The Two Gap Model and the Nigerian Economy; Bridging the Gaps with Foreign Direct Investment.

[1,]Bakare Aremu , Tunde Abubakar , [2,]Bashorun, oladipo titilayo
[1,]Department Of Economics , University of Lagos, Akoka, Yaba ,Lagos
[,2]Department Of Finance , University of Lagos, Akoka, Yaba ,Lagos

ABSTRACT : *Holis Chenery (2005) proposed existence of 2-gaps in LDCs in his TWO GAP MODEL. This research work sought to unveil the existence of the gaps in the Nigeria economy. We realized that domestic savings was insufficient to fund required investment in Nigeria (i.e. S ≠ I).This implies existence of savings gap, also we found that disequilibrium exist in external balance (i.e. X ≠ M), which imply that exchange rate gap equally exist. We sought the impact of these two gaps on economic performance in Nigeria and if FDI could be a bridge, through error correction mechanism, the results revealed that, the two gaps retard economic performance, and that FDI is a bridge but not sufficient in the short run and not reliable in the long as it promote importation in both periods, which could widen the existing exchange rate gap. We discovered from disaggregation of balance of payments that exchange rate gap oil (EXRGAPO i.e. balance of trade oil) should have been a source of exchange rate appreciation but the price is always quoted in U. S dollars ($X_0 - M_0$). In addition we found that FDI in Nigeria supports export promotion and not import substitution and that exchange rate gap still persist in the long run but saving gap eroded. We therefore recommended that Government should attract more FDI by providing enabling environment through political and social stability and development of adequate infrastructures, provision of employment opportunity which would increase output, income, and savings and through multiplier effect generate further employments.*

KEY WORDS: *2-Gap Model, Foreign Direct Investment, Import, Export, Savings, Investment, Gross Domestic Product.*

I. INTRODUCTION

Globally, there exist no economy that is self-sufficient, even autarky does not imply absence of trade between a particular nation and the rest of the world but rather a minimum external trade relationship (i.e. Minimum (X-M)).Trade between Nations is more beneficial to some countries than the others. It has however, been argued that the developed world accentuates higher gains than the developing counterparts. This is because of their technological advancement which spurred their large scale production of both consumables and capital goods (developing countries, Nigeria inclusive are rather seen as an extension of their domestic markets rather than trading partners). This gains that skewed 'mostly' to the developed world left most of developing Nations with what Holis Chenery called exchange rate gap constraint (X-M≠0 ;mostly<0), to worsen the situation domestic savings that's supposed to be a succor to the aforementioned is grossly insufficient with their (LDCs) marginal propensity to consume approaching unity. This refers to as savings gap (i.e. S-I ≠0 but rather S-I<0).

Holis Chenery et al (2005)[1], illustrated the "two – gap" approach to economic development. The idea is that "Savings – gap" and "foreign exchange gap" are two separate and independent constraints on the attainment of a target rate of growth in LDCs. Chenery sees foreign aid (Investment) as a way of filling these two gaps in order to achieve the target growth rate of the economy.To measure the size of the gaps, a target growth rate of the economy is recommended along with a given capital output ratio. A savings gap arises when domestic savings rate is less than the investment required to achieve the target. e.g. if the growth target of national real income is 7 percent per annum, and the capital – output ratio is 3:1, then the economy must save 21% of its national income to achieve this growth target. If only 15 percent of savings can be mobilized domestically, the savings gap is 6 percent of the national income. The economy can achieve the target growth rate by filling this savings gap with foreign aid (investment). In the same vein, a fixed relationship is postulated between targeted foreign exchange requirements and net export earnings. If net export earning falls short of foreign exchange requirements, a foreign exchange gap appears which can be filled by foreign aid (investment) In a nutshell with these two 'horrible' gaps, would the developing Nations survives the heat of modern challenges of globalization, liberalization etc. To this end, we strive to examine the extent to which Foreign Direct Investment (FDI) can be a panacea to these Economy hullabaloos.

STATEMENTS OF PROBLEM

Economics interdependency (trades, investment, aid etc.) among Nations of the world has cost and benefits, and one of the costs of foreign trade to most less developed countries (LDCs) is the continuous balance of payment disequilibrium which is due to lack of technological knowhow to produce producer goods and some highly synthetic tradable consumables, consequently they have no better chance to compete in the emerging world market. The result of this is exchange rate gap which could not be subdued with domestic savings that is expected to stimulate domestic investment to counteract the BOP disequilibrium. With these two gaps, at least a bridge is needed.

We therefore wish to investigate the impact of FDI in bridging these gaps in Nigeria.

OBJECTIVES OF STUDY

The major objective of this study is to seek the place of FDI in bridging the gaps created through insufficient domestic savings to stimulate domestic investments (savings gap) and continuous and sustained BOP disequilibrium.

Other objective includes;

[1] To determine if FDI in Nigeria support exportations (i.e export promotion) or decrease importation (import substitution).
[2] To establish if long run relationship exit among the variables.

RESEARCH QUESTIONS

In other to arrive at a meaningful conclusion, this study seeks to find answers to the following questions.

[1] Are there truly gaps in Nigerian economy?.
[2] Is FDI a stimulant through which the Economy could get to equilibrium?.
[3] What does the FDI in Nigeria support, import substitution, or export promotion?

RESEARCH HYPOTHESES

The following are the research hypotheses,

H_0: There is no gap in Nigeria economy
H_0: FDI does not have any impact in bridging the gap (if exist)?
H_0: FDI does not stimulate export neither does it promote import substitution.

