Do Oil And Non-Oil Balance of Trade Impact Similarly on Malaysia and Nigeria GDP?

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Abstract

Despite the fact that there is a close link between GDP and the balance of trade, limited studies focussed on the oil and non-oil dichotomised effects of net exports or balance of trade on the GDP. This study therefore, painstakingly investigates specifically the impact of oil and non-oil balance of trade on Malaysia and Nigeria GDP. Data were collected for period 1971-2010 and regression equations defining oil, non-oil and total balance of trade as independent variables and GDP as dependent variable is employed to analyse data. Augmented Dickey-Fuller Tests equation was employed to perform unit root tests for stationary and cointegration tests. From the analysis, oil, nonoil and total balance of trade contributes immensely to the Malaysia GDP. Contrary, only the oil and total balance of trade impact positively on the Nigeria GDP. The Nigeria non-oil balance of trade on the whole has performed below expectation thereby impacting adversely on the Nigeria GDP. Though Nigeria total balance of trade show better results, sectoral impact of the non-oil sector is much more significant a determinant of the quality of a country's GDP. This study therefore recommends that Nigeria should enhance her export promotion strategies and diversify her economy far away from crude oil.
Key words: Oil, Non-oil, Total balance of trades, GDP, Exports, Imports

1. Introduction

Foreign trade has become more important to our economy in recent years. Exports and imports of goods and services have grown rapidly. A growing trade volume benefits our standard of living in

several ways (McTeer, 2008). Despite the question that whether international trade will lead to higher economic growth is an old question which has been discussed among exports supporters and protectionists with evidences that theorists of both sides have affected policymaking in different countries with different levels of development from the time of Adam Smith, John Stuart Mill, and Keynes up to now (Mehrara, Musai & Nasibparast, 2012), for most Asian countries, since foreign trade plays an important role in their economies, these are worrying times (Economist Intelligence Unit, 2008). Thus, with deteriorating trade balances characterizing some economies (Bernheim, 1987), it becomes imperative and overwhelming to investigate the impact of oil and non-oil balance of trade on Malaysia and Nigeria GDP's. The results of this study will reflect Malaysia and Nigeria trade openness and integration in the world economy.

Prior studies on the link between balance of trade and economic growth benchmark the basic aspects of economic life (production, income, consumption, accumulation and wealth) with GDP. Thus, for many analysts, Gross Domestic Product (GDP) is the key economic aggregate as it measures the total value added for the economy in any period (ONS, 2013). Suranovic & Flat World Knowledge (2010) equally affirmed that the most important macroeconomic variable tracked by economists and the media is the gross domestic product (GDP). Though most of prior studies investigations of this subject matter are one sided- either investigating the relationship between export or imports and GDP, their findings are quite supportive.

Notable among these studies include: Abdulai & Jaquet (2002) who investigated the relationship between exports and economic growth through regression analysis and found that by their positive coefficients, investment, exports, labor force, and GDP move "in the same directions in the long run"). Giving consideration to the importance of the relationship between exports and growth for developing nations, Pandhi (2007) analyses the theories behind the role that exports play in growth using regression analysis for four African nations' (Democratic Republic of the Congo, Guinea Bissau, Malawi and Nigeria) economic data from 1981-2003 and results show a mostly positive relationship between exports and growth and mixed results for the other independent variables, investment and population. Anwer & Sampath (1997) utilizing unit root and cointegration techniques equally evidenced that of 96 countries only 8 shows unidirectional or bidirectional causality from exports to GDP with positive relationship between the two variables. Causality from GDP to Exports with positive relationship between the two variables is found for only 9 countries. Similarly granger causality relationship between nonoil export and economic growth was investigated based on panel cointegration analysis for 73 developing countries during the period 1970-2007 by Mehrara, Musai & Nasibparast (2012) and results show that in both bi- and trivariate models, there is bidirectional long-run causality between export and GDP growth for both groups of countries.

In addition, Ibrahim (2002) focuses on a new estimate of Feder (1982)'s model on productivity and externality effect of exports in six Asian countries. Econometric issues were addressed with the use of cross-sectional analysis. The results show that the coefficients of the models reduce substantially when the analysis is adjusted for stationarity and the effect of exports on growth and productivity is found to be positively significant and the export sector is found to have a positive effect on non-export sector. Prasada & Narayanb (2006) are not left out as they investigate the contribution of exports and investment to gross domestic product over the period 1962–2000. They found out that weighted exports positively contribute to economic growth in Fiji. Ekanayake (1999) has used cointegration and error-correction models to analyse the causal relationship between export growth and economic growth in eight Asian developing countries using annual data from 1960 to 1997 and provided strong evidence supporting the export-led growth hypothesis.

