Impact of Non-Oil Trade on Convergence of Per Capita Incomes of Ecowas Countries

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Abstract

This study investigates the evidence of per capita income convergence in member countries of ECOWAS (1980–2015) and examines the impact of non-oil trade on the process to converge to ECOWAS average. The neoclassical theory of growth was used in the study to examine absolute and conditional convergence among the member countries. The descriptive statistics shows that the mean value of per capita income in ECOWAS in the period of review is $13577.8. This is higher than the median value ($12863); this indicates that most countries had GDP per capita under ECOWAS average. This suggests that some countries are escaping from poverty while others are trapped hence the need to aim at convergence towards this average within the sub region. The models specified include absolute and conditional convergence. Pedroni cointegration tests were used to test for stationarity and cointegration. It is evident from the results that there is absolute convergence. The conditional β-convergence based on non-oil trade shows a positive sign (0.006659) and is statistically significant. Based on the results, it is recommended that common trade policies should consider absolute and comparative advantages of member countries in moderating rules on trade liberalization.

***Keywords**: Non-Oil Trade, Convergence, Per capita Incomes, ECOWAS*

Introduction:

The countries that make up ECOWAS have differences in terms of size, economy, population, cultures and colonial past, etc. Thus, its formation was aimed to benefit from cooperation of these countries to promote political, economic and social relationships to enhance better living conditions of the people in the sub region. To achieve these objectives, concerted efforts have been made and agreements reached with respect to Common External Tariff (CET), harmonization of Customs documents, regulations and formalities; harmonization of the convention on Mutual Assistance in Customs Matters among others. Over the years, ECOWAS has also sort to harmoniously treat economic shocks, harmonize economic policies such that per capita incomes of member countries may converge. Despite these efforts, per capita income of countries in ECOWAS remained divergent.

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A primary interest of economic development is the distribution of income between groups and how such distribution should be narrowed over time. An adequate measure of world inequality has, at least, to weight the observed levels of income by population. In the ECOWAS sub region for example, Burkina Faso had the lowest per capita income of $326 while Cote d"Ivoire had the highest per capita income of $1684.4 in 1980. In 2010, Niger had the lowest per capita income of $866 while Cape Verde had the highest per capita income of $5883.4. In 2015 Guinea had the lowest per capita income of $1238 while Cape Verde had the highest capita income of $6628.8 (Aye-Agele, 2016). This suggests that some countries are escaping from poverty while others are trapped. The greater the differences in per capita income between any two countries, the larger will be the difficulty in agreement as they enter into bilateral discussion. Also, income distribution in a society is it local, national or international to a major extent dictates political, social and economic relationships and therefore the stability of society. Thus, income disparities greatly affect development particularly in societies where poverty and poor social conditions prevail. This may also affect economic relationships between individuals, groups or countries and for different reasons each feels threatened by the economic standing of its partners or neighbours.

Trade is an important factor for economic development. Trade generally promotes the economy of a country as an earner of foreign exchange and also improves the welfare of its citizens. This can be achieved by harnessing natural endowments for export to the rest of the world for the growth and development of the country. Therefore it is imperative to examine the impact of non-oil trade on per capita income convergence to the ECOWAS average for purposes of fostering bilateral agreements to further actualize the objectives of the ECOWAS Community.

The thesis for this paper is that non-oil trade can be considered an economic factor that will cause per capita income to converge and thus moderate poverty. The paper therefore empirically investigate the effect of non-oil trade on the convergence of per capita income of ECOWAS member states and by so doing provide information for bilateral agreements among them towards economic integration of the bloc. The interest in convergence studies may be explained on the large contemporary differences in per capita income across countries which have enormous welfare implications. To this end, nearly two decades have passed since African countries commenced efforts to study the likely effects of policy measures on economic variables and their impact to examine whether poor economies tend to grow faster than wealthy ones within the region. However, studies on convergence are rather few in spite of the importance of the issue for the region. Therefore, for the purpose of economic policies, ECOWAS need to know to what extent poor member countries catch up to wealthy ones as a consequence of economic reforms within the groupings. It is on account of this vacuum that this study has specific relevance.

