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Industrialization Drivers, Causality and Economic Development in Nigeria

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ABSTRACT

This paper empirically examines the short run, long run and causality spill over influx of foreign direct investment, labour market condition, trade openness, exchange rate and aggregate bank lending, been the determinant of industrialisation and its eclectic contribution to the development of the Nigeria economy between the periods 1980 to 2015. Findings reveals that three of the five variables under investigation passes the test of significance at 5% alpha level. We found foreign direct investment and exchange rate to be positive and significant in promoting economic development over the period of study, while aggregate bank lending and net export report a positive with a corresponding negative coefficient which suggests an inverse relationship to economic development. Labour market condition appears to be insignificant in stimulating economic development. The inverse contribution of aggregate bank lending to economic development could be attributed to excessive channelling of borrowed fund towards recurrent expenditure, while the capital investment which is capable of illuminating economic development are been ignore most time. Prior to our findings, the study concluded that foreign direct investment, exchange rate, net export and aggregate bank lending are significant drivers of industrialisation in the Nigeria context. On this premises, the study recommends that more effort be put in place to resuscitate the dormant industrial firms in the country as they appear to be a key contributor to sustainable economic development.

Key words: Economic Development, Industrialisation drivers, Causality.

1.0 INTRODUCTION

The role of industrialization as a catalyst of economic and social prosperity for many countries cannot be over-emphasized. Industrialization is a fundamental route to the economic and social development of any country, without which it remains stagnant in the fast-moving, technology driven world of today. Basically, any country wishing to accelerate the overall rate of economic development must recognize the increasing role of production in all sectors of the economy.

Obviously, despite the gap of industrial performances between Africa and the other emerging countries, industrial development seems to be given less weight than deserved in Nigeria. Most policy makers have indeed underestimated the real potential of industrialization for the continent. Empirical study has shown that to achieve a sustainable level of development, industrialisation plays a lead role. Countries like (Korea, Hong Kong, Singapore, Taiwan and china) employed industrialisation strategy which gives room for large market and hence stimulate demand which further encourage large scale industrialisation. However, trade liberalisation is another key player in achieving a promising level of economic development in any country as it allows for free accessibility to imported materials at an equivalent free trade price, access to capital and technology as well as more competitive exchange rate which act as a stimuli to industrial growth. Foster (2004) argued that capital accumulation and wealth concentration in an entrepreneurial culture following the commercial revolution made the industrial revolution possible. He asserts that the British advancement was due to the presence of an entrepreneurial class which believed in progress, technology and hard work. Other identified factors responsible for industrial revolution include education and technological changes (Spielvogel, 2009), modern government, modern work attitudes, ecology, culture (Bond et al, 2003), trade liberalization and free market (capitalism) and specialization etc.

Simultaneously, the level of industrialisation in Nigeria is insignificant as a large percentage of the existing industries are closing down due to poor economic, political and exchange rate instability. The crowding out effect of industries from the Nigeria economy due to economic instability is a major impediment to economic development and hence deepens the level of poverty overtime. Meanwhile, Shafeddin (2005) exert that trade liberalisation is corrosive to economic growth of the countries who has not embarked on a precaution and protective policies especially the low income earning countries and hence debars industrialisation over the years. Poor industrialisation setup in Nigeria as sponsored high level of unemployment, over dependent on imported commodity, interminable level of poverty, unfavourable term of trade, unfavourable balance of payment which has resulted into exchange rate instability and hence stamped expected level of economic development overtime. It is upon this back drop that this paper tend to examine the major determinant of industrialisation and how their have contributed to the development of the Nigeria economy.

2.0 LITERATURE REVIEW

Theoretical review

Big push Theory, Rosenstein Rodan (1943)

This theory is a concept in development economics which exert that before the underdeveloped countries could enjoy or achieve a sustainable level of development, large quantum of investment (industrialisation) is required. The theory explains that one of the major problems faced in the under developed countries is the vicious circle of poverty which emanated from low productive output, low level of income, low level of investment and finally amounts to high level of unemployment. The theory proposes that a bit by bit industrialisation program in the preferred sector of the economy will not help in achieving the expected level of growth. Hence, massive industrialisation in the economy is essential. Rodan emphasizes that indivisibility in production function will stimulate demand, create employment opportunity, increase income, increase savings, promote consumption expenditure, re-enforce investment and hence promote more exportation of local product which further help in achieving favourable balance of payment and balance term of trade. Rosenstein Rodan highlighted what he called critical minimum quantum of investment (CMQI) which is essential for industrial development.

