

Trade as an Answer to Sustainable Economic Growth – The ECOWAS story

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Abstract

We consider the case of Economic Community of West African States (ECOWAS) which is one of the largest free trade areas in Africa. We examine whether the ECOWAS member countries have favorable economic characteristics to undertake deeper economic integration, that is, moving towards an economic union status. Under favorable condition, policy makers in the ECOWAS region can be persuaded to implement deeper economic integration. An increase in trade, resulting from deeper economic integration in the ECOWAS region, can compensate for fall in trade between ECOWAS, and rest of the world. Because of global economic crisis trade flow in the ECOWAS region has fallen besides adversely affecting regional macro economic variables: trade balance, current account balance, fiscal balance, investment and domestic credit. Poor state of macroeconomic variables has a direct impact in reducing mean income of the region, and indirectly might affect income distribution. Increase in trade in the ECOWAS is expected to generate resources to increase aggregate demand, and to meet regional development expenditures.

Key Words: ECOWAS, Regional Integration, Growth

Introduction

There is a difference between growth and development. While growth is a univariate concept measured purely on the basis of growth of per capita Gross Domestic Product (GDP), development is a multivariate concept and refers to achievement of quality life for the average citizen of a region. United Nations Development Program (UNDP) has a way to examine development of a country (region), and they do it through Human Development Index (HDI). The HDI is calculated as the simple average of life expectancy index, education index, and the per capita GDP index, of a country. Development is therefore a broader concept than growth. A country with a better growth prospects but which neglects development cannot grow in the long-run. Improved standards of living cannot be ensured through increased growth rate alone. For example, during the sixties and the seventies, Brazil has witnessed higher growth but as distribution of income along with other quality indicators of life, such as health and education were neglected, policymakers eventually had to follow populist policies in the fear of losing power in the parliament. Because there was a lesser element of development, the larger *have not* group was neglected, and the ruling parties in Brazil were repeatedly thrown out of power. This has put a halt to Brazil's reform programs, and has prevented them from achieving higher full employment level of output. So the initial reform process although has resulted in higher growth during the seventies could not be sustained during the eighties. Hence rising inequality can actually stall economic liberalization, further limiting the ability of economies of benefits from globalization.

An initial effort trying to examine relationship between growth and inequality was undertaken by Simon Kuznets (Kuznets, 1955). Better known as the Kuznets-U hypothesis, it states that when beginning from a low level of economic development as measured by per

capita income, income distribution tends at first to become less equal and then more equal as income level rises.

However this study by Kuznet did not consider the effect of trade on inequality. There might be a link between trade and inequality, and it might happen because trade has an effect on autarkic level of income. It has been widely established that countries that open up, and hence trade more, have better economic performance in terms of growth rate of GDP than others (Srinivasan and Bhagwati, 1999). However, the effect of trade on distribution of income can go either way, and hence the relationship between trade and income inequality can be ambiguous.

Primarily, trade induced change in distribution of income can happen through: (a) income channel, and/or (b) consumption channel. Trade policy influences household welfare by changing relative prices of goods, which in turn affect labor income and consumption. Because households typically differ in terms of their composition of consumption bundle, and education endowment, a change in relative prices and demand for labors resulting from external sector reform (read, increase in trade), will have an impact on income distribution.

In the present context, because of global recession, trade is itself falling. Countries in Africa, which happen to trade more with European Union and Asia, rather than trading among themselves, are hard hit. There is a need to increase trade within Africa. We consider the case of Economic Community of West African States (ECOWAS) which is one of the largest free trade areas in Africa. We try to see whether the ECOWAS member countries have favorable economic characteristics to undertake deeper economic integration, that is, moving towards an economic union status. Under favorable condition, policy makers in the ECOWAS region can be persuaded to implement deeper economic integration. An increase in trade (resulting from

deeper economic integration) in the ECOWAS region can compensate for fall in trade because of global economic crisis. This is important as global economic crisis has adversely affected regional macro economic variables: trade balance, current account balance, fiscal balance, investment and domestic credit. Poor state of macroeconomic variables has a direct impact in reducing mean income of the region, and indirectly might affect income distribution. Increase in trade in the ECOWAS is expected to generate resources to increase aggregate demand, and to meet regional developmental expenditures.

Against this background the rest of the paper is structured as follows: Section 2 analyzes the importance of trade, and the impact of global economic crisis in affecting macro variables in the ECOWAS region. Section 3 examines whether ECOWAS as a region has desirable economic characteristics to sustain deeper economic integration. Section 4 deals with the empirical methodology trying to understand efficiency of demand management policy in presence of increase intra-regional ECOWAS trade. Finally, Section 5 concludes with some policy recommendations.

Why More Trade?

