

The Effect of Export Earnings on Capital Formation in Nigeria:1980-2018.

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Abstract: This study assessed the effects of export earnings on capital formation in Nigeria from 1980 – 2018. Components of export earnings included in the study are oil export earnings, agriculture export earnings; solid minerals export earnings and services exports earnings. Capital formation was captured using gross capital formation, foreign reserve build-up and foreign Direct Investment. T. The Harold Domar model and Export-led Growth Hypothesis were the theoretical basis for this study as they both provide linkage between export and capital formation. Data Analysis was carried out using E-view 9.0. Results from the ADF unit root test showed that Foreign Reserve Build-Up, Foreign Direct Investment and Services export earnings were stationary at levels while Gross Capital Formation, Oil Export earnings, Agriculture export earnings, Solid Minerals export earnings and Exchange rate were stationary at first difference. The Bound Test Cointegration results revealed that Gross Capital Formation has a long run relationship with the explanatory variables in model 1, Foreign Reserve Build-Up and Foreign Direct Investment do not exhibit long run relationship with the explanatory variables in model 2 and 3 respectively. From the findings, the study concluded that oil export earnings had a negative effect on capital formation in the long run while Agriculture export and solid mineral export earnings had positive effects on capital formation both in the short and long run. The study thus recommended that the Federal Government should encourage various states in the Federation to specialize in cultivating certain Agricultural produce and mining of minerals (based on their climatic conditions) by providing a specialized supervised fund through the Central Bank of Nigeria with exportation of these products as a major objective of the fund.

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I. Introduction

The ability of export trade to engineer growth in developing countries has increasingly been undermined due to dilapidating effects of fluctuations in export earnings and also as usually the direction of trade is in favour of developed countries. Consequently, the cyclical movements in these countries lead to some of the exports earning fluctuations in developing countries (Adeniran & Yusuf, 2014). The economic development of Nigeria to a large extent depends on her trade with other nations, Nigerian's trade relations revolve around the oil and natural gas sector, however after the economic reforms of 2005, the government is making considerable efforts to diversify its exports profile beyond the oil sector to sectors such as minerals and agricultural products. Presently, oil and natural gas are still the most important export products of Nigerian trade (Okonkwo & Douglas, 2016).

Prior to oil production, which surged after the 1970s, agricultural sector was the largest export sector in Nigeria. After the country became a largely oil-intensive economy, the agricultural and mining sectors took a back sit (Abolagba, Onyekwere, Agbonkpolor, & Umar, 2010). However, the agricultural sector still provides employment to almost 70% of the total working population. Onwualu (2012) maintained that the value chain approach to agriculture has the potentials to open up the economy and generate various activities which are capable of creating jobs and enhancing industrialization and thus makes the non-oil sub-sector to hold the access for future Nigerian sustainable economic growth.

Solid minerals such as coal, tin and columbite contributed immensely to the economy of Nigeria in the 1970s and 1980s. For example, coal was the source of power generation as well as the main source of energy for the railway transportation systems. Nigeria was at one point in time too, the largest world producer of tin and columbite mine on the Jos Plateau and the earnings were used to develop the economy (Olumide, Akongwale, and Udefuna, 2013). As rightly captured by Adekeye (1999) coal and tin ranked high as Nigeria's foreign exchange earners during the colonial period and after the country's independence in 1960. Other minerals such as limestone, gold, marble, clay, etc were mined too for local consumption. The solid minerals sector alone has the potential to generate employment and wealth for over five million people (Transformation Agenda, 2014),

currently, the solid mineral sector employs about 450,000 directly and over 2million indirectly. The sector's contribution to GDP averaged 0.37 percent in 2011-2012 to over 12 percent in 2012-2013 (TA, 2014) recording a double digit growth rate, a clear indication that the sector has the capacity to insulate Nigeria from the vagaries of oil shocks and economic uncertainties.

In Nigeria, Government capital expenditure has continued to rise due to huge receipts from production and sales of crude oil and the increased demand for public (utilities) goods like road, power, education, communication, health and security. Available statistics shows that Government capital expenditures have continued to rise in the last three decades. (Ngene, 2010) asserted that Government capital expenditure increased from 187.8 million in 1970 to 960 million in 2008 and in 2007 to 2.24 trillion. Also evident is the fact that based on comparison and international standard Government expenditure profile has tilted more to recurrent than on capital expenditures. It looks like not much of her capital accumulation were spent in the acquisition of capital goods such as machines, instruments factories or on increasing the stock of raw materials, finished goods and improved general investments. Thus rising Government expenditure has not translated to the meaningful infrastructural growth and development. The lack of capital projects initiated and implemented by successive governments and the need for excessive external borrowing points to a capital formation problem. Formation of capital is the basis of capitalism as Capital plays a vital role in the modern productive system. Production without capital is hard for us even to imagine. With the growth of technology and specialisation, capital has become more complex and is of superior and advanced type. More goods can be produced with the aid of capital. In fact, greater productivity of the developed economies like that of USA is mainly due to the extensive use of capital, i. e. machinery, tools or implements in the productive process. Capital adds greatly to the productivity of worker and hence of the economy as a whole (Ewubare & Ogbuagu, 2015).