The paper is organized as follows: Introduction, Literature review and theoretical framework. This is followed by data presentation, analysis and interpretation of findings according to research hypothesis raised in the study. Finally, it provides the summary, recommendations and conclusion.

Research hypotheses (Null)

The study considers the following operational hypotheses:

Hypothesis1

Ho: There is no absolute convergence of per capita incomes among member countries of ECOWAS.

Hypothesis 2

Ho: Non-oil trade does not promote conditional convergence of per capita income in member countries of ECOWAS.

Conceptual issues

The convergence literature is concerned with an issue of vital importance in economics- it deals with the distribution of riches across the world and its evolution over time. Arguably, this explains the sizeable efforts that the economic profession has devoted to the empirical study of convergence. The phrase, "economic convergence" means that the variations of levels of economic variables, among groups of countries and regions, are diminishing. Therefore, if economic growth reduces income differences between regions, convergence has taken place. Conversely, if growth increases income differences between regions, then it is called divergence.

Although there are many definitions of convergence in the literature, two concepts of convergence appear in the classical literature: β-convergence and α-convergence. There is β-convergence in a cross section of economies if we find a negative relation between the growth rate of income per capita and the initial level of income. This phenomenon is sometimes called 'regression to the mean' or 'mean reversion'. In other words, there is β-convergence if poor economies tend to grow faster than wealthy ones (Quah, 1993; Sala-i-Martin, 1996).

Following Mankiw, Romer and Weil (1992), we can also distinguish conditional from absolute β-convergence. We say that a set of economies displays conditional β-convergence if the partial correlation between growth and initial income is negative. In other words, if we run a cross-sectional regression of growth on initial income, holding constant a number of additional variables, and we find that the coefficient of initial income is negative, then we say that the economies in the data set display conditional β-convergence. If the coefficient of initial income is negative in a univariate regression, then we say that the data set displays absolute

convergence. On the other hand, where the dispersion of real per capita income across groups of economies tends to fall over time there is α-convergence.

Empirical and theoretical Literature

A major question in discussions on integration is to know whether economies tend to converge towards the same levels of income or production per capita. In order words, whether there exists a mechanism that allows a given country to catch up with the levels of per capita income of a more developed economy. This has occasioned empirical studies on convergence for countries in the world.

The studies of Jones (1995), Mankiw, Romer and Weil (1992) emphasize that a number of economic forces can give rise to convergence: diminishing returns to capital within each country or region, spatial capital mobility, spatial labour mobility, and the diffusion of innovations across countries and regions. Some empirical works suggest little or no support for the hypothesis of unconditional convergence except when the analysis is limited to a relatively homogenous group of Countries (Dowrick and Nguyen, 1989; Ben-David, 1993) or to regions within a country (Cashin, 1995). The hypothesis of conditional convergence fares better with cross-country data (Mankiw, Romer and Weil, 1992).

In Africa, studies on convergence are rather few in spite of the importance of the issue for the region. Kaitila (2004) in his study of economic integration and convergence of per capita income in West Africa noted that economic co-operation at the regional and sub-regional level has been an important feature of the economic development policies of developing countries. The results show that ECOWAS countries form a convergence club that is, the tendency for per capita income to converge and a diminution of the standard deviation of per capita income over time.

Dufrenot and Sanon (2005) also test the process of β-conditional convergence of per-capita GDP in the same grouping between 1985 and 2003 under the assumption of parameter heterogeneity and contrary to Jones (2002) they find no evidence of real conditional convergence. These authors conclude that in ECOWAS, member states individually follow their long-run growth paths. In this respect they recommend active coordination of policies to reduce the structural heterogeneity.

