the major approaches used to account for how exchange rate regimes were been selected which include the optimal currency area, the financial viewpoint which describes the costs of global economic integration as well as the political view. The study found that the relationship between de facto exchange rate regimes and their underlying characteristics have been remarkably stable over time, signifying that global developments frequently emphasized in the literature can be seen from the evolution of their determining factors and the actual strategies have been less inclined by the frequent arguments in the exchange rate regime debates.

Furthermore, Gnimassoun & Coulibaly (2014) used panel cointegration to investigate sustainability of current account in Sub-Saharan Africa and found that current accounts have been sustainable in Sub-Saharan African countries from 1980 to 2011. However, the sustainability had been lower for countries operating a fixed exchange rate regime or belonging to a currency union. The study also found that the difference in the level of sustainability could be explained by a higher persistence in the current account adjustment of countries operating under rigid exchange rate regimes. Similarly, Gnimassoun (2015) used the bayesian model of averaging (BMA) technique to investigate the relevance of exchange rate regime in restraining current account imbalance in Sub-Saharan African nations. The study showed that flexible exchange rate regimes are more effective in preventing disequilibria. Also, candidates for membership of monetary unions should discuss widely the possible adjustment mechanism before forming such unions in other to share the external shocks at the regional level.

Study by von Hagen & Zhou (2007) used multinomial panel analysis to examine the choice of exchange rate regimes in developing countries. The study opined that as a result of the exchange rate regime classification, the OCA fundamentals play significant roles in the of exchange rate regimes determination, as most of them have significant coefficients for the choice of intermediate regimes, and all have significant ones for determining the flexible exchange rate regimes choice. The stabilization variables also have very strong explanatory power for the choice of both intermediate and flexible regimes. Also, Daboh (2007) used ECM to investigate the real exchange rate misalignment in WAMZ. The outcome for the four nation's models established the importance of variables like terms of trade, government expenditure, trade openness, ratio of investment to GDP, growth rate og GDP, capital flows, domestic credits, nominal as well as the lagged values of real exchange rate as stated by Edwards (1989) model, but not in one single country specific model. The speed of adjustment of the real exchange rate to equilibrium for both Gambia and Nigeria is between one to four years. The rates of exchange of all the economies used in this study were found to be skewed, and the skewness was very high in economies operating fixed exchange rate regime than in the economies with flexible exchange rate regimes.

Opolot & Apaa-Okello (2010) used standard deviation and correlation to examine the impact of exchange rate shocks in COMESA. The study found that variability of real exchange rate disturbance

is comparable amongst most of the countries in COMESA. However, the study showed that real exchange rate shocks are asymmetric for most of the countries. The short run and long run analyses revealed that there were tendencies of persistence of real exchange rate fluctuations over time. None the less, the persistence of shocks seems to have disappeared in the long run. Similarly, Olayungbo, Yunusa & Akinlo (2011) used the panel OLS and GMM to investigate the effect of exchange rate volatility on trade in some selected Sub-Saharan African economies. The results of the analysis revealed that the net effect of exchange rate fluctuations on aggregate trade was positive using both panel OLS and GMM. Also, there is no much differences between the effects of exchange rate on primary and manufactured trade as well as between ECOWAS and non-ECOWAS countries.

Furthermore, Raji (2013) used panel GMM to study the impact of exchange rate misalignment on economic performance in the WAMZ. The outcome of the study revealed that the WAMZ is exposed to asymmetrical correlation between real exchange rate misalignment and economic performance. The study showed that both Ghana and Nigeria have moderate degree of symmetrical nexus among the macroeconomic variables of real exchange rate, interest rate, and the misaligned exchange rate. Whilst, Agyapong & Adam (2012) also examined exchange rate behavior in WAMZ using the fractional integration. The study found that only Sierra-Leone and Guinea have infinite and long-lived persistence. The Gambia, Ghana, Nigeria and Liberia are non-mean reverting and have infinite variance and are non-stationary. While, the study by Alagidede, Tweneboah & Adam (2008) used DF-GLS and ADF to study the nexus between nominal exchange rate and price convergence in WAMZ. The study found that real exchange rates in the Gambia, Ghana, Nigeria and Sierra-Leone follow random walk. Similarly, the nominal exchange rates and nominal prices adjust to different speed to achieve purchasing power parity in the longrun, with the former adjusting faster than the latter. Furthermore, the study argued that the success or otherwise of a second monetary zone in West Africa depends on well-coordinated macroeconomic policies and exchange rates stability to eradicate extreme arbitrage profits that may arise.

3. Methodology

3.1 Theoretical Framework

This study is based on the theory of optimum currency area pioneered by (Mundell, 1961; McKinnon, 1963; Kenen, 1969) during the Bretton Woods system of fixed exchange rates where Mundell (1961) proposed that the balance of payments disequilibria would remain a fundamental characteristics of the global economic system provided fixed exchange rates and rigid wage and price levels inhibit terms of trade from achieving a national role in the adjustment process. This theory advocated a system of many flexible exchange rates organized around an optimum currency area, an area Mundell defines as "the region". As a result, the debate on the optimal exchange rate regime choice was also used to determine the relationship of the area's currency (single or multiple) with the external world.