Trade affects growth in three fundamental ways. First, trade encourages a flow of resources from low-productivity sectors to high-productivity sectors, leading to an overall increase in output. Export growth may affect total productivity growth through dynamic spillover effects on the rest of the economy. The possible sources of this positive dynamic spillover include more efficient management styles, better forms of organization, labour training, and greater knowledge on technology and international markets (Chuang, 1998). Since exports is a component of GDP, rapid export growth leads to even faster GDP growth

through the Keynesian multiplier process. Second, with unemployed resources, an increase in exports sales lead to the overall expansion of production, and a fall in unemployment. As production increases, firms generate economies of scale, and hence become more efficient. Third, international trade also allows for the purchase of capital goods from foreign countries and exposes an economy to technological advances in developed countries. Recent theoretical work suggests that capital goods imported from technologically advanced countries may increase productivity and thereby growth, since knowledge and technology are embodied in equipment and machinery and therefore transferred through international trade (Chuang, 1998). Hence from the policy perspectives, increase in trade is necessary. However, because of global economic crisis not only trade between ECOWAS member countries and their major trading partners in Asia and Africa has fallen, but also regional macro variables were adversely affected.

(INSERT TABLE 1)

Each one of the macro indicators – trade balance, current account balance, fiscal balance, investment, and domestic credit – seems to have suggested that global economic crisis has indeed negatively impacted countries in the ECOWAS region. The impact is worse for countries whose exports mainly consist of agricultural items. Countries like, Mali, Niger, Guinea Bissau, have seen their economic variable getting affected more than other countries in the region. In general, for all the countries (for which we have obtained the data) reflects that 2005-2006 has been a relatively good year compared to 2006-2007. It is to be noted 2006 is the year when economic crisis set in. Countries responded to the crisis by easing domestic credit.

As a result of worsening trade, and the resultant budget deficit, many African countries are facing resource crunch to spend on development activities. It is increasingly becoming difficult to increase investment in the rural areas and physical infrastructure. Investment in rural areas has important implication in meeting national food demand, and reducing rural poverty. For instance, poor people all over Africa are vulnerable to droughts and floods since many depends on rain-fed agriculture as their main means of subsistence, and often live in degraded areas susceptible to rainfall variation. Investment towards building proper irrigation network would be helpful in increasing agricultural output. Again, absence of proper road connectivity with the urban market has implication on median income on rural household, as the latter group depends upon urban market as an outlet for their produce. Moreover, without good roads and communications, both workers and employers, suffer higher transaction costs in labor market interaction making these markets thinner than they would otherwise be. This has an important implication on regional income distribution. Increase in trade is expected to add resources to government exchequer for these cash starved ECOWAS countries. These resources can be used to stimulate the economy and to finance other development activities, such as provision of social and physical infrastructure. So at first we see whether countries within ECOWAS are naturally inclined to form Regional Trading Agreement (RTA). We try to identify these in terms of some economic characteristics.

ECOWAS as a RTA

ECOWAS was initiated in 1975, and includes Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo, as members. ECOWAS is one of the largest single regional trade groups in Africa. The idea behind ECOWAS was initially to form a Free Trade Area

(FTA) among the member States before moving towards higher types of regional integration in the form of Customs Union (CU), Common Markets (CM) and Economic Union (EU).¹ In fact, within ECOWAS region a monetary union was formed on January 10 1994. Known as the Union Economique Monetaire Ouest Africaine (UEMOA), or West African Economic and Monetary Union, it has Benin, Burkina Faso, Cote d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo, as its member. UEMOA with its well built institutional and organizational structure is one of the advanced integration scheme in Africa.

From the welfare perspective becoming part of any RTA is desirable if trade creation effect resulting from the country joining the RTA outweigh the trade diversion effect. Trade creation happens when more efficient producer of one country displace the less efficient producers of another member country within Free Trade Area (FTA). On the other hand trade diversion results in displacement of more efficient producers outside FTA - losing market share to less efficient producers within FTA. Unfortunately, many times it becomes difficult to measure the exact nature of gains and losses, and hence economists based their comments about the desirability of member countries forming a RTA on the basis of some metrics. Some of these criteria are considered below:

Country characteristics: Member countries are likely to gain if they share similar economic characteristics (Lumsdaine and Prasad, 2002). Similarities are measured in terms of economic development and geographical proximities. The more similar are the economies, the more is the likelihood of intra-industry trade. Similarity is often measured in terms of per capita gross domestic product (GDP). This is because geographically near economies with similar level of economic development have access to similar kind of technology. Consequently they tend to

produce more or less similar items and tend to trade in similar commodities (closely differentiated products as in the monopolistic competition type market structure).

Symmetric Economic Activities: Symmetric economic activities among member nations have complementary effect towards forging for deeper economic integration, like, custom and economic union. Symmetric economic activity implies that long-run movements in real output are synchronized. Such co-movements of outputs may be due to dependence of common factors such as geographical proximity and countries sharing similar industrial profile. When countries share a similar industrial profile and are located closely, then the demand shocks in one country may affect other countries in the region. Symmetry in economic activity implies that there is a lesser contradiction in terms of formulating internal and external macroeconomic policies – something which is prerequisite for forming a deeper economic integration.

