HUMAN CAPITAL DEVELOPMENT AND NON-OIL EXPORT GROWTH IN NIGERIA

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Abstract
The study investigated the effect of human capital on non-oil export growth in Nigeria, using a single equation, constant elasticity model and OLS estimation technique. Human capital was found to be statistically significant in its effect on non-oil export growth. However, contrary to expectation, this effect was in an inverse direction. Recommended remedial measures include an overhaul of the educational system with a view to improving its effectiveness in regard to non-oil exports, and a conscious understudy of nations with appropriate track record.

Key Words: human capital, non-oil export, Nigeria

Introduction
Human Capital is the realization of the potentials of individuals, the development and cultivation of skills required for production; these are realized through education, training, and experience. Countries have found the need to increase the quality of their human capital because of the concomitant improvement in level of productivity as well as technological innovations (Son 2010). Eigbiremolen and Anaduaka (2014) regard human capital as a prerequisite for a county's socio-economic and political transformation. Investment in human capital is therefore part of the overall effort to achieve a cost effective and better firm performance (Marimuthu et al, 2009).

The efforts to diversify the Nigerian economy, and in particular its foreign exchange earnings base, were predicated on the abundance of natural resources. Several countries had successfully exploited their abundant human and natural resources for profitable export, which spurred growth of their economies and improved the welfare of their people. Examples of countries that achieved this feat include the United States of America, Korea, Canada and the Scandinavian countries (Stevens, 2003; Lee, 1997). Some countries such as Japan and Switzerland even developed their economies with limited natural resources, for example. The main thing was the development of the production 'live wire', the human capital which combined and transformed all other resources and factors, which set the goal and implemented the programmes that led to development (Aniebo and Ebonine 2010)

This paper pursues the view that with the availability of high quality human capital, countries can achieve their development, and can successfully pursue export growth policy by ingenuously transforming their resource heritage. This can also fall to the lot of Nigeria. However, it has so far not become a reality. The question which arises here is to establish how far human capital has affected the export of goods and services in the country. Can one agree with Behbudi et al (2010) that human capital can be the main factor to explain the slow growth of resource rich Nigeria as is the case with many other resource abundant nations? The rest

of the paper is organised as follows: section two makes a brief examination of the literature. Section three outlines the research method while in section four, results and discussions are set out. Section five concludes.

Review of Related Literature
Promoting exports of goods and services has been one of the most prominent growth strategies around the world. A country's effort to compete internationally and in dynamic markets depends on the level of competence of its work force. High quality human capital tends to exhibit a higher degree of productivity and as such helps to overcome the barriers associated with entry to foreign markets. It is also a vital ingredient for discovering and exploiting opportunities that lie outside firms' domestic market (Gashi, 2014). In a stagnant or inward-looking economy, there is little incentive to acquire education higher than the level needed for the jobs in prevailing industries because industrial structure and technology change only slowly (Lee, 1993) Exports and the increasing human capital quality required to deal with them thus become a necessity, especially for developing countries because they often are behind spurs in economic growth. They create dynamic efficiency gains by exploiting economies of scale, adopting best practice, foreign technologies and business processes, and by being subject to higher international competition (World Bank, 2014)

Many studies have focused on the role of human capital in economic growth. Most revealed a positive relationship between them (Eigbiremolen and Anaduaka, 2010; Oboh et al, 2010; Chaudhry et al, 2010; Anyanwu et, al, 2015). However, studies on the effect of human capital development on exports are not as many. They include Blanchard and Olney (2016) who studied globalization and human capital investment using a panel of 102 countries for a period of over 45 years. They found that growth in less skill intensive exports depresses average educational attainment while growth in skill-intensive exports increases schooling. There are others, some of which follow:

Siddique and Mahmood (2015) studied the impact of human capital investment on the exports of goods and services of selected out-sourcing countries using panel estimated generalized least square (EGLS) technique. The findings show that investment in human capital is important both for goods as well as services exports. Human capital investment has a greater impact on exports in selected Asian countries as compared to selected developed countries. They concluded that contrary to general perceptions, human capital is not significantly more important for export of services than for export of goods

Gashi (2014) examined human capital and export decisions of small and medium enterprises in Kosovo using unique dataset of around 500 small and medium enterprises The estimates show mixed indications regarding the relationship between the propensity to export and longevity in export markets and human capital variables measured by the education of the work force, and investment in training. Education has a negative effect on exporting decisions while investment in training generally has consistent positive effect.

Herve et al (2014) examined the determinants of export performance in Zanzibar between 1980 and 2005 using ordinary least squares. The finding showed that human infrastructure is a key determinant of sustainable development. On the other hand, the result also revealed that human capital development has a weak negative relation to domestic production and that FDI has a weak but significant relationship with human capital development.

Kagochi and Jolly (2010) examined the relationship between R and D Investments, human capital and the competitiveness in selected US agricultural export commodities from 1971 to 2006 using a dynamic ordinary least squares (DOLS) technique. The result showed that human capital has a negative relationship with the overall model.