METHODOLOGY

The research work employed econometrics model known as error correction mechanism through which the following tests would be estimated;

Unit root test (for stationarity of time series data)
Cointegration test (for long term relationship)
Granger causality test (for cause and effect)

Techniques of analysis

Ordinary least squared regression analysis

Model specification

GDP = F (FDI, EXR, SAVGAP, EXRGAPB, EXRGAPT, EXRGAPO, EXRGAPNO)

$(GOP) = \beta_0 + \beta_1 FDI + \beta_2 EXR + \beta_3 SAVGAP + \beta_4 EXRGAPB + \beta_5 EXRGAPT + \beta_6 EXRGAPO + \beta_7 EXRGAPNO + U_t$

   A- Priori expectation.

   $\beta_1, \beta_2, > 0$; $\beta_3, \beta_4, \beta_5, \beta_6 \beta_7 < 0$.

II.   THE THEORETICAL UNDERPINNING AND EMPERICAL REVIEW.

THE THEORETICAL BACKGROUND

THE 2-GAP MODEL

Holis Chenery et al (2005) , have put the "two – gap" approach to economic development. The idea is that "Savings – gap" and "foreign exchange gap" are two separate and independent constraints on the attainment of a target rate of growth in LDCs. Chenery sees foreign aid (Investment) as a way of filling these two gaps in order to achieve the target growth rate of the economy. To calculate the size of the gaps, a target growth rate of the economy is postulated along with a given capital output ratio. A savings gap arises when domestic savings rate is less than the investment required to achieve the target. e.g. if the growth target of national real income is 6 percent per annum, and the capital – output ratio is 3:1, then the economy must save 18% of its national

income to achieve this growth target. If only 12 percent of savings can be mobilized domestically, the savings gap is 6 percent of the national income. The economy can achieve the target growth rate by filling this savings gap with foreign aid (investment). In the same vein, a fixed relationship is postulated between targeted foreign exchange requirements and net export earnings. If net export earning falls short of foreign exchange requirements, a foreign exchange gap appears which can be filled by foreign aid (investment)

The two gaps are explained in term of the national income accounting identities.

$E - Y \equiv 1 - S \equiv M - X = F$

Where   E = National Expenditure; Y = National Output; NI= National Income; I = Investment; S = Savings, M = Import; X = Export; F = Net Capital Inflow (Investment)(I – S) is the domestic saving gap and (M – X) is the foreign exchange gap like the basic national income accounting identities, the two gap are always equal ex-post in any given accounting period. But they may differ ex-ante because in the long run those who make decisions about savings, investment, exports and imports are different people. So during the planning process, the plans of savers, investors' importers and exporters are likely to be different. Ex-ante (or planned) investment is related to the target growth rate of the economy.

The Harrod Model

Professor R.F. Harrod tries to show in his model how steady (i.e., equilibrium) growth may occur in the economy. Once the steady growth rate is interrupted and the economy falls into disequilibrium, cumulative forces tend to perpetuate this divergence thereby lending to either secular deflation or secular inflation.

The Harrod Model is based upon three distinct rates of growth, firstly, there is the actual growth rate represented by G which is determine by the saving ratio and the capital-output ratio. It shows short-run cyclical variations in the rate of growth. Secondly, there is the warranted growth rate represented by Gw which is the full capacity growth rate of income of an economy. Lastly, there is the natural growth rate represented by Gn which is regarded as 'the welfare optimum' by Harrod. It may also be called the potential or the full employment rate of growth.

The Actual Growth Rate, In the Harrodian model the first fundamental equation is:

$GC = s$

Where G is the rate of growth of output in a given period of time and can be expressed as $\Delta Y/Y$; C is the net addition to capital and is defined as the ratio of investment to the increase in income, i.e., $I/\Delta Y$ and s is the average propensity to save, i.e., S/Y. Substitution these ratios in the above equation we get:

$$\frac{\Delta Y}{Y} \times \frac{I}{\Delta Y} = \frac{S}{Y} \; or \; \frac{I}{Y} = \frac{S}{Y} \; or \; I = S$$

The equation is simply a re-statement of the truism that ex post (actual, realized) savings equal ex post investment.

The above relationship is disclosed by the behaviour of income. Whereas S depends on Y, I depend on the increment in income (ΔY), the latter is nothing but the acceleration principle.

The Warranted Rate of Growth. The warranted rate of growth is, according to Harrod, the rate "at which producers will be content with what they are doing." It is the "entrepreneurial equilibrium; it is the line of advance which if achieved, will satisfy profit takers that they have done the right thing". Thus this growth rate is primarily related to the behaviour of businessmen. At the warranted rate of growth, demand is high enough for businessmen to sell what they have produced and they will continue to produce at the same percentage rate of growth. Thus, it is the path on which the supply and demand for goods and services will remain in equilibrium, given the propensity to save. The equation for the warranted rate is

$GwCr = s$

When Gw is the "warranted rate of growth" or the full capacity rate of growth of income which will fully utilize a growing stock of capital that will satisfy the entrepreneurs with the amount of investment actually made. It is the value of $\Delta Y/Y$. Cr, the 'capital requirements', denotes the amount of capital needed to maintain the warranted rate of growth, i.e., required capital-output ratio. It is the value of $I/\Delta Y$, or C.s is the same as in the first equation, i.e., S/Y.

The equation, therefore, states that if the economy is to advance at the steady rate of Gw that will fully utilize its capacity, income must grow at the rate of s/Cr per year, i.e., S/Y.

The equation, therefore, states that if the economy is to advance at the steady rate of Gw that will fully utilize its capacity, income must grow at the rate of s/Cr per year, i.e., Gw=s/Cr.

If income grows at the warranted rate, the capital stock of the economy will be fully utilized and entrepreneurs will be willing to continue to invest the amount of saving generated at full potential income. Gw is therefore a self-sustaining rate of growth and equilibrium path if the economy continues to grow at this rate it will follow the equilibrium path.

