IMPACT OF ADVANCED ENDOWMENTS FACTOR ON WEST AFRICAN ECONOMIES

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Abstract
The study used panel data approach developed by Pedroni, employing the Fully Modified Ordinary Least Square (FMOLS) and Dynamic Ordinary Least Square (DOLS) methods to investigate the impact of advanced factor endowments on the economic growth of ECOWAS member countries over the period 1980 - 2017. The findings shows a positive and significant relationship between GDP and government expenditure on education, expenditure on health and school enrollment in ECOWAS countries. The study recommended that ECOWAS member countries need to increase budgetary allocation to both education and health sectors. There is also the need for incentives to improve the quality of teachers and health personnel. This implies that if funds channeled into education and health sectors are properly managed and utilized efficiently it would help in no small measure to enhance the economies of ECOWAS members

Keyword: Advanced factor endowments, Economic growth, Government expenditure, education, Health

1.0 Introduction

Economic growth reflects an increase in real Gross Domestic Product (GDP), national income, national output or productive capacity over a period of time. This could be as a result of an increase in aggregate demand (AD) or an increase in aggregate supply (productive capacity). However the productive capacity of a country is a reflection of its factor endowments, which is the nation's position in factors of production such as skilled labour or infrastructure necessary to compete in a given industry. These could be basic or advanced factor endowments.

On basic factor endowments, some societies are handsomely endowed by nature with fertile land, climate, water and other natural resources like crude oil, diamond and gold. However, unlike the natural endowed basic factors, advanced factors are product of investment by individuals, companies and government. Thus, government investment in basic and higher education, by improving the general skill and knowledge level of the population and by stimulating advanced research at higher educational institutions, can upgrade the nation's advanced factor, (Hill, 2003). Thus advanced factors are associated with investment in man and his development as a creative and productive resource (Jhingan, 2013).

The relationship between advanced and basic endowment factors is complex. According to Barthos, (2006), countries of the world, based on their potential resources, can be classified as: resources-poor and poor citizens, resource-rich and poor citizens, resources-poor and rich citizens; and resources-rich and rich citizens. While basic factors can provide an initial advantage that is subsequently reinforced and extended by investment in advanced factors, like the case of Saudi Arabia and United Arab Emirates, conversely, disadvantages in basic factors can create pressure to invest in advanced factors. For instance, Japan as a country lacks arable land and mineral deposits and yet through investment has built a substantial endowment of advanced factors, hence, Japan's pool of engineers which is a

reflection of a much higher number of engineering graduates per capita than any other country, has given Japan success in many manufacturing industries. Thus, advanced factor rather than the basic endowment factor, determines the competitive advantage of a country.

Evidence shows that no country can achieve sustainable **socio-**economic growth and development without real investment in human capital regardless of its endowment in natural resources, and the stock of physical capital. In view of its critical role in the economic development of any nation, advanced endowment factor investment through education and health in developed and developing countries have attracted the attention of many economists, researchers and policy makers of countries, and community of states, including the Economic Community of West African States (ECOWAS).

The Economic Community of West African States (ECOWAS) made up of fifteen West African member country governments is not left out in efforts towards building advanced factors, through training and enrollment of its citizens in schools and provision of health facilities. Several policies have been formulated and implemented by successive governments, among these policies are the formulations of blueprints to improve primary, secondary and tertiary institutions towards making education affordable and compulsory for every member.

Higher and Tertiary Education Continental mechanisms for harmonising qualifications and establishing quality rating of higher education in Africa are far advanced. The Pan African University has been launched, with the first three campuses in Kenya, Nigeria and Cameroon. Quality mechanisms at the continental level, such as the African Quality Rating Mechanism (AQRM) and the African Quality Assurance Network (AFRIQAN), are making steady progress towards improving quality in higher education.

Higher education in West Africa has gone through some expansion over the past six years, with increased learner access. One fourth of the 8.6 million students enrolled in tertiary institutions globally in 2006 were in the ECOWAS region. It is also worth mentioning that the highest concentrations of graduates were in Cape Verde, which reported a 166 percent increase between 2006 and 2012 (ECOWAS Sect).

However, greater health capital is needed to improve the return to investments in education, because health is an important factor in school attendance and in the formal learning process of a child. More so, a longer life raises the return on investments in education; better health at any point during working life may in effect lower the rate of depreciation of education capital (Todaro & Stephen, 2011). Thus, investment in education alone will not improve the advanced factor endowment of a nation, without adequate investment in the health sector. Hence, the ECOWAS in 1987, established the West African Health Organization (WAHO).