3.2 Model Specification

The gravity model of the study by Rose (2000) which examined the effect of a common currency on countries mutual trade links forms the baseline model for achieving this study.

$$\ln H_{ij} = \beta_0 + \beta_1 \ln\left(Y_i Y_j\right) + \beta_2 \ln D_{ij} + \beta_3 MU_{ij} + \beta_4 X_{ij}^{4} + \ldots + \beta_n X_{ij}^{n} + \varepsilon_{ij} \qquad (3.1)$$

Where H_{ij} is the total trade between country *i* and *j*; Y_i is the income in country *i* and D_{ij} is the distance between country *i* and *j*. MU_{ij} is a dummy variable that takes on the value of 1, if country *i* and country *j* participate in the same currency union, or else the value 0. The variables X_{ij}^{4} to X_{ij}^{n} are other variables that may affect the trade between country *i* and *j* such as common language. Since this section is concerned with estimating the impact of exchange rate regimes on economic integration in the

ECOWAS, this study sets up a conventional gravity model of international trade, where we adapt the model by (Glick & Rose, 2002; and Lee & Shin, 2004). The various measures of size and distance are added as control variables that are standard in a gravity equation. This study also extends the model by adding exchange rate regimes parameter.

$$\ln(ECI_{ijt}) = \beta_0 + \beta_1 \ln(RGDP_{ij})_t + \beta_2 \ln(PCI_{ij})_t + \beta_3 TRANSCOST_{ij\,t} + \beta_4 \ln(TARIFF_{ij}) + \beta_5 LANGAUGE_{ijt} + \beta_7 \ln(EXREGIMES_{ijt}) + \varepsilon_{ijt} \quad (3.2)$$

where *i* and *j* denote countries, *t* denote time, ECI_{ijt} denotes economic integration proxied by trade openness between country *i* and *j* at time *t*, *GDP* is real GDP, PCI is the GDP per capita income, TRANSCOST is used to measure the distance between country *i* and *j*, *LANGUAGE* is a binary variable which is 1 if country *i* and *j* have a common language, and *EXREGIMES* is the exchange rate regimes between country *i* and *j*.

4. Analyses and Interpretation of Results

4.1 Panel Unit Root Tests

The Levin, Lin and Chu (LLC) panel unit root test, Im, Pesaran and Shin (IPS) panel unit root test, Fisher's Panel ADF and PP tests as well as Hadri LM test are used to test for the presence of unit in the panel data on all the 15 ECOWAS countries involved in this study. Since the characteristics of the 15 ECOWAS countries involved in this study are likely to be homogenous in nature and because of the economic integration initiatives, hence, the need to subject all the macroeconomic data to all the aforementioned unit root test. The lag length for each of the variable is automatically selected by Schwartz Information Criterion (SIC). The Newey-West method was equally applied to choose the optimal lag length. The macroeconomic variables subjected to panel unit root tests include economic integration (ECI), per capita income (PCI), real GDP (RGDP), exchange rate regimes (EXREGIME), transport cost (TRANSPORT) and tariff (TARIFF)

Table 4.1: Panel Unit Root Tests at Level

	Levin, Lin and Chu test			Im, Pesaran and Shin Test		Fisher ADF test			Fisher PP test			Hadri LM test	
Variable	Individual Intercept	Individual Intercept with Trend	None	Individual Intercept	Individual Intercept with Trend	Individual Intercept	Individual Intercept with Trend	None	Individual Intercept	Individual Intercept with Trend	None	Individual Intercept	Individual Intercept with Trend
Panel Unit Root at Level													
Ln(ECI)	-1.59	-1.06	0.47	-1.72	-0.52	-1.75	-0.58	2.11	-2.24	-0.79	2.20	4.16	7.66
(P-Value)	(0.0562)	(0.1439)	(0.6803)	(0.0404)	(0.3006)	(0.0397)	(0.2824)	(0.9828)	(0.0126)	(0.2145)	(0.9862)	(0.0000)	(0.0000)
Ln(PCI)	0.86	-0.89	2.71	1.86	1.22	1.64	1.28	4.39	2.27	1.86	4.98	9.22	9.47
(P-Value)	(0.8058)	(0.1855)	(0.9966)	(0.9688)	(0.8883)	(0.9496)	(0.8993)	(1.0000)	(0.9883)	(0.9688)	(1.0000)	(0.0000)	(0.0000)
Ln(RGDP)	2.13	-0.78	11.62	7.56	1.32	7.07	1.40	11.51	7.84	2.37	16.73	12.73	9.39
(P-Value)	(0.9834)	(0.2166)	(1.0000)	(1.0000)	(0.9066)	(1.0000)	(0.9188)	(1.0000	(1.0000)	(0.9910)	(1.0000)	(0.0000)	(0.0000)
Ln(EXREGIMES)	-5.97	-1.21	1.93	-3.31	-0.19	-3.44	-0.27	3.07	-5.92	-0.24	3.73	12.17	10.42
(P-Value)	(0.0000)	(0.1140)	(0.9732)	(0.0005)	(0.4236)	(0.0003)	(0.3939)	(0.9989)	(0.0000)	(0.4045)	(0.9999)	(0.0000)	(0.0000)
Transport Cost	0.21	1.09	1.12	0.86	1.19	0.92	1.15	2.20	0.16	-0.61	2.53	8.53	8.12
(P-Value)	(0.5837)	(0.8632)	(0.8696)	(0.8064)	(0.8831)	(0.8222)	(0.8754)	(0.9861)	(0.5647)	(0.2706)	(0.9943)	(0.0000)	(0.0000)
Tariff	-0.59	-1.46	-0.69	-1.12	-2.14	-1.08	-2.18	0.83	-1.59	-3.00	1.29	11.31	4.26
(P-Value)	(0.2792)	(0.0722)	(0.2452)	(0.1314)	(0.0162)	(0.1396)	(0.0145)	(0.7968)	(0.0562)	(0.0013)	(0.9017)	(0.0000)	(0.1656)