The channels through which export earnings links up with capital formation are gross capital formation, foreign reserves build-up and foreign direct investment. Gross Fixed Capital formation determines the national capacity to produce, which in turn, affects economic growth. Deficiency of capital has been cited as the most serious constraint to sustainable economic growth. Meanwhile, an understanding of the impact of gross fixed capital formation is a crucial prerequisite in designing a policy intervention towards achieving economic growth. The international Monetary Fund (IMF) identified two key factors that facilitated Nigeria's recovery from the last global economic recession (Daily Independent, 2013). They are strong foreign reserve and low sovereign debt portfolio. Nigeria would have been harder hit by the global economic recession had any of the above factors been absent or even different (Ndanusa, 2011). The reserve theories imply that it is to provide liquidity to support currency boards and fixed exchange rate regimes with the aim of reducing external vulnerability (Nugee, 2000). Furthermore, Foreign reserves are used to support monetary and foreign exchange policies, in order to meet the objectives of safeguarding currency stability and the normal functions of domestic and external payment systems. Foreign reserves build-up provides confidence to foreign investors to continue to improve their import trade relations with Nigeria. This trend can aid boost export earnings as the country and make good use of this advantage to diversify its exports profile. The relevance of foreign direct investment cannot be overemphasized. Its significant influence on the provision of new technologies, products, management skills and competitive business environment, overtime has been a strong impetus for economic growth. Asogwa and Osondu (2014) noted that many countries of the world, especially emerging economies favour policies that encouraged the inflow of foreign direct investment because of it positive spillover associated with the provision of funds and expertise that could help smaller companies to expand and increase international sales and transfer of technology thus, forming new varieties of capital input (i.e. flow of services available for production from the stock of capital goods e.g. equipment, structures, inventories etc) that cannot be achieved through financial investments or trade in goods and services alone.

Recent Governments have implemented policies designed to diversify and strengthen the economy. These policies are focused mainly on improving non-oil export while stabilizing oil exports for increased revenue. Hence, this study intends to determine the effects of export earnings from selected real sectors of the Nigerian economy on capital formation.

II. Review of Literature

The so-called Export-Led Growth (ELG) hypothesis is at least as old as the classical school, as both Adam Smith and David Ricardo supported it (Richards, 2001). Among modern economists, (Beckerman, 1965) attributed exports' favorable impact mainly to the production efficiency gains stemming from improved resources allocation, while (Haberlar, 1959) stressed the relevance of dynamic benefits, such as the improved availability of foreign capital and technology through the release of the balance of payments constraint. (Vernon, 1966) focused on the opposite causality channel, in which the self-propelled growth of the domestic economy leads to improved competitiveness and eventually to the expansion of exports. More recent "endogenous growth" theories emphasize the benefits stemming from a dynamic export sector, in a framework characterized by increasing returns to scale and by virtuous technological and managerial spill-over effects

towards other sectors (Fedor, 1992). (Helpman & Krugman, 1985) develop some of Beckerman's and Vernon's ideas, arguing that the initial growth spurt favoured by export expansion through the efficiency and allocation effects reverberates in enhanced international competitiveness, fostering a new round of export expansion and paving the way for a virtuous development path.

After several decades and the accumulation of an ever-expanding body of research literature, however, "No consensus has emerged on the theoretical appropriateness of the export-led growth hypothesis. Theoretical disagreement on the role of exports is matched by mixed empirical evidence" (Jin, 2002); Richards, 2001). To this respect, it must be taken into account that attempts to show econometrically that exports are a crucial cause of growth face two basic problems. First, exports are themselves a component of GDP, and thus evidence of a correlation is insufficient to prove consistently any actual causal relationship which might in fact exist. Second, other relevant macroeconomic variables, and especially other components of aggregate demand, are also correlated with GDP growth, and thus a missing variables problem of model mis-specification inevitably arises (Sheehey, 1990).

Various empirical studies have been embarked upon in a bid to establish the generality of the export-led growth hypothesis. Ewubare & Ogbuagu (2015) adopted a simple endogenous growth model to evaluate the short and long –run impact of Gross fixed capital formation human capital formation, savings and population growth rate on economic growth in Nigeria. The result revealed that human capital accumulation has much significant negative impact on economic growth than other independent variables. The study recommended that the provision of an enabling environment by the government will encourage both domestic and foreign investment and in addition human capital development through subsidized education and on job trainings should be encouraged.