The West African Health Organization (WAHO) is a regional agency charged with the responsibility of safeguarding the health of the peoples in the sub-region through the initiation and harmonization of the policies of member states, pooling of resources, and cooperation with one another and with others for a collective and strategic combat against the health problems of the sub-region. Via its strategic plan, WAHO is implementing strategic orientations such as; support for quality improvement of the health systems of the sub-region, support for health services improvement in the sub-region, support for development of sustainable financing of health and institutional development of WAHO.

Even at that, spending on advanced factors (human capital) through education and health care are critical for building a nation's capacity, but agreeably very low in ECOWAS member states as these countries current budgetary allocation to education has been below the bench mark set by United Nations Education, Scientific and Cultural Organization (UNESCO) on education for developing countries. Likewise, the budgetary allocation for

health has been less than the 15% of annual budget target set in 2001 for the provision of quality health care.

Despite all the polices put in place by the government**,** most countries in the region remain far low in human development index (HDI) rating, with about 80% of them falling under low human development index countries and characterized by widespread poverty and inequality.

Some studies like Hanif **and** Arshed (2016) show that education has robust positive effect on economic growth and that the government can achieve better results by investing heavily in the educational sector. In another dimension, the high level of human capital development in Morocco holds the key to the nation's socio-economic development and it is the greatest catalyst of the improvement of the standard of living of its population (Hadir &Lahrech, 2015). Despite many studies showing this positive relationship, some other studies show that human capital investment contributes to the unemployment rate and not the economic growth of a country (Oisaozoje & Isaac, 2016).

The contradicting findings from various studies show that a consensus has not been reached by researchers and scholars on the impact of human capital investment on economic growth, as it is a major concern of every economy in the world, be it underdeveloped, developing or developed. It is therefore against this notion that the study intends to empirically analyse the impact of human capital development on the economic growth of ECOWAS member countries.

Hence, the objective of this study is to empirically investigate the impact of advance endowment factors on the economic growth of ECOWAS member countries. In view of the foregoing, the challenge of this study, therefore, is to critically:

a. Assess the impact of government spending on education on the economic growth of ECOWAS member countries,
b. Investigate the impact of government expenditure on health on the economic growth of ECOWAS member countries.
c. Examine the effect of school enrolment on the economic growth in ECOWAS member countries.

2**. Literature Review**

Tadaro (2007) defines the term economic growth as a process by which the productive capacity of the economy is increased over time to bring about rising level of national output and income. Meanwhile, Kindlerberge (1965) sees economic growth to mean more output derived from greater efficiency.

Advanced factors has been recognized globally as one of the major factors that is responsible for the wealth of nations. According to Smith (1776), he underlined the importance of "the acquired and useful abilities of all the inhabitants or members of the society" in his works. Meanwhile Romele (2013), views human capital as a component of advanced factor endowments that deals with the totality of knowledge and skills which have been accumulated during life, through education, training, and work experience and which influence labour productivity. In another dimension Rastogi (2002) defined human capital as 'knowledge, competency, attitude and behavior embedded in an individual. This definition is in line with Behrman and Taubman (1982), Khembo and Tchereni, (2013), Rosen (1999) and UN (1997).

The term human capital development had been the subject of considerable discourse in the literature in both developed and developing economies in recent times. A number of

empirical studies on human capital development tend to argue that it leads to more productivity and thus results in economic growth while others believe it is an agent only capable of reducing unemployment but not a driver of economic growth. Therefore, the term human capital development according to Eggoh, Houeninvo and Sossou (2015) is conceptualized as the stock of knowledge, competence, health, training, including creativity and other investments, that embody the ability to perform labor tasks more productively. In the view of Lyakurwa (2007), human capital development is an organizational process which has the capacity to enlarge people's choices and opportunities, improve healthy living through acquired skills and knowledge and eventually enhance growth in the nation's gross domestic product through increased productivity.

In the works of Torruam and Abur (2014), advanced factors through human capital development can be seen to mean developing skills, knowledge, productivity and inventiveness of people through the process of human capital formation. It is a people centered strategy of development which is recognized as an agent of national development in all countries of the world.