From the point of view of the relationship of imports and GDP, Mori et al. (2011) using the bivariate cointegration and causality analysis based on the Engle-Granger two steps, Johansen, Toda-Yamamoto, and Hsiao's Granger procedures to analyse the relationship between the economic growth and the import in Malaysia from 1970 to 2007 affirmed that there is no cointegration between economic growth and import, but there exists bilateral causality between economic growth and import. Also, Sewasew (2002) investigating the relationship between import and GDP growth, and the contribution of imported intermediate and capital goods to economic growth during the period 1960/61-1999/2000 in Ethiopia evidenced that the long run elasticity of imports with respect to real GDP is positive but it is insignificant at 5 percent level of significance. On the other hand, the short run elasticity of imports with respect to real GDP is positive and significant. In addition, Ahmet (2008)

attempt to analyze empirically the relationship between imports and economic growth in Turkey and empirical results derived from IRFs and VDCs show that while there is a bidirectional relationship between GDP and investment goods import and raw materials import, there is a unidirectional relationship between GDP and consumption of goods and other goods import. However, the affirmation of Chang, Simo-Kengne & Gupta (2008) that import liberalisation might not be an efficient strategy to improve provincial economic performance in South Africa produce mix arguments in this area.

Furthermore, though there are limited few studies that investigate the overall relationship between foreign trade and GDP, their results are equally mixed. On this issue, Chen (2009) confirmed that economists at home and abroad used the relative data of China and got different conclusions by different methods. Also, George & Xiangnan (2002) in their attempt to establish a causal relations between the growth rates of exports, imports, and the GDP of Canada and the United States using the vector error correction (VEC) model evidenced bidirectional causality for Canada from the foreign sector to GDP and vice versa but a weaker relationship between the foreign sector and GDP for the United States. Confirming parallelism in result, they equally affirmed that the granger causality tests suggest that Canada is a more open economy than the United States and more trade dependent. Yet, Amiri & Gerdtham (2011) introducing a new way of investigating linear and nonlinear Granger causality between exports, imports and economic growth in France over the period 1961-2006 with using geostatistical models (kiriging and inverse distance weighting) evidenced that of both VEC and Improved-VEC (with geostatistical methods) are similar and show existence of long run unidirectional causality from exports and imports to economic growth.

In another dimension, while economies particularly, of oil and mineral naturally endowed nations such as Malaysia and Nigeria are usually classified into oil and non-oil sectors (Oyejide & Adewuyi, 2011, Luqman & Lawal, 2011), previous studies focus on the wholesome relationship between balance of trades and GDP without considering the specific impacts of the oil and non-oil subsector. This distinction is crucial in the spate of identifying economic diversified factors that impact on economic progress (Osuntogun, Edordu & Oramah, 1997). For example, prior to the 1970s, Nigeria's exports were predominantly non-oil commodities with agricultural commodities accounting for the lion share. However, in the 1970s, when the price of crude oil in the international market sky rocketed, the share of non-oil exports began falling and has remained low ever since (Adesoji & Sotubo 2013). As at 1996, crude oil constituted about 97.4% of total export earnings while non-oil exports accounted for only 2.6% (Yesufu, 1996) consequently, according Nigeria an alarming status of a mono-product economy (Ozurumba & Chigbu, 2013). Therefore, there is a gap in the literature between oil and non-oil balance of trade and GDP of Malaysia and Nigeria Economies.

Finally, Gorman (2003) present evidence that the answer to the question- trade deficits: bad or good?, generate several different views. While some economists who oppose trade deficits see them as a symptom, rather than a cause, of trouble, specifically bad central bank policy, others that consider trade deficits good associate them with positive economic developments, specifically, higher levels of income, consumer confidence and investment. Yet, some economists see trade deficits as mere expressions of consumer preferences and as immaterial. It is against this background that this study is set to provide specifically an analytical and empirical investigation of the impact of oil and non-oil balance of trade on the Malaysia and Nigeria GDP.

This study is divided into the following sections. Section one is the introduction. Section two discusses related literatures on GDP, measures of GDP, strength and weaknesses of GDP, oil and non-oil economic sectors, relationship between balance of trade and balance of payments accounts and its subdivisions and the relationship between exports, imports and GDP. Section three focuses on the methodology including variables definitions. Section four is centred on data analysis and interpretation of results. Section five is all about conclusions and possible recommendations.

2. Literature Review

2.1. Gross Domestic Product (GDP) Concept

For more than a half century, the most widely accepted measure of a country's economic progress has been changes in its Gross Domestic Product (GDP). The GDP has maintained a firm

position as a dominant economic indicator. Indeed, most economists in business and government, teachers of economics at various levels of education, and journalists, policy makers and politicians (regardless of their political preferences) continue to give much importance to GDP and calling for unconditional GDP growth (Jeroen, 2009).