THE EMPERICAL REVIEW

Baharom et al (2008) carried out a study to examine the role of trade openness and foreign direct investment in influencing economic growth in Malaysia during 1975-2005, using the Bounds testing approach suggested by Pesaran et al. (2001). The empirical results demonstrate that trade openness is positively associated and statistically significant determinant of growth, both in short run and the long run. The result also suggested that foreign direct investment is positively associated in the short run and negatively associated in the long run, both significantly. Besides these two variables, the other control variable namely exchange rate was also significant in the short run as well as in the long run.Aktar, Ozturk and Demirci (2008) examined the impact of Foreign Direct Investment, export, economic growth and total fixed investment on unemployment in Turkey for the period of 1987-2007. The Johansen co integration technique was applied to determine long run relationship between the variables. The empirical findings suggest that there are two co integrating vectors during the concerned period of time in Turkey, which indicates the long run relationship, though all the variables were found to affect the unemployment rate significantly.

Amano (2005) sets up four-variable VAR systems with error-correction mechanisms to search for causal directions between output growth and investment; and between growth and exports for two periods prewar and postwar, and for three countries, Japan, the U.S.A., and the U.K. The study found that in Japan, economic growth was spurred by both investment and exports (particularly the former), but the accelerator-type causality (from growth to investment) was not so strong. For the U.S.A., the study found that output growth was relatively independent of investment and exports but, in the postwar period, the multiplier-accelerator interactive process was seen to take place. In the U.K., the multiplier-accelerator interactions were seen in both periods. Also, the effect of exports on growth was stronger in the prewar period than in the other.Pham Mai Anh (2008) followed the structural VAR methodology and procedures used by Bradford and Chakwin (1993) to investigate which factor were the main engine that drives Vietnam's economy since the country launched the Renovation. "Doi Moi" in 1986. Two VAR models and four variables, GDP, investment, export and productivity, were used to examine two hypotheses: export-led growth and investment-led growth. In the VAR model of export-led growth, export was assumed to be an exogenous variable that was allowed to have effects on all other variables but they are not allowed to impact export. Similarly, the second model treated investment as an exogenous variable that was supposed to affect the other three variables but they are not allowed to interact with investment.

The results of both models supported the investment-led growth hypothesis showing that investment has been the main factor that determines Vietnam's economic growth over the past two decades. On the contrary, the impacts of export implied in both models on the country's GDP growth appeared to be very small. In addition, the results also did not support the expectation that investment or export helped to improve productivity, which in turn promotes economic growth. This study found empirical evidence showing that investment, rather than, export takes the key role in Vietnam's economic growth, but no evidence showing that investment or export promotes economic growth.Kaushik et al (2008) used Johansen's co-integration analysis and a vector error-correction model to investigate the relationship between economic growth, export growth, export instability and gross fixed capital formation (investment) in India during the period 1971- 2005. The empirical results suggested that there exists a unique long-run relationship among these variables and the Granger causal flow is unidirectional from real exports to real GDP. For example, ceteris paribus, a 1% increase in exports raises GDP by an estimated 0.42% in the long run.Sinha (1999) examined the relationship between export instability, investment and economic growth in Asian countries using time series data and the co integration methodology framework. The study found that most of the variables are non-stationary in their levels and not co integrated. For Japan, Malaysia, Philippines and Sri Lanka,the study found a negative relationship between export instability and economic growth but for (South) Korea, Myanmar, Pakistan and Thailand, the study founds a positive relationship between the two variables. For India, it was found to be mixed results. In most cases, economic growth was found to be positively associated with domestic investment. Miankhel, Thangavelu and Kalirajan (2009) adopted a time series framework of the Vector Error Correction Models (VECM) to study the dynamic relationship between export, FDI and GDP for six emerging countries of Chile, India, Mexico, Malaysia, Pakistan and Thailand. Stationarity of the series with structural breaks was also. Examined in the model. Given that these countries are at different stages of growth, they were able to identify the impact of FDI and export on economic growth at different stages of growth. The results suggest that in South Asia, there is evidence of an export led growth hypothesis. However, in the long run, they identified GDP growth as the common factor that drives growth in other variables such as exports in the case of Pakistan and FDI in the case of India. The Latin American countries of Mexico and Chile show a different relationship in the short run but in the long run, exports affect the growth of FDI and output. In the case of East Asian countries, they found bi-directional long run relationship among exports, FDI and GDP in Malaysia, while they found a

long run uni-directional relationship from GDP to export in case of Thailand Carbajal, Canfield and De la Cruz (2008) examined both the existence of causality, in the Granger Sense, and its direction between Gross Domestic Product (GDP), Exports, Imports and Foreign Direct Investment in Mexico (FDI). GDP was broken down into two sectors: industrial and services. The co integration methodology developed by Liu, Burridge and Sinclair (2002) and the tests of structural changes, for the vector of co integration developed by Quintos and Phillips (1993); and Quintos (1997, 1998) were applied. The estimation showed a stable and causal relationship of FDI over variables such as the industrial GDP, Exports and Imports. However, the service sector tends not to have a direct effect over investments. Notwithstanding that Mexico greatly benefits from FDI, as such those benefits are triggered by Exports and the industrial GDP, variables that hold a stronger linkage with the economic activity of the United States and not with the actual evolution of the Mexican economy

Ullah et al (2009) investigated Export-led-growth by time series econometric techniques (Unit root test, Co-integration and Granger causality through Vector Error Correction Model) over the period of 1970 to 2008 for Pakistan. In that paper, the results reveal that export expansion leads to economic growth. They also checked whether there is unidirectional or bidirectional causality between economic growth, real exports, real imports, real gross fixed capital formation and real per capita income. The traditional Granger causality test suggests that there is uni-directional causality between economic growth, exports and imports. On the other hand Granger causality through vector error correction was checked with the help of F-value of the model.

