

Evaluate the Effect of Human Capital and Financial Development on Output Growth in Nigeria

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Abstract- This study evaluates the effect of human capital and financial development on output growth in Nigeria. The results from the long-run and short-run ARDL model on the impact of effect of human capital and financial development on output performance indicated that the effect of human capital development on GDP per capita is negative and significant which, infer the absence of effective human capital development in Nigeria. Financial development measured by domestic credit to private sector impact positively on growth and therefore, an increasing financial development in the country has had positive effect on growth. In the short-run however, results shows that the major factor for the high growth of economic performance was past value of capital invested, amount of labour supply in the economy, and financial development, while present training in human capital development is less important in driving growth process, while stressing the important role for financial development and human capital development in growth performance in Nigeria. Hence, policy efforts should be given to improve R&D expenditure, skill enhancement, more innovation activities, and liberalization of FDI inflows. Findings from this study offer excellent opportunity for the government to market the country as a platform for reinvestment in the region.

Keyword— Export Diversification, Human Capital, Financial Development, Output Growth, Economic Performance.

1. INTRODUCTION

The background of this research consists of a brief review of literature on export diversification. The study also discusses the dimensions of export diversification such as; investment, human capital, openness, innovation and R&D, economic policies and macroeconomic conditions, political factors, socio-cultural factors, foreign direct investment, institutional framework, geography, demography and population. However, among the aforementioned dimensions, just four most important and relevant to the study title will be elaborated on. In addition, the impact of the investigated variables such as human capital and financial development on economic performance, as measured by output growth was also examined. In the next section of this study is the methodology, followed by the research analysis, discussion of results, and conclusion of the study. Thus, the main objective of this study is to evaluate the effect of human capital and financial development on output growth in Nigeria.

2 BACKGROUND TO THE STUDY

Adeogun (2017) described the term export diversification as an alteration in the composition of a country's existing export product mix or destination. The concept has also been viewed by Berthelemy and Chauvin (2000) as the spread of production over many sectors. Thus, for many developing countries, and as part of an export led growth strategy, export diversification is conceptualized as an evolution from traditional to non-traditional export

strategy. However, a strong, growing and sustainable economy is the goal of every nation (Brenton and Newfarmer, 2009; Al-Marhubi, 2000; Agosin, 2007). Since Adam Smith's pioneering investigation into the the nature and causes of the wealth of countries, the relevance of foreign business to a countries to economic welbeign and growth has been strongly investigated in the economics literature (Easterly and Reshelf, 2010; Edwik, 2007). This mindset is important because nations are expected to export product and services in order to realize incomes to finance imported products and services which cannot be produced domestically. Edwik (2007) documents that diversification of export base of nations with liberalization of trade, integration and competition among world economies, remain one of the main growth determinants among countries. This is so because it forms the basis for economic health of nations and substantially adds to employment, trade balance, economic growth, and enhanced living standard (Adelegan, 2000; Abou-Strait, 2005; Abu-Qarn and Suleiman, 2010). The role and importance of export diversification on economic performance cannot be over emphasized. Export trade plays a vital role in the growth of any economy just as reports that foreign trade is highly beneficial to a nation as it helps in increasing the level of aggregate economic activities through its multiplier effects on the level of national income. Edwik (2007) opines that export portfolio is one of the several catalysts of productivity and growth and hence its contribution is contingent on its weight in the aggregate economic activity. Adelegan (2000) stresses that export basket equally plays a key role in achieving sustainable growth because of improvement of financial

position, increased capacity utilization, higher technological standards, and attainment of a desired performance (Hoag and Hoag, 2006; Ajagbe and Ismail, 2014). It can be an engine for the nation's economic growth as it mobilizes other factors of production; the renewable and non-renewable resources of nature.

CBN (2015) submits that Nigeria's extremely large petroleum and allied natural resources base have proven to be the bane of her political instability, endemic corruption, economic non-performance and social stagnation. Many authors and public commentators have argued that Nigeria's crude oil has become its curse. As it is believed that the crude oil curse is the perspective of the globally recognized problem that countries with abundant deposit of natural resources tend to always lag behind countries with little natural resources deposit (Brenton and Newfarmer, 2009; Al-Marhubi, 2000; Agosin, 2007). Nonetheless, Brenton and Newfarmer (2009) articulates that a convincing case for low income countries to diversify their economies as to avoid the pitfalls by speeding up of the non-oil growth and job creation, the crude oil revenues should be used strategically with the aim of facilitating the transition to competitive market-led economy. Enhancing the quality of Nigeria's human resources (Bilau et al., 2015a; Bilau et al., 2015b) will also be essential to improve productivity and diversify the economy and become competitive.