GDP is an estimate of market throughput, adding together the value of all final goods and services that are produced and traded for money within a given period of time. It is typically measured by adding together a nation's personal consumption expenditures (payments by households for goods and services), government expenditures (public spending on the provision of goods and services, infrastructure, debt payments, etc.), net exports (the value of a country's exports minus the value of imports), and net capital formation (the increase in value of a nation's total stock of monetized capital goods) (Costanza, Hart, Posner & Talberth, 2009). GDP is the way economists calculate how much an economy is producing in total goods and services. It is usually calculated by adding together several categories of spending, including consumer spending, investment and government spending (Mcteer (2008). Suranovic & Flat World Knowledge (2010) equally defined GDP as the value of all final goods and services produced within the borders of a country during some period of time, usually a year. In summary, Jeroen (2009) affirmed that gross domestic product (GDP) is the monetary, market value of all final goods and services produced in a country over a period of a year.

Due to the fact that GDP is a fundamental universal economic indicator and the real GDP per capita (corrected for inflation) is generally used as the core indicator in judging the position of the economy of a country over time or relative to that of other countries (Jeroen, 2009), this study conjectures that investigating the relationship between oil, non-oil, total balance of trade and GDP will provide information on the importance and development of the Malaysia and Nigeria foreign trade activities in both a national and international context in terms of their openness and integration in the world economy.

2.2. GDP Measurements

According to the Office for National Statistics (2013) and Australian Bureau of Statistics (1998) GDP may be measured using production, income and expenditure approaches. The expenditure-based measure of GDP is derived as final consumption expenditure by government and households, plus investment in fixed capital formation and changes in inventories, plus exports minus imports of goods and services, plus (or minus) the statistical discrepancy. Exports and imports are the same as the balance of payments components, exports and imports of goods and services. The income-based measure of GDP shows the components of factor income, namely compensation of employees, gross operating surplus and mixed incomes, plus taxes less subsidies on production and imports. The production-based measure of GDP is shown as total gross output at purchasers' prices less intermediate consumption.

Conceptually these measures are equal, but because different and imperfect data sources are used to measure each approach, the measures may differ in practice. This difference is reflected in the statistical discrepancy item. The National Accounts are regularly benchmarked to balanced annual supply and use (input-output) tables. This ensures that, except for the latest year, the three measures of GDP are equal on an annual basis, though there will still be a statistical discrepancy between the quarterly estimates based on the three approaches (Office for National Statistics, 2013 and Australian Bureau of Statistics, 1998).

2.3. Strengths and Weaknesses of GDP

Despite the fact that GDP is the one indicator that says the most about the health of the economy (Barnes, 2012), prior studies have identified the strength, weaknesses and ultimately the limit to which GDP should be used to assess economic welfare and standards. Haggart (2000) applaud GDP for providing a better snapshot of an economy than any existing measure and its growth – that is, economic growth writ large – is an important contributor to overall welfare. Barnes (2012) equally affirmed that GDP is considered the broadest indicator of economic output and growth; real GDP takes inflation into account, allowing for comparisons against other historical time periods and that the Bureau of Economic Analysis issues its own analysis document with each GDP release, which is a

great investor tool for analysing figures and trends, and reading highlights of the very lengthy full release.

However, Haggart (2000) identified as weaknesses that GDP excludes non-market activities, do not contribute to economic welfare, measures only flows, not stocks, ignores distributions of income and consumption and measures only those items that can be priced, it automatically excludes things that are not in the economic sphere, such as a low crime rate, family stability and clean air. Similarly, Suranovic & Flat World Knowledge (2010) posits as short falls that GDP only measures the amount of goods and services produced during the year and fails to recognize the size of the population that it must support, gives no account of how the goods and services produced by the economy are distributed among members of the economy, its growth may overstate the growth of the standard of living since price level increases (inflation) would raise its measurement, measures the value of production in the economy rather than consumption, which is more important for economic well-being and sometimes, economies with high GDPs may also produce a large amount of negative production externalities.

2.4.   Economic Sector: Oil and Non-Oil Sector

In lieu of the objective of this study, economic classification is important in providing a framework for understanding and determining the impact of specific economic activities on Malaysia and Nigeria GDP. The question is: how does a state's natural resource wealth influence its GDP? Efforts by prior studies attempt dichotomising economy of natural endowed states into oil and non-oil, Oyejide & Adewuyi (2011) in their quest to establish linkages of oil and gas industry with other sectors of the economy evidenced that crude oil has played an important role in our modern civilisation. It has transformed agriculture and industry and has revolutionised the means of transport. The oil sector has become the basis of vast petrochemical industries that produce fibres, plastics, synthetic rubber, fertilisers, pesticides, synthetic resins and a host of other end-products.