Extent of Trade: If the country is more likely to trade with other member countries in the RTA, then it makes sense to join that RTA. In fact, RTA is more likely to happen when trade happens in similar commodities, that is, intra-industry trade, like Japan exporting Toyota cars to the US, and at the same time importing Ford cars from the US. The likelihood that industry association will demand more protection is less in case of intra-industry trade.

Against this background, we analyze how well the countries in the ECOWAS region fulfill these desirable criteria. We carry out the analysis under three broad headings: ECOWAS region, UEMOA regions (a subset of ECOWAS region), and non-UEMOA region (other countries in the ECOWAS region sans UEMOA member countries).

Economic Characteristics of ECOWAS Nations: When observed in terms of economic characteristics, countries in the ECOWAS region are generally similar in terms of: (a) per

capita income – predominantly less developed countries with annual per capita income well below \$1000; (b) percentage of population living in rural areas; (c) demographic profile - very few percentage of the population belongs to the group aging 65 and above; (d) value addition of industrial sector to national income, which constitutes roughly a fourth of GDP in most member countries; and (e) fertility rate measured as total births per woman. Except for few outliers, like, Burkina Faso, Guinea, and Sierra Leone, saving as proportion of GDP are also similar across these economies. These countries however differ primarily in terms of: (a) domestic inflation rates; and (b) infant mortality rates.

The other thing that we observed is that within the ECOWAS region, countries that are part of UEMOA seem to be more homogenous relative to non-UEMOA group of countries. For any particular variable, we measure similarity or dissimilarity across countries in terms of first two moment conditions – mean, standard deviation and coefficient of variation, that is, ratio of standard deviation over mean (See Table 2).

(INSERT TABLE 2)

When countries share similar type of economic characteristics, it indicates a lower pressure to transfer funds from relatively resourceful countries to the poorer ones, and hence a greater harmony in following a common fiscal and monetary policy – an indication for deeper economic integration.

Although going by the aforementioned characteristics there are more similarities relative to dissimilarities, we find the extents of trade among various RTAs in Africa is low (See Table 3a). ECOWAS member countries trade more with European Union relative to what they trade among themselves, and with other trading groups in Africa (See Table 3c). One reason for low value of trade among ECOWAS nations are because tradable primarily

comprise of agricultural items (cocoa beans, timber, coffee, yarn, etc.) and extractive items in the form of natural resources, like, oil. Similar exports profile with respect to primary commodities discourages trade. Intra-industry trade is likely to flourish for technology intensive closely differentiated commodities, like, automobiles and computers. Disintegration of production itself leads to more trade, as intermediate inputs cross borders several times during the manufacturing process (Feenstra, 1998). For example, automobile parts and finished autos are both included in trade between the United States and Canada – something clearly missing in the present context.

(INSERT TABLE 3)

Another reason for low intra-ECOWAS trade is because of poor infrastructure in the region. As is evident from Table 4, the region is not well served by a good network of roads and railways, crucial for the movement of goods in the region. Only Nigeria and Cape Verde have somewhat more miles of paved road relative to unpaved roads. Similar is the case with miles of railway network, with, Nigeria and Guinea having somewhat better railway network facilities when compared to other African States. In general, railway lines coverage as percentage of total surface area is less than 0.5 percent for most African countries, which is quite low when compared to some emerging economies in Asia. For example, railway lines coverage as a percentage of total surface area for China, India, South Korea and Vietnam are, 0.78, 1.92, 3.40, and 0.79 percent, respectively (World Development Indicators, 2008). Political and social conflicts in Liberia, Sierra Leone, Guinea Bissau and Niger, has prevented national governments divert adequate funds for development of both physical and social infrastructures.

(INSERT TABLE 4)

Therefore it is desirable to encourage greater flow of goods and services in the ECOWAS region. This can happen through deeper economic integration among ECOWAS member nations. The negative impact of global economic recession can be offset through increase in trade within the ECOWAS region. To examine whether a step towards deeper economic integration will be beneficial for the member countries in ECOWAS we examine evidence in favor of symmetric economic activities. Symmetric economic activities indicate synchronize movement of real output among the member nations – recession (expansion) in one member country, in general reflects recession (expansion) in others. We have found evidences about symmetry in economic activities (Banik and Yoonus, 2009). This implies that a common monetary and fiscal policy may be appropriate for these nations. That is, forming an economic union in ECOWAS region would be expected to result in monetary and fiscal policy settings that might not create relative disadvantages between the member states.

However, with greater economic integration there is also likelihood that domestic demand management policy might become less effective. Demand management policy, which is a combination of monetary and fiscal policies, aims at controlling output gap so that the economy experiences lower inflation rate and unemployment rate. Under likelihood of greater economic integration demand management policy might not be successful as domestic economies become more susceptible external shocks. A more robust analysis would therefore call for examining efficiency of demand management policy in presence of greater economic integration. This is what we attempt next.