Meanwhile, Schumpeter, (1912) articulated that one of the major impediment to sustainable industrialisation is inadequate access to finance (fund). Hence to ensure a swift growth of industries, financial institution play a paramount role. Financial institution is seen as the pre-requisite to achieving successive industrialisation as it help in making readily available loans and advances for production purposes. In the gap thesis, the catalyst hypothesized that speedy industrial development can be achieved through the existence of financial system development.

Unified Growth Model

Accordingly, a number of model have been diagnosed to study the transformation from a stagnant economy to a rapid growth one, with peculiar reference to the experience of industrial revolution in in Britain Glor, (2010), Lagerlof, (2006), Stokey, (2001). The model explains the take-off of an economy and the transition from an agricultural oriented economy to industrial economy.

Galor (2010) analysed the transition using the interaction between availability of technology, population growth and incentive to invest in education. According to the model, the demand for educated worker was increased in the Malthusian period due to initial establishment of industrial production which has an incentive to invest more in the formation of human capital and reducing fertility. Increase in productivity became larger than increase in population due to change in education which stimulate the growth process. Hence, the initial difference in technological progress can then be explained by a number of factor such as property right, enlighten, application of knowledge etc. concurrently, different pattern of change in human capital can be explained by institution, accessibility to finance, inequalities and so on.

Desmet and Parente (2009), articulated that the transition to sustain growth occurs due to increase in population, which prompted industrial firms in the urban area to provide innovation to attract labour in the rural area, migration then change consumption preference towards industrial product. This then stimulate an increase in firm size rising from an increase in demand and hence reduces its mark-up presenting incentive to product innovation which lead to increase in urban population. According to this model, industrialisation is an emerging product of the interaction between population, education growth and technological change where skilled labour are largely demanded in the technological and manufacturing sector hereby providing an opportunity for investment in education or over-crowding in the urban area.

Link between Exchange Rate and Foreign Direct Investment as a Driver of Industrialisation

Foreign Direct Investment aid economic growth in developing countries through the spill over effect (capital flow, employment opportunities, globalization, technology transfer e.t.c), which increases the opportunities of the host countries. Exchange rate is the measure of the worth of domestic currency in terms of foreign currency. Exchange rate can either be nominal or real. The nominal exchange rate is the value of naira in terms of foreign currency. It is the rate quoted by banks and financial press, while real exchange rate is the relative price of Nigerian goods in terms of foreign goods.

According to Fisher, nominal exchange rate can fluctuate either due "to a variation in the real exchange rate or due to a variation in the price level in the country or abroad or changes in local and foreign price levels".

A number of elements can cause the real exchange rate to change. They include savings decisions, change in tastes away from goods produced locally to foreign goods, and international investment. Exchange rate is imperative to attract Foreign Direct Investment, so an over-valued exchange rate will discourage exportation and affect Foreign Direct Investment negatively. Exchange rate and interest rate volatility has grown overtime and such economic variations can result in significant depreciation in the value of assets invested by investors in the host country as well as the future profits created by the investment. Investments in a nation like Nigeria will have a more risky stream of profits due to high degree of volatility of interest rate and exchange rate.

Another factor connecting exchange rate and interest rate, and their associated relationship to Foreign Direct Investment, is through the impact of inflation. Since nominal interest rate depends on anticipated inflation, while nominal exchange rate is determined by the relative rate of domestic and foreign inflation, an inflation shock will affect both nominal interest rate and exchange rate. Inflation shocks can ordinarily be predicted to lead to an inverse correlation between nominal interest rate and exchange rate. A direct problem with this is "that macroeconomic expansionary policy that raises the inflation rate in the nation will ultimately discourage Foreign Direct Investment inflows".

Nominal interest rate and exchange rate are also related through the movement of real interest rate. Variations in nominal interest are translated directly into changes in real interest. These variations can cause volatility in real and nominal exchange rate thus, altering the attractiveness of Foreign Direct Investment. Exchange rate fluctuations is a significant factor investors considers before their decisions to invest abroad because exchange rate is a price, consequently, its movement influence resource distribution in the economy which discourages the flow of transactions and the movement of financial assets and goods and service. Expectations on the future course of exchange rate movements can threaten and also impose losses in economic efficiency and inducing avoidable capital flights. In the Nigerian experience, this circumstance evidently, adversely affects Foreign Direct Investment flow into the country.

Review of related literature

Shafeddin (2005) report that trade liberalisation is corrosive to economic growth of the countries who has not embarked on a precaution and protective policies especially the low income earning countries and hence debars industrialisation over the years. That the increased vulnerability of the economic is the major determinant of industrialisation particularly the manufacturing sector that is import dependency and not trade liberalisation.