The theoretical underpinning of this research work is based on the inspiration drawn from the endogenous growth theory, which advocates the stimulation of economic growth and development through improvement in human capital (advanced factor endowments) within the model, using policies aimed at increasing expenditure (both recurrent and capital) on the education and health sectors. The model was developed by Arrow (1962), Romer (1990) and Lucas based on the limitations and deficiencies of the Solow-Swan neoclassical model which has led to further investigation into the fundamental question of growth. It is built on the exogenous theory which was based on technical change and exogenous population growth which did not account for government policy. The model explains the long run growth rate of an economy on the basis of endogenous technical progress in the growth model resulting from the rate of investment, size of the stock of capital and human capital stock.

The theory is based on the assumption that there are many firms in the market, knowledge/ technological advance is a non-rival good, there are increasing returns to scale for all factors together and constant returns to a single factor, technological advancement comes from creative new ideas, many individuals and firms have market power and earn profit from their discoveries.

In particular, growth theorists have tried to endogenize the engine of growth, that is, to have the engine of growth determined within the model.

In attempt to confirm the existing theory as it relates to the subject matter, many scholars have empirically investigated the relationship between factors endowment and economic growth, for example,Alpha and Ding (2016) investigated the impact of natural resources endowment on economic growth in Mali from 1990-2013, using the Error Correction Model (ECM) regression technique. This study shows that natural resources export has a positive impact on growth in Mali. However, the interaction of natural resources export and corruption impact negatively on economic growth in Mali.

Edrees (2016) used the advanced granger causality for panel data to study 20 Arabian Countries between 1974-2013. The results showed that the causal-relationships between variables of interest are highly heterogeneous in the Arab world. However, there is a feedback relationship between human capital and economic growth and between infrastructure and economic growth in the full sample of countries and rich countries group. Also, the results found a one way causality running from economic growth to human capital and infrastructure in the non-rich countries group

Jelilov, Aleshinloye and Onder (2016) studied the impact of education on economic

growth of Nigeria, using OLS and the unit root test (ADF), between 1970 – 2006. Findings reveled a statistically significant relationship between GDP and all the variables used in the study with the exception of Primary School Enrolment (PRYE). The negative coefficient of PRYE is also an indicator that there are problems at this level of education in Nigeria. Facilities for education at this crucial primary school level is still poor in the country, especially at local government level, therefore, there is need for total restructuring of the primary education system in order to improve its standard and level of enrolment.

HanifandArshed (2016) analyzed the impact and contribution of primary, secondary and tertiary education and the importance of education in economic growth of SAARC region between 1960- 2013 using the Ordinary Least Squares (OLS) and the fixed effect model (FEM). Findings showed that education has a robust positive effect on economic growth and that better results can be achieved by investing heavily in the educational sector. Using Autoregressive Distributed Lag (ARDL) approach to Co-integration, Augmented Dickey-Fuller test, and Vector Error Correction Model, Mat, Mansur and Mahmud (2015) employed OLS technique of analysis to study the effects of human capital investment on education, health and migration on economic development in Sabah (Malaysia) for the period 1980-2010. Their findings show that higher GDP per capita is influenced by better literacy rate, longevity of life expectancy at birth and required number of immigrants with a sustainable gross domestic savings and improvement in unemployment rate.

Javed, Abbas, Fatima, Azeem and Zafar (2013) used Johansen's co-integration and Error Correction Modelto investigate the impacts of expenditures on education and health on the growth performance of Pakistan between 1978 to 2008. Findings indicated that expenditures on health have positive and statistically significant effects on economic growth rate both in the short-run and long-run. On the other hand, enrolment in primary school has a positive and significant impact while secondary school enrolment has negative impacts both in the short and long runs. Finally the magnitude of the long-run coefficients is higher than the short-run coefficients.

Kakar, Khilji, and Jawad (2011) analysed the relationship between education and economic growth in Pakistan, using a time series analysis from 1980 to 2009. Co-integration and error correction models were used to determine the long and short-run relationship of education and economic growth. The results confirmed that education has a long run relationship with economic growth, while better standards of education improve the efficiency and productivity of the labour force and affect economic development in the long - run. However, in the short-run education has no significant relationship with economic growth.

To investigate the short-run and long-run linkage between school education and economic growth in Pakistan using the ARDL approach to cointegration for the period 1970 to 2008, Afzal, Farooq, Ahmad, Begum and Quddus (2010) confirmed the existence of direct relationship between school education and economic growth, both in the short-run and the long-run, while macroeconomic instability due to inflation retards economic growth both in the short-run and the long-run while it retards school education only in the long-run. A statistically significant and inverse relationship between school education and economic growth was observed only in the short-run.