Data and Methodology

We examine efficiency of demand management policy by looking at relationship between transitory (temporary) component of output, and investment expenditure. We

consider GDP as a proxy for output. Cyclical movement of GDP is generally captured through the transitory component of output. A successful demand management policy is one where investment expenditure is negatively related to the transitory component of output. It means higher government, or capital expenditure will be able to increase employment and output at the time of recession, whereas lower government, or capital expenditure will control for inflation at the time of economic expansion. Such a relation does not exist when the demand management policy is not successful, or efficient.

We have GDP data for each country, namely, Benin, Burkina Faso, Cote d'Ivoire, Ghana, Liberia, Niger, Nigeria, Senegal, and Togo. Cape Verde, Gambia, Guinea, Sierra Leone, Mali, and Mauritania are excluded from the analysis as relevant data for all time periods for these countries are not available. The results of the analysis will not change much as these countries are smaller economies, with, Cote d'Ivoire, Nigeria, Ghana and Senegal being the largest economies. The data consisted of 43 annual observations from 1963 to 2005. Data for earlier years were not available. Also for some countries in our sample gross capital formation data (variable used for our analysis) are not available for the period after 2005. The data used in this study are real GDP data measured in current US dollars. The data is obtained from World Development Indicators, World Bank.

We considered panel regression frame work has the following form:

$$y_{it} = X_{it}'\beta + e_{it}, \quad i = 1, 2, \dots, N; t = 1, 2, \dots, T$$

Where y_{it} denotes gross capital formation for the countries 1 to N, for a time period of 1 to T.

In this case we have 8 countries and year from 1963 to 2005. The variable X_{it} represents the temporary component of the GDP. ² The term e_{it} captures both country specific (cross

sectional), and temporal effects at time t . A general expression for e_{it} is :

$e_{it} = \gamma + \beta_i + \mu_t + \eta_{it}$, where $\gamma + \beta_{i-1}$ can be thought of as a country specific intercept ; μ_t is a captures time effect , and η_{it} the overall purely random disturbance term.³ The combined, time, and country specific fixed effect terms eliminate an omitted variable bias arising both from unobserved variables that are constant over time and from unobserved variables that are constant across countries.

If $\gamma + \beta_{i-1}$ is observed for all countries, then the entire model can be treated as an ordinary linear model fit by least squares. For the purpose of estimation we considered the classic pool, least square dummy variable model (LSDV), the within transform model, the between transform model, random effect model, and maximum likelihood model. If $\gamma + \beta_{i-1}$ contains only a constant term, then the ordinary least squares estimation provides consistent and efficient estimates for the common intercept as well as the slope vectors. This is a classic pool model where modeling is done without dummy variables. However, not considering country specific time invariant characteristics seem unscientific, and hence country specific dummies to capture such effects are used which is the LSDV model. On the other hand, the problem with modeling in this fashion is a loss in degree of freedom arising from estimating dummy coefficients. Here the pooled regression is re-formulated in terms of deviation from the series means leading to disappearance of the intercept terms and dummies. These models (within transform and between transform) are more efficient than LSDV model as it gives j degrees of freedom (corresponding to relevant dummies and intercept terms) back with same parameter estimates. Also we consider the random effect model. Unlike in the fixed effect model, where the country specific intercept $\gamma + \beta_{i-1}$ is assumed to be fixed, in the random

effect model, we assume that it is a random variable with mean value of $\gamma + \beta = \lambda$ (say), which does not vary across cross section. The intercept value for each cross section can be expressed as $\lambda_{1i} = \lambda_1 + \varepsilon_j$ where ε_j is a white noise process. Finally, we use maximum likelihood estimation procedure, under the assumption of normality of the disturbances. In the LSDV regression we consider Togo as the base country, so all the countries dummies will be Togo dummy plus country specific dummy estimates.

(INSERT TABLE 5)

The results indicate that there are evidences about demand management policy being successful in the ECOWAS region. The statistically significant coefficients (with negative sign) for the transitory component of output indicate investment is greater at the time of recession while it is lower during expansion – something that we expect to happen when demand management policy is efficient. Importantly, the coefficients of transitory component of income variable are statistically significant at 1 per cent level, in 4 out of 6 cases. The results are particularly not strong for the classic pool, and the between transform model. This might be because of heterogeneity (inherent in cross section nature of the data) not getting properly captured in the classic pool, and between transform models.

Based on our estimates, we find the marginal effect of transitory component on investment varying between -0.952, and -1.003. It means there is evidence about efforts been undertaken through fiscal, and/or monetary intervention to control for the output gap. In fact, looking at the correlation matrix involving transitory component of output for various ECOWAS member countries, we find evidence in favor of synchronized movement. Such co-movements in the transitory component of outputs may be due to dependence of common factors such as geographical proximity, and countries sharing similar industrial profile. When

countries share a similar industrial profile, and are located closely, then the demand shocks in one country may affect other countries in the region.