Okereke (2016) examined the relationship between export earnings fluctuation and economic growth of Nigeria. The study noted that Export earnings in Nigeria has been fluctuating, especially earnings from oil sector which constitute the major sources of government revenue in Nigeria. The data for this research work was obtained from the CBN Statistical Bulletin and analysed using ordinary least square (OLS) analysis. Export fluctuation index was calculated using the normalization approach combined with a 4 year moving average method. Gross Domestic Product (GDP) was regressed against Nigeria Oil Export (NOXP), Nigeria Non-oil Export (NNXP), Domestic Investment (INV) and Export Fluctuation (EF). The result shows that the export earnings have little or no effect in the short-run and thus continuous fluctuation in the log run could lead to capital flight.

Bakare & Oyelekan (2015) also investigated the impact of export earnings instability on economic growth in Nigeria from 1981 – 2014. The aim of the study which was to describe the trend of oil and non – oil export in Nigeria examines the impact of export earnings instability on economic growth, identify adequate policy measures and suggest ways of reducing the undesirable effects of export instability in Nigeria using Ordinary Least Square regression method to establish long run relationship. It further used the Granger Causality Test to determine the direction of causality between GDP and export earnings. The study revealed that there were fluctuating trend in export earnings during the period of the study. Also, that bi-directional Causation exists between GDP and export earnings. The study concluded that export earnings instability had a negative impact on economic growth of the country. The study therefore recommended for rapid industrialization through empowering small and medium enterprises.

Udude et al (2017) examined the impact of oil export on gross capital formation in Nigeria between 1980 - 2015. The study developed a model wherein gross capital formation was a function of oil export, real gross domestic product and exchange rate. Data were sourced from CBN bulletin 2014. The study employed econometric data analysis techniques such as unit root test, cointegration test and VECM. Based on the analysis, the study revealed that oil export inversely and significantly impacts gross capital formation in Nigeria in short run and long run within the period under review. Conclusively, the study strongly asserted that oil exports has not contributed positively to growth in gross capital formation in Nigeria and thus recommended that Government should legalize the operations of local (illegal) refineries operating in Nigeria and also make our local refineries to operate at full capacity so that it will lead to availability of refined products for domestic consumption and consequently discourage the importation of refined products thereby saving the country huge foreign exchange hitherto used for importation, to enable the revenue generated from oil export to be used for investment purposes that will boost the gross capital formation of the country which will in turn lead to economic growth.

Raheem (2016) investigated the role of oil and non-oil exports on the Nigerian economy over the period of 1981 to 2015. The ADF and PP unit root test, Johansen cointegration test, Granger causality test, impulse response functions (IRF) and variance decomposition (VD) were used in the analysis of the study. The cointegration test indicated that GDP, Oil and Non-oil exports were cointegrated. The Granger causality test indicated short run unidirectional causality running from oil export to GDP. There are also bidirectional long run causality relationship between oil export and GDP, and unidirectional long run causality running from non-oil

export to GDP. The study result indicated that oil exports have inverse relationship with economic growth while non-oil exports have positive relationship with economic growth.

Abayomi et al. (2015) examined the economic impact of oil exportation on Nigerian economy from 1970 – 2012. The objective of the study was to look at the impact of oil exportation on the economic growth in Nigeria. Secondary data were collected based on the model used in the research work and unit root test was conducted on the data to test their stationary, after which we perform co-integration test to analyze the long run relationship among the variables and VECM and impulse response was also employed for the analysis. The result obtained from empirical analysis showed that there exist a long run relationship between the dependent variable and the explanatory variables. The study concluded that Exports should not be promoted at all cost, but rather the utilization and allocation of the physical resources and labor complement of the country in the most advantageous combination as between production for the local and foreign markets and Trade integration among less developed countries should be encouraged as it fosters the rapid expansion of trade within the group's expansion, as far as it occurs, reflects a process of trade creation in Nigeria. Trade-able exports to neighboring territories will lead to a rapid expansion in external trade and acceleration in the economic growth and therefore should be encourage.

Anthony-Orji et al.(2017) investigated the impact of non-oil export (NOIL) on capital formation and economic growth in Nigeria. The study adopted a classical linear macroeconomic model using aggregate data time series from 1980 to 2013. Empirical results from the estimated model show that Non-Oil Exports had a positive impact on capital formation and economic growth in Nigeria, respectively. However, the level of statistical significance differs between capital formation and economic growth. The study thus recommended for diversification of the economy thus creating an enabling environment that will ensure the survival and functioning of the ailing industries. Finally, the problem of infrastructural deficits (water supply, transport system, telecommunication and energy) should be tackled through Economic liberalization that would attract massive public expenditure and private investment, hence productivity okin the non-oil sectors will be greatly enhanced.