In the same frame, Guadagno (2012) counter the argument of Shafeddin (2005) and articulated that trade liberalisation is a good strategy to promote industrialisation and thus stimulate economic growth. The study further explains that trade liberalisation trigger inflows of foreign assistance, technological advancement which stimulate productivity and thus, promote size of domestic market thereby giving from the balance of trade and exchange rate stability.

Agossin and Mayer (2000) reported that the effect of FDI on domestic investment of the developing countries differs from each other. For instance in the western part of Africa (ivory coast, Ghana and Senegal, foreign direct investment crowd in growth through domestic investment while in the other part of west Africa like Nigeria and sierra Leone, FDI crowd out growth through domestic investment. Hence, study concluded that the responsiveness of FDI to economic growth differs per country. Greenwald and Stiglitz (2006) also contribute to the literature by articulating that low exchange rate is an additional advantage which allows export sectors like manufacturing firm to compete in the international market and hence promote balance of payment stability.

Accordingly, Kar-yiu and Chong K (1999) examined the inter-nexus that existed between industrialisation, economic output and international trade. In an attempt to actualise the eclectic view of the study, two sector endogenous model were developed. Findings report that pattern of production is a significant prerequisite to growth in the rest of the world, if countries remains diversified on trade, industrial development, the pace of development trend will be sporadic over time while over reliance on only agriculture output may not stimulate growth rate as expected hence trade diversification is recommended.

Monogbe, et al (2016) investigated the causality nexus between financial development in Nigeria and economic performance between the periods 1986 to 2014 using time series data. The study employed granger causality test, unit root test and Cointegration test to ascertain the long run nexus that exist among variable employed. Finding reveals that there exist a parasitic relationship between finance and economic performance in

favour of the economy which suggest that economic growth promote financial sector development sequel to this, the study conclude that in the Nigeria context, economy leads while finance follow.

Hausmann et al, (2007) articulated that in actualising expected growth in an economy, what actually matters is not only how much of good that is exported but also what actually is exported. Engel's law exert that countries exporting manufacturing good will profit more as the world market expand compare to countries who specialise in the production of basic goods like shelter, food e.t.c. followed by fall in household expenditure and increase in per capital income.

Galor and Mountford (2006) articulated that the prominent determinant of subsequent divergence in income growth is increase in trade relationship after the industrialisation of one part of the world. Study explains that countries that concentrated largest percentage of their population in agricultural farming should be expecting population growth while countries that focus on industrialisation enjoy increase in per capital income. Hence, industrialisation seem to contribute more to the growth of an economy at any given point in time.

Hausmann and Hidalgo (2011) explain the rationale behind the positive relationship between production of good produced in a few other countries and economic development. In their model, the production of each goods is associated with the existence of necessary capability within the country hence, the higher the capability, the content of the goods, the higher the capability endowment required for a country to produce it.

Desmet and Parente (2009), articulated that the transition to sustain growth occurs due to increase in population which prompted industrial firm in the urban area to process innovation to attract labour in the rural area, migration then change consumption preference towards industrial product. This then stimulate an increase in firm size raising from an increase in demand and hence, decrease its mark-up presenting incentive to product innovation which apple to increasing urban population.

Monogbe (2016) examine the contributive effect of foreign direct investment been one of the major drivers of industrialisation on economic growth and reported the FDI has significantly contributed to the development of the Nigerian economic. The study explains that though the contributive quadrant is very minuet due to political and economic instability.

Bagehot (1873) and Hicks (1969) contend that Speedy industrial development could be achieved through the operation of the financial system as it resuscitates the mobilisation of fund for production. Conversely, Robinson (1952) contend that economic development establishes a demand for specific type of financial arrangement and that financial system respond automatically to economic growth.

Gupta (1970), assert that foreign capital inflow help in promoting economic development as it complement domestic resources and supplement domestic saving. Hence, study articulated that there exist a positive and significant relationship between foreign capital inflow and economic development.

Foster (2004) argued that capital accumulation and wealth concentration in an entrepreneurial culture following the commercial revolution made the industrial revolution possible. He asserts that the British advance was due to the presence of an entrepreneurial class which believed in progress, technology and hard work. Other identified factors responsible for industrial revolution include education and technological changes (Spielvogel, 2009), modern government, modern work attitudes, ecology, culture (Bond et al, 2003), trade liberalization and free market (capitalism), specialization etc. From the foregoing, this study is focused on ascertaining the factors responsible for industrialization in Nigeria.

3.0 METHODOLOGY

This study employs Ex-poste factor research design which is a component of quasi experimental research design; under this design, econometric modelling is been applied. The choice of this design is to enable measurability. This study shall utilize annual time-series secondary data on the variables under study, from 1980 - 2015 for estimation of functions. Data shall be collected from various issues of Central Bank of Nigeria statistical bulletin. United Nations Conference on Trade and Development (UNCTAD) publications and world bank data base.