The coefficient value for transitory income estimate around -1 seems to suggest that every time there is evidence about recession (expansion), policymakers respond through expansionary (contractionary) demand management policy. Since fiscal policy (implemented through central budget) is not undertaken at a regular interval, policy makers usually use monetary (credit) policy to control for inflation, and recession. Coordinated quantitative easing, such as coordinated credit policy, might actually help to increase investment in the region. However critics argue, since in many parts of Africa the money and the bond market is not developed, or may not exist, the effect of such coordinated quantitative easing might be less. Also, presently because of recession in major part of Europe, and in the US, not too much fund is flowing into Africa. A better alternative will be to increase fund flow through increase in trade in the ECOWAS region. Governments in Africa are facing resource crunch to finance development related activities. Increase in trade within the ECOWAS member countries might help them to tide over the crisis sooner than their attempt to increase their trade with countries outside Africa.

Conclusion and Policy Recommendations

At a time when global economic crisis is adversely affecting government exchequer, and private investment expenditure are not easily forthcoming, there is a need to increase trade in the ECOWAS region. Increase in trade in the ECOWAS is expected to generate resources to increase aggregate demand, and to meet regional development expenditures. We find evidence in support of deeper regional economic integration. However, despite having desirable economic characteristics favoring increase trade activities in the region, trade might

not eventually pick up if some present problems in the ECOWAS region are not addressed. First there is a need to build a proper infrastructure. Secondly, the member countries should take more initiatives to trade among themselves rather than trading with more advanced economies. Many operating companies in the ECOWAS region are headquartered in developed countries. So when agreements are concluded among member countries of ECOWAS, the dominance of these trans-national corporations reduces such policy initiatives. Third, the presence of fixed exchange rate regimes between French Franc and some currencies in West Africa also discourage any further initiative for having a common currency in the ECOWAS region. Fourth, there should be some conscious effort by the relatively resource endowed economies in West Africa, such as, Nigeria, Ghana, Senegal and Cote d'Ivoire, to undertake more initiative to trade with relatively resource poor States in West Africa. At a time when direct transfer of resources sounds rather implausible, free and fair trade regimes can help to build purchasing power in the region. Finally, there is a need to implement property rights in the region. For instance, although endowed with abundant natural resources, Sierra Leone was ranked as the poorest country in the world by 1998.

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Table 1: Global Economic Crisis and Macro Variables in ECOWAS											
ECOWAS Member Countries	Trade Statistics										
	Fiscal Balance (in percentage of GDP)			Domestic Credit (in percentage of GDP)		Trade Balance (in millions of US \$)			Current account balance (in millions of US \$)		
	2005	2006	2007	2005	2006	2005	2006	2007	2005	2006	2007
Benin	-2.9	-0.4	-2.0	16.60	16.70	-316	-438	-430	-282	-296	-300
Burkina faso	-4.9	-5.2	-6.0	16.00	16.70	-915	-837	-939	-647	-511	-954
Cape Verde	-4.0	-4.6	-2.3	45.40	50.00	-420	-521	-721	-34	-60	-157
Cote dlvoire	-1.7	-1.4	0.30	13.80	14.10	2383.00	2374.00	2242.00	28	602	798
Gambia	-8.6	-6.3	1.80	13.00	15.60	-229	-235	-289	-80	-68	-83
Ghana	-2.9	-7.0	-8.2	15.50	17.50	-2,545	-3,027	-3,805	-790	-896	-1,033
Guinea	-1.5	-2.1	1.00	5.00	..	70.00	0.00	-69	-147	-185	-396
Guinea Bissau	-11.9	-9.8	-17.3	2.10	4.00	-16	-19	-16	-22	-37	-44
Liberia	0.80	4.20	1.50	6.80	8.40	-192	-309	-350	-52	-108	-147
Mali	-3.1	31.30	-1.0	18.40	17.20	-511	-225	-561	-400	-256	-383
Niger	-2.1	41.60	-0.8	6.70	8.30	-483	-487	-681	-313	-309	-300
Nigeria	10.70	8.40	5.60	15.00	..	23119.00	25369.00	17869.00	9,100	14,300	5,129
Senegal	-3.2	-6.1	-5.5	22.70	23.10	-1,619	-1,878	-2,656	-677	-872	-888
Sierra Leone	-2.7	-2.7	23.70	4.60	4.40	-186	-173	-175	-86	-81	-104
Togo	-2.4	-2.8	-2.5	17.60	16.90	-478	-457	-650	-112	-134	-152
ECOWAS	5.90	6.30	2.90	15.20	5.20	17662.00	19137.00	8769.00	5,486	11,089	986

Source: Key statistics on African integration, ECOWAS Handbook of International Trade, 2008.