Basu and Das (2011) argues that enhancing the standard of governance requires unique effort because it underlies the economic reform agenda of any nation. The continued unimpressive performance of the Nigerian non-oil sector and the vulnerability of the external sector thus dictate the urgent need for a reappraisal of the thrust and content of the economic performance measures and commitments to their implementation (Abiso and Ajagbe, 2018; Hoag and Hoag, 2006). Indeed the need for a change in the policy focus and a shift in the industrialization strategy is imperative if Nigerian economy is to be returned to the path of sustainable growth and external visibility. The mono product nature of the Nigerian economy coupled with fluctuations in international price of crude oil have in no small measure stalled her various development efforts (Onodugo et al., 2013; Soludo, 2007). Thus, researchers both locally and internationally have observed that a factor crucial to the lack of economic progress in Nigeria is the lack of economic diversity which has caused the economy to rely heavily on crude oil for revenues and as the major export commodity in the economy. Therefore, an investigation of the relationship between human capital and financial development on output growth performance in Nigeria is pertinent. In view of this, the main objective of this study is to evaluate the effect of human capital and financial development on output growth in Nigeria.

2.1 Determinants of Economic Performance

Extant researches have explored various factors determining economic performance (Barthelemy and Chauvins, 2000; Adeogun, 2017; Abiso and Ajagbe, 2018). With the adoption of various conceptual and methodological standpoints, such studies laid emphasis on a wide set of explanatory parameters and offered different insights to the sources of economic performance.

However, for the purpose of this study, human capital, innovation and R&D, investment, and foreign direct investment will be discussed.

2.1.1 Investment: Ayanwale (2007) argues that financial investment is the most essential determinant of economic growth recognized by growth models of various researchers. Nonetheless, Ajagbe et al. (2012) posits that the relevance attached to financial investment by these authors has resulted to a substantial volume of empirical works assessing the linkage between financial investment and economic growth.

2.1.2 Human capital: Basu and Das (2011) stresses that human capital is also an important source of growth in various endogenous growth models. It is also perceived as one of the main extensions of the neoclassical growth model. Barthelemy and Chauvins (2000) opines that since the concept refers chiefly to workers' acquisition of skills and know-how through education and training, the majority of studies have measured the quality of human capital using proxies related to education (school-enrolment rates, tests of mathematics and scientific skills). A large number of studies have found evidence suggesting that educated population is key determinant of economic growth (Bilau et al., 2015a; Bilau et al., 2015b).

2.1.3 Innovation and R&D: In the entrepreneurship literature, Ajagbe and Ismail (2014) finds that innovation and research and development efforts could be perceived as essential in economic progress measured in terms of increasing productivity and growth. The authors adds that it is as a result of rising adoption of technology (Abiso and Ajagbe, 2018), which allows introduction of new and superior products and processes. This role has been stressed by various endogenous growth models, and the strong relation between innovation/R&D and economic growth has been empirically supported by some authors (Agosin, 2007; Ajagbe et al., 2015; Abiso and Ajagbe, 2018).

2.1.4 Foreign Direct Investment (FDI): The role played by FDI in internationalizing economic activity and as an important source of technology transfer and economic growth has been identified (Ajagbe and Ismail, 2014). This important role is emphasized in many theories of endogenous growth. Extant studies evaluating the impact of FDI on growth has found almost similar results confirming a significant positive link between the two (Ayanwale, 2007; Adeogun, 2017). Figure 1 shows the relationship among human capital and financial development as independent variables on output growth as dependent variable.

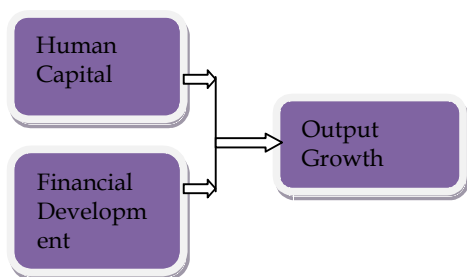


Figure 1: Research Conceptual Framework

3 METHODOLOGY

The Solow growth model that was used in this study assumes that savings, population growth and technological progress are exogenous inputs in the form of capital and labour (Adeogun, 2017). A formal analytical framework for deriving the determinants of output growth in which export product diversification is included is developed. The initial step in the process is the specification of an explicit Cobb-Douglas production function of the usual form (Al-Marhubi, 2000). The study also in deriving the equation used incorporated relevant growth determinants variables (human capital, financial development, output growth). This is done in order to underscore whether there are different effects for incorporating these macroeconomic series in modeling the relationship between human capital and financial development on output growth in Nigeria.

In this study, Herfindahl-Hirschman index was used in line with previous studies (Al-Marhubi, 2000; Agosin, 2007; Hesse, 2008). The product diversification index in this study was computed using the Herfindahl-Hirschman procedure (WITs, 2001)