Model Specification

Following the empirical lead of Beji and Belhadj (2016), we formulate our model in a functional form where foreign direct investment, net export, financial system development, effective exchange rate and labour market condition were proxy for industrialisation drivers while human development index was proxy for economic development in Nigeria.

$$\text{HDI} = f(\text{FDI}, \text{NTX}, \text{ABL EXR}, \text{LMC}) \dots\dots\dots(1)$$

This model is further transform into econometric model by introducing intercept, slope and error term thus

$$\text{HDI}_t = \beta_0 + \beta_1 \text{FDI}_t + \beta_2 \text{NTX}_t + \beta_3 \text{ABL}_t + \beta_4 \text{EXR}_t + \beta_5 \text{LMC}_t + \varepsilon_t \dots\dots\dots(2)$$

To avoid outliers and extremer's, we linearize this model by introducing natural log thus:

$$\log \text{HDI}_t = \beta_0 + \log \beta_1 \text{FDI}_t + \log \beta_2 \text{NTX}_t + \log \beta_3 \text{ABL}_t + \log \beta_4 \text{EXR}_t + \log \beta_5 \text{LMC}_t + \varepsilon_t \dots\dots\dots(3)$$

Where,

HDI = Human development index

FDI = Foreign direct investment

ABL = Aggregate bank lending

NTX = Net Export

EXR = Exchange rate

LMC = Labour market condition

β_0 = intercept

β_1 - β_5 = slope

Log = natural log

ε = error term

Apriori Expectation

Based on theories and empirical studies, we expect that the explanatory variables respond in a positive manner to the dependent variable and it is mathematically stated thus:

$$\beta_1, \beta_2, \beta_3, \beta_4 \text{ and } \beta_5 > 0$$

Operational Measures of Variables

Human development Index: The Human Development Index (HDI) is a composite statistic of life expectancy, education, and income per capita indicators, which are used to rank countries into four tiers of human development.

Net Export: This variable is operationalized as the summation of the oil and non-oil in Nigeria between the periods 1980 to 2015 as stated in the central bank of Nigeria statistical bulletin.

Exchange Rates for Nigeria: Annual official naira/dollar exchange rate will be proxy for Exchange Rate as obtained in CBN statistical bulletin.

This is simply the value of one currency for the purpose of conversion to another, i.e. Price for which the currency of a country can be exchanged for another country's currency. A high exchange rate discourages domestic investments which show a negative interaction between currency exchange Rate and Gross Domestic Product.

Foreign Direct Investment for Nigeria: Annual official foreign direct investment data as obtained in CBN statistical bulletin will be proxy for FDI. The global economy is characterised by one country depending on another, which means that goods produced in one country will find its way to many other countries in the world. Foreign direct investment is an investment offshore which is aimed at profitability and cost minimization.

Financial System Development: The presence of financial institutions insuring better allocation of resources could affect the industrialization process. In particular, existence of efficient banking system insuring careful Financing to firms, notably small and medium sized firms, reinforce domestic entrepreneurship capabilities and this is proxy by aggregate bank loan and advances as stated in the CBN statistical bulletin.

Labour market condition: This is a dynamic factor which is primarily extracted from 19 labour market indicators. The indicators include unemployment rate, wage rate, layoff rate, business survey, underemployment rate, part-time work etc. The Labour Market Conditions Index aims to provide a consolidated and holistic picture of the Nigeria labour conditions to help the government maintain maximum employment in the economy and foreign investor seeking cost minimization production.

Identification of Analytical Tools and Technique

The bone of contention here is to evaluate the nexus between industrialisation drivers and economic development in Nigeria and to identify their various causality direction in the long run using dynamic estimation econometrics tools.

Stationality Test

We employed unit root test in the process of identifying the stationarity of the time series used in this research work. Considering the fact that time series data are assume to have stationarity problem, we subject our model to stationality test to hedge against spurious result using Dickey Fuller (DF) unit root test. Gujarati and Porter (2009), Maddala (2007) provided the bases for evaluating the existence of unit root or time series thus:

$$\Delta y_1 = \alpha_o + \alpha_1 y_{i-1} + \sum_{i=1}^n \alpha_i \Delta y_i - 1 + \delta_1 + e_1, \dots, (4)$$

Where;

Y = chosen variable

α_o = slope

Δ = 1(1) order of differencing

α_i = constant parameter

$\sum i$ = stochastic process of stationality

Criterion (AIC) to ensure that $\sum i$ is white noise.

From equation (4), the hypotheses to be tested are;

Ho: $\alpha_i = 0$, i.e. "there is a unit root, - the time series is non-stationary".