Behbudi et al (2010) studied natural resource abundance, human capital and economic growth in the petroleum exporting countries between 1970 and 2004. The findings showed that physical investment and openness have positive impact on economic growth; and human capital have different impacts in two samples of the paper, so that in the fist group of countries, human capital have negative relationship with economic growth while it has a positive relationship with economic growth in second group.

Chaudhry et al (2010) investigated the causality relationship between trade liberalization, human capital and economic growth in Pakistan employing cointegration and granger causality from 1972 to 2007. The results reveal that causality runs from trade liberalization and human capital to economic growth.

Marimuthu et al (2009) examined the impact of human capital development on developing economics using descriptive method. They observed that human capital development is one of the fundamental solutions to enter the international arena. They concluded that firms must invest necessary resources in developing human capital which tend to have a great impact on their performance.

Contractor and Mudambi (2008) studied the influence of human capital investment on the exports of services and goods of top 25 services out sourcing countries from 1989 to2003. The results revealed that human capital did have a significant effect on the exports of goods and services.

Chuang (2000) examined human capital accumulation, exports and economic growth in Taiwan. He found no direct effect of skilled labour accumulation on exports growth.

The reviewed empirical works indicate that human capital development is vital for exports of goods and services in order to achieve sustainable development. Most did not disaggregate exports into goods and services. However Siddique and Mahmood (2015) noted that human capital development is not significantly more important for export of services than for goods. This work will examine the effect of human capital development on export of aggregate non-oil goods and services in Nigeria

Research Method

We regress non-oil export on human capital within the framework of usual export equation and controls. We adopt a double log model and estimate the following equation:

$$lnNOE = \alpha_{0} + \alpha_1 lnHC + \alpha_2 lnREER + \alpha_3 lnTOP + \alpha_4 lnINFR + \alpha_5 lnBC + \varepsilon \dots \dots \dots \dots \dots \dots \dots (1)$$

Where ln = natural logarithm; NOE = non-oil export; HC = human capital; REER = real effective exchange rate; TOP = trade openness; BC = bank credit; INFR = infrastructure; $\alpha_i =$ parameters and ε = stochastic error term.

We proxy infrastructure with WDI's energy production which refers to forms of primary energy--petroleum (crude oil, natural gas liquids, and oil from nonconventional sources), natural gas, solid fuels (coal, lignite, and other derived fuels), and combustible renewables and waste--and primary electricity, all converted into oil equivalents. For credit access, which is a known limitation of non-oil export we use CBN's bank credit to the private sector. We do not take trading partner's income into express account as is done in many export equations generally, considering existing trade agreements with developed economies which Nigeria is yet to seriously put to use. These include AGOA and Anything but arms, as well as multilateral agreements such as WTO, regional agreements like ECOWAS and bilateral agreements with China, India etc. The view is widely held that Nigeria's is a case of supply constrained trade challenge.

We investigate the time series property of the data using Augmented Dickey Fuller procedure while for the existence of long term stable relationship among the variables we use Johansen Co-integration procedure. Error correction mechanism investigates stability and convergence in the short term. Other diagnoses include serial correlation, overall significance and explanatory power of the model.

Results and Discussion

TABLE 1

LONG RUN REGRESSION RESULT

VARIABLE	COEFFICIENT	S.E.	t-Stat
LNHC	-0.264532	0.04796	-5.5156
LNREER	0.066102	0.14756	0.4479
LNTOP	-0.032879	0.12487	-0.2633
LNINFR	17.23009	1.83606	9.3842
LNBC	-0.537352	0.12327	-4.3591

C = -195.4406

No variable was stationary at level. However all variables were stationary at first difference (Appendix 1). Investigation into the long run relationship between the variables revealed the existence of a stable long run relationship and one co-integrating equation (Appendix 2). The model proved stable and convergent, with a significant and negative residual variable whose coefficient is less than one (Appendix 3). No evidence of positive correlation was found, while overall, the model was found to be highly significant using the F test (Appendix 4)

From the results, human capital, infrastructure and bank credit were statistically significant (Table 1) while real effective exchange rate and trade openness were not. In addition real exchange rate and infrastructure exhibited a positive relationship with non-oil export, while the rest (human capital, trade openness and bank credit) showed an inverse relationship.

Our main variable of interest, human capital, was active in a direction contrary to our a priori expectation. This is so in both the long and short term (Appendix 3). From this result we can surmise that human capital development in Nigeria is yet to take meaningful effect on non-oil export, which remains principally

comprised of primary products, which in turn require merely basic skills. Looking at the components of human capital, it is obvious that the experience at non-oil export is lacking, as is the training that should lead to it. Education thus remains, which appears to have had minimal impact on the problem for decades. This suggests that education itself appears to be less than effective along those lines.