The major compositions of energy in the world are crude oil, coal, solar etc. Crude oil however has always been the major source of energy that is most important to countries of the world that have the drive for industrialisation (Oyejide & Adewuyi (2011). Petroleum or crude oil is an oily, bituminous liquid consisting of a mixture of many substances, mainly the element of carbon and hydrogen known as hydrocarbons. It also contains very small amounts of non-hydrocarbon elements, chief amongst which are sulphur (about 0.2 to 0.6% in weight), then nitrogen and oxygen. (Anyanwu et al, 1997). Nigeria is among the top 5 exporters of petroleum in the world. The top crude oil exporters' countries are Saudi Arabia, Russian Fed, and Norway. Others are Nigeria and United Arab Emirates. However, Malaysia equally endowed with crude is neither classified as a major exporter or importer of crude oil.

Conversely, non-oil activities can be broadly classified into three, namely: agricultural produce, manufactured activities or industries and machineries (Ajakaiye & Ojowu, 1994). These activities have great potentials. (Ozurumba & Chigbu (2013). Thus, non-oil exports/imports comprises of agricultural products, chemicals, manufactured goods such as textile, tyre etc, machineries, manpower, etc. it is made up of every other thing exported or imported, except petroleum products. In the decades of the 1960s and 1970s, the Nigeria economy was dominated by agricultural commodity which played significant roles in the economy before the advent of crude oil. It contributed largely to Nigeria's Gross Domestic Product (GDP) and it was also the primary source of foreign exchange (Uniamikogbo, 1988). Such commodities include cocoa, groundnut, cotton and palm produce. From the mid-1970s, crude oil became the main export produce of the Nigerian economy. (Anyanwu et al, 1997).

2.5.   Relationship between Balance of Payments and Balance of Trades

At this juncture, distinction between balance of payments and balance of trade is imperative. The balance of payments is a statistical statement that systematically summarizes, for a specific time period, the economic transactions of an economy with the rest of the world (Aniekan, 2013; International Monetary Fund, 1993). Gottheil (2005) equally, define balance of payments as an itemized account of a nation's foreign economic transactions. Thus, the financing of a nation's international trade and its other financial transactions with the rest of the world are recorded in its balance of payments. A number of assumptions, explicit or implicit, underlay the economic analysis

of payments adjustment in the fifties and sixties and the resulting implications for balance-of-payments policies (Whitman, 1975). Notably, net exports were assumed to be a function of aggregate demand and of relative prices at home and abroad.

As a part of balance of payments, balance of trade refers to the export and import of visible items, i.e., material goods. It is the difference between the value of visible exports and imports. Visible items are those items which are recorded in the customs returns; for example, material goods exported and imported. If the value of visible exports is greater than that of visible imports, the balance of trade is favourable. If the value of visible imports is greater than that of visible exports the balance of trade is unfavourable; if the value of visible exports is equal to that of visible imports, the balance of trade is in equilibrium. Balance of trade is also known as merchandise account of exports and imports (Preserve Articles, 2012). In a nutshell, balance of payments is a broader term than balance of trade; balance of payments includes both visible as well as invisible items, whereas balance of trade includes only visible items.

Although there are alternative theories of balance of payments adjustments, namely; the elasticities and absorption approaches (associated with Keynesian theory) (Aniekan, 2013) and different definitions of the balance-of-payments deficit or surplus have been used in the past with each definition having different implications and purposes (Stein, 2013), the major objective of this analysis by different countries is to restore equilibrium, or reduce disequilibrium, in the balance of payments. Therefore, consistent with Keynesian analysis, this study emphasis on the components of aggregate demand and focused on the balance of trade (net exports of goods and services) (Whitman, 1975).

Thus, oil, non-oil and total balance of trades is defined as the respective differences between oil exports and imports, non-oil exports and imports and total exports and imports. The totals of exports and imports for oil and non-oil activities vis-à-vis total trade are not equal, evidencing inequalities—excesses of exports or imports, called deficits or surpluses for oil, non-oil and combined transactions. Consequently, of the divisions of international transactions into the current account, capital account, and financial account emphases and discussions is limited to the items on the current accounts.

2.6.   Subdivisions of Balance of Payments Accounts

A nation's balance of payments is made up of accounts as measures of international trade. The precise partitioning of these groups' varies between countries and over time. Though balance of payments is divided into four traditional subdivisions: (1) current account, (2) unilateral account, (3) capital account and (4) gold (Pippenger, 1973), prior studies mostly emphasises on current and capital accounts. For the purpose of this study and consistent with Kaplan (2002) light is shed on these classifications.

a)   The current account deals with the trade of goods and services between two countries. An export is a good (or service) that is sent from the domestic country and purchased abroad. An import is a foreign produced good that is imported for domestic consumption. The monetary value of exports from a country and imports into a country are measured in the current account. If the value of a country's exports exceeds the value of the goods and services it imports, then that country has a trade surplus, and a trade deficit holds if otherwise.