Jalloh (2013) investigated the nexus between natural resource endowment and economic growth using a sample of West African countries. The study adopted a Barrow-type growth model to analyse the impact of natural resource wealth on economic growth. A dynamic panel estimation technique was employed using relevant data from West African countries. The results from the panel regressions indicate that natural resource endowments have very minimal impact in terms of promoting economic growth in West Africa, more so in

resource rich countries. In terms of relative effects, the results indicate that a 10% increase in natural resource export reduces growth in income per capita by approximately 0.4%. Some of the factors explaining this finding amongst others; include high corruption in the public sector as well as the frequency of civil conflicts in resource rich economies of West Africa.

Xingyuan Che (2012) used data from 27 industries across 15 countries, to examine the linkage among factor endowment, structural coherence and economic growth. Structural coherence is defined as the degree that a country's industrial structure optimally reflects its factor endowment fundamentals. The paper found that at least for the overall capital, the shares of capital intensive industries were significantly bigger with higher initial capital endowment and faster capital accumulation. Moreover, there is a positive relationship between a country's aggregate output growth and the degree of structural coherence.

3. Methodology

This section describes the data used in this study and their sources. It also specifies the models that were used in establishing the relationships among the variables of the study as well as the various estimation techniques. The panel regression model of the type developed by Pedroni (2000) was adopted in the study.

To achieve its broad and the specific objectives of the study, the study employs the Fully Modified Ordinary Least Square (FMOLS) method of estimating and testing hypotheses for co-integrating vectors in dynamic time series panels as designed in the work of Phillips and Hansen (1990) to provide optimal estimates for co-integrating regressions. The general form of the model is given as:

$$Y_{it} = X_{it}\beta + Z_{it}\alpha + \mu_{it} \quad \ldots \quad (1)$$

$$X_{it}\beta = C_i + \mu_{2it} \quad \ldots \quad (2)$$

$$Y_i\,(GDP),\ X_i\,(\beta_1 GEE,\ \beta_2 GHE,\ \beta_3 SER) \quad \ldots \quad (3)$$

Hence, comparing equation 1 and equation 3 the model in (1) can be re-casted as:

$$GDP = f(GEE, GHE, SER) \quad \ldots \quad (3a)$$

$$GDP = \beta_1 + \beta_1 GEE + \beta_2 GHE + \beta_3 SER + \mu \quad \ldots \quad (3b)$$

From (1) and (2) above, there are *K* regressors in Xit, not including a constant term.

The heterogeneity or individual effect is $Z_{it}\alpha$ where Zi contains a constant term and a set of individual or group specific variables, which may be observed or unobserved, over time *t*. If zi is observed for all individuals, then the entire model can be treated as an ordinary linear model and fit by least squares. The complications arise when Ci is unobserved, which will be the case in most applications. From the models above, equation (2) is co-integrated with a co-integrating vector β for each member of the panel if Y_{it} is integrated of order one.

The study used cross-sectional data collected from the World Bank World Development Indicators. The data for each member state cover a period of thirty seven (37) years from 1980 through 2016.

In most empirical studies, the most commonly used panel unit root test is that developed by Breitung (2000). This is on the basis that it has the highest power and smallest size distortions of any class of the so-called first generation panel unit root tests (Houskova & Wagner, 2006). The study will therefore adopt the panel unit root tests of Breitung (2000). The canonical forms of the models are given as:

$$y_{i} = \eta_{i} + \sum_{k-1}^{p+1} \beta_{i}\ x_{i,t-k} + \varepsilon_t \quad \ldots \quad (4)$$

$$H_0: \sum_{k-1}^{p+1} \beta_{i\imath} - 1 = 0 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (5)$$

$\sum_{k-1}^{p+1} \beta_{i\imath} - 1 < 0$ for all i. …………………………………………… (6)

Equation (4) is the difference stationarity equation, (5) is the null hypothesis to be tested against the alternative hypothesis in equation (5)

The panel co-integration model that was adopted in this study is that developed by Pedroni (2000). The test allows for two types of asymptotic tests which are "the within-dimension approach and the between- dimension approach" that allow for heterogeneity among individual members of the panel, and heterogeneity in both the long-run co-integrating vectors and dynamics respectively. The model is stated as:

$Y_{i\imath} = \alpha_{i\imath} + \beta_{i\imath} t + \gamma_{i\imath} X_i + e_{i\imath}$ ………………………………………………………………… (7)

Where
i = 1, 2 ………………. N
t = 1, 2 …………………T
N = finite sample size
T = time period
Y_{it} = vector matrix of dependent variables with (N * T) x 1 dimension for each member
X_{it} = vector matrix of independent variables with (N* T) x m dimension for each member
α_{it} and β_{it} = fixed effects for each country of the study
t= deterministic trend,
e_{it} = is the stochastic error term.