Dramani (2010), examined real and conditional convergence in Africa – the case of the Franc zone Countries using the convergence theory and showed that the convergence process, and hence integration has not been carried out uniformly in the Franc Zone. Further, the conditional convergence approach, which used similarities related to productions and those related to natural advantage highlight the presence of a convergence club. Jones (1997), provides evidence on persistence and stratification on the formation of convergence clubs and on the dynamics of the income distribution between 1960 and 1990. Their main finding

is that the world is moving towards a bi-modal income distribution, into 'twin peaks' of rich and poor countries. Quah (1993) showed 'convergence clubs' at the top and bottom of the income distribution – that there are some rich countries that have remained rich for long periods of time and, similarly, that there are some poor countries that remained poor, and the middle class is vanishing.

The existing evidence on trade and international income differences is mixed. There is some evidence that trade causes divergence and other evidence that it causes convergence. Trade and specialization is another mechanism that could drive economic growth and income convergence. Trade between high-income and low-income economies will allow high-income economies to specialize in capital-intensive production processes, and low-income economies to specialize in labour-intensive production processes (as per their comparative advantage). Both specialization processes tend to reduce wage differentials as the demand for unskilled labour in high-income economies falls, while it rises in low-income economies. Estimating the effects of trade on economic growth is challenging because of the joint determination of empirical measures of economic growth and international trade.

Ben-David (1993) and Sachs and Warner (1995) present evidence linking trade to income convergence. The common conclusion of these papers is that international trade causes convergence. Slaughter (2001), using a sample of developed countries and less developed countries, find no strong, systematic link between trade liberalization and income convergence. Slaughter suggests that if there is anything trade seems to have caused income divergence. On the other hand, Rodriguez and Rodrick examined and identified the weaknesses of some prominent empirical studies on the relationship between trade barriers and economic growth. They observed that it is relatively easy to come up with cases of regions of the world which have diverged or converged in ways unrelated to trade policy (Rodriquez and Rodrick 1999) and therefore casts doubts on whether there is a systematic relationship between trade liberalization and convergence.

Neoclassical trade theorists draw on the Heckscher-Ohlin-Samuelson (HOS) theorem to explain international factor price convergence using static equilibrium trade models. Heckscher (1919) and Ohlin (1933) demonstrate that a factor-abundant region will have a comparative advantage in the production of goods that require the intensive use of that factor. Samuelson (1953) demonstrates how free trade and/or factor mobility equalizes the relative and absolute long-run prices of factors of production among regions involved in trade. Thus, the Heckscher-Ohlin –Samuelson model attempts to explain the composition of trade between countries and the implications of trade for income distribution within the countries. Given the assumptions of the model, not only relative factor prices but also absolute factor prices across countries are equalized. This powerful implication of trade for factor prices is known as the factor-price equalization theorem. While such equalization clearly does not happen in practice, it is the

convergence of the tendency toward equalization that is important (Thomson G 2008).

Dynamic versions of the convergence hypothesis draw on neoclassical growth theory, particularly the models proposed by Solow (1956) and Swan (1956). In neoclassical growth theory, there are two different types of convergence. Conditional convergence refers to the convergence toward a steady state growth rate resulting in constant per capita incomes, consumption levels, and capital/labour ratios. This is termed conditional, because savings rates, depreciation rates, and population growth rates are allowed to differ across countries. Therefore, conditional convergence need not necessarily result in equal per capita income levels across countries. Absolute convergence occurs when growth model parameters are equal for all countries, which in turn implies that richer countries will grow slower than poorer countries, and per capita incomes will become equalized across countries over time as in the HOS model of international trade.

The study is anchored on the HOS theorem and the neoclassical theory. These theories are anchored because of their relevance in the model specification. Specifically, the neoclassical theory remains a basic reference point for the literature on growth and development. It implies that economies will conditionally converge to the same rates of savings, depreciation, labour force and productivity growth. Also, income convergence across countries is widely interpreted as a test of the Solow (1956) neoclassical model. Thus, the Solow-Swan neoclassical model is the basic framework for the study of convergence across countries.