b)   A unilateral account is necessary because a gift is a one-sided transaction. If we export something as a gift, there is no payment. In order to meet the requirement of double entry bookkeeping, the country creates a unilateral account and enter in that account what would have been the payment for the gift. In addition to a purely accounting function, a unilateral or gift account also helps separate gifts from other transactions. It should be understood, however, that a unilateral account does not record what a country gives or receives as a gift, but what would have been the payment. Thus, a debit entry in a unilateral account indicates that the country gave a gift, not that the country received one.

c)   The capital account measures monetary flows between countries used to purchase financial assets such as stocks, bonds, real estate and other related items. When foreign saver purchases shares of a U.S. corporation on the New York Stock Exchange, or a hotel located in the U.S., they are sending money into the U.S., leading to an increase in the capital account balance of the United States. In this case, the value of the assets (stocks brought and sold on the New York Stock Exchange) or the assets itself (the hotel) remains in the United States. If U.S citizens decide to buy shares of a foreign company on the London exchange, these citizens are sending money out of the U.S. through the

capital account. A capital account surplus indicates that more foreign money is entering a country than leaving it.

d)   All official purchases or sales of gold are recorded in the gold account. The import and export of gold for commercial purposes, however, are entered in the current account.

Note: Balance of-payments statistics follow the principle of double entry bookkeeping. Since exports are recorded as credits the payment received for exports must be recorded as a debit and since imports are debits, it follows that the payment made on imports must be recorded as a credit. That is, what is giving up in every transaction is recorded as a credit and what is received is recorded as a debit. As earlier mentioned, in view of the objective of this study, emphases and focus is on the capital account of balance of payments, particularly, the exports and imports of visible merchandise.

2.7.   Exports, Imports and GDP

The relationship between exports, imports and GDP were provided in prior literatures. Mcteer (2008) affirmed that exports of goods and services generate income at home and so they are also a component of GDP Imports, on the other hand, generate income abroad, so they are subtracted from the other categories of spending to get a more complete picture of how much an economy is actually producing. Higher exports and lower imports add to GDP, while reduced exports and higher imports contract GDP. In other words, while the value of both exports and imports are included in the GDP report, imports are subtracted from total GDP, meaning that all consumer purchases of imported items are not counted as contributions toward GDP (Barnes, 2012).

Confirming this position, Gorman (2003) presents a mathematical formula for gross domestic product, C + I + G + (Ex - Im). The expression (Ex - Im) equals net exports, which may be either positive or negative. If net exports are positive, the nation's GDP increases. If they are negative, GDP decreases. Gorman equally posits that though all nations want their GDP to be higher rather than lower, so all nations want their net exports to be positive, it is not possible for all nations to have positive net exports because one or more nations must import more than they export if the others export more than they import. Thus, this study is set to investigate the Malaysia and Nigeria oil and non-oil net exports differential status impact on their respective GDP.

3. Methodology

3.1.   Model Specification

Drawing from the literature, our framework of analysis is the augmented traditional linear regression model. This study formulates three linear regressions respectively for Malaysia and Nigeria. First regresses GDP as the dependent variable on oil balance of trade, second, GDP on non-oil balance of trade and finally on total balance of trade. Balance of trade is measured as the differences between oil exports and oil imports, non-oil exports and non-oil imports and total exports and total imports and is directly captured from the current account. GDP is measured at current basic price.

3.2.   Dependent and Independent Variables

To McGraw-Hill (2012) there's nothing very tricky about the notion of independence and dependence. But there is something tricky about the fact that the relationship of independence and dependence is a figment of the researcher's imagination until demonstrated convincingly. Researchers are most interested in relationship among variables and ultimately hypothesize relationships of independence and dependence. In order words, variables are usually dichotomised into presumed reasons and presumed effects, stimulus and response, predicted from and predicted to, antecedent and consequence, manipulated and measured outcome and predictor and criterion. Therefore this research addresses GDP as the dependent, criterion, measured outcome and response variable and oil, non-oil and total balance of trades as independent, predictor or stimulus variable.

3.3.   Test of unit root

With the formulated models above, this study carry out estimations of the model using the cointegration tests and tested for stationarity of the series using the Augmented Dickey Fuller (ADF).

4. Analysis and Interpretation of Data

4.1. Malaysia Models

Oil Balance of Trade and GDP: **MGDP = -52705.62 + 14.8866MOBT**

Dependent Variable: MGDP
Method: Least Squares
Date: 08/16/13   Time: 13:04
Sample: 1971 2010
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-52705.62	21182.96	-2.488114	0.0173
MOBT	14.88662	0.911604	16.33014	0.0000
R-squared	0.875276	Mean dependent var		225348.9
Adjusted R-squared	0.871994	S.D. dependent var		222759.0
S.E. of regression	79698.52	Akaike info criterion		25.45860
Sum squared resid	2.41E+11	Schwarz criterion		25.54304
Log likelihood	-507.1719	Hannan-Quinn criter.		25.48913
F-statistic	266.6734	Durbin-Watson stat		0.686013
Prob(F-statistic)	0.000000			

The estimated coefficient b1, the intercept in this oil balance of trade and GDP model is recorded as the coefficient on the variable C in this study. C is the term for constant in a regression model. Results show C = -52705.62. The estimated value of the slope coefficient on the variable Malaysia oil balance of trade (MOBT) is 14.8866. The interpretation of MOBT is: for every RM100 increase in annual Malaysia oil balance of trade (MOBT) this study estimates that there is about RM14.8866 increase in annual GDP, holding all other factors. Though a negative value for the constant/intercept of -52705.62 should not be a cause for concern, this study links this negative value to the fact that the independent variable (MOBT) has a strongly positive relationship to the dependent variable (GDP).