This study embraces a time series data in Nigeria within a framework of theoretical linear autoregressive distributed lag model (ARDL). The model of ARDL helps researchers to capture both linear effect in the non-oil export product diversification relationship in both short run and long run (Asika, 2004; Adeogun, 2017). The study performs analysis at three different level of estimation to include; pre-estimation, model estimation and post estimation analysis. Preliminary tests would be performed before the main estimation of the model. This includes the use of descriptive tests (including mean, median, mode and standard deviation), skewness and kurtosis of the series (Asika, 2004). Finally, Jarque-bera test statistic is used to establish the normality features of the series. Also, standard unit root and correlation analysis was performed in order to determine the stationarity and whether we can include all the series in a single estimable model. This study performs a test for the presence of co-integration among the variables using a bounds testing approach (Pesaran et al., 2001; Shin et al., 2012). Thereafter, the estimation of ARDL was done to determine both short and

long-run estimable model. Then the study performed the Wald test of the null hypothesis $\omega_0 = \omega_1 = \omega_2 = \omega_3 = 0$ to Short-run additive linear relationship. Also, we check the goodness of fit for the bounds through stability tests such as cumulative sum (CUSUM) and cumulative sum squares (CUSUMSQ). In addition, a number of post estimation diagnostic tests are conducted to include serial correlation test, linearity test, heteroskedasticity and the autoregressive conditional heteroskedasticity (ARCH) effect. The hypothesis of this study was tested at 0.05 level of significance. H_{01} : There is no significant effect of human capital and financial development on output growth in Nigeria.

4 ANALYSIS AND DISCUSSION OF RESULTS

4.1 Descriptive Statistics and Correlation Analysis

Results of the descriptive analysis of the variables used in the regression analysis are reported. The result shows the mean, standard deviation, skewness and kurtosis coefficients and the Jarque-Bera statistics to test the null hypothesis that all our variables are normally distributed among others. It is found that variability is highest for Labour, GDP per capita, but lower for financial development and human capital respectively. However, secondary school enrolment and non-oil export product diversification has the lowest variability with a standard deviation of about 0.211 and 0.003. All the series are positively skewed except our measure of diversification. Also secondary school enrollment was negatively skewed and the Jarque-Bera statistics reject the null hypothesis of normality for financial development, human capital, and output growth at different statistical significant level. Moreover, the Jarque-Bera statistics of other series accept the null hypothesis of normality.

The results of the correlation analysis are important to establish the level of association among the variables used in the regression analysis. The analysis is particularly important in order to determine the type of association between human capital, financial development, GDP per capita and other determinants variables which has implication for their inclusion in the same models. The results suggest that the correlation coefficients between and among these variables are moderate and can co-exist in the same model. The results of the correlation analyses exert both positive signs and coefficient for all variables. Interestingly, human capital and financial development depict a positive relationship with output per capita in Nigeria.

4.2 Effect of Human Capital and Financial Development on Output Growth

The empirical result from the bounds test co-integration for the effect of human capital and financial development on GDP per capita in Nigeria is presented in table 1. The

result reveals that the computed F-Statistics for Wald test is 5.10 on approximation. The value exceeds both the upper bounds and lower bounds critical values for all level of significance. Therefore, the statistics test yields evidence of a long-run relationship between human capital, financial development and other included variables at all levels of significance in Nigeria.

Table 1: Bounds Testing for Co-integration Analysis

Computed Wald F-Statistic: 5.1038 (AIC Lags = 1)		
Bounds level:	Lower I(0):	Upper I(1):
1% critical bounds value	3.15	4.43
5% critical bounds value	2.45	3.61
10% critical bounds value	2.12	3.23
Notes: for the Wald F-Statistic; Asymptotic critical value bounds are obtained from Table C1 (iii) Case III: unrestricted intercept and no trend for k = 6 (Pesaran, et. al 2001, pg. 300).		

Hence the null hypothesis of no co-integration is rejected and long-run co-integration relationship is established among the variables in this model. However, the ARDL results obtained from the empirical analysis of the effect of human capital and financial development on GDP per capita. The dependent variable is the logarithms of GDP per capita while the independent variables are the logarithms of human capital, financial development and output growth. In general, the fit of the regression equations is quite good ($R^2 = 0.98$ and adjusted $R^2 = 0.96$) as can be seen from the table 1. The R-squared shows that all the independent variables in our model explain approximately 98% of the variations in growth process in Nigeria (dependent variable) in the period under consideration. Also, the joint F-test statistic was found significant (0.0000) at 1%, showing the test for testing jointly the independent variables. Pertinent to the above, the Durbin-Watson (DW) statistic (measure for the presence of autocorrelation in the model) is 2.63, it is noticed therefore, that our model is free from autocorrelation as the value is above 2. This means that the model is reliable in explaining the dynamics between human capital development, financial development and GDP per capita in Nigeria.

5 CONCLUSION AND RECOMMENDATIONS

This study valuates the effect of human capital and financial development on output growth in Nigeria. The results from the long-run and short-run ARDL model on the impact of effect of human capital and financial development on output performance indicated that the

effect of human capital development on GDP per capita is negative and significant which, infer the absence of effective human capital development in Nigeria. Financial development measured by domestic credit to private sector impact positively on growth and therefore, an increasing financial development in the country has had positive effect on growth. In the short-run however, results shows that the major factor for the high growth of economic performance was past value of capital invested, amount of labour supply in the economy, and financial development, while present training in human capital development is less important in driving growth process, while stressing the important role for financial development and human capital development in growth performance. Hence, policy efforts should be given to improve R&D expenditure, skill enhancement, more innovation activities, and liberalization of FDI inflows. Findings from this study offer excellent opportunity for government to market the country as a platform for reinvestment in the region.

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