Hi: $\alpha_i \neq 0$, i.e. "there is no unit root, - the time series is stationary"

As decision criterion, the null hypothesis will be rejected if an only if the calculated Augmented Dickey Fuller statistic is greater than the critical value which suggests absence of unit root hence one can proceed to test for long run association between the variable employed.

Johansen's Co-Integration Test

When two or more explanatory variables are involve in an empirical study, johansen co-integration test is employed to ascertain the long run nexus/association between the time series used in the process of research. According to (Maddala, 2007 as cited in Nnamdi and Torbira, 2016), in case there exist a prevailing endogenous variable in form of y and the complementary set of exogenous variables $x_1, \dots, x_n$ which are assume to be co-integrated, the extent to which they are co-integrated is ascertained by their probability value and the order of ranking equation in order to create decision criterion for acceptance/ or rejection of the null hypothesis which presuppose no co-integration. Brooks (2009) explains that in a linear equation of 1(1) co-integration order, if a set of time series r obtained where $r \geq 2$ which are also co-integrated in the same order, it is expected that vector auto regression (VAR) model would contain the same set of r variables with a specified k-1 lags of the endogenous variable in their first difference form with a prevailing matrix of T- coefficient. Johansen co-integration model is expressed in a generalised form thus

$$\Delta y_t = \pi y_t - k + T1\Delta y_t - 1 + T2\Delta y_t - 2 + \dots - Tk - 1\Delta y_t - (k - 1) + Vt..(5)$$

Where $(\sum_{t=1}^k \beta_i) - 1r$ and $Ti = (\sum_{t=1}^1 \beta_i) - 1r$

As the decision criterion, the "null hypothesis will be rejected when the trace statistic is greater than the critical value followed by the ranking order" of the model which suggest presence of long run association and co-integration amongst the variable employed hence one can proceed to "error correction model to ascertain the speed at which the short run disequilibrium is adjusted in the long run".

Error Correction Model (ECM)

Brooks (2009) validate the "error correction model for its policy implication and its potent provision in ascertaining the speed at which the endogenous variable adjust back to equilibrium after the short run distortions. Generally, ECM tends to ascertain the long run relationship that exist amongst employed series and the speed at which its flux in the short run is adjusted in the long run hence, it is expected that the ECM coefficient is negative with a significant probability value" to justifies its validity.

Estimation of ECMs of the form:

$$\Delta Z = \Phi(B) \Delta Z_{t-1} + \mu + \beta \varepsilon \tau 1 + \varpi \tau$$

(Banerjee et al. 1993; Hamilton, 1994; Johansen 1995)

“ECMs are useful for estimating both short term and long term effects of one time series on another. This study will utilize vector Error correction model”.

Granger Causality Tests:

According to Omoke and Ugwuanyi (2010), “Granger causality tests are conducted to determine whether the current and lagged values of one variable affect another”. In a more clear sense, these test seeks to ascertain the extent to which set of variable employed promote/ reinforce or inter-wind each other over the period under study. Granger causality test is however presented on the premises of the underlining equation. **Decision Rule:** “If p-value(s) < α , reject H_0 . If p-value(s) > α , do not reject H_0 .”

$$y_i = \epsilon_0 + \sum_{i=1}^n \epsilon_1 y_{i-1} + \sum_{i=1}^n \epsilon_u X_{i-1} + U_t \dots \dots (6)$$

$$x_i = \delta_0 + \sum_{i=1}^n \delta_1 x_{i-1} + \sum_{i=1}^n \delta_u Y_{i-1} + V_t \dots \dots (7)$$

Where X_t and Y_t represent the set of endogenous and exogenous variables respectively while U_t and V_t represent the error term respectively. The lag length specified is maximum of 2

4.0 DATA PRESENTATION AND INTERPRETATION

Unit Root Test

Accordingly, time series data are usually prone to stationality problem which makes it non palatable for empirical research. To avoid this inconsistency, we subject our data to unit root test so as to ascertain the level of stationality of the data employed in the process of research using Phillip Peron unit root test.

Table 1 presentation of unit root test output

Variables	ADF Stat	5%critical value	Order	Remark
D(LOG(HDI)	-7.2138	-2.9540	1(1)	Stationary
D(LOG(FDI)	-11.1239	-2.9540	1(1)	stationary
D(LOG(ABL)	-4.9062	-2.9540	1(1)	Stationary
D(LOG(LMC)	-6.5422	-2.9540	1(1)	stationary
D(LOG(EXR)	-4.9180	-2.9540	1(1)	stationary
D(LOG(NTX)	-6.655420	-2.9511	1(1)	stationary

Source: Extraction from E-views

The result above shows that time series under investigation became stationary after first differencing in the order of 1(1) integration. This suggest that all variable employed are stationary and that the result of this empirical finding could be used for policy making due to the fact that our model is not spurious hence, we proceed to test for long run relationship using Johansson co-integration test.