Non-Oil Balance of Trade and GDP: MGDP = 153220.5+ 5.9917MNBT

Dependent Variable: MGDP
Method: Least Squares
Date: 08/16/13   Time: 13:06
Sample: 1971 2010
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	153220.5	19365.90	7.911871	0.0000
MNBT	5.991681	0.572115	10.47287	0.0000
R-squared	0.742689	Mean dependent var		225348.9
Adjusted R-squared	0.735917	S.D. dependent var		222759.0
S.E. of regression	114473.6	Akaike info criterion		26.18278
Sum squared resid	4.98E+11	Schwarz criterion		26.26723
Log likelihood	-521.6556	Hannan-Quinn criter.		26.21331
F-statistic	109.6810	Durbin-Watson stat		0.495150
Prob(F-statistic)	0.000000			

As earlier mentioned, C is the term for constant in a regression model. Results show C = 153220.5. The estimated value of the slope coefficient on the variable Malaysia non-oil balance of

trade (MNBT) is 5.9917. The interpretation of MNBT is: for every RM100 increase in annual Malaysia non-oil balance of trade (MNBT) this study estimates that there is about RM5.9917 increase in annual GDP, holding all other factors.

Total Balance of Trade and GDP: MGDP = 80961.71 + 4.7276MTBT

Dependent Variable: MGDP
Method: Least Squares
Date: 08/16/13   Time: 13:06
Sample: 1971 2010
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	80961.71	15894.53	5.093682	0.0000
MTBT	4.727603	0.299818	15.76823	0.0000
R-squared	0.867428	Mean dependent var		225348.9
Adjusted R-squared	0.863939	S.D. dependent var		222759.0
S.E. of regression	82167.75	Akaike info criterion		25.51962
Sum squared resid	2.57E+11	Schwarz criterion		25.60406
Log likelihood	-508.3924	Hannan-Quinn criter.		25.55015
F-statistic	248.6370	Durbin-Watson stat		0.632249
Prob(F-statistic)	0.000000			

Results also show that C = 80961.71. The estimated value of the slope coefficient on the variable Malaysia total balance of trade (MTBT) is 4.7276. The interpretation of MTBT is: for every RM100 increase in annual Malaysia total balance of trade (MTBT) this study estimates that there is about RM4.7276 increase in annual GDP, holding all other factors.

4.2.   Nigeria Models

Oil Balance of Trade and GDP: NGDP = 99409.91+ 2.9632NOBT

Dependent Variable: NGDP
Method: Least Squares
Date: 08/16/13   Time: 13:08
Sample: 1971 2010
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	99409.91	240997.3	0.412494	0.6823
NOBT	2.963241	0.078973	37.52209	0.0000
R-squared	0.973719	Mean dependent var		4632481.
Adjusted R-squared	0.973027	S.D. dependent var		8030358.
S.E. of regression	1318855.	Akaike info criterion		31.07113
Sum squared resid	6.61E+13	Schwarz criterion		31.15558
Log likelihood	-619.4226	Hannan-Quinn criter.		31.10166
F-statistic	1407.907	Durbin-Watson stat		1.154739
Prob(F-statistic)	0.000000			

Equally results show that C = 99409.91. The estimated value of the slope coefficient on the variable Nigeria oil balance of trade (NOBT) is 2.9632. The interpretation of NOBT is: for every N100 increase in annual Nigeria oil balance of trade (NOBT) this study estimates that there is about N2.9632 increase in annual GDP, holding all other factors.

Non-Oil Balance of Trade and GDP: NGDP = 337093.7 - 6.6261NNBT

Dependent Variable: NGDP
Method: Least Squares
Date: 08/16/13   Time: 13:09
Sample: 1971 2010
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	337093.7	402677.6	0.837131	0.4078
NNBT	-6.626142	0.304770	-21.74145	0.0000
R-squared	0.925591	Mean dependent var		4632481.
Adjusted R-squared	0.923633	S.D. dependent var		8030358.
S.E. of regression	2219159.	Akaike info criterion		32.11186
Sum squared resid	1.87E+14	Schwarz criterion		32.19631
Log likelihood	-640.2372	Hannan-Quinn criter.		32.14239
F-statistic	472.6905	Durbin-Watson stat		0.910141
Prob(F-statistic)	0.000000			

C = 337093.7. The estimated value of the slope coefficient on the variable Nigeria non-oil balance of trade (NNBT) is -6.6261. The interpretation of NNBT is: for every N100 increase in annual Nigeria non-oil balance of trade (NNBT) this study estimates that there is about N6.6261 decrease in annual GDP, holding all other factors. This indicates that the Nigeria non-oil export potentials are totally untapped.