III.   ANALYSIS AND INTERPRETATION OF RESULT
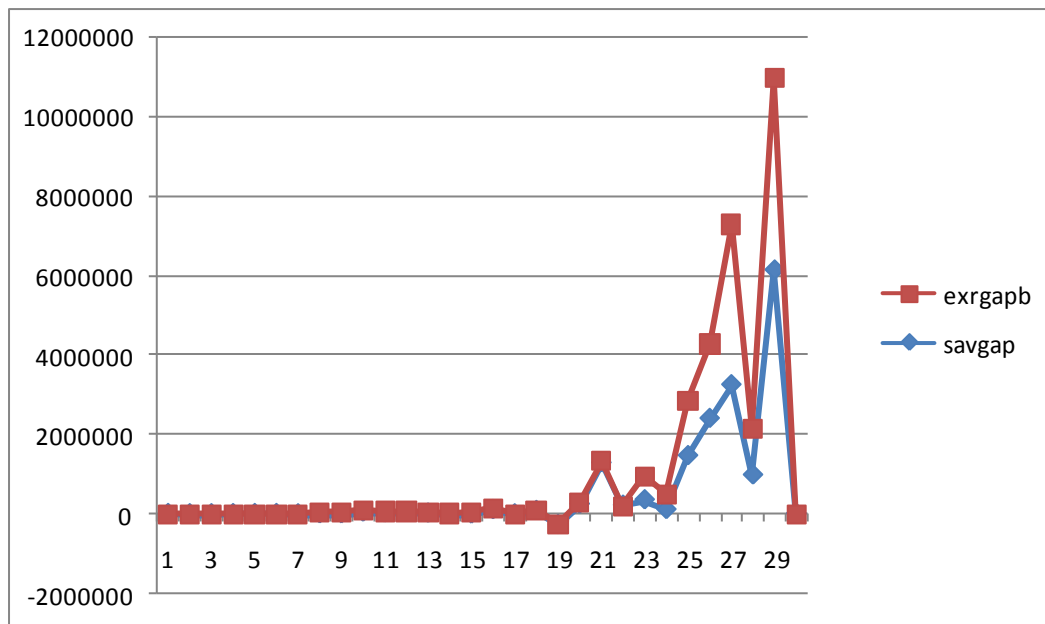
The graph showing relationships between exchange rate gap and savings gap.
The graph above shows an existence of foreign exchange gap constraint in Nigeria, it's more prominent and dominant when compared with savings gap. It can also be seen that both gaps moves along the same path, such that in the early period under consideration they are asymptotic to time axis(close to equilibrium) and later became apparently positive after which it down swing meaning deficit and negative investment. This graph clearly shows existence disequilibrium on National level of savings and investment, and that of export and import.
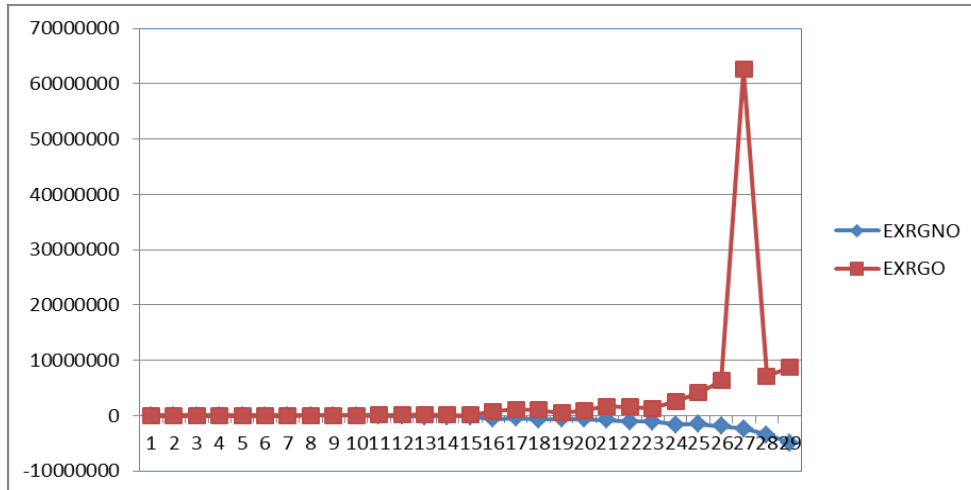
Fig. 2: The graph showing relationships between exchange rate gap(oil) and exchange rate gap (non oil)

From the graph above, it can be seen that the value of exrgapno (exrgno) (i.e. net export of goods) were negatives (deficits) for most of the years under consideration while the opposite were obtainable in the case of exchange rate gap oil (i.e. exrgo), this means that the real sector of the economy is not virile enough to produce tradable to meet the highly competitive world market, however, the shortcomings of the industrial sector is been overcame by the surpluses recorded by the exrgo (net export of oil) over the years under review. This also indicates that the most active sector in term of exportation is the oil sector of the Nigerian economy, therefore Government needs to enhance productivity of tradable and encourage agricultural sector for maximum production and suitable packaging standard in order to have overall positive impact on export of goods (non-oil) in Nigeria.
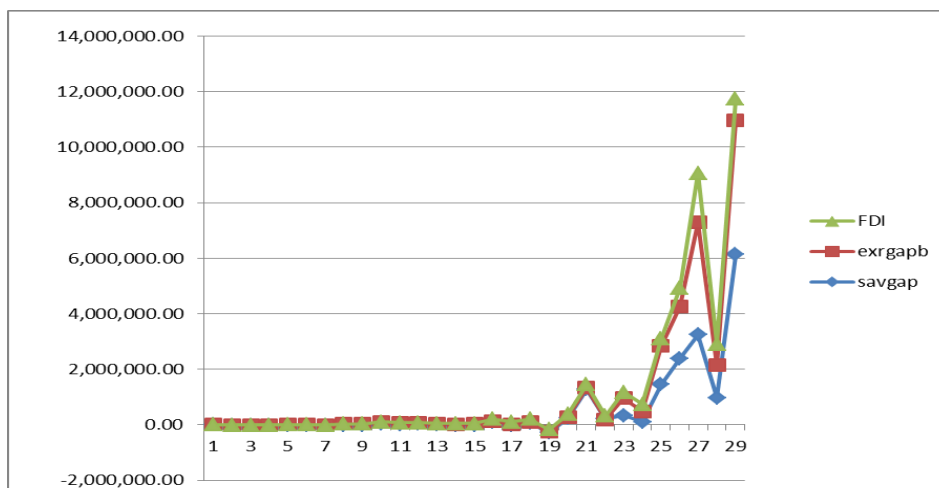
Fig.3:   The graph showing the 2-Gaps and the FDI.