Searching through the literature, empirical investigation on the extent of trade vis-à-vis convergence of per capita income in the ECOWAS sub region has been scanty in spite of the importance of the issue for the region. This paper therefore is designed to fill this gap.

Methodology

Research design

The model estimation is based on the method of panel least squares. We first establish the existence or otherwise of absolute convergence. Thereafter, we modeled for conditional convergence based non oil trade. Data for this study is secondary in nature and were obtained from various sources: ECOWAS handbooks, Econstat and World Bank over the period 1980-2015.

Initial income: Following the HOS synthesis, initial per capita income accounts for the differences in development levels within 15 member countries of ECOWAS (excluding Liberia) at the beginning of the study period. In addition, it addresses the convergence theory as described in the economy development literature.

Non-Oil Trade: Trade is the sum of exports and imports of goods and services measured as a share of GDP. Increase in trade means larger foreign investment, new ideas, new managerial skills, new technologies, which in turn will augment the growth process. Its a priori expectation is positive.

Model specification

Absolute convergence:

The model for absolute or unconditional β-convergence as specified by Barro and Sala-i-Martin (1992) is as follows:

$(1/T)Ln(y_{i,t}/y_{i,o}) = \alpha + \beta Ln(y_{i,o}) + \varepsilon i$ ----------(1)

$\beta<0$

Where

$y_{i,t}$	=	per capita income of country i at time t,
$y_{i,0}$	=	per capita income of country I at time 0
T	=	length of period of study
α	=	a constant term
β	=	convergence coefficient
εi	=	random error term

Equation (1) is re-specified as follows:

$LY\text{-}YO = \alpha + \beta_1 ln(LYO) + \varepsilon_1$ ----------(2)

Where

$LY\text{-}YO = (1/T)Ln(y_{i,t}/y_{i,o})$

$LYO = (y_{i,o})$ which represents initial incomes of ECOWAS.

A negative value for the slope coefficients β indicates convergence of GDP per capita across territorial units of analysis, in a given time period, while a positive value indicates divergence (Gbetnkon, 2006). If the various economies have different steady-state positions, other explanatory variables are added to equation (1) to make it a conditional convergence model. In our case, we add non oil trade in the regression analysis.

Conditional beta convergence

Thus, the model is:

$(1/T)Ln(y_{i,t}/y_{i,o}) = \alpha + \beta Ln(y_{i,o}) + \alpha_1 LnNOTRD + \varepsilon i$ ----------(3)

$\beta<0$, $\alpha_1>0$

Where

NOTRD= Intra-ECOWAS total (non oil) trade

$Y_{i,t}$, $y_{i,o}$, T, α and β are as defined in equation (1) and LY YO and LYO are as defined in equation (1)

Framework of analysis:

Panel cointegration tests:

This technique employs the residuals of the long-run model (for a panel of N countries and T time observation). These residuals can be computed from the hypothesized cointegrating regression (Pedroni, 1999). In the most general case, this may take the form

$y_{it} = \alpha_i + \beta_{1i}x_{1i,t} + \beta_{2i}x_{2i,t} + \ldots.. + \beta_{Mi}x_{mi,t} + \varepsilon_{i,t}$ ----------(4)

$t = 1,\ldots, T;\ i = 1,\ldots.., N;\ m = 1,\ldots\ldots M$

Where:

T = the number of observations over time;

N = the individual members in the panel, and

M = the number of regression variables.