Table 2 presentation of the output of Cointegration test

Hypothesized	Eigenvalue	Trace stat	0.05 Critical Value	prob
No. of CE(s)				
None *	0.709589	102.6563	97.7536	0.0154
At most 1	0.470524	61.85316	69.8188	0.1829
At most 2	0.421233	40.87013	47.8561	0.1928
At most 3	0.275391	22.82390	29.7970	0.2548
At most 4	0.190583	12.19385	15.9497	0.1479
At most 5*	0.146210	5.216296	3.84146	0.0224

Source: Extraction from E-View.

The result above report the existence of two co-integrating equations which suggest the existence of long run relationship amongst the variable under investigation and that the variables share mutual stochastic trend in the long run.

Table 3: Presentation of linear multiple regression output

Dependent Variable: LOG(HDI)				
Method: Least Squares				
Date: 02/03/17 Time: 21:02				
Sample: 1980 2015				
Included observations: 36				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.361659	2.076422	-1.618967	0.1159
LOG(ABL)	-0.084379	0.012024	-7.017612	0.0000
LOG(EXR)	0.061010	0.018530	3.292535	0.0025
LOG(FDI)	0.024275	0.008651	2.806182	0.0087
LOG(LMC)	1.134909	0.816556	1.389873	0.1748
LOG(NTX)	-0.021321	0.007074	-3.013933	0.0052
R-squared	0.723075	Mean dependent var		-0.663340
Adjusted R-squared	0.676921	S.D. dependent var		0.112739
S.E. of regression	0.064081	Akaike info criterion		-2.506323
Sum squared resid	0.123192	Schwarz criterion		-2.242403
Log likelihood	51.11381	Hannan-Quinn criter.		-2.414208
F-statistic	15.66650	Durbin-Watson stat		1.387292
Prob(F-statistic)	0.000000			

Source: extraction from E-views

The result above report the short run spill over influx of foreign direct investment, labour market condition, net export, exchange rate and aggregate bank lending on development of the Nigeria economy between the period 1980 to 2015.

Obviously from the result, four of the five explanatory variables under investigation passes the test of significance at 5% alpha level. We found foreign direct investment (FDI) and exchange rate (EXR) to be positive and significant (0.008 and 0.0025) in promoting economic development over the period under study and thus determines the industrialisation strength of the nation while aggregate bank lending (ABL) and net export (NTX) report a significant P-value of (0.000 and 0.0052) with a negative coefficient of (-0.099 and -0.02132) which suggest an inverse relationship to economic development. Labour market condition (LMC) appears not to be significant in stimulating economic development as justified by its probability value (1.13490) accordingly.

By implication, the negative response of aggregate bank lending to economic development suggest that the percentage of loan and advances allocated by the deposit money bank are channelled towards the recurrent expenditure and not to the capital investment like manufacturing, agriculture and industrialisation which is capable of inspiring economic development in the long run. This has however resulted into the negative contribution of such loan into the economy. Meanwhile, net export reports a significant and negative relationship to economic development. This is as a result of large exportation of crude oil while other local product like farm produce and textile experience low level of exportation due to high cost of exportation.

From the global statistics, our adjusted R^2 stood at 0.6769 which suggest that about 68% variation in the criterion variable is captured and explain by the explanatory variables. However, our F-statistics which measures the fitness of our model was reported to be significant at 5% level with the value of 15.6665, and 0.000000 probability which implies that our model significantly captured industrialisation determinant and economic development in Nigeria while the Durbin Watson statistic portrays a statistical value of 1.38729 which suggest presence of auto correlation. In view of this, the report from the error correction model will determine whether or not to run a diagnostics test based on the output of our Durbin Watson statistic.

Table 4: Presentation of Error Correction Output

Dependent Variable: LOG(HDI)				
Method: Least Squares				
Date: 02/03/17 Time: 21:41				
Sample (adjusted): 1981 2015				
Included observations: 35 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.303768	1.993159	-1.155838	0.2575
LOG(ABL)	-0.082922	0.011238	-7.378460	0.0000
LOG(EXR)	0.052658	0.017811	2.956507	0.0063
LOG(FDI)	0.030163	0.008609	3.503770	0.0016
LOG(LMC)	0.708615	0.785091	0.902590	0.3744
LOG(NTX)	-0.020747	0.006615	-3.136110	0.0040
ECM(-1)	-0.246835	0.174845	1.411730	0.0400
R-squared	0.764879	Mean dependent var		-0.659478
Adjusted R-squared	0.714496	S.D. dependent var		0.111943
S.E. of regression	0.059814	Akaike info criterion		-2.618296
Sum squared resid	0.100176	Schwarz criterion		-2.307227
Log likelihood	52.82018	Hannan-Quinn criter.		-2.510915
F-statistic	15.18130	Durbin-Watson stat		1.927432
Prob(F-statistic)	0.000000			