Other statistics associated with equation (7) in line with the Pedroni test are based on the within and between dimension approach, which are the panel v-statistics, panelρ-statistic, panel PP-statistics, panel ADF-statistics, group q-statistic, group PP-statistic, and group ADF-statistic. The first four statistics pool autoregressive coefficients across various members for the unit root test to be carried out on the estimated residuals while the last three statistics are based on estimators that simply average the individual estimated coefficient for each member. Thus the heterogeneous panel and the heterogeneous group mean panel co-integration test statistic(s) are specified as follows:

Panel v-statistic:

$$Z_v = \left(\sum_{i-1}^{N} \sum_{t-1}^{T} \hat{L}_{1\,i}^{-2} \hat{e}_{i\imath-1}^{2} \right)^{-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (8)$$

Panel ρ-statistic

$$Z_\rho = \left(\sum_{i-1}^{N} \sum_{t-1}^{T} \hat{L}_1^{-2} \hat{e}_{i\imath-1}^{2} \right)^{-1} \sum_{i-1}^{N} \sum_{t-1}^{T} \hat{L}_1^{-2} \left(\hat{e}_{i\imath-1} \Delta \hat{e}_{i\imath} - \hat{\lambda}_i \right) \ldots\ldots\ldots\ldots\ldots (9)$$

Panel PP statistic:

$$Z_t = \left(\hat{\sigma}^2 \sum_{i-1}^{N} \sum_{t-1}^{T} L_1^{-2} \hat{e}_{i\imath-1}^{2} \right)^{-\frac{1}{2}} \sum_{i-1}^{N} \sum_{t-1}^{T} L_1^{-2} \left(\hat{e}_{i\imath-1} \Delta \hat{e}_{i\imath} - \hat{\lambda}_i \right) \ldots\ldots\ldots\ldots\ldots (10)$$

Panel ADF

$$Z_t^{*} = \left(\hat{s}^{*2} \sum_{i-1}^{N} \sum_{t-1}^{T} L_1^{-2} \hat{e}_{i\imath-1}^{*2} \right)^{-\frac{1}{2}} \sum_{i-1}^{N} \sum_{t-1}^{T} L_1^{-2} \hat{e}_{i\imath-1}^{*} \Delta \hat{e}_{i\imath}^{*} \ldots\ldots\ldots\ldots\ldots (11)$$

Group ρ-statistic:

$$\tilde{Z}_{\rho} = \sum_{i=1}^{N}\left(\sum_{i=1}^{T}\hat{e}_{i\iota-1}^{2}\right)^{-1}\sum_{t=1}^{T}\left(\hat{e}_{i\iota-1}\Delta\hat{e}_{i\iota} - \hat{\lambda}_{i}\right) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (12)$$

Group PP-statistic

$$\tilde{Z}_{t} = \sum_{i=1}^{N}\left(\hat{\sigma}^{2}\sum_{i=1}^{T}\hat{e}_{i\iota-1}^{2}\right)^{-1/2}\sum_{t=1}^{T}\left(\hat{e}_{i\iota-1}\Delta\hat{e}_{i\iota} - \hat{\lambda}_{i}\right) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (13)$$

Group ADF

$$\tilde{Z}_{t}^{*} = \sum_{i=1}^{N}\left(\sum_{i=1}^{T}\hat{s}_{i}^{2}\hat{e}_{i\iota-1}^{*2}\right)^{-1/2}\sum_{t=1}^{T}\left(\hat{e}_{i\iota-1}^{*}\Delta\hat{e}_{i\iota}^{*}\right) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (14)$$

***A priori* Expectation**

This refers to the sign and size of the parameters of economic relationship of the variables. All the independent variables *(GEE, GHE and* SER) are expected to be positively related to GDP. Mathematically; Δ GEE / Δ GDP > 0;
Δ GHE / Δ GDP > 0;

SER / Δ GDP > 0

4. Results and Discussion

In order to determine the impact of human capital development on the economic growth of ECOWAS member countries for the period of 1980 through 2016, inferential statistics results cover Breitung panel unit root test, Pedroni residual co-integration test Breitung panel unit root, and long run covariance estimates.