Table 2: Economic Characteristics in the ECOWAS region

Economic Characteristics	Population ages 0-14 (% of total)	Population ages 15-64 (% of total)	Population ages 65 and above (% of total)	Mortality rate, infant (per 1,000 live births)	Fertility rate, total (births per woman)	Agriculture, value added (% of GDP)
<i>UEMOA Region</i>						
Benin	43.96	53.34	2.70	87.80	5.51	N/A
Burkina Faso	45.99	50.96	3.06	121.60	6.08	30.67
Cote d'Ivoire	41.39	55.41	3.20	89.60	4.58	22.68
Guinea-Bissau	47.58	49.43	3.00	119.25	7.08	61.76
Mali	47.63	48.79	3.58	119.20	6.55	36.91
Niger	47.98	48.84	3.18	148.20	7.00	N/A
Senegal	41.92	53.82	4.26	59.90	5.30	15.87
Togo	43.03	53.90	3.08	69.15	4.91	N/A
<i>Standard Deviation</i>	2.696	2.619	0.472	30.04	0.947	1.902
<i>Mean</i>	44.93	51.81	3.257	101.83	5.876	17.65
<i>Coefficient of Variation</i>	0.059	0.050	0.145	0.295	0.161	1.902
<i>Non-UEMOA</i>						
Cape Verde	38.99	56.80	4.21	25.00	3.45	9.09
Gambia, The	41.00	55.22	3.78	84.00	4.79	N/A
Ghana	38.60	57.74	3.66	75.95	3.95	37.39
Guinea	43.26	53.66	3.09	98.05	5.52	12.94
Liberia	47.01	50.80	2.18	157.00	6.78	N/A
Nigeria	44.10	52.97	2.94	98.60	5.43	N/A
Sierra Leone	42.84	53.85	3.31	159.20	6.48	46.38
<i>Standard Deviation</i>	14.43	18.15	1.19	52.50	2.025	26.45
<i>Mean</i>	37.866	48.100	2.952	88.881	4.715	18.264
<i>Coefficient of Variation</i>	0.381	0.377	0.405	0.590	0.429	1.448
Addendum Table: Economic Characteristics (Continued)						
	Gross savings (% of GDP)	FDI, net inflows (% of GDP)	Industry, value added (% of GDP)	GDP growth (annual %)	Rural population (% of total population)	Inflation
<i>UEMOA Region</i>						
Benin	N/A	1.32	N/A	4.10	59.50	2.986567
Burkina Faso	5.90	0.42	20.61	6.39	81.30	-0.08914
Cote d'Ivoire	14.46	1.79	26.32	0.85	54.56	5.00476
Guinea-Bissau	22.79	13.79	11.46	4.20	70.32	-0.54271
Mali	13.00	3.15	24.03	5.30	68.94	4.093471
Niger	N/A	0.56	N/A	4.80	83.00	1.816013
Senegal	18.46	0.63	23.01	2.30	58.14	3.369305
Togo	N/A	2.57	N/A	4.10	59.18	-1.90905

Standard Deviation	6.319	4.458	5.758	1.728	10.861	2.455
Mean	14.922	3.028	21.086	4.005	66.867	1.841
Coefficient of Variation	0.4234	1.472	0.273	0.431	0.162	1.333
Non-UEMOA						
Cape Verde	27.63	10.72	16.86	6.09	41.96	5.187737
Gambia, The	10.03	16.07	N/A	4.50	45.26	2.119709
Ghana	27.24	3.37	25.38	6.20	51.46	12.72414
Guinea	8.49	3.26	37.48	2.82	66.54	37.39349
Liberia	N/A	-12.95	N/A	7.80	41.22	9.152292
Nigeria	33.88	4.72	N/A	5.20	51.00	4.80831
Sierra Leone	9.50	4.05	24.99	7.37	58.56	11.6142
Standard Deviation	11.346	8.938	8.497	1.711	9.210	11.896
Mean	19.461	4.177	26.177	5.711	50.857	11.857
Coefficient of Variation	0.583	2.139	0.324	0.299	0.181	1.003

Source: World Bank (2008)

Table No 3a: Trade figures for Africa, and various regional RTAs in Africa (in million of US\$)							
Exports	2001	2002	2003	2004	2005	2006	
Africa	3511	4109	4535	6168	7371	8974	
AMU	105	132	152	189	168	232	
CEN-SAD	2334	3233	3163	4531	5688	6133	
COMESA	36	48	52	72	137	120	
EAC	6	5	5	21	14	13	
ECCAS	417	399	699	732	934	1189	
ECOWAS	2242	3136	3037	4366	5497	5957	
IGAD	4	3	4	6	53	10	
SADC	334	534	717	971	822	1731	
Import							
Africa	3910	3746	4847	6722	8197	9213	
AMU	2217	267	265	356	476	584	
CEN-SAD	2969	2793	3623	5183	6463	7216	
COMESA	103	142	140	168	234	183	
EAC	14	23	35	40	48	59	
ECCAS	73	151	131	173	228	281	
ECOWAS	2696	2478	3293	4719	5835	6538	
IGAD	20	31	35	52	45	56	
SADC	511	487	737	1012	1186	1314	
Table 3b: Percentage of Import and Export in two regions							
		90-94	95-99	00-04	2005	2006	2007
Import	UEMOA Region	34.23%	37.71%	32.27%	30.46%	29.99%	32.01%
	Non-UEMOA	65.77%	62.29%	67.73%	69.54%	70.01%	67.99%
Export	UEMOA Region	24.52%	30.28%	24.18%	19.17%	19.22%	22.21%
	Non-UEMOA	75.48%	69.72%	75.82%	80.83%	80.78%	77.79%
Table 3c: ECOWAS Trade with European Union (In Million US \$)							
Countries	Imports			Exports			
	2000	2001	2002	2000	2001	2002	
<i>UEMOA Region</i>							
Benin	205	202	359	15	20	40	
Burkina Faso	216	213	256	67	69	76	
Cote D'Ivoire	1047	1123	1272	1605	1685	2314	
Guinea Bissau	34	37	38	40	40	41	
Mali	260	363	351	130	158	158	
Niger	89	94	126	67	78	76	
Senegal	745	894	1126	322	331	365	

Togo	164	153	158	41	21	25
<i>Non-UEMOA</i>						
Cape Verde	174	191	204	9	8	9
The Gambia	120	84	87	4	5	7
Ghana	1131	2183	612	1179	1215	1014
Guinea	234	210	216	401	334	349
Liberia	62	63	63	43	51	51
Nigeria	3010	3095	3202	6212	4096	4026
Sierra Leone	53	77	79	1	8	17
Total	7544	8982	8149	10136	8119	8568

Source: African Union Commission, Key Statistics on African Integration, 2008 and ECOWAS handbook of International Trade, 2008.

Table 4: Roads and Railway Network in the ECOWAS Region

	Paved Roads (miles)	Unpaved Roads (miles)	Paved/Unpaved Ratio	Railways (Miles)	Railway Lines as a percentage of Total Surface Area
<i>UEMOA Region</i>					
Benin	2656	5604	0.46	578	0.51
Burkina Faso	2001	1050	0.19	622	0.23
Cote d'Ivoire	3579	42752	0.08	660	0.20
Guinea-Bissau	444	3906	0.11	None	None
Mali	1773	13003	0.14	641	0.05
Niger	779	9084	0.08	None	None
Senegal	4214	10366	0.4	904	0.46
Togo	2376	5143	0.46	525	0.92
<i>Non-UEMOA</i>					
Cape Verde	858	242	3.5	None	None
Gambia	932	1708	0.55	None	None
Ghana	9353	28208	0.33	953	0.40
Guinea	4964	25306	0.2	1086	0.44
Liberia	628	9652	0.06	490	0.44
Nigeria	26005	6100	4.26	3557	0.39
Sierra Leone	1284	10390	0.12	84	0.12

Source: CIA – The World Factbook (Various Issues).

Table 5: Panel Regression Result

Variables	Classic Pool	LSDV	Within Transformed	Random Effect	Between Transformed	Maximum Likelihood
Constant	1.302609 ¹ (.1470488)	-.2236033 (.3056162)	1.125264 ¹ (.1011994)	1.130506 (.7592642)	1.492303 (.8165714)	1.130898 (.7305344)
Temporary Component	.7361765 ³ (.3873881)	-1.003887 ¹ (.3589458)	-1.003887 ¹ (.3589458)	-.9524497 ¹ (.3566012)	2.597406 (2.981916)	-.9486063 ¹ (.3567333)
Benin		.5219376 (.4142674)				
Burkina Faso		.6048027 (.40891)				
Cote d'Ivoire		.6979619 ³ (.384746)				
Ghana		.9748182 ² (.4040777)				
Niger		.3826096 (.3977298)				
Nigeria		6.776078 ¹ (.4318022)				
Senegal		.8327289 ² (.4121942)				

Notes: Standard Errors are in the parenthesis. 1 indicates significant at 1% level; 2 indicates significance at 5% level; 3 indicates significance at 10% level.