Source: Extraction from E-views

To ascertain the speed at which disequilibrium in the short run is adjusted in the long run, error correction model is employed. However from a priori, we expect ECM coefficient to be negative together with a significant P-value. The result in table 4 above validate the output of the multiple linear regression model presented in table 3, the only exceptional estimate is the presence of error correction model coefficient (ECM) which exhibit a negative coefficient of (-0.24683) and significant P-value of (0.0400) as expected. This implies that about 25% disequilibrium in the short run is corrected and adjusted in the long run. From the global statistics, the adjusted R^2 stood at 0.7144 which suggest that about 70% variation in dependent variable is captured and explained by the explanatory variables while the other 30% is explained by the error term. The DurbinWatson value stood at 1.9274 which suggest absence of auto correlation and thus endorse our model to be fit enough for future forecast and decision making.

We found foreign direct investment (FDI) and exchange rate (EXR) to be positive and significant (0.008 and 0.003) in promoting economic development over the period under study while aggregate bank lending (ABL) and net export (NTX) report a significant P-value of (0.000 and 0.0040) but a negative coefficient (-0.099 and -0.02074) which suggest an inverse relationship to economic development. Labour market condition (LMC) appear to be insignificant in promoting economic development as justified by it probability value (0.3744) accordingly.

Table 5 Presentation of Granger Causality Test Output

Pairwise Granger Causality Tests			
Date: 02/03/17 Time: 21:52			
Sample: 1980 2015			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
LOG(ABL) does not Granger Cause LOG(HDI)	34	2.17564	0.1317
LOG(HDI) does not Granger Cause LOG(ABL)		2.09415	0.1414
LOG(EXR) does not Granger Cause LOG(HDI)	34	0.54960	0.5831
LOG(HDI) does not Granger Cause LOG(EXR)		0.36097	0.7001
LOG(FDI) does not Granger Cause LOG(HDI)	34	0.68460	0.5123
LOG(HDI) does not Granger Cause LOG(FDI)		0.69485	0.5073
LOG(LMC) does not Granger Cause LOG(HDI)	34	0.20678	0.8144
LOG(HDI) does not Granger Cause LOG(LMC)		0.03575	0.9649
LOG(NTX) does not Granger Cause LOG(HDI)	34	0.06334	0.9388
LOG(HDI) does not Granger Cause LOG(NTX)		1.42525	0.2568

Source: Extraction from E-views

The results of the Pair-wise Granger Causality tests presented in the table 5 above shows the following (using 0.05 level of significance);

From the result of the causality test, all the variable employed failed the test of significance at 5% alpha level.

There exist no causal association between foreign direct investment (FDI), net export (NTX), labour market condition (LMC), Exchange Rate (EXR) and economic development (HDI) as their probability levels appeared to be above the 0.05 (5%) significance level showing an absence of both uni and bi directional promotion amongst the variables, this goes a long way to show that in relations to each other, there is an intrinsic and homogenous characteristics exhibited by the six variables under investigation.

5. DISCUSSIONS, SUMMARY AND CONCLUSION

The result above report the short run, long run and causality spill over influx of foreign direct investment, labour market condition, net export, exchange rate and aggregate bank lending on development of the Nigeria economy between the periods 1980 to 2015.

With respect to the statistical analysis above, the time series under investigation became stationary after first differencing in the order of 1(1) integration while the Johansson co-integration test reveals the presence of two co-integrating equation which suggest the existence of long run relationship among variable employed.

The short run linear dynamic regression output reveals that foreign direct investment maintains a positive and significant relationship to economic development with a proximity of promoting economic development to the tune of 0.027%, exchange rate also portray a positive and significant nexus to economic development with a proximity of stimulating the economic to the tune of 0.09%. Meanwhile, aggregate bank lending and net export possesses a positive P-value but negative relationship to economic development which suggest an inverse relationship to economic development. The inverse contribution of aggregate bank lending to economic development could be attributed to excessive channelling of borrowed fund towards recurrent expenditure while the capital investment which is capable of illuminating economic development are been ignore most time. labour market condition to economic development is trajectory to the fact that the Nigerian economy is heavily import dependent and hence create a negative influx on industrialisation performance.