β = is an m dimensional row vector for each member

α= member–specific intercept/fixed effects parameter

In general, cointegration estimates the long-run relationships. The term $\varepsilon_{i,t}$ estimates the deviation from the modeled long-run relationship. If the series are cointegrated, this term is a stationary variable. In other words, we establish stationarity by showing that $\rho<1$ in:

$\varepsilon_{it} = \rho_i\varepsilon_{it-1} + u_{it}$ ----------(5)

Pedroni (1999) provides a total of seven tests of the null of no cointegration, of which four involve pooling on the within-dimension (panel tests) and three on the between-dimension (group mean tests).The tests take autocorrelation into consideration for both panel tests and group mean test.The three Pedroni "combining" (between-dimension) tests are:

1. Group rho-stat (p-statistic): combining the Phillips-Perron rho-statistic;
2. Group PP t-stat (non-parametric): combining the Phillips-Perron t-statistic;
3. Group t-stat (parametric): combining the ADF t-statistic.

The "pooled" (within-dimension) Pedroni tests are based on four unit root statistics:

4. Panel variance ratio (v-statistic): based on Phillips and Ouliaris (1990) long-run variance ratio statistics for time-series;
5. Panel rho-stat (p-statistic): based on Phillips-Perron rho-statistic;
6. Panel PP t-stat (non-parametric): based on Phillips-Perron t-statistic;
7. Panel t-stat (parametric): based on the ADF t-statistic.

The panel PP and Group PP statistics provide the best properties across the seven panel cointegration tests proposed in Pedroni (1999) mainly because the asymptotic distribution of the two statistics are reported only once. Also using Monte Carlo simulations, Pedroni (2004) investigates the small-sample properties

of the Panel *v*, the Panel rho, the Panel PP, the Group rho and the Group PP statistics for different dimensions of the panel. In the case where $N = 20$, the Panel PP-statistics and Group PP statistics perform best regarding size and power when $T = 40$.Pedroni's within-dimension cointegration tests are statistics based on common autoregressive coefficients in corresponding unit root for different countries (panel cointegration tests). Between-dimension cointegration tests are simply averages from individual tests for different countries (panel group cointegration tests).In the context of this study, the Pedroni cointegration tests are employed to test convergence of member countries of ECOWAS.

Panel fixed effect model

Panel data are most useful when we suspect that the dependable variable depends on explanatory variables which are not observable but correlates with the observed explanatory variables. If such omitted variables are constant (fixed) over time, panel data estimators allow to consistently estimate the effect of the observed explanatory variables (Schmidheiny, 2012). A fixed effect model assumes that differences across countries can be captured into differences in the constant term.

The equations for the fixed effects model as adopted by Torres-Reyna (http://dss.princeton.edu/training/) is as follows:

$Y_{it} = \alpha_i + \beta_1\chi_{it} + \ldots + \beta_k\chi_{kt} + \mu_{it}$ ………………………………………………… (3.8)

Where

- αi (i=1….n) is the unknown intercept for each entity (n entity-specifc intercepts).
- Y_{it} is the dependent variable where i=entity and t=time.
- χit represents one independent variable,
- χ_{kt} represents other independent variables
- $\beta 1$ is the coefficient for that independent variable,
- β_k the coefficients of other independent variables
- μit is the error term.
- The key insight is that if the unobserved variable does not change over time, then any changes in the dependent variable must be due to influences other than these fixed characteristics (Stock and Watson, 2011).

Presentation and interpretation of results

Initial per capita income and non-oil trade are the variables used in this analysis. Initial per capita income accounts for the differences in development levels within the 15 member countries of ECOWAS (excluding Liberia) at the beginning of the

study period. The basis for the inclusion of non-oil trade is premised on the fact that ECOWAS member countries have several products for primary exports which can promote regional integration. These products include cotton, palm products, cocoa, livestock, gold, coffee, timber, peanuts, cowpea, fish, and pineapples among others.