Verter and Becvarova (2016) investigated the impact of agricultural exports on economic growth in Nigeria using OLS regression, Granger causality, Impulse Response Function and Variance Decomposition approaches. Both the OLS regression and Granger causality results support the hypothesis that agricultural exports- led economic growth in Nigeria. The results, however, showed an inverse relationship between the agricultural degree of openness and economic growth in the country. Impulse Response Function results fluctuated and revealed upward and downward shocks from agricultural export to economic growth in the country. The Variance Decomposition results also showed that a shock to agricultural exports can contribute to the fluctuation in the variance of economic growth in the long run. The study thus recommended that for Nigeria to experience favourable trades balance in agricultural trade, domestic processing industries should be encouraged while imports of agricultural commodities that the country could process cheaply should be discouraged. Undoubtedly, this measure could drastically reduce the country's overreliance on food imports and increase the rate of agricultural production for self-sufficiency, exports and its contribution to the economic growth in the country.

Maduaka (2014) examined the long-run relationship and also the importance of solid minerals and its impact to the economic development of Nigeria. Results from the econometric analysis revealed a possible long run interaction amidst solid minerals, capital accumulation and real exchange rate and based on the co-integration tests, the estimated normalized level coefficients shows the anticipated long run beneath the unregulated model with the unrestricted long run equation result revealing solid minerals to be positively responsive to real GDP which shows a feedback relationship between solid minerals production and RGDP. The study recommended that the government support the base maps form which is an intelligent prospecting or exploration program can be organized, provide laboratories and scientists necessary to promote processing and treating of minerals. The study further recommended that government should encourage the Nigerian private sector to invest in partnership with government through loan, tax holidays and subsidies.

These studies revealed that the amount of capital formation often have a positive relationship on economic growth, however most argued that the effect is insignificant when compared to the amount of generated revenue for Nigeria. Other studies revealed that the contribution of non-oil exports to capital formation is highly significant with much reference to the agricultural and mining sectors in Nigeria. None of this study holistically approached export earnings from a sectoral outlook and either established relationship between exports for non-oil sector and capital formation through both domestic and foreign mediums. Hence this is the gap in knowledge which the study intends to fill. Thus covering a period of 1980-2018, the study adequately examined export earnings of Nigeria in oil, agriculture, solid minerals and services sectors in order to determine if they can adequately provide capital formation needed to drive economic growth based on the numerous export liberalization and diversification policies embarked upon by successive Government in last three decades.

III. Methodology

The study adopted the Quasi-experimental design because the study deals with time series data. The data for the study WAS annual time series data with the required time frame spanning the period 1980 – 2018. The variables that were used for the study are Oil export earnings, Agriculture export earnings; Solid minerals export earnings, Gross Capital Formation, Foreign reserve Build Up and Foreign Direct Investment and Exchange Rate. The econometric software E-views 9.0 was used in running the model. The study adopted both descriptive and analytical statistics to examine trends, flows and relationships of the variables. The augmented Dickey-Fuller test was employed as a test of stationarity. The Autoregressive distributed lag (ARDL) Bounds testing was also used to test for the long-run and short run relationship among the variables. The method of estimation employed for this study is based on Auto-regressive Distributed Lag (ARDL) Model approach - both longrun and shortrun ARDL models.

The models for this study are specified in linear relationship as follows:

$$GCF = f(OEXP, AGEXP, SMEXP, SVEXP, EXCR) \tag{1}$$

$$FRBU = f(OEXP, AGEXP, SMEXP, SVEXP, EXCR) \tag{2}$$

$$FDI = f(OEXP, AGEXP, SMEXP, SVEXP, EXCR) \tag{3}$$

where

GCF = Gross Capital Formation

FRBU = Foreign Reserve Build Up

FDI = Foreign Direct Investment

OEXP = Oil Export Earnings

AGEXP = Agriculture Export Earnings

SMEXP = Solid Minerals Export Earnings

SVEXP = Service Export Earnings

EXCR = Exchange Rate

IV. Results

Table 1: Summary of Descriptive Statistics

	Mean	Median	Maximum	Minimu m	Std. Dev.	Skewness	Kurtosis	Jarque- Bera	Prob
GCF	4.39E+12	9.05E+11	2.70E+13	4.41E+09	6.64E+12	1.650512	5.126729	24.41458	0.000005
FRBU	1.80E+10	7.49E+09	5.36E+10	9.33E+08	1.86E+10	0.636977	1.716698	5.177218	0.075124
FDI	2.70E+09	1.73E+09	8.84E+09	1.89E+08	2.58E+09	1.063113	2.898253	7.174382	0.027676
OEXP	4.23E+12	1.55E+12	1.56E+13	1.07E+10	5.13E+12	0.914121	2.461512	5.751363	0.056378
AGEXP	9.32E+10	1.68E+10	6.40E+11	1.78E+08	1.48E+11	1.876860	6.235242	38.88223	0.00000
SMEXP	6.12E+09	6.34E+08	4.44E+10	1.94E+08	1.05E+10	2.049520	6.630796	47.47594	0.000000
SVEXP	1.72E+09	1.30E+09	6.00E+09	2.24E+08	1.42E+09	1.050327	3.737516	7.848066	0.019761
EXCR	87.97526	97.02000	306.1000	0.550000	87.62747	0.792045	2.942593	3.978344	0.136809

Source: Researchers computation using E-views 9.0

Unit Root Test

Augmented Dickey Fuller (ADF) test for time series analysis was employed to determine the stationarity of the variables in the time series. The results are showed in Table 2.