Total Balance of Trade and GDP: NGDP = 707657 + 4.4523NTBT

Dependent Variable: NGDP
Method: Least Squares
Date: 08/16/13   Time: 13:10
Sample: 1971 2010
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	707657.2	582667.2	1.214513	0.2320
NTBT	4.452341	0.313933	14.18245	0.0000
R-squared	0.841099	Mean dependent var		4632481.
Adjusted R-squared	0.836917	S.D. dependent var		8030358.
S.E. of regression	3242944.	Akaike info criterion		32.87057
Sum squared resid	4.00E+14	Schwarz criterion		32.95501
Log likelihood	-655.4114	Hannan-Quinn criter.		32.90110
F-statistic	201.1419	Durbin-Watson stat		0.560368
Prob(F-statistic)	0.000000			

Results show that C = 707657.2. The estimated value of the slope coefficient on the variable Nigeria total balance of trade (NTBT) is 4.4523. The interpretation of NTBT is: for every N100 increase in annual Nigeria total balance of trade (NTBT) this study estimates that there is about N4.4523 increase in annual GDP, holding all other factors.

On the whole, oil, non-oil and total balance of trades impact more significantly on Malaysia GDP than Nigeria GDP. Specifically, for every RM100, Malaysia oil, non-oil and total balance of trades respectively contribute RM14.8866, RM5.9917 and RM4.7276 to the Malaysia GDP. Contrary, while Nigeria oil and total balance of trades impact minimally on the Nigeria GDP by contributing respectively N2.9632 and N4.4523 to GDP for every N100, the coefficient on the Nigeria non-oil balance of trade shows a negative impact on the Nigeria GDP. The minimum positive impact of the independent variables of RM4.7276 on the Malaysia GDP is greater than the maximum impact of the

Nigeria independent variable of N4.4523 on her GDP. The implication is that the Nigeria non-oil export potentials are untapped and not fully employed to impact of the GDP.

4.3. Data Analysis – Descriptive Statistics

The descriptive statistics of Malaysia and Nigeria data as it relates to analytical impact of oil and non-oil balance of trades on GDP present parallel results. Starting with the oil activity, averagely, Malaysia exportation of oil products was more than double of its importation having 15969.06 and 6722.65 and 34647.21 and 23567.55 as means and medians respectively for oil imports and exports. On the other hand, Nigeria oil imports were about eight times lower than her exports having respectively means of 219171.8, 1748940 and median of 6922.65, 111741.5. The interpolation between the above variables accorded Malaysia oil balance of trade a mean of 18678.15 and median of 15950.65 and Nigeria with corresponding values of 1529768 and 104818.9

Fundamentally, Nigeria importation of non-oil activities is about five times that of Malaysia and approximately fifteen times her exportation of non-oil activities. On the contrary Malaysia's importation of non-oil activities is far below her exportation of these activities eleven times. Thus the mean and median respectively for Nigeria imports and exports stands at 695284.5, 51390.85 and 47035.90, 3743.95 against 148375.9, 83157.20 and 160239.1, 61134.65 respectively for the mean and median of Malaysia imports and exports of non-oil trade. The consequential impact of this relationship on the Nigeria non-oil balance of trade is grossly disastrous with a negative mean of -648248.6 and a negative median of -47422.45. The corresponding figures for Malaysia are a positive mean of 12038.09 and a negative median of -2473.70.

The overall interplay of oil and non-oil activities generated the total international trade activities of both economies. Thus, while the Malaysia total imports reflects a mean of 164345, a median of 89974.85; total exports – a mean of 194886.3, a median of 87071.50 and total balance of trade, a mean of 30541.31 and a median of 5220.80; Nigeria total imports exhibit a mean of 914456.3, a median of 58313.50, total exports show a mean of 1795975 and a median of 115709.9 including her total balance of trade reflecting a mean of 881519.2 and a median of 37724.10. Despite the fact that Nigeria exhibit a better result in terms of total balance of trade compared to Malaysia, consideration is majorly accorded to non-oil balance of trade as it has the potential to impact favourably and significantly on the GDP of an economy. This is why Malaysia with the best non-oil balance of trade experienced favourable and stable GDP growth with a mean of 225348.9, a median of 127102.5 and standard deviation of 222759. Nigeria with her favourable balance of payments on the overall international trade have her GDP growth more volatile with mean of 4632481, median of 289844.9 and standard deviation of 8030358.