This graph shows the trend among the Exrgapb (i.e. BOP), Savgap (savings gap) and foreign direct investment (FDI). The trend shows the impact of FDI on the established gaps in the Nation which is positive. It further disclosed that foreign direct investment moved in the direction of the gaps created by the macroeconomics variables shocks.

TABLE 1: STATIC ORDINARY LEAST SQUARED RESULT

Dependent Variable: GDP
Method: Least Squares
Date: 05/26/11   Time: 21:19
Sample (adjusted): 1981 2008
Included observations: 28 after adjustments

Variable	Coefficients	Std. Error	t-Statistic	Prob.
C	-5437.08	196277.2	-0.435288	0.6680
FDI	3.786058	4.014928	0.942995	0.3569
SAVGAP	-1.003352	0.420552	-2.385798	0.0270
EXRGAPT	2.168569	0.411783	5.266296	0.0000
EXRGAPB	0.274517	0.641906	0.427659	0.6735
EXRGAPO	-0.090736	0.088192	-1.028850	0.3158
EXRGAPNO	-3.727279	0.574085	-6.492558	0.0000
EXR	1854.352	5080.086	0.365024	0.7189
R-squared	0.991441	Mean dependent var		4719000.
Adjusted R-squared	0.988445	S.D. dependent var		7126969.
S.E. of regression	766105.7	Akaike info criterion		30.17098
Sum squared resid	1.17E+13	Schwarz criterion		30.55161
Log likelihood	-414.3938	F-statistic		330.9519
Durbin-Watson stat	2.661332	Prob(F-statistic)		0.000000

The model can be written from the above result table as follows:
GDP = 855437.08 + 3.79FDI − 1.00 SAVGAP + 2.17 EXRGAPT + 0.27 EXRGAPB − 0.09 EXRGPO − 3.72 EXRGRAPNO + 18854.35 EXR.
The robustness of the static regression models is evidence by its R − squared, Adjusted R − Squared and F-statistics values which measure the overall fitness of the model. The R^2 which is a measure of goodness of fit reveals that at most 99% of variation in GDP in caused by all included explanatory variable and at least 98% variation is explained by the explanatory variables as evidence by the adjusted R- squared (R^2), the D − Watson statistics show some presence of serial autocorrelation which could make our result to be spurious (a violation of OLS assumption).

On this basis a co-integration test would be observed. Looking at influence of each regressor on regressand. Direct foreign Investment has positive sign as expected, and for 1% rise in GDP, FDI must have risen by 3.78%, although this is not significant in the short –run, also EXRGAPB is positively related to the GDP, this is not expected because the gap should be a deficiency to the growth of the economy. However, this could be due to the overriding exportation of oil covering   the deficiency in the real sector of the Economy, this is equally not statistically significant. The EXRGAPT and EXRGAPNO are both significantly influenced GDP but oppositely, while EXRGAPT influenced GDP positively and significantly, though not expected, for same reason as EXRGAPB, the latter influence   the explained variable negative as expected and significantly. The SAVGAP interestingly revealed that domestic savings is insufficient for required domestic investment such that a 1% increase in the gap will reduce GDP by same margin and vice versa. The EXR is expected to rise nominally with GDP which follow thus, but not significant.

Table 2: The Stationarity Test
Augmented Dickey Fuller Unit Root Test

VARIABLES	ADF @ LEVEL	ADF @ FIRST DIFFERENCE	ADF @ SECOND DIFFERENCE	ORDER OF INTEGRATION
EXPT	3.207612	2.129155	-7.091439*	I (2)
EXR	-0.428249	-3.711457**	------------	I (1)
EXRGAPB	1.650261	-2.536794	-2.644312***	I (2)
EXRGAPNO	5.020418	2.828550	-8.261706*	I(2)
EXRGAPO	-2.773244***	------------	------------	I(0)
EXRGAPT	-0.591930	-4.264363*	------------	I(1)
FDI	-1.285501	-5.227722*	------------	I(1)
GDP	-1.580168	-1.703232	-4.720948*	I(2)
IMP	0.355096	-4.531600*	------------	I(1)
SAVGAP	-0.438470	-5.853529**	------------	I(1)

SOURCE: *Author's computation via E-view 5.0*

*,** and *** represent 1%, 5% and 10% level of significance while MacKinnon critical values at same level respectively are as follows; -3.769597, -3.004861 and -2.642242

The Augment Dickey Fuller (ADF) unit root test was conducted on all the included variables. In order to test for stationary of all variables, the ADF calculated values are compared with MacKinnon 1%, 5% and 10% critical values. Therefore, a variable is stationary, when the absolute value of its ADF calculated is greater than its MacKinnon critical value. In other words if the ADF calculated value is less than the MacKinnon critical, value at levels.