Table 2: ADF Unit Root Test Results Summary

Variable	Level Test Result			First Difference Test			Order Integration	of
	ADF Stat	5% T _{cr}	Prob	ADF Stat	5% T _{cr}	Prob		
GCF	-3.3399	-3.5330	0.0752	-7.0272	-3.5366	0.0000	1(1)	
FRBU	-3.6989	-3.5366	0.0350	-5.4025	-3.5366	0.0004	1(0)	
FDI	-5.4290	-3.5742	0.0007	-10.8143	-3.5366	0.0000	1(0)	
OEXP	-3.3705	-3.5330	0.0706	-5.4560	-3.5403	0.0004	1(1)	
AGEXP	-3.3399	-3.5330	0.0752	-7.0272	-3.5366	0.0000	1(1)	
SMEXP	-2.5126	-3.5330	0.3206	-7.7242	-3.5366	0.0000	1(1)	
SVEXP	-3.9904	-3.6908	0.0292	-4.2547	-3.5484	0.0000	1(0)	
EXCR	-1.1669	-3.5330	0.9031	-5.5183	-3.5366	0.0003	1(1)	

Source: Researchers computation using E-views 9.0

From the ADF test results in table 2 above, it was found that FRBU, FDI and SVEXP are stationary at levels while GCF, OEXP, AGEXP, SMEXP and EXCR are stationary at first difference.

Cointegration Test

The bounds test cointegration results for the series in each of the models are summarized Table 2-5

Table 3: Cointegration Test Result for Model 1

Series: LOG(GCF) LOG(OEXP) LOG(AGEXP) LOG(SMEXP) LOG(SVEXP) LOG(EXCR)		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	3.9764	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Researchers computation using E-views 9.0

NB: k denotes number of explanatory variables in the model

The test result for model 1 shows that the variables are co-integrated since the F-statistics (3.97) is greater than the upper critical bound value (3.79) at 5% significance level.. This confirms that the variables in the model have long run relationship with GCF.

Table 4: Cointegration Test Result for Model 2

Series: LOG(FRBU) LOG(OEXP) LOG(AGEXP) LOG(SMEXP) LOG(SVEXP) LOG(EXCR)		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	1.3999	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Researchers computation using E-views 9.0

NB: k denotes number of explanatory variables in the model

The test result for model 2 shows that the variables are not co-integrated since the F-statistics (1.39) is less than the upper critical bound value (3.79). This confirms that the variables in the model do not have long run relationship with FRBU.

Table 5: Cointegration Test Result for Model 3

Series: LOG(FDI) LOG(OEXP) LOG(AGEXP) LOG(SMEXP) LOG(SVEXP) LOG(EXCR)		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	3.0070	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Researchers computation using E-views 9.0

NB: k denotes number of explanatory variables in the model

The test result for model 3 shows that the variables are not co-integrated since the F-statistics (3.00) is less than the upper critical bound value (3.79). This confirms that the variables in the model do not have long run relationship with FDI.

Model Estimation

The short run models were estimated using ARDL procedure while ECM was used for model 1. The ARDL results are presented from table 6-8 as shown below.

Table 6: Parsimonious (ECM) Results for Model 1

Dependent Variable: D(LNGCF)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001622	0.113829	-0.014247	0.9887
D(LNGCF(-1))	0.894832	0.351119	2.548514	0.0168
D(LNOEXP(-1))	-0.140757	0.094090	-1.495987	0.1463
D(LNAGEXP(-1))	0.150852	0.155425	0.970575	0.3404
D(LNSMEXP(-1))	0.126539	0.079811	1.585486	0.1245
D(SVEXP(-1))	-8.79E-11	1.09E-10	-0.807070	0.4267
D(LNEXCR(-1))	0.223876	0.313041	0.715166	0.4806
ECM(-1)	-1.198757	0.424198	-2.825936	0.0088
R-squared	0.310737	Mean dependent var		0.224295
Adjusted R-squared	0.132039	S.D. dependent var		0.411787
S.E. of regression	0.383639	Akaike info criterion		1.119403
Sum squared resid	3.973835	Schwarz criterion		1.474912
Log likelihood	-11.58956	Hannan-Quinn criter.		1.242125
F-statistic	1.738898	Durbin-Watson stat		2.077201
Prob(F-statistic)	0.141905			

Source: Researchers computation using E-views 9.0

The explanatory power of the regressors as captured by the R-squared (0.31) stood at 31.0 percent. This indicates that only 31% of the variations in GCF can be explained by the explanatory variables in the model. The Durbin-Watson stat of 2.07 indicates that the model is not spurious. Also, the error correction model (ECM) coefficient is high (119%), rightly signed and significant. This implies that about 119% deviation from the long-run equilibrium relationship between GCF and its determinant is corrected every one year.