While not statistically significant, the exchange rate that can support non-oil export should make domestic produce competitive. The current exchange rate policy, with its depreciated exchange rate is in the right direction for home produce. What is worrisome is the credit that can fund such home produce; its statistical significance confirms the relevance of that input. However, its inverse relationship underscores the distortions in the Nigerian financial system and the celebrated reluctance of banks to lend and be active in other than the short end of the financial market (CBN 20). This is a challenge that has to be dealt with.

The inverse relationship which trade openness shows with non-oil export calls special attention to the implementation of trade liberalization and the state of the real economy. In reciprocating the foreign market opening to sell our oil, we let in all we would have been able to produce and possibly sell to others on account of factor endowment. This accounts for the inverse relationship and it is no wonder that trade liberalization has been found to hurt Nigeria's manufacturing (which is non-oil) sector (Ogu et al 2016)

Conclusion

The study investigated the effect of human capital on non-oil export growth in Nigeria, using a single equation, constant elasticity model and OLS estimation technique. Human capital development was found to be statistically significant in its effect on non-oil export growth. However, contrary to expectation, this effect was in an inverse direction and thus contrary to a priori expectation. Plausible explanations for this outcome included the absence of skills intensive export requiring the outcome of past human capital development endeavour, the ineffectiveness of education with regard to non-oil export and the lack of training and experience in regard to non-oil export. Remedial measures will include an overhaul of educational system with a view to improving its effectiveness in regard to non-oil exports, and a conscious understudy of nations with appropriate track record.

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APPENDIX
APPENDIX 1
SUMMARY OF UNIT ROOT TEST: ADF PROCEDURE

Variable	Level	1st difference	Order of int.
Lnnoe	-1.118778	-3.816931*	I(1)
Lnhc	-1.684400	-3.576551**	I(1)
Lnreer	-2.116459	-3.546898**	I(1)
Lntop	-1.235249	-5.163759*	I(1)
Lninfr	-1.268385	-7.228441*	I(1)
Lnbc	-0.573353	-3.505045**	I(1)
Critical value 1%	-3.6496	-3.6576	
5%	-2.9558	-2.9591	
10%	-2.6164	-2.6181	

*,**&*** signify significance at 1%, 5% & 10% level respectively

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APPENDIX 2
Series: LNNOE LNHC LNREER LNTOP LNINFR LNBC
Lags interval: 1 to 1: ADF PROCEDURE

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.744687	108.2167	94.15	103.18	None **
0.524051	64.52829	68.52	76.07	At most 1
0.436750	40.77009	47.21	54.46	At most 2
0.282597	22.40107	29.68	35.65	At most 3
0.194337	11.77332	15.41	20.04	At most 4
0.140863	4.858464	3.76	6.65	At most 5 *

APPENDIX 3
Dependent Variable: LNNOE
ERROR CORRECTION MECHANISM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNNOE(-1)	1.461492	0.286698	5.097679	0.0001
LNHC	-0.209299	0.081439	-2.570001	0.0193
LNHC(-1)	0.158911	0.078134	2.033811	0.0570
LNHC(-2)	-0.162719	0.064999	-2.503433	0.0221
LNREER	-0.411569	0.231918	-1.774627	0.0929
LNREER(-1)	0.541363	0.310242	1.744970	0.0980
LNREER(-2)	-0.376799	0.322827	-1.167187	0.2584
LNREER(-3)	0.922303	0.345612	2.668608	0.0157
LNTOP(-1)	-0.361063	0.167998	-2.149205	0.0455
LNINFR	-2.953410	1.366444	-2.161384	0.0444
LNINFR(-3)	3.563439	1.426879	2.497366	0.0224
LNBC(-3)	-0.558107	0.193973	-2.877244	0.0100
ECM(-1)	-0.935150	0.297253	-3.145973	0.0056

R-squared	0.986916	Mean dependent var	3.283942
Adjusted R-squared	0.978193	S.D. dependent var	2.283491
S.E. of regression	0.337210	Akaike info criterion	0.958875
Sum squared resid	2.046796	Schwarz criterion	1.560225
Log likelihood	-1.862565	Durbin-Watson stat	2.288567

APPENDIX 4
OLS; Dependent Variable: lnnoe

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNHC	-0.117369	0.066957	-1.752901	0.0906
LNREER	0.267458	0.205390	1.302198	0.2035
LNTOP	0.287527	0.164815	1.744551	0.0920
LNINFR	6.592394	1.871477	3.522561	0.0015
LNBC	-0.006341	0.155966	-0.040659	0.9679
C	-76.38500	21.00868	-3.635879	0.0011

R-squared	0.965442	Mean dependent var	2.880540
Adjusted R-squared	0.959271	S.D. dependent var	2.545059
S.E. of regression	0.513626	Akaike info criterion	1.664144
Sum squared resid	7.386736	Schwarz criterion	1.933501
Log likelihood	-22.29044	F-statistic	156.4485
Durbin-Watson stat	1.406024	Prob(F-statistic)	0.000000