Table 1

Breitung Panel Unit Root Test Results

Variable Names	**Level**		**First difference**		**Order of Integration**
	T-statistics	Prob.	T-statistics	Prob.	
RGDP	-12.7801	0.07801	-11.5675	0.000	I(1)
GEE	-0.87124	0.1918	0.79238	0.0063	I(1)
GHE	-9.47479	0.2300	-7.83223	0.000	I(1)
SER	-2.88547	0.1320	-13.1637	0.000	I(1)

Source: Author's Computation Using Eviews 8.

Table 1 depicted the result of panel unit root test using Breitung t-statistics, null hypothesis for the test states that there is common unit root process in the data, decision for acceptance or rejection of null hypothesis lies on the probability values, if the probability value of any test statistics is less than 5%, we reject the null hypothesis and conclude that the series in question is stationary and vice versa. From the table, when economic growth (RGDP) was subject to the stationarity test, we fail to reject the null at 5% level, meaning that the level data of economic growth (RGDP) is not stationary. When we take the first difference, it becomes stationary at 1%, hence, we can easily conclude that economic growth (RGDP) is integrated of order one. Level data on government expenditure on education has unit root with test statistics of -0.87124, while its first difference yield a stationary series at 5% level of significance. The conclusion drawn from the series on government health expenditure, reveals that it is integrated of order one at 1% level. School enrolment is not stationary at level, but free from unit root after first difference. The conclusion drawn from

the above table is that all the variables are integrated of order one; hence, we can test for co-integration by Johansen (1999) and Pedroni (2000).

Table 2
Pedroni Residual Co-integration Test Results

Test Statistics	**T-values**	**Probability**
Panel v-Statistic	-3.744465	0.9999
Panel rho-Statistic	-6.802628	0.0000
Panel PP-Statistic	-15.88911	0.0000
Panel ADF-Statistic	-15.05809	0.0000
Group rho-Statistic	-7.067379	0.0000
Group PP-Statistic	-18.17448	0.0000
Group ADF-Statistic	-16.06134	0.0000

Source: Author's Computation Using Eviews 8.

Table 2 shows the result of panel co-integration test proposed by Pedroni (2000), he used seven test statistics to ascertain the existence or otherwise of co-integration among the variables in the long run. The null hypothesis for this state states that there is no co-integration, meaning that there is no long run relationship among the variables under investigation. By rule each of the test statistics should lead us to the rejection of null hypothesis. As shown above, with the exception of panel v-statistics, all other statistics reject the null hypothesis of no co-integration, and does so at 1% level of significance. Out of seven test statistics, six tests namely; panel rho, panel PP, panel ADF, group rho, group PP and group ADF affirm the existence of co-integration because they reject the null hypothesis of no co-integration at 1% level of significance. It can easily be concluded going by the majority that there exists a long run relationship and causality among gross domestic product, government expenditure on education, government health expenditure and school enrolment. Theoretically, in the long run they move together.

Table 3
Long Run Covariance Estimates (RGDP as Dependent Variable)

Variables	**FMOLS**			**DOLS**		
	Coefficients	t-statistics	Prob.	Coefficients	t-statistics	Prob.
GEE	0.029053	0.151113	0.0199	0.321267	1.099298	0.0023
GHE	0.723330	4.635803	0.0000	0.047473	0.196048	0.04477
SER	0.159637	3.380610	0.0008	0.263431	2.615700	0.0092

Source: Author's Computation using Eviews 9

Table 3 depicted the long run covariance estimates of the model. Two separate models were estimated, Fully Modified Ordinary Least Squares (FMOLS) and Dynamic Ordinary Least Square (DOLS). As shown there is a positive relationship between RGDP and government expenditure on education, a unit rise in government expenditure on education will raise RGDP by 0.029053 for the FMOLS estimate, while raising RGDP by 0.321267 in the case of the DOLS estimate both are statistically significant at 5% level. The positive impact of GEE on RGDP supports the findings of Khembo and Tehereni (2013) for South Africa; Mekdad, Dahmani and Lougaj (2014) for Algeria; Kakar, Khilji and Jawad (2011), Afzal, Parooq, Ahmad, Begum and Quddus (2011 and Khattak and Khan (2012) for Pakistan;

Obialor (2017) for Sub – Saharan Africa especially Nigeria; Jelilov, Aleshinloye and Onder (2016) for Nigeria; and Lawanson (2015) for West African Countries but however contradicts the findings of Eggoh, Houeninvo and Sossou (2015) for African countries.