Source: Authors' Compilation, 2018.

Table 4.2: Panel Unit Root Tests at First Difference

	Levin, Lin and Chu test			Im, Pesaran and Shin Test		Fisher ADF test			Fisher PP test			Hadri LM test	
Variable	Individual Intercept	Individual Intercept with Trend	None	Individual Intercept	Individual Intercept with Trend	Individual Intercept	Individual Intercept with Trend	None	Individual Intercept	Individual Intercept with Trend	None	Individual Intercept	Individual Intercept with Trend
Panel Unit Root at 1st Difference													
Ln(ECI)	-10.09	-8.50	-16.81	---	-10.89	---	-9.72	-14.73	---	-23.94	-24.93	-0.72	3.07
(P-Value)	(0.0000)	(0.0000)	(0.0000)	---	(0.0000)	---	(0.0000)	(0.0000)	---	(0.0000)	(0.0000)	(0.7638)	(0.0011)
Ln(PCI)	-8.14	-7.58	-11.78	-10.42	-10.15	-9.75	-9.06	-11.90	-13.22	-13.74	-16.09	1.56	0.44
(P-Value)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0597)	(0.3302)
Ln(RGDP)	-7.80	-7.75	-7.14	-9.98	-10.30	-9.38	-9.18	-7.29	-13.26	-14.93	-10.92	1.74	0.57
(P-Value)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0413)	(0.2843)
Ln(EXREGIMES)	---	-6.54	-11.62	---	-9.80	---	-8.95	-11.98	---	---	-17.06	5.40	1.88
(P-Value)	---	(0.0000)	(0.0000)	---	(0.0000)	---	(0.0000)	(0.0000)	---	---	(0.0000)	(0.0000)	(0.0303)
Transport Cost	-8.18	-4.67	-15.79	-12.10	-10.12	-11.01	-9.14	-14.32	-16.59	-25.80	-23.91	1.00	1.48
(P-Value)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.1576)	(0.0688)
Tariff	-11.49	-9.56	-16.18	-13.41	---	-11.78	---	-14.85	-15.70	-29.03	-28.20	1.21	7.89
(P-Value)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	---	(0.0000)	---	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.1140)	(0.0000)

Source: Authors' Compilation, 2018

It was observed from Table 4.1 that economic integration (lnECI) and tariff are stationary at levels using the Im, Pesaran and Shin (with intercept), Fisher ADF (with intercept) and Fisher PP (with intercept) statistics. Suggesting that the macroeconomic variable are integrated of order zero, i.e., *I(0)* while Table 4.2 showed that economic integration (lnECI), per capita income (lnPCI), economic growth (lnRGDP), exchange rate regimes (lnEXREGIME), distance (Transport Cost) and Tariff are stationary after first difference. Suggesting that these macroeconomic variables are integrated of order one, i.e., *I(1)*. The essence of the panel unit root test is to ascertain the order of integration of the macroeconomic variables used for this study which plays a pivotal role in model specification.

4.2 Lag Length Selection Criteria

The Table 4.3 showed that lag selection criteria which reveal that the LR FPE, AIC, SIC and HQIC indicated that the optimal lag length is one lag. Since, the general believe is that the smaller the value of the information crtiteria, the better the model. Therefore, the study applied the optimal lag length of one for the estimation in order to minimize the statistics.

Table 4.3: Lag Length Selection Criteria

Lag	LogL	LR	FPE	AIC	SIC	HQIC
0	-36869.88	NA	2.80	166.49	166.57	166.52
1	-16609.57	39697.40*	7.04*	75.31*	75.98*	75.57*

* indicates lag order selected by the criterion

Source: Authors' Compilation, 2018.