Data Analysis and Findings/Results

Descriptive statistics

Table 1: Descriptive statistics of variables in the study

	NOTRD	**LYO**
	Non-oil trade	**Per capita GDP**
Mean	5388552.81	13577.82
Median	1719694.59	12863.14
Maximum	19534069	20982.63
Minimum	1719694.59	7831.51

Source: Author's computation

As shown in table1 above, the mean value of per capita income in ECOWAS under the period of review is $13577.8. This is higher than the median value ($12863); this indicates that most Countries had GDP per capita under ECOWAS average. The maximum level of income in the sub region is $20982.63. This is 2.7 times higher than the minimum level of income ($7831.51) and 1.5 times higher than the mean. This gives a range of $13151.12. This indicates a very wide gap between the ECOWAS Countries income and may have implications on the weak economic integration of this regional bloc. Hence absolute convergence will be difficult. These results however, are influenced by the great amount of income growth particularly of Cape Verde. With respect to intra-ECOWAS trade, the mean value is $5388552.81 . This is higher than the median value of $1719694.59. The minimum intra-ECOWAS trade is 1719694.59 while the maximum is 19534069.

Table 2: Panel cointegration tests

	Statistic	**Prob**	**Weighted stat**	**Prob**
Alternative hypothesis: Common AR coefs (within-dimension)				
Panel v- statistic	***-1.996084***	***0.9770***	***-1.961187***	***0.9751***
Panel rho-statistic	1.861123	0.9686	1.292811	0.9020
Panel pp-statistic	***-0.666513***	***0.2525***	***-1.623841***	***0.0522***
Panel ADF-statistic	***0.249373***	***0.5985***	***0.156167***	***0.5620***

Alternative hypothesis: Individual AR Coefs. (between-dimension)		
Group rho-statistic	1.991065	0.9768
Group PP-Statistic	***-2.457613***	***0.0070***
Group ADF-Statistic	***0.224614***	***0.5887***

Source: Author's calculations based on Eview 7

Panel cointegration: pedroni tests

Table 2 shows the results for both the within- and the between-dimension cointegration tests. The panel PP and Group PP statistics provide the best properties across the seven panel cointegration tests proposed in Pedroni (1999). Also using Monte Carlo simulations, Pedroni (2004) investigates the small-sample properties of the Panel *v*, the Panel rho, the Panel PP, the Group rho and the Group PP statistics for different dimensions of the panel. In the case where N = 20,which is fairly close to our case (14), the Panel PP and Group PP statistics perform best regarding size and power when T = 40.

Thus, we have some evidence for a stationary behaviour of the residuals and conclude that there exists a panel-cointegrating relationship between per capita incomes and non-oil trade.. However, the existence of cointegration of economic variables by itself does not predict convergence because of the divergent and contradictory evidence presented to date. We therefore utilize the coefficients to examine absolute and conditional convergence.

Table 3: Results of absolute convergence of per capita income

Dependent variable: LY YO

Method: Panel least square

Variable	**Coefficient**	**Standard error**	**t-statistics**	**Probability**
Constant	0.093210	0.053214	1.751618	0.0805
LYO	-0.012643	0.008421	-1.501338	0.1340

R^2 = 0.584547
Adj. R-squared = 0.554807,
DW = 0.095814
S.E of regression = 0.007345

F. statistics = 19.65550

Source: Author's computation

Absolute and conditional convergence of per capita incomes of member countries of ECOWAS.

Absolute convergence

The result of absolute convergence shows that the coefficient of β was negative (-0.012) and was statistically significant. The *a priori* condition for existence of β convergence is that the coefficient of β, must be negative and significant. This is similar to the study by Jones (2002) who found that ECOWAS countries form a convergence club. The R^2 is 0.58 showing that about more than 58 per cent of the growth in per capita income (LY_YO) was explained by LYO. The R^2 adjusted is 0.55 showing that about more than 55 per cent of the growth in per capita income (LY_YO) was explained by LYO. The F-statistics of 19.65 shows that the variable is statistically significant. DW-statistics is 0.095 indicating existence of autocorrelation but our method of study was suitable since the Pedroni test takes autocorrelation into consideration. Also, the S.E of regression of 0.007345 (0.73 per cent) means that in about 2/3 of the time, the dependent variable (LY_YO) will be exactly predicted by 0.73 per cent.