Government expenditure on health significantly raise output in ECOWAS countries, this is in consonance with apriori expectation. This explains the high impact of government expenditure on education in growing the RGDP of ECOWAS countries. Government health expenditure is positively and significantly related to Gross Domestic Product, as government expenditure on health increased by single unit, RGDP will raise by 0.72330 and 0.047473 respectively in case of FMOLS and DMOLS. Government health expenditure constitutes a significant part of human capital formation, hence government health expenditure produces healthy individuals that work towards enhancing output in any economy.

The positive relationship between GHE and RGDP agrees wtih Javed, Abbas, Fatima, Azeem and Zafar (2013) for Pakistan; Sghari and Hammami (2013); Shah, Shahzad and Haq (2015) for Asian countries; Nambiri, Ritho, Ng'Anga, Kubowon, Mairara, Nyangwe, Muiruri and Cherotwo (2012) for Sub – Saharan Africa; Obialo (2017) and Lawanson (2015) for West Africa States; Jelilov, Aleshinloye and Onder (2016) for Nigeria; and Boachie (2015) for Ghana, but however contradicts the findings of Eggoh, Houeninvo and Sossou (2015).

Furthermore, there is a positive and significant relationship between school enrolment and GDP, and, by implication school enrolment enhances economic growth (GDP), this is in accordance with the a priori expectation. In the same vein there exists a positive and significant relationship between economic growth (RGDP) and school enrolment, the number of school intakes enhances capital formation most especially human capital formation, this evidence is supported by theoretical literature and is significant at the 5% level. In all it is noted that the proxy for advanced endowment factor positively impacts on the economy of ECOWAS countries.

This study uses panel data covering the period 1980-2016 to examine the impact of advanced factor endowments on the economy of ECOWAS member countries. Findings from the panel data estimations suggest that advanced factor endowments (proxied by government expenditure on education (GEE), government expenditure on health (GHE), and school enrolment (SER)) significantly and positively affect the economic competitiveness of ECOWAS member countries for the period under investigation. This is evident from the results of both the FMOLS and DOLS models. On this basis, it can be accepted that government expenditure on education has a significant impact on the economic growth of ECOWAS member countries.

Like government expenditure on education, the panel data results establish that government expenditure on health has a positive and significant impact on economic growth of ECOWAS member countries. On this basis, it is affirmed that government expenditure on health (GHE) has a significant impact on economic growth of ECOWAS member countries.

In line with Shaari (2014) and Shahzad (2015) this study also finds evidence of a positive relationship of school enrolment to economic growth of ECOWAS member countries and the estimate are significant for panel data estimates, on this basis, the school enrolment (SER) has significant impact on economic growth of ECOWAS member countries. Therefore, the major and specific objectives of the study are achieved.

5. Conclusion and Recommendations

Based on the empirical analysis conducted, it can be inferred that the level of human capital development (advanced endowment factors) in ECOWAS member country has significantly influenced the level of their economic competitiveness. Advanced endowment factor has a positive relationship with economic competitiveness of ECOWAS member states. Advanced

endowment factors investment emphasizing on education, health and school enrollment may rapidly develop the economy of ECOWAS states, through education development may increase literacy rate regarding the additional schooling attained for knowledge, skills and technological knowhow. Furthermore, the enrollment in school leads to more people acquiring knowledge. Therefore, advanced endowment factors is important for added values in the GDP through education, health and school enrollment. Thus, the theory of the endogenous growth model supports the results of the study, that there is a positive relationship between advanced endowment factors and economic development of ECOWAS member counties.

Based on the findings, it is therefore recommended that ECOWAS member government need to increase budgetary allocation on education and set up appropriate policies that will modify the educational sector of their respective economies.

The study also recommends that to achieve considerable and sustained economic growth, there is need to increase spending and investment in the health sectors of member countries of ECOWAS. In addition, more funds should be allocated to health sectors in line with other sectors. It also suggest that no stone should be left unturned for universalization of school attainment, because increase in school enrollment at all levels of education will play a significant role in the achievement of sustained economic growth in ECOWAS member countries.

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