However, the table 2 above revealed that, only EXGAPO   is statuary at level, while EXPT, EXRGAPB, EXRGAPNO and GDP are stationary at second difference (2nd diff) and EXRGAPT, SAVGAP, IMP, FDI, are all stationary at first difference (1st diff). The absence of unit root imply stationarity of the included variables which is the border pass to test for long term(run) relationship among the included time series data. This is mathematically represented below; for time series variable (e.g. GDP) $\Delta gdp_t = a_0 + a_{1t} + a_2 \Delta gdp^k_{t=1} + \sum b \Delta gdp_{t-1} + error$

Table 3:   Johansen Co-Integration Test

Date: 05/27/11   Time: 11:54
Sample (adjusted): 1983 2008
Included observations: 26 after adjustments
Trend assumption: Linear deterministic trend
Series: D(GDP) D(FDI) D(EXR) D(IMP) D(EXPT) D(EXRGAPB) D(EXRGAPT) D(EXRGAPO)
Exogenous series: GDP
Warning: Critical values assume no exogenous series
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.999992	1023.202	159.5297	0.0001
At most 1 *	0.999772	717.2270	125.6154	0.0001
At most 2 *	0.999607	499.1760	95.75366	0.0001
At most 3 *	0.996779	295.3101	69.81889	0.0001
At most 4 *	0.973284	146.1190	47.85613	0.0000
At most 5 *	0.643377	51.93436	29.79707	0.0000
At most 6 *	0.523408	25.12642	15.49471	0.0013
At most 7 *	0.201727	5.857936	3.841466	0.0155

Trace test indicates 8 cointegrating eqn(s) at the 0.05 level;
* denotes rejection of the hypothesis at the   0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

ANALYSIS OF CO-INTEGRATION TESTS

run dynamics with long run equilibrium. These tests seem to be highly relevant to show inherent limitations of traditional models. A time series is integrated of the same order to which it is differenced to make it stationary (Gujarati 2003). In the word of komolafe (1996), two or more different series may not themselves be stationary, but some linear combination of them may indeed be stationary with the generalization to more than two series. The co-integration test is used to find out the long-run effect of all included variables. Here, we have tested for long run relationship between GDP and all explanatory variables and this gave brilliant results of eight (8) co-integrating Equation which implies that there exist a long run relationship among the entire included variable i.e. GDP (Dependents variable) and EXRGRPT, EXRGAPB, EXRGAPO EXRGAPNO, EXR, FDI, SAVGAP etc. (independent variables). This deputes long run relationship between the dependent and independent variables. We therefore conclude that the variables explained one another in the long-run . Hence our regression is not spurious. However, to adjust from short run drifts to long run equilibrium adjustment an error correction mechanism would be estimated.

The test for correlation test was carried out to show whether GDP depends on FDI, EXRGAPB, EXRGAPT, EXRGAPO, EXRGAPNO as well as determine the direction of causation The table above shows interdependence of all included variables, as such we infer from it as follows;
For every increase in GDP, FDI accounts for 85% of the increase
- For every increase in GDP, EXRGAPB accounts for about 86% of the increase
- For every increase in GDP, EXRGAPO accounts for about 56%
- For every decrease in GDP, EXRGAPNO accounts for 96% of the decrease
For every increase in GDP, EXRGAPT accounts for 95% of the decrease. Also export, import accounts for more than 96% and 94% increase in GDP respectively or whether a feedback exist.

TABLE 5   PAIRWISE GRANGER CAUSALITY TESTS.
SEE APPENDIX FOR THE TABLE.
From the result table if the P value is less than 0.05 reject Ho. Therefore we arrived at the following:
There exist a bi-directional causation between FDI and economic growth in Nigeria. There exists bi-directional causation between GDP and EXPT as well as IMP. Also exist unidirectional causation between FDI and EXPT, on the other hands there exist bi-directional causation between FDI and import, this is an interesting result because it shows that FDI in the short run in Nigeria promote importation but instead export promote FDI. Therefore we can conclude that FDI in Nigeria promote export rather than import substitution because it equally stimulates importation in Nigeria. Looking at other variables of importance to this model, EXRGAPB granger causes GDP, while there exist a feedback. Also EXRGAPNO (Non-Oil Exchange Rate Gap) does not granger causes GDP but GDP responded positively. This is to say that the volume of tradable of Nigeria is not substantive enough to influence Nigeria output despite the fact that domestic output(Income) strive hard to contribute to volume of export.On the other hand there exist bi-direction causation between EXRGAPO and the GDP (this explains over-dependence of Nigeria on oil as a main source of foreign reserves and revenue)

Table6 THE DYNAMIC MODEL
PARSIMONIOUS ERROR CORRECTION

Dependent Variable: D(GDP)

Method: Least Squares

Date: 05/27/11   Time: 12:51

Sample (adjusted): 1985 2008

Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP,2)	0.994021	0.096093	10.34435	0.0000
D(GDP(-1),2)	0.766580	0.216892	3.534393	0.0123
D(FDI)	6.215934	2.176965	2.855321	0.0290
D(FDI(-1))	23.77204	2.873354	8.273270	0.0002
D(FDI(-1),2)	-18.01395	2.380672	-7.566749	0.0003
D(EXR,2)	-7982.242	1470.728	-5.427409	0.0016
D(EXR)	16917.68	1784.414	9.480801	0.0001

D(EXRGAPNO,2)	0.897625	0.250627	3.581511	0.0116
D(EXRGAPNO(-1),2)	0.577011	0.234495	2.460651	0.0491
D(EXRGAPO)	-0.035001	0.034590	-1.011874	0.3507
D(EXRGAPO(-1))	-0.359771	0.082210	-4.376250	0.0047
D(EXRGAPO(-1),2)	0.256106	0.074176	3.452683	0.0136
D(EXRGAPT)	-0.402629	0.154967	-2.598156	0.0408
D(EXRGAPT(-1))	-0.208298	0.335430	-0.620989	0.5574
D(EXRGAPT(-1),2)	-0.013988	0.192906	-0.072510	0.0446
D(EXRGAPB)	-0.519157	0.623060	-0.833237	0.0366
D(EXRGAPB(-1),2)	-0.020218	0.248335	-0.081413	0.9378
ECM(-1)	-0.060464	0.094023	0.643075	0.0440