We further examine if non oil trade can cause per capita income convergence in the sub region. Thus, non-oil trade within the 15 member Countries of ECOWAS (excluding Liberia) were considered between 1980 and 2015 and was introduced into the model.

Table 4: Results of conditional convergence: non-oil trade

Dependable variable: LY_YO

Method: Panel EGLS

Variable	Coefficient	Std error	t-statistics	Probability
C	0.081957	0.055378	1.479954	0.1396
LYO	-1.015220	0.008770	-1.735548	0.0833
L_NOTRD	0.006659	0.001162	5.729652	0.0000

R^2 =0.613027
R^2 Adjusted = 0.584425
F- Statistics = 21.43276
S.E of regression= 0.007089
DW = 0.115972
Source: Author's computation

Conditional convergence of per capita incomes of member countries of ECOWAS (Non-oil Trade).

Conditional convergence is investigated with the addition of log of non oil trade as shown in table 4. The model includes fixed effects. The result shows that the coefficient of log of initial per capita income is negative (-0.015) and statistically

significant. The coefficient of the log of non oil trade (L_NOTRD) is positive (0.006659) and is statistically significant. This result is similar with the study by Ben-David (1993) and Sachs and Warner (1995) who found evidence of trade on income convergence. The R^2 is 0.61 showing that about more than 61 per cent of the growth in per capita income (LY_YO) was explained by LYO. R^2 adjusted is 0.584425, showing that about more than 58 percent of growth in per capita income LY_YO was explained by LYO and L_NOTRD, while the remaining 42 per cent was unexplained which is captured by the error term. The F-statistics of 21.43276 shows that the variables as a group were statistically significant. DW-statistics was 0.115972 indicating existence of autocorrelation but our method of study was suitable since the Pedroni test takes autocorrelation into consideration. Also, the S.E of regression of 0.007089 (0.70 per cent) means that in about 2/3 of the time, the dependent variable (LY_YO) will be exactly predicted by 0.70 per cent.

Interpretation and Discussion of Findings

From the descriptive statistics, the mean of per capita income in ECOWAS is higher than the median value which indicates that most countries had GDP per capita under ECOWAS average. The large difference between the maximum level of income and the minimum level of income also indicates a very wide gap between the ECOWAS countries income. There are also great differences with regard to non-oil trade in the sub region which indicates that some countries are better off than others. In agreement with apriori expectations, the result of absolute convergence reveals a negative and significant β coefficient. We therefore conclude that there is absolute β convergence of per capita income among ECOWAS countries. This result is similar with the study by Jones (2002) who found that ECOWAS countries form a convergence club, which is the tendency for per capita incomes to converge. The inclusion of non oil trade provided significant effect on per capita income convergence of ECOWAS member countries.

Findings, recommendations and conclusion

Major Findings and conclusions

The major findings of this work are summarized below:

i. There is absolute convergence of per capita income of ECOWAS member countries.

ii. Non-oil trade favours per capita income growth and convergence in ECOWAS sub region.

In conclusion, there is absolute convergence in the ECOWAS bloc. Non oil trade promotes growth and enhances of per capita income of ECOWAS member states. The results support trade of the ECOWAS bloc. These will in particular, ameliorate smuggling activities, promote regional trade and economic integration and encourage macroeconomic stability among member countries of ECOWAS.

Recommendations

The result shows possibility of per capita incomes converge. The introduction of non-oil trade is seen to consistently improve the explanatory power of the convergence model. Thus common policy issues designed to manage the effects of trade will be of benefit to the bloc members as it provides empirically tested economic evidence for useful bilateral agreements among them. All the member states are known to be endowed with commodity products of high quality. The various comparative and absolute advantages of each nation will provide additional useful information for bilateral trade negotiations and agreements. Therefore, ECOWAS should focus on promoting non-oil trade policies among member countries. In reaching agreements on trade policies absolute and comparative advantages should be considered.

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