Table 7: ARDL Results for Model 2

Dependent Variable: D(LNFRBU)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004134	0.109630	-0.037707	0.9703
D(LNFRBU(-1))	0.189664	0.198717	0.954442	0.3513
D(LNFRBU(-2))	-0.306860	0.190985	-1.606723	0.1238
D(LNOEXP(-1))	0.104914	0.112506	0.932518	0.3622
D(LNOEXP(-2))	-0.094629	0.122240	-0.774121	0.4479
D(LNAGEXP(-1))	-0.116746	0.199424	-0.585416	0.5648
D(LNAGEXP(-2))	0.310854	0.170473	1.823485	0.0832
D(LNSMEXP(-1))	0.068182	0.099801	0.683176	0.5023
D(LNSMEXP(-2))	0.122250	0.106731	1.145401	0.2656
D(SVEXP(-1))	9.65E-11	1.27E-10	0.762699	0.4545
D(LNSVEXP(-2))	-0.117209	0.259887	-0.451000	0.6568
D(LNEXCR(-1))	0.080884	0.263946	0.306443	0.7624
D(LNEXCR(-2))	0.032645	0.293873	0.111087	0.9127
R-squared	0.411900	Mean dependent var		0.050116
Adjusted R-squared	0.059040	S.D. dependent var		0.419931
S.E. of regression	0.407346	Akaike info criterion		1.328795
Sum squared resid	3.318611	Schwarz criterion		1.918328
Log likelihood	-8.925111	Hannan-Quinn criter.		1.527155
F-statistic	1.167320	Durbin-Watson stat		2.501289
Prob(F-statistic)	0.366928			

Source: Researchers computation using E-views 9.0

The explanatory power of the regressors as captured by the R-squared (0.41) stood at 41.0 percent. This indicates that only 41% of the variations in FRBU can be explained by the explanatory variables in the model. The Durbin Watson stat of 2.50 indicates that the model is not spurious. The results revealed that in the short run oil exports contribute significantly to FRBU but not in future periods.

Table 8: ARDL Results for Model 3

Dependent Variable: D(LNFDI)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000000	1.71E-17	0.000000	1.0000
D(LNFDI)	1.000000	3.03E-17	3.30E+16	0.0000
D(LNOEXP)	-6.70E-17	2.18E-17	-3.077145	0.0045
D(LNAGEXP)	4.19E-18	3.33E-17	0.125793	0.9008
D(LNSMEXP)	-6.14E-18	1.68E-17	-0.365804	0.7172
D(SVEXP)	-8.91E-27	2.33E-26	-0.381717	0.7055
D(LNEXCR)	9.40E-17	5.34E-17	1.758451	0.0892
R-squared	1.000000	Mean dependent var		0.033359
Adjusted R-squared	1.000000	S.D. dependent var		0.553646
S.E. of regression	8.21E-17	Sum squared resid		1.96E-31
F-statistic	2.65E+32	Durbin-Watson stat		2.555947
Prob(F-statistic)	0.000000			

Source: Researchers computation using E-views 9.0

The explanatory power of the regressors as captured by the R-squared (1.00) stood at 100.0 percent. This indicates that 100% of the variations in FDI can be explained by the explanatory variables in the model which is extremely impressive and shows the model is fit. The Durbin Watson stat of 2.55 indicates that the model is not spurious. The results also revealed that AGEXP has a positive effect on FDI in the short run.

V. Discussion

The results from model 1 showed that the error correction mechanism result met the required condition of being negative, fractional and statistically significant. The coefficient of ECM (-1) is -1.1987 and the P-value (0.0088) therefore the negative sign of the coefficient satisfied one condition and the fact that the P-value is less than the critical value of 0.05 satisfied the second condition of statistical significance. The (R²) is 0.3107 showing that 31.0% of the total variations in gross capital formation is accounted for, by the explanatory variables: oil export, agriculture export, solid minerals export, services export and exchange rate while the remaining 69% in gross capital formation is attributed to the influence of other factors not included in the regression equation. The R² value of 31% is below the usually accepted benchmark of 50% percent mainly due to high variability of the data series in the model as depicted in the trend analysis and also due to non-inclusion of domestic and foreign loans as well as Official Development Assistance in the model which have in the last decade contributed significantly to the provision of capital assets to the Nigerian economy.

Durbin Watson statistics is 2.0772 showed the absence of auto correlation among the residuals. This implies that oil export earnings, agricultural export earnings, solid minerals export earnings and services export earnings are not serially correlated. Thus the problem of collinearity is not encountered in the model. The error correction model (ECM) coefficient is high (119%), rightly signed and significant. This implies that about 119% deviation from the long-run equilibrium relationship between GCF and its determinant is corrected every one year.