R-squared	0.999431	Mean dependent var	990820.7	
Adjusted R-squared	0.997817	S.D. dependent var	1605820.	
S.E. of regression	75028.93	Akaike info criterion	25.40284	
Sum squared resid	3.38E+10	Schwarz criterion	26.28638	
Log likelihood	-286.8341	Durbin-Watson stat	1.862766	

Model Re-specification

$D (GOP) = \acute{6}_0 + \beta_1 D(GDP,2) + \beta_2 D(GDP(-1),2) + \beta_3 D(FDI) + \beta_4 D(FDI(-1)) + \beta_5 D(FDI(-1),2) + \beta_6 D(EXR,2) + \beta_7 D(EXR) + \beta_8 D(EXRGAPNO,2) + \beta_9 D(EXRGAPNO(-1),2) + \beta_{10} D(EXRGAPO) + \beta_{11} D(EXRGAPO(-1),2) + \beta_{12} D(EXRGAPT) + \beta_{13} D (EXRGAPT(-1)) + \beta_{14} D(EXRGAPT(-1),2) + \beta_{15} D (EXRGAPB) + \beta_{16} D(EXRGAPB(-1),2) + \delta ECM_{t-1} + U_t$

    A- Priori Expectation

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7 > 0$; $\beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{13}, \beta_{14}, \beta_{15}, \beta_{16} < 0$; $\delta < 0$ Where β_1 .... β_{16}

are parameters, and δ is called speed of adjustment must be negative to indicate disequilibrium.

$D (GDP) = 0.994 D(GDP,2) + 0.767 D(GDP(-1),2) + 6.216 D(FDI) + 23.772 D(FDI(-1)) - 18.014 D(FDI(-1),2) - 7982.242 D(EXR,2) + 16917.68 D(EXR) + 0.898 D(EXRGAPNO,2) + 0.577 D(EXRGAPNO(-1),2) - 0.035 D(EXRGAPO) - .360 D(EXRGAPO(-1),2) - 0.402 D(EXRGAPT) - 0.208 D (EXRGAPT(-1)) - 0.014 D(EXRGAPT(-1),2) - 0.519 D (EXRGAPB) - 0.020 D(EXRGAPB(-1),2) - 0.060 ECM_{t-1} + U_t$

The error correction variable (ECM) which is significant at 5% with negative sign which indicates that GDP is below equilibrium and there is need to increase it in the short run. It should be noted also that the significant of the ECV (error correction variable i.e. ECM) is an indication that there exist short run disequilibrium among the variables. The mechanism for adjustment from short run drift to long run equilibrium is represented by the co-efficient of the ECM(-1) which is known as speed of adjustment from which we can conclude that only 1% of the disequilibrium can be correctly annually which imply that it will take a hundred year to adjust to long run equilibrium.

All the included explanatory variables are at one level or the other significant except LAG EXRGAPT and LAG EXRGAGB which are not considered to be variable of interest in the model. It is equally cleared here that GDP and FDI are two indispensable variables both in short run and the long run all the exchange rate gaps have negative sign as expected and are statistically significant. The R^2 shows 99% reliability as well as the adjusted R^2.

Robustness of the model is further supported by the value of our log like hood.

IV. CONCLUSION AND RECCOMENDATION

From the foregoing, we have been able to establish that gaps do exist in Nigerian economy as proposed by Holis Chenery that LDCs suffers from the 2-gaps. We equally found out that gaps affects the economic performance in Nigeria both in the short and long run but savings gap eroded in the long run, and that foreign direct investment has done a great deal in bridging the gaps, though not sufficient enough, this agree with Adeolu B.A(2008), Globerman(1979), blomstron (1986), Inibriani and Reganeti(1997). We equally investigated the effect of FDI on both import and export and found that it promote the duo. Which in imply that FDI in Nigeria is of export promotion and not import substitution.

We, however recommended as follows;

[1] That Government should intensify effort to attract more foreign investment by providing enabling environment (laws and ethics, and infrastructural development in addition to socio political stability)

[2] That FDI should not be grossly relied upon for it has its own cost, such as capital flight, increase in importation, which could further dis-equilibrate the Nigerian balance of payment, etc. This is because FDI in Nigeria stimulate both export and imports both in the short and long run, a considerable mild FDI is needed in the long run in order not to widen the existing exchange rate gap.

[3] That Government should create more jobs which would simultaneously increase domestic output, income, savings and consumption and through multiplier effect generates further jobs

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APPENDIX
Pairwise Granger Causality Tests
Date: 05/27/11   Time: 12:19
Sample: 1980 2008
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Probability
IMP does not Granger Cause EXPT	27	0.55172	0.58372
EXPT does not Granger Cause IMP		14.6510	9.0E-05
GDP does not Granger Cause EXPT	27	6.78140	0.00508
EXPT does not Granger Cause GDP		4.24441	0.02761
FDI does not Granger Cause EXPT	27	1.29317	0.29445
EXPT does not Granger Cause FDI		8.44628	0.00190
EXRGAPB does not Granger Cause EXPT	27	0.48867	0.61994
EXPT does not Granger Cause EXRGAPB		5.43159	0.01210
EXRGAPNO does not Granger Cause EXPT	27	3.66062	0.04243
EXPT does not Granger Cause EXRGAPNO		3.33110	0.05448
EXRGAPO does not Granger Cause EXPT	27	5.68484	0.01023
EXPT does not Granger Cause EXRGAPO		8.56515	0.00177
EXR does not Granger Cause EXPT	27	9.71130	0.00095
EXPT does not Granger Cause EXR		0.51106	0.60681
EXRGAPT does not Granger Cause EXPT	27	2.83512	0.08026
EXPT does not Granger Cause EXRGAPT		17.0113	3.4E-05