Appendix: Temporary Component of GDP

Benin	Burkina Faso	Cote d'Ivoire	Ghana	Liberia	Niger	Nigeria	Senegal	Sierra Leone	Togo
0.04	0.11	0.07	0.20	-0.08	0.30	0.17	0.12	0.06	0.05
0.04	0.08	0.03	0.26	-0.22	0.07	0.17	0.23	0.07	0.01
0.05	0.05	0.09	0.38	-0.15	0.21	0.17	0.36	0.05	0.00
0.05	0.00	-0.01	0.35	-0.12	0.32	0.18	0.35	0.05	-0.04
0.03	-0.03	-0.02	0.10	-0.18	0.27	0.24	0.32	0.03	-0.03
0.04	-0.07	-0.11	0.00	-0.18	0.26	0.26	0.25	-0.01	-0.05
0.02	-0.12	-0.09	0.09	-0.25	0.16	0.21	0.08	0.09	-0.09
0.01	-0.24	-0.12	0.16	-0.22	0.11	0.05	0.10	0.12	-0.06
0.00	-0.25	-0.17	0.19	-0.22	0.08	0.07	0.00	0.06	-0.14
0.05	-0.13	-0.24	-0.01	-0.28	-0.18	-0.02	-0.15	0.09	-0.18
0.10	-0.04	-0.34	0.06	-0.27	0.05	0.00	0.01	0.16	-0.21
0.13	0.01	-0.33	0.17	-0.49	0.10	0.09	-0.10	0.17	-0.28
0.18	0.17	-0.38	0.09	-0.48	0.10	-0.03	-0.39	0.14	-0.22
0.14	0.15	-0.39	0.03	-0.32	-0.18	0.00	-0.50	0.05	-0.21
0.12	0.23	-0.48	0.12	-0.44	-0.36	0.05	-0.49	0.08	-0.31
0.16	0.39	-0.48	0.20	-0.41	-0.17	0.16	-0.55	0.22	-0.28
0.19	0.49	-0.48	0.23	-0.46	-0.20	0.16	-0.63	0.22	-0.31
0.22	0.50	-0.50	0.26	-0.41	0.25	0.14	-0.60	0.15	-0.39
0.17	0.38	-0.39	0.18	-0.32	0.11	0.14	-0.51	0.11	-0.27
0.11	0.31	-0.47	0.09	-0.39	0.17	0.16	-0.38	0.14	-0.29
0.00	0.16	-0.50	0.03	-0.33	0.29	0.34	0.00	0.02	-0.34
-0.06	0.02	-0.59	0.06	-0.41	0.00	0.49	0.01	0.01	-0.37
-0.05	0.02	-0.63	0.02	-0.43	-0.42	0.47	0.13	-0.02	-0.44
0.01	0.19	-0.78	0.17	-0.42	-0.25	0.50	0.33	-0.25	-0.55
0.07	0.27	-0.74	0.00	-0.52	-0.08	0.31	0.28	-0.05	-0.52
0.08	0.30	-0.74	-0.02	-0.57	-0.01	0.22	0.30	0.21	-0.52
0.06	0.25	-0.74	-0.05	-0.16	-0.28	0.21	0.45	0.11	-0.50
0.07	0.35	-0.85	0.01	0.44	0.01	0.06	0.57	-0.07	-0.59
0.04	0.30	-0.82	0.06	-0.26	-0.13	0.17	0.64	0.01	-0.54
0.00	-0.19	-1.11	-0.15	-0.59	-0.22	0.24	0.03	0.09	-0.74
0.06	-0.17	-1.06	-0.13	-0.85	-0.06	0.24	-0.03	0.10	-0.70
0.00	-0.27	-1.03	-0.19	-1.44	-0.36	0.07	0.16	0.06	-0.69
0.08	-0.19	-1.12	-0.17	-1.04	-0.14	0.12	0.29	-0.05	-0.73
0.02	-0.18	-1.11	-0.19	-0.92	-0.04	0.17	0.25	-0.03	-0.73
-0.01	-0.39	-1.06	-0.64	-1.05	-0.34	0.16	0.19	-0.01	-0.69
-0.01	-0.39	-1.19	-0.63	-0.71	-0.38	0.20	0.18	0.09	-0.78
0.04	-0.31	-1.26	-0.55	-0.75	-0.52	0.09	0.04	0.17	-0.84
0.09	-0.14	-1.34	-0.40	-0.39	-0.38	0.06	0.06	0.14	-0.88
0.14	-0.04	-1.35	-0.31	-0.83	-0.48	0.07	-0.05	0.15	-0.90
0.14	-0.04	-1.35	-0.20	-1.04	-0.40	0.00	-0.35	0.16	-0.88
0.13	-0.02	-1.39	-0.10	-1.00	-0.52	0.02	-0.03	0.19	-0.90
0.12	0.06	-1.45	0.02	-1.07	-0.59	0.03	-0.11	0.21	-0.95

Source: Reproduced from Banik, N. and C. A. Yoonus (2009) "Single currency in the ECOWAS region: Does it make sense?", African Journal of Economic Policy, Vol. 16, No. 2, pp. 1-26.

¹ In forming, a FTA, members remove trade barriers among themselves but keep their separate national barriers against trade with outside nations. In a CU, members not only remove trade barriers among themselves but also adopt a common set of external barriers. In a CM, members allow full freedom of factor flows (migration of labour and capital) among themselves in addition to having a CU. In an EU, members unify all their economic policies, including monetary, fiscal and welfare policies, while retaining the features of a CM. An OCA is a special type of EU where the countries operate with a single currency.

² Details about estimation procedure are available in Banik and Yoonus (2009).

³ The use of β_{j-1} is to avoid dummy variable trap