4.3 Panel Cointegration Test

Having established the stationaritites of all the macroeconomic variables as shown in Table 4.1 and 4.2 respectively. The next step is to test for the cointegration relationship of the macroeconomic variables to determine the possible presence of a long run relationship of the macroeconomic variables. Pedroni panel tests were employed for this purpose. Pedroni cointegration test examined properties of residual-based tests for the null hypothesis of no cointegration for dynamic panel variables in which both the shortrun dynamics and long run slope coefficients are permitted to be homogenous across individual members of the panel. Pedroni considers both pooled within dimension tests and group mean between dimension tests. Pedroni with individual intercept in the test are shown in Table 4.4.

The Pedroni cointegration test result showed that in all the eleven Pedroni's statistics, seven significantly reject the null hypothesis of no cointegration in favour of the presence of cointegration among the macroeconomic variables while the remaining four Pedroni statistic accept the null hypothesis of no cointegration among the macroeconomic variables. As such, this study concluded that there is a long run relationship among economic integration (ECI), per capita income (PCI), economic growth (RGDP), exchange rate regimes (EXREGIME), distance (Transport Cost) and tariff.

Table 4.4: Pedroni Panel Cointegration Test

Pedroni Residual Cointegration Test				
Series: ECI EXREGIME PCI RGDP TARIFF TRANSPORT				
	Statistic	**Probability**	**Weighted Statistic**	**Probability**
Panel v-Statistic	-3.696021	0.0025	-2.556250	0.0162
Panel rho-Statistic	0.077176	0.5308	-2.140780	0.0044
Panel PP-Statistic	-2.404200	0.0081	-3.490723	0.0002
Panel ADF-Statistic	0.455158	0.6755	-1.944925	0.0422
Alternative hypothesis: individual AR coefs. (between-dimension)				
Group rho-Statistic	1.557242	0.9403		
Group PP-Statistic	-3.197293	0.0007		
Group ADF-Statistic	0.387863	0.6509		

Source: Authors' Compilation, 2018.

4.4 The Hausmann Test

Deciding between the fixed or random effects model requires the study to first estimate the Hausman specification test where the null hypothesis is that the preffered model is random effects and the alternative hypothesis is the fixed effects. This takes the form of comparing the paremater estimates of fixed effects with the random effects model (Green, 2012; Wooldridge, 2012). This was done using the Wald test of the difference between the vector of coefficient estimates of fixed effects and that of random effects as given in the Table 4.5.

The null hypothesis of no individual effects was tested against the alternative that individual effects are not equal to zero. The probability of the Hausman test ($p < 0.05$) leading to a rejection of the null hypothesis at approximately 1 percent level of significance. Therefore, the conclusion is that, the ECOWAS member countries are not homogenous and hence difference in them have to be controlled. That is why the fixed effects model was appriopriate for the exchange rate regimes and economic integration nexus within the context of the ECOWAS. Therefore, the fixed effects model was employed for the estimation since the 15 ECOWAS countries are different and this catered for cross-sectional heterogeneity in them.

Table 4.5: Correlated Random Effects – Hausman Test

Correlated Random Effects - Hausman Test				
Test cross-section random effects				
Test Summary		**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Cross-section random		22.302544	6	0.0011
Cross-section random effects test comparisons:				
Variable	**Fixed**	**Random**	**Var(Diff.)**	**Prob.**
ln(RGDP)	-0.196975	-0.096919	0.001213	0.0041
ln(PCI)	0.219345	0.022156	0.003717	0.0012
TRANSPORT	0.016498	0.016079	0.000000	0.5475
LANGUAGE_I_J	0.413796	0.061999	0.013989	0.0029
ln(EXREGIME)	0.130798	0.113379	0.000021	0.0002
ln(TARIFF)	-0.121211	-0.122364	0.000063	0.8841

Source: Authors' Compilation, 2018.

4.5 Impact of Exchange Rate Regimes on Economic Integration in the ECOWAS

Having established the appriopriateness of the fixed effects model over the random effects model in the exchange rate regimes and economic integration nexus in the ECOWAS. Therefore, this section presents the empirical estimate of the impact of exchange rate regimes on economic integration in the ECOWAS

as presented in Table 6.13. The constant intercept has a positive value ($\beta_0 = 10.65$; p < 0.05). The study found that coefficient of economic growth (lnRGDP) is negative and statistically significant ($\beta_1 = -0.19; p < 0.05$). This implies that 1% decline in economic growth will lead to about 0.19% decline in the level of economic integration in the ECOWAS since the ECOWAS is majorly a producer of primary goods that have a very weak capacity to drive economic growth and development in the region.

However, the study revealed that the coefficient of per capita income (lnCPI) is positive and statistically significant ($\beta_2 = 0.22; p < 0.05$) which implies that 1% increase in the par capita income will lead to about 0.22% increase in the level of economic integration in the ECOWAS. In the same vein, the coefficient of transportation cost which is a measured of distance among the ECOWAS countries is positive and statistically significant ($\beta_3 = 0.02; p < 0.05$) which implies that it is advantageous for the 15 ECOWAS countries to be fully integrated because 1% increase in the transport cost will lead to 0.02% increase in economic integration as the transport costs will serve as a good source of revenue and employment generation to the teeming population of the ECOWAS member countries.

Furthermore, the findings from the study reveal that tariff been charged among the ECOWAS member countries is negative and statistically significant ($\beta_4 = -0.12; p < 0.05$). The negative significance in the tariff implies that despite the implementation of several trade agrements between and among the ECOWAS member countries, there is still a lot of trade restrictions hindering smooth economic integration in the ECOWAS. Thus, 1% decline in tariff will lead to about 0.12% decline in economic integration in the ECOWAS. However, the study revealed that coefficient of common language is positive and statistically significant ($\beta_5 = 0.41; p < 0.05$). This implies that the English, French and Portuguese languages which are the official language of communication and transaction among the ECOWAS member countries have the tendency and capacity to deepen economic integration in the ECOWAS. Therefore, more ECOWAS citizens should be encourage to learn how to communicate in atleat two of the three official languages in the ECOWAS.

Lastly, the study revealed that the coefficient of exchange rate regimes (lnEXREGIMES) is positive and statistically significant ($\beta_6 = 0.13; p < 0.05$). This implies that despite the existence of fixed and flexible (bi-polar) exchange rate regimes in the ECOWAS, these exchange rate regimes make the transaction of goods and services to be possible and also support the economic integration programme of the ECOWAS. Thus, 1% increase in exchange rate regimes will lead to about o.13% increase in economic integration in the ECOWAS. The significance of the exchange rate regimes in the ECOWAS could be as a result of the validity of the PPP hypothesis that has already been established in this study.

Similarly, the panel R^2, adjusted panel R^2 and F-statistic of the impact of exchange rate regimes on economic integration are in the right magnitude. The coefficient of R^2 of the panel longrun estimate of approximately about 64% indicate that more than 64% total variation in economic integration is described by variation in the explanatory variables in the model. The implication of this is that the regression equation has a very good fit since less than 36 percent of total variation in economic integration is accounted for by other variables not clearly included in the regression equation. The adjusted R^2 which is the coefficient of the panel multiple regression also indicate that more than 62% of the total variation in economic integration is explained by various variables included in the model. This results indicate that the estimated regression equation has a good fit and could be relied upon for making appriopriate judgement about the impact of exchange rate regimes on economic integration in the ECOWAS. The F-statistic which is a measure of overall significance of the model indicates that all the estimated regression model is statistically significant and different from zero. This is indicated by high F-value (t = 43.31; p < 0.05).

The implication of the panel fixed effects estimate revealed that the coefficients of exchange rate regimes, common language, and transport cost as well as per capita income are positive and statistically

significant. Therefore, the findings of the study is in line with the argument of McKinnon (1963) who said that "where countries are small, a fixed exchange rate mechanism may help to maintain liquidity and prevent capital flight" as well as the argument by Kenen (1969) who opined that "where countries are less diversified and less equipped with policy instruments, they should make more frequent changes or perhaps resort to flexible exchange rates". These arguments are not only applicable to the ECOWAS but other developing countries aspiring to have some form of economic integration among themselves.

Table 4.6: Fixed Effects Model

Dependent Variable: ln(ECI)
Total panel (unbalanced) observations: 456

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.65	0.88	12.05	0.0000
ln(RGDP)	-0.19	0.05	-3.99	0.0001
ln(PCI)	0.22	0.08	2.75	0.0062
TRANSPORT	1.65	0.002	8.20	0.0000
ln(TARIFF)	-0.12	0.04	-2.72	0.0068
LANGUAGE_I_J	0.41	0.17	2.46	0.0142
ln(EXREGIME)	0.13	0.01	12.04	0.0000
R-squared	0.640816	Mean dependent var		8.690148
Adjusted R-squared	0.626022	S.D. dependent var		0.367976
F-statistic	43.31376	Durbin-Watson stat		0.408104
Prob(F-statistic)	0.000000			

Source: Authors' Compilation, 2018.

4.6 Corection for Cross-Section Dependence in the ECOWAS

The cross-sectional dependency in the ECOWAS as shown in Table 6.14 is caused besides the implementation of some form of trade agreements and economic reforms as well as joint finance of some major infrastructure across the ECOWAS region by the historical antecedent, common colonial heritage, and the proximity of the ECOWAS economies as well as the size and magnitude of the Nigeria's economic influence in the region. Empirical studies such as (Bayoumi & Eichengreen, 1997; Akinbobola & Akinlo, 2003; Balogun, 2008; Sugimota, 2009; Olayungbo &Yunusa, 2011; Oseni & Olomola, 2011; Ekong & Onye, 2012; and, Ndiaye & Korsu, 2014) have all provided evidence of economic convergence coupled with symmetry response to shocks as well as other macroeconomic comovement in economic paramaters among the ECOWAS member countries.

Despite the existence of cross-sectional dependency in the empirical findings, Gujarati & Porter (2009) emphasized that such estimates are still linear, unbiased, remained consistent and are symptotically normally distributed, however, the estimates are no longer regarded efficient in terms of its minimum variance as presented on Table 6.14. Therefore, to correct for the problem of cross-sectional dependency, Green (2007) and Gujarati & Porter (2009) recommended the use of feasible General Least Squares (GLS) and/or adopting the first differencing technique.

This study adopted the two recommended procedures sequentially. The feasible GLS outcome was in line with the earlier findings of the fixed effect model which showed the presence of cross-sectional dependency in the ECOWAS while the first differencing technique result rejected the null hypothesis of cross-sectional dependence among the ECOWAS member countries. Also, the coefficients of the first differenced panel fixed effect model as shown in Table 6.15 is similar to the result of the panel fixed effect model presented on Table 6.14 except for the inverse result obtained in the new estimates for tariff and language which is contrary to the earlier findinds.

Specifically, findings from the first differenced panel fixed effect model revealed that tariff is positive among the ECOWAS member countries but not statistically significant ($\beta_4^* = 0.03; p > 0.05$). The

positive significance in the tariff implies that the ECOWAS has implemented some trade agrements and reforms which has help to eliminate some form of trade barriers in the region. Furthermore, the study revealed that coefficient of common language is negetive and statistically insignificant ($\beta_5^* = -0.06; p > 0.05$). This implies that the language barrier among the Anglophone, Francophone and the Lusophone countries is negligible and can be corrected with the use of interpreters and by the use of innovation in mobile telecommunication in the region that is already in use in the developed countries.

Also, Table 6.16 presented the new cross-sectional dependency test which shows the Breusch-Pagan LM test statistic of 85.45 was well into the upper tail of X^2_{78} with a p-value of (0.2638) making us to accept the null hypothesis of no cross-sectional correlation among the variables. The Pesaran scaled LM, and the Baltagi *et al.,* (2012) bias adjusted LM tests were asymptotically standard normal and the test statistic results of -0.44 and -0.63 respectively. The final line of the Table 6.14 which present Pesaran CD test with statistic value of 3.12, strongly accept the null hypothesis at conventional level as its p-value is less 5 percent significance level. Since *T* in the panel was relatively large, the study focused on the results from the first three lines which have indicated that the hypothesis of cross-sectional independence in the data is now absent among the macroeconomic variables used for the analysis. Hence, the acceptance of the null hypothesis which indicates no presence of cross-sectional dependence in the ECOWAS.

Table 4.7: Cross-Sectional Dependence Test

Residual Cross-Section Dependence Test			
Test	Statistic	d.f.	Probability.
Breusch-Pagan LM	529.48	78	0.0000
Pesaran scaled LM	35.11		0.0000
Bias-corrected scaled LM	34.92		0.0000
Pesaran CD	5.05		0.0000

Source: Authors' Compilation, 2018.

Table 4.8: New Cross-Sectional Dependence Test

Residual Cross-Section Dependence Test			
Test	Statistic	d.f.	Probability
Breusch-Pagan LM	85.45311	78	0.2638
Pesaran scaled LM	-0.444107		0.6570
Bias-corrected scaled LM	-0.635283		0.5252
Pesaran CD	3.129207		0.0018

Source: Authors' Compilation, 2018.

5. Conclusion and Policy Recommendation

This study concluded that exchange rate regimes, per capita income, transport cost as well as common language have significant positive impact on economic integration in the ECOWAS while economic growth and tariff both have significant negative impact of economic integration in the ECOWAS. Therefore, to maximize the benefits inherent in economic integration in the ECOWAS region, proactive measures have to be taken by the individual economies within the ECOWAS to eradicate all forms of restrictions and trade barriers that hinders economic integration deepening. Also, ECOWAS should mobilize more investments in the critical sectors of the individual member countries, critical sectors like agriculture, manufacturing, infrastructural development, health, education, and in research and development to facilitate growth and development in order to promote the economic integration drive within the region.

References

Agyapong, D., & Adam, A. (2012). Exchange rate behavior: Implication for West African Monetary Zone. *International Journal of Academic Research in Accounting, Finance and Management Sciences 2(4)*

Akinbobola, T. O. & Akinlo, A. E. (2005). Should the West African Countries form a currency union?. *South African Journal of Economic & Management Sciences 8(3), 326-338*

Alagidede, P., Coleman, S., & Cuestas, J. C. (2012). Inflationary shocks and common economic trends: implications for West African monetary union membership. *Journal of policy Modelling 34 (460-475)*

Alagidede, P., Tweneboah, G., & Adam, A. M. (2008). Nominal exchange rate and price convergence in the West African Monetary Zone. *International Journal of Business and economics 7(3), 181-198*

Alesina, A., & Grilli, V. (1992). The European Central Bank: Reshaping monetary politics in Europe, *in Establishing a Central bank; Issues in Europe and Lessons from the US*, Ed. By Matthew, C., Grilli, V., & Masson, P. (Cambridge, England: Cambridge University Press).

Astorga, P. (2012). Mean reversion in long-horizon real exchange rates: evidence from Latin America. *Journal of International Money and Finance 31 (1529-1550)*

Bailliu, J. (2003). Exchange rate regimes in Emerging Markets. *Bank of Canada Review, International Department (Winter 2002-2003)*

Balogun, E. D. (2008). An empirical test of trade gravity model criteria for the West African Monetary Zone (WAMZ). MPRA (Feb.) http://mpra.ub.uni-muenchen.de/7083

Baltagi, B. H., Feng, Q., & Kao, C. (2012). Testing for sphericity in a fixed effects panel data model. *The Econometrics Journal 14, 25-47*

Bangaké, C., Desquilbet, J., & Jedlane, N. (2010). Collective pegging to an external currency: Lesson from a three-country model. *Journal of Economic Integration 25(3), 550-570*

Bayoumi, T. & Eichengreen, B. (1993). Shocking aspects of European Monetary Unification, in F. Torres and F. Giavazzi, eds., Adjustment and Growth in the European Monetary Union in European?. *Review of International Economics Vol.1, No. 3, Pp. 209-220*

Bayoumi, T. & Eichengreen, B. (1997). Ever closer to heaven? An optimum currency area index for European Countries. *European Economic Review 41, Pp. 761-770*

Bleaney, M., & Francisco, M. (2007). Exchange rate regimes, inflation and growth in developing countries – An assessment. *The B. E. journal of Macroeconomics 7 (1), 1-18*

Coudert, V. & Dubert, M. (2005). Does exchange rate regime explain differences in economic results for Asian countries? *Journal of Asian Economics 16(5), Pp. 874-895*

Coulibaly, I., & Gnimassoun, B. (2013). Optimality of a monetary union: New evidence from exchange rate misalignments in West Africa. *Economic Modelling 32(463-482)*

Cruz-Rodriguez, A. (2013). Choosing and assessing exchange rate regimes: A survey of the literature. *Revista de Análisis Económico, 28 (2), 37-61 (Oct.)*

Daboh, L. (2007). Real exchange rate misalignment in the West African Monetary Zone. *Journal of Monetary and Economic Integration 10(2)*

D'Adamo, G., Rovelli, R., & Rovelli, R. (2015). The role of the exchange rate regime in the process of real and nominal convergence. *Journal of macroeconomics 43 (21-37)*

Darné, O. & Ripoll-Bresson, L. (2004). LAMETA-CNRS, University of Montpellier I

De Grauwe, P., & Schnabl, G. (2005). Exchange rate instability, inflation and growth in South Eastern and Central Europe. Review of Development Economics 12(3), 530-549

De Grauwe, P., & Vanhaverbeke, W. (1993). Is Europe an Optimum Currency Area? Evidence from regional data, *in Policy Issues in the operation of Currency Unions,* ed. By Masson, P., & Taylor, M. P. (Cambridge, England: Cambridge University Press).

Diez de los Rios, A. (2009). Exchange rate regimes, globalization and the costs of capital in emerging economies. *Emerging Market Review 10 (311-330)*

Dupasquier, C., Osakwe, N. P, & Thangavelu, M. S. (2006). Choice of monetary and exchange regimes in ECOWAS: An optimum currency area analysis. SCAPE Policy Research Paper Series 0510, National University of Singapore, department of Economics, SCAPE

ECA (2012). Towards a common currency in the East African Community (EAC): Issues, Challenges and Prospects. Economic Commission for Africa, Sub-Regional Office for Eastern Africa

Edwards, S. (1989). Real exchange rates, devaluation and adjustment: Exchange rate policy in developing countries. Cambridge, Mass: MIT Press

Eichengreen, B. (1993). European Monetary Unification. *Journal of Economic Literature 31 (1321-57)*

Ekong, C. N., & Onye, K. U. (2012). On the feasibility of a common currency in West Africa: Evidence from a multivariate structural VAR. *Current research Journal of Economic Theory 4(4): 120-131*

Ezekwesili, C. E. (2011). Can the monetary integration of ECOWAS improve intra-regional trade? Claremont McKenna College www.scholarship.claremont.edu/cmc_theses/279

Feldstein, M., (1997). The political economy of the European Economic and Monetary Union: Political Sources of an Economic Liability. *Journal of Economic Perspectives 2 (Fall), 23-42*

Frömmel, M., & Schobert, F. (2006). Exchange rate regimes in Central and Eastern European countries: Deeds vs. Words. *Journal of Comparative Economics 34(467-483)*

Ghosh, A. R., Gulde, A. M., Ostry, J. D., & Wolf, H. (1997). Does the nominal exchange rate regime matter? Working Papers Series 5874, National Bureau of Economic Research.

Ghosh, A. R., Gulde, A. M., & Wolf, H. (2002). Exchange rate regimes: Choices and Consequences. The MIT Press.

Glick, R., & Rose, A. K. (2002). Does a currency union affect trade? The time-series evidence. *European Economic Review Vol. 46, 1125-1151*

Gnimassoun, B. (2015). The importance of the exchange rate regime in limiting current account imbalances in Sub-Saharan African Countries. *Journal of International Money and Finance 53 (36-74)*

Gnimassoun, B., & Coulibaly, I. (2014). Current account sustainability in Sub-Saharan Africa: Does the exchange rate regime matter? *Economic Modelling 40(208-226)*

Green, H. (2012). *Econometric Analysis*. 7th Edition, New Jersey: Prentice Hall-Upper Saddle River

Green, W. (2007). *Econometric Analysis*. 6th Edition, New Jersey: Prentice Hall-Upper Saddle River

Gujarati, D. N. & Porter, D. C. (2009). *Basic Econometrics*. 5th Edition, McGraw-Hill International Edition.

Hoffmann, M, & Tillmann, P. (2012). International financial integration and national price levels: The role of the exchange rate regime. *Journal of International Money and Finance 31 (1503-1528)*

Husain, A. M., Mody, A., & Rogoff, K. S. (2005). Exchange rate regime durability and performance in developing versus advanced economies. *Journal of Monetary Economics 52, 35-64*

Kenen, P. B. (1969). The theory of optimum currency areas: An eclectic view, in Mundell, R. A. & Swoboda, A. K., editors, *Monetary Problems of the International Economy*. The University of Chicago Press.

Klein, M. W. & Shambough, J. C. (2010). Exchange Rate Regimes in the Modern Era. MIT Press

Lee, J. & Shin, K. (2004). *Exchange rate regimes and economic linkage.* Korea University

Levy-Yeyati, E., Sturzenegger, F., & Reggio, I. (2010). On the endogeniety of exchange rate regimes. *European Economic Review 54(5), 659-677*

Levy-Yeyati, E. & Sturzenegger, F. (2003b). To float or to fix: Evidence on the impact of the exchange rate regimes growth. *American Economic Review 93(4), 1173-1193*

Levy-Yeyati, E. & Sturzenegger, F. (2001). Exchange rate regimes and economic performance. *IMF Staff Paper 47 (Special Issue), 62-98*

McKinnon, R. I. (1963). Optimum currency areas. *The American Economic Review 53(4), 717-725*

Mundell, R. A. (1961). A theory of optimum currency areas. *American Economic Review 51(4), 657-665*

Ndiaye, M. B. O, & Korsu, R. D. (2014). The quest for a monetary union in ECOWAS: An econometric test for convergence of countries. West African Monetary Agency (WAMA), Freetown, Sierra Leone

Ojo, M., Wampah, H., & Obaseki, P. (2004). Economic and monetary integration in West Africa. West African Monetary Institute, Accra, Ghana

Olayungbo, D., Yinusa, O., & Akinlo, A. (2011). Effects of exchange rate volatility on trade in some selected Sub-Saharan African Countries. Modern Economy Vol. 2, 538-545

Olayungbo, D. O., & Yinusa, D. O. (2011). Macroeconomic convergence in ECOWAS: Evidence from cointegration test. *International Journal of Development Research and Quantitative Techniques 1(1): Spring*

Opolot, J., & Apaa-Okello, J. (2010). Exchange rate shocks in COMESA: nature and implication for monetary union. BOUWP/05/10

Oseni, I. O., and Olomola, P. A. (2011). Analysis of convergence of fiscal variables in Sub-Saharan African Countries (1981-2007): A Stochastic Technique. *Journal of Economics and Behavioural Studies 3(4) (Oct.)*

Petreski, M. (2009). Analysis of exchange rate regime effect on growth. Theoretical channels and empirical evidence with panel. Economics, the open-access, *open-assessment E-Journal*

Qureshi, M. S., & Tsangarides, C. G. (2012). Hard or soft pegs? Choice of exchange rate regime and trade in Africa. *World Development 40(4), 667-680*

Raji, R. O. (2013). Impact of misaligned r eal exchange rate on economic performance: A case study of West African Monetary Zone. *IOSR Journal of Economic and Finance 1(6), 56-67*

Rogoff, K. S., Husain, A. M., Mody, A., Brooks, R., & Oomes (2003). Evolution and performance of exchange rate regimes. *IMF Working Paper WP/03/243*

Rose, A. K. (2000). One money, one market: Estimating the effect of common currencies on trade. *Economic Policy Vol. 20 (Apr.) 7-45*

Rusuhuzwa, T. K., & Masson, P. R. (2013). Design and implementation of a common currency area in the East African Community. *African Journal of Business Management 7(35), 3575-3590 (Sept.)*

Sugimota, K. (2009). Does West Africa form an optimum currency area? A generalized PPP approach. Osaka University Knowledge Archive http://ir.library.osaka-u.ac.jp/dspace/

von Hagen, J., & Newmann, J. M. (1994). Real exchange rates within and between currency areas: How far is EMU? *The Review of Economics and Statistics 76 (236-244)*

von Hagen, J., & Zhou, J. (2007). The choice of exchange rate regimes in developing countries: A multinomial panel analysis. *Journal of International Money and Finance 26(7), Pp. 1071-1094*

Wooldridge, J. M. (2012). *Introductory Econometrics: A Modern Approach*. 5th Edition. South-Western: Thompson Corporation.

World Development Indicatiors (2017). The statistical publication of the World Bank, Washington, U. S. A.

Yehoue, E. B. (2005). On the pattern of currency blocs in Africa. IMF, IMF Working Paper No. 45