4.4. Interpretation of Data

Nigeria got her independence in 1960 and since then until 1970 her international trade activities are basically non-oil activities. The non-involvement of Nigeria in oil related international trade was not predicated upon deliberate economic policies and programmes but on the untimely discovery of oil. Consequently for this period, Nigeria had no oil related exports, imports and balance of trade. Currently, Nigeria is the 10th largest oil producer in the world, the largest in Africa until recently that she was overtaken by Algeria (Oyejide & Adewuyi, 2011). Surprisingly, for the pre oil era, the Nigeria GDP growth was steady and stable having respectively average, median and standard deviation of N3351.41, N2825.1 and 1311.26 between 1960-1971 than Malaysia GDP growth reflecting respectively a mean, median and standard deviation of 9026.5, 9336.5 and 2364.98.

Prior to 1986, the Malaysia oil exports were greater than her non-oil exports, though with insignificant differences. Consistent with Ozurumba & Chigbu (2013) affirming that crude oil is an exhaustible asset which makes it unreliable for sustainable development Malaysia subsequently diversified greatly into non-oil activities with evidences that her non-oil exports became adequate in sustaining corresponding non-oil imports. The favourable or surplus of Malaysia oil balance of trade represents economic cushion in terms of reserves and savings as evidenced in her surplus total balance of trade. Contrary, bulk of Nigeria non-oil exports are financed from the surplus on her oil activities.

Thus, Malaysia has witnessed steady geometrical growth in her non-oil exports. In 1992, the Malaysia non-oil export was more than triple of her oil exports. It was about four times more in 1993 and five times in 1994. It records six times of her oil exports as non-oil exports in 1995 and 1996. In 1997, non-oil exports were seven times oil export figure while in 1998 and 1999 the figures for non-oil exports were nine times their corresponding figures for oil exports. However, 2000, 2001, 2002 and 2003 Malaysia witnessed respective alternate decline of eight and seven times of her oil exports as non-oil exports. A decline of six times and five times were respectively recorded for the year 2004 and years 2005, 2006 and 2007. The peak of the decline was recorded in 2008, 2009 and 2010 exhibiting four times of oil exports as non-oil exports. Contrary, Nigeria non-oil exports averagely has been eight times less than her oil imports. While minimum of this record shows that in 1971 her oil exports were three times her non-oil exports, 2000 revealed seventy seven times of non-oil exports as Nigeria oil exports.

## 4.5.   Practical Implication for Nigeria GDP

For the period of the study, averagely, Malaysia and Nigeria total exports exceed their total imports safe for years 1982, 1991, 1994, 1995, 1996 and 1997 for Malaysia and 1978, 1981, 1982, 1983 and 1998 for Nigeria. This suggests that averagely both countries exhibit favourable or surplus total balance of trade. This is also reflected in the average total balance of trade of 30541.31 and 881519.2 respectively for Malaysia and Nigeria. However, despite the fact that Malaysia has the highest number of frequency of years with deficit total balance of trade, Malaysia since 1998 has exhibited non-oil favourable/surplus balance of trade. This implies that the nation's non-oil export exceeds her non-oil imports for these periods.

In relation to GDP the total finance required by Malaysia for this period to import her non-oil commodities are supplied automatically from the exportation of the nation's non-oil commodities. This implies that the Malaysia non-oil net exports are positive, consequently, the nation's GDP increases. Nigeria on the other hand exhibit negative non-oil net exports which had an adverse impact on the GDP resulting in the decrease of GDP. This is consistent with Barnes (2012) who affirmed that higher exports and lower imports add to GDP, while reduced exports and higher imports contract GDP.

The above results firmly show that the application of Nigeria oil balance of trade surplus in financing her non-oil importation is costly and impact adversely on the performance of the Nigeria GDP. Though arbitration is a free lunch and a trading strategy, it profits only by exploiting price differences of identical or similar commodities on different markets or in different forms. Thus, consistent with the definition giving by the economic glossary that arbitrage opportunity is the opportunity to buy an asset at a low price and immediately selling it on a different market for a higher price, the application of surplus on the oil balance of trade in financing Nigeria imports of non-oil activities is costly and risky with its consequential effects on the poor performance of the non-oil net exports on GDP.

The relationship between Malaysia and Nigeria oil imports and exports, non-oil imports and exports including the flow and distance of financing non-oil imports particularly for Nigeria given that for the two countries, there exist surplus oil and total balance of trade is graphically presented in the diagram below. From the diagram, the black arrows are reflections of the direction of the sources of financing specific sector and sub sectors international trade. Basically and recently, why all the Malaysia non-oil subsectors particularly imports are financed from the respective exports, financing Nigeria non-oil subsectors is majorly from or by the parallel surplus on the oil activities and trade.

MALAYSIA EXTERNAL TRADE OUTLOOK