GDP does not Granger Cause IMP	27	7.30983	0.00368
IMP does not Granger Cause GDP		6.10804	0.00776
FDI does not Granger Cause IMP	27	10.5077	0.00063
IMP does not Granger Cause FDI		5.20427	0.01411
EXRGAPB does not Granger Cause IMP	27	14.8135	8.4E-05
IMP does not Granger Cause EXRGAPB		5.37739	0.01255
EXRGAPNO does not Granger Cause IMP	27	5.12609	0.01488
IMP does not Granger Cause EXRGAPNO		2.91707	0.07521
EXRGAPO does not Granger Cause IMP	27	7.20107	0.00393
IMP does not Granger Cause EXRGAPO		4.68495	0.02018
EXR does not Granger Cause IMP	27	9.48334	0.00107
IMP does not Granger Cause EXR		0.45234	0.64192
EXRGAPT does not Granger Cause IMP	27	7.96411	0.00250
IMP does not Granger Cause EXRGAPT		20.5224	9.3E-06
SAVGAP does not Granger Cause IMP	5	NA	NA
IMP does not Granger Cause SAVGAP		NA	NA
FDI does not Granger Cause GDP	27	5.64332	0.01051
GDP does not Granger Cause FDI		33.0041	2.4E-07
EXRGAPB does not Granger Cause GDP	27	5.15896	0.01455
GDP does not Granger Cause EXRGAPB		10.6214	0.00059
EXRGAPNO does not Granger Cause GDP	27	1.99027	0.16052
GDP does not Granger Cause EXRGAPNO		8.12234	0.00228
EXRGAPO does not Granger Cause GDP	27	8.86556	0.00150
GDP does not Granger Cause EXRGAPO		14.4864	9.7E-05
EXR does not Granger Cause GDP	27	5.08142	0.01534
GDP does not Granger Cause EXR		0.02542	0.97493
EXRGAPT does not Granger Cause GDP	27	3.86040	0.03656
GDP does not Granger Cause EXRGAPT		6.86958	0.00481
SAVGAP does not Granger Cause GDP	5	NA	NA
GDP does not Granger Cause SAVGAP		NA	NA
EXRGAPB does not Granger Cause FDI	27	12.3940	0.00025
FDI does not Granger Cause EXRGAPB		10.1802	0.00074
EXRGAPNO does not Granger Cause FDI	27	7.13105	0.00410
FDI does not Granger Cause EXRGAPNO		25.7908	1.7E-06

EXRGAPO does not Granger Cause FDI	27	55.5645	2.5E-09
FDI does not Granger Cause EXRGAPO		97.1672	1.2E-11
EXR does not Granger Cause FDI	27	4.99817	0.01624
FDI does not Granger Cause EXR		0.16245	0.85106
EXRGAPT does not Granger Cause FDI	27	65.7634	5.2E-10
FDI does not Granger Cause EXRGAPT		3.04980	0.06776
SAVGAP does not Granger Cause FDI	5	NA	NA
FDI does not Granger Cause SAVGAP		NA	NA
EXRGAPNO does not Granger Cause EXRGAPB	27	3.73900	0.04001
EXRGAPB does not Granger Cause EXRGAPNO		15.6807	5.9E-05
EXRGAPO does not Granger Cause EXRGAPB	27	125.105	9.6E-13
EXRGAPB does not Granger Cause EXRGAPO		58.4255	1.6E-09
EXR does not Granger Cause EXRGAPB	27	7.56787	0.00315
EXRGAPB does not Granger Cause EXR		0.38006	0.68822
EXRGAPT does not Granger Cause EXRGAPB	27	25.2046	2.0E-06
EXRGAPB does not Granger Cause EXRGAPT		3.67431	0.04199
SAVGAP does not Granger Cause EXRGAPB	5	NA	NA
EXRGAPB does not Granger Cause SAVGAP		NA	NA
EXRGAPO does not Granger Cause EXRGAPNO	27	25.6626	1.8E-06
EXRGAPNO does not Granger Cause EXRGAPO		4.91126	0.01724
EXR does not Granger Cause EXRGAPNO	27	3.94916	0.03424
EXRGAPNO does not Granger Cause EXR		0.50425	0.61077
EXRGAPT does not Granger Cause EXRGAPNO	27	6.89071	0.00475
EXRGAPNO does not Granger Cause EXRGAPT		8.14052	0.00226
SAVGAP does not Granger Cause EXRGAPNO	5	NA	NA
EXRGAPNO does not Granger Cause SAVGAP		NA	NA
EXR does not Granger Cause EXRGAPO	27	3.56608	0.04556
EXRGAPO does not Granger Cause EXR		0.17815	0.83801
EXRGAPT does not Granger Cause EXRGAPO	27	52.9974	3.9E-09
EXRGAPO does not Granger Cause EXRGAPT		0.85306	0.43973
SAVGAP does not Granger Cause EXRGAPO	5	NA	NA
EXRGAPO does not Granger Cause SAVGAP		NA	NA
EXRGAPT does not Granger Cause EXR	27	0.39258	0.67995
EXR does not Granger Cause EXRGAPT		8.72752	0.00162

SAVGAP does not Granger Cause EXR	5	NA	NA
EXR does not Granger Cause SAVGAP		NA	NA
SAVGAP does not Granger Cause EXRGAPT	5	NA	NA
EXRGAPT does not Granger Cause SAVGAP		NA	NA