The results also revealed that Oil Exports Earnings has a negative effect on Gross Capital Formation in the long run in line with the findings of Udude et al. (2017) and Eze (2015). This is against apriori economic expectation. This implies that increment in oil export earnings reduces the gross capital formation of Nigeria in the long run, thus increased revenue from oil exports does not increase capital assets in the country and does not have any significant positive effect on the economic growth of Nigeria. It also implies an unfavorable balance of trade exist, thus indicating that imports into the country significantly supercede the exports out. This can be attributed to the country over dependence on imported goods for survival, the revenue generated from the export of oil is being used for the importation of goods and service in the economy and that is the reason the country is having unfavorable balance of payment. While the negative effect of the services export earning on gross capital formation disagrees with the position of Matthew et al (2018). Similarly, the negative effect of exchange rate on gross capital formation in Nigeria conforms to the findings of Ojide et al. (2014) which follows apriori

economic expectations. This implies that increase in the exchange rate reduces capital formation in the long run. This means that due to low purchasing power as a result of the differences in trade currencies, the economic growth that would have been facilitated through capital financing is negatively affected and greatly stalled. This can be attributed mainly to the problems of currency devaluation as a result of increase in exchange rate. A weak domestic currency makes a nation's exports more competitive in global markets, and simultaneously makes imports more expensive. Higher export volumes spur economic growth, while pricey imports also have a similar effect because consumers opt for local alternatives to imported products. But the reality of the Nigerian situation is low export volumes since her exports are just basically from the oil sector and high importation of goods and services thus leading to a negative term of trade which affects negatively capital formation since additional resources is needed to sort out trade debts.

Also, Agriculture export earnings and solid minerals export earnings have a positive effect on gross capital formation in line with the findings of Eke and Effiong (2016). This conforms to apriori economic expectation and supports the findings of Ojide et al. (2014) who noted that non-oil export earnings contributes significantly and positively to economic growth through capital formation. This finding validates the proposition of the export-led growth hypothesis, The results implies that increase in earnings of agriculture and solid mineral exports will significantly increase the capital formation of the country. This can be attributed to the fact that the development of these sectors will increase Nigeria export volumes and would make the import substitution policies of the federal government effective thus leading to a favourable balance of trade that will stimulate significant capital formation.

The results from model 2 showed that the (R²) is 0.4119 indicating that 41.1% of the total variations in foreign reserve build-up is accounted for, by the explanatory variables: oil export, agriculture export, solid minerals export, services export and exchange rate while the remaining 69% in gross capital formation is attributed to the influence of other factors not included in the regression equation. The R² value of 41% is below the usually accepted benchmark of 50% percent mainly due to high variability of the data series in the model as depicted in the trend analysis and also due to the fact that earnings from the other export channels in the model are not large enough to be significant.

Durbin Watson statistics is 2.5012 showed the absences of auto correlation among the residuals. This implies that oil export earnings, agricultural export earnings, solid minerals export earnings and services export earnings are not serially correlated. Thus the problem of collinearity is not encountered in the model. The results revealed that oil export had a positive effect on Foreign reserve build-up in the long run, this is in line with the findings of Nteegah and Okpoi (2016) however in subsequent lagged periods the effect is negative, this means that at future periods, increases in oil export earnings will not significantly increase foreign reserve build-up. Thus, continuous increase in oil export earnings in future periods may not add up significantly to foreign reserve build up due to oil price shocks and production decline that has been forecasted to affect the global oil business. Exchange rate, Agriculture export and solid minerals exports earning had positive effect on foreign reserve build-up in their lagged period indicating that in future periods increases in earnings in these sectors will greatly increase the foreign reserve build-up. This is in line with findings of Ume and Ndubuaku (2019) and conforms to apriori economic expectation. Thus 1% increase in Agriculture and solid minerals export earnings will result in 0.31 and 0.12% increase in foreign reserve build-up respectively. The increase in Foreign Reserve Build Up with increase in earnings in agriculture and solid minerals is simply due to large exports volume ensuring a favourable balance of trade which allows the surplus foreign exchange to be built up for capital financing and other purposes. This suggests that the development of the agriculture and solid minerals sector through provision of financial and physical infrastructure is imperative to improve the country's foreign exchange reserves.

The results from model 3 showed that the explanatory power of the regressors as captured by the R-squared (1.00) stood at 100.0 percent. This indicates that 100% of the variations in FDI can be explained by the explanatory variables in the model which is extremely impressive and shows the model is fit. The explanatory variables in the model includes oil export earnings, agriculture export earnings, solid mineral export earnings, services export earnings and exchange rate. The Durbin Watson stat of 2.55 indicates that the model is not spurious. This implies that oil export earnings, agricultural export earnings, solid minerals export earnings and services export earnings are not serially correlated. Thus the problem of collinearity is not encountered in the model. The results also revealed that Oil export earnings have a negative effect on Foreign Direct Investment. This implies that increases in oil export earnings will result in a decrease in foreign direct investment. This result also implies that while studies such as udoh (2014) strongly posits that foreign direct investment increases oil export earnings in Nigeria, however increase in oil export earnings reduce the amount of foreign direct investment into the country. This is against apriori economic expectation. This can be attributed to the fact that while increase in oil export earnings may suggest economic opportunity to foreign direct investment, other factors such as oil price shocks, economic risks, corruption, insecurity and poor economic freedom has deterred increase in foreign direct investment into Nigeria. Exchange rate has a positive effect on foreign direct