The result of the error correction model validate the output of the multiple liner regression result by justifying that foreign direct investment and exchange rate significantly promote economic development while aggregate bank lending and net export report bias dimension.. The output of this finding validate the empirical report of Shafeddin (2005) whose study exert that trade liberalisation is corrosive to economic growth of the countries that has not embarked on a precaution protective policies especially the low income earning countries and hence debar industrialisation.

The causal association between foreign direct investment (FDI), net export (NTX), labour market condition (LMC), Exchange Rate (EXR) and economic development (HDI) shows an inexistence of pivotal relationship between both variables as their probability levels appeared to be above 0.05 significance level showing an absence of both uni and bi directional promotion amongst variables, this goes a long way to show that in relations to each other, there is an intrinsic and homogenous characteristics exhibited by the six variables under investigation.

Prior to our findings study conclude that foreign direct investment, exchange rate, net export and aggregate bank lending are significant drivers of industrialisation in the Nigeria context. On this premises, we recommend that more effort be put in place to resuscitate the dormant industrial firms in the country as they appear to be a key contributor to sustainable economic development.

REFERENCES

- Beji, S., & Belhadj, A. (2016). The determinant of industrialisation: empirical evidence for Africa. *European scientific journal*, 1857(7881)
- Brooks, c. introductory econometrics for finance, Cambridge, Cambridge University press 318-375: 311-312
- BondEric; Sheena Gingerich; Oliver Archer-Antonsen; Liam Purcell; Elizabeth Macklem (2003). [The Industrial Revolution – Causes](#). (17 February) Industrialrevolution.sea.ca. Retrieved 30 January 2011.
- Desmet, K. and Parente, S, (2009) the evolution of market and the revolution of industry: a quantitative model of England development, working paper.
- Foster, Charles (2004). Capital and Innovation: How Britain Became the First Industrial Nation. Northwich: Arley Hall Press. [ISBN 0-9518382-4-5](#).
- Gujarati, D.N and Porter, D.C (2009): basic econometrics, Boston McGraw Hill, 762-787
- Gupta, K.L. (1970), "Foreign Capital and Domestic Savings: A Test of Haavelmo's Hypothesis with Cross Country Data: Review of Economics and Statistics, 52(2), 214-216.
- Greenwald, B. and Stiglitz, J.E (2006) 'Helping Infant Economies Grow: Foundations of Trade Policies for Developing Countries' *American Economic Review: AEA Papers and Proceedings* 96 (2), 141-146.
- Galor, O. (2010). The 2008 Lawrence r. kelin lecture comparative economy in development: insights from unified growth theory. *International economic review* 51(1), 1-44
- Guadagno, F. (2012) 'The determinants of Industrialization in Developing Countries, 1960-2005' Working Paper, UNU-MERIT and Maastricht University.
- Hausmann, R and Hidalgo (2011). The network structure of economic output: *journal of economic growth*, 16, 309-342
- Ikechukwu, S.I and Torbira, L.L (2016), Microcredit in the Nigeria's economic growth process: A multi sectoral analysis. *Nigeria journal of Financial Research* 10(1). 1-12
- Jackson J. Spielvogel (2009). ["Western Civilization: Since 1500"](#). 607.
- Kakar, Z. K., & Khilji, B. A. (2011). Impact of FDI and Trade Openness on Economic Growth: A Comparative Study of Pakistan and Malaysia. *Theoretical and Applied Economics*, 11(11), 53.
- Kar-yiu, W and Chong K. (1999). Industrialisation, economic growth and international trade: presented at ASSA meeting Chicago, January 1998
- Lagerlof, L. P. (2006). The galoeweil model revisited: a quantitative exercise. *Review of economics dynamics* 9(1), 116-142
- Maddala, G.S. (2007). Introduction to Econometrics, New Delhi, John Willey.
- Monogbe, T. G, Nduka, J.A and Edori, D.S (2016): financial development and economic performance in Nigeria, granger causality analysis, accounting and financial management journal.
- Monogbe, T. G, (2016). The Behavioural Effect of Multinational Operations and Its Performance on the Nigeria Economy (An Empirical Investigation). *International Journal of Economics, Finance and Management Sciences*. 4(3), 143-152. doi: 10.11648/j.ijefm.20160403.17
- Shafaeddin, S.M. (2005) 'Trade liberalization and Economic Reform in Developing Countries: Structural Change or De-Industrialization?' UNCTAD Discussion Papers, 179
- Schumpeter, J. A. (1934). The Theory of Economic Development, Cambridge Mass, Harvard University Press.
- Stokey, N. L. (2001). A quantitative model of British industrial revolution, 1780-1850
- Yousaf, S., I. Shahzadi, B. Kanwal and M. Hassan, (2013). Impact of exchange rate volatility on FDI in Pakistan

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