investment in the short run similar to the findings of Omitogun et al., (2018). This conforms to apriori economic expectation and implies that increase in exchange rate will attract more foreign direct investment into the Nigerian economy. This is due to the fact that a stronger purchasing power by a foreign interest will reduce the cost of initial business start up with improved and sure revenue channels. Agriculture export earnings have a positive effect on FDI in line with the findings of Akinwale et al (2018); Yusuff et al. (2015) and Oloyede (2014). This conforms to apriori economic expectation and implies that increase in agricultural export earnings will increase foreign direct investment. This is simply due to the fact that an increase in export earnings indicate the presence of viable factors of production in agricultural sub-sector that will enable foreign direct investment to break even with a short period of time as well as the fact that Government has improved focus on the sub-sector as well as ensuring additional economic freedom within the subsector. While service export and solid minerals export have negative effect of FDI in the short run which does not agree with the findings of Ezeanyej and Ifebi (2016). This implies that increase in service export earnings and solid mineral export earnings decrease the amount of FDI in the short run. This may be attributed to the insignificant effect of such increases due to the fact that the sub sectors: service and solid minerals are poorly developed with little or no physical and economic infrastructure to boost foreign trades in these areas.

VI. Conclusion

Economic theory asserts that capital accumulation or formation is a determinant of economic growth. Nigeria's economic growth overtime has not been consistent when contrasted with the huge natural resources and population it has. A large percentage of Nigeria's capital formation is based on its exports; however Nigeria's export earnings have never been stable largely due to the fact that it operates an almost mono-product economy. Hence, this study was carried out to empirically determine and verify the effect of export earnings from oil, agriculture, solid mineral and services sectors on capital formation in Nigeria.

From the findings, Oil Exports and services Export earnings has a negative effect on Gross Capital Formation in the long run. The negative effect of oil exports on capital formation may be due to consistent oil price shocks. Similarly, exchange rate has negative effect on gross capital formation in Nigeria Also, Agriculture export earnings and solid minerals export earnings have a positive effect on gross capital formation this indicated that every investment in improving the robustness of these sectors contributes significantly to capital formation in the long run.

The findings also revealed that oil export had a positive effect on Foreign reserve build-up in the long run, however in subsequent lagged periods the effect is negative, this means that at future periods, increases in oil export earnings will not significantly increase foreign reserve build-up. Exchange rate, Agriculture export and solid minerals exports earning had positive effect of foreign reserve build-up in their lagged period indicating that in future periods increases in earnings in these sectors will greatly increase the foreign reserve build-up.

The findings also revealed that Oil export earnings have a negative effect on Foreign Direct Investment while exchange rate has a positive effect on foreign direct investment in the short run. Agriculture export earnings have a positive effect on FDI as increased earnings in the agriculture sector will motivate and attract FDI while service export and solid minerals exports have negative effect of FDI, this may be attributed to poor development of these sectors.

In summary, the study concludes that fluctuations in export earnings significantly affects capital formation in Nigeria and that improvement in the agricultural sector and solid minerals has the capacity to stabilize capital formation and instigate economic growth in line with the export-led growth hypothesis.

Recommendation for Policy

On the basis of the empirical findings, the following recommendations are proffered.

- The rate with which the Nigerian economy responds to shocks in global oil market is detrimental. The federal government can reduce this by increasing Non-oil Exports and reducing importation by implementing import substitution technical and financial programmes for growing sectors such as Agriculture and the Manufacturing sectors.
- The Federal Government through the CBN and Nigerian Export Promotion Council should implement policies that increase awareness of the gains of exporting local products by SMEs and reduce the bottlenecks for SMEs to export locally made products, as well as provide loans and grants that will aid them in achieving economies of scale advantages.
- Since Agriculture and solid minerals has the greatest potential to provide huge Non-Oil export earnings, the Federal Government should encourage and/or mandate various states in the Federation to specialize in cultivating certain Agricultural produce and mining of minerals (based on their climatic conditions) by providing a specialized supervised fund through the Central Bank of Nigeria with exportation of these products as a major objective of the fund.

- Since exchange rate affects capital formation adversely in the long run, the CBN should discontinue the further depreciation of the naira and set the other monetary policy indicators such as cash reserve ratio and monetary policy rate optimally to reduce inflation.
- The Federal Government should implement the Rural and Renewable Energy Electrification Reports in order to provide cheap, constant power for economic activities increasing the country's capacity for increased production and exports.
- Services sub-sectors such as tourism, construction, ICT etc should be encouraged through tax incentives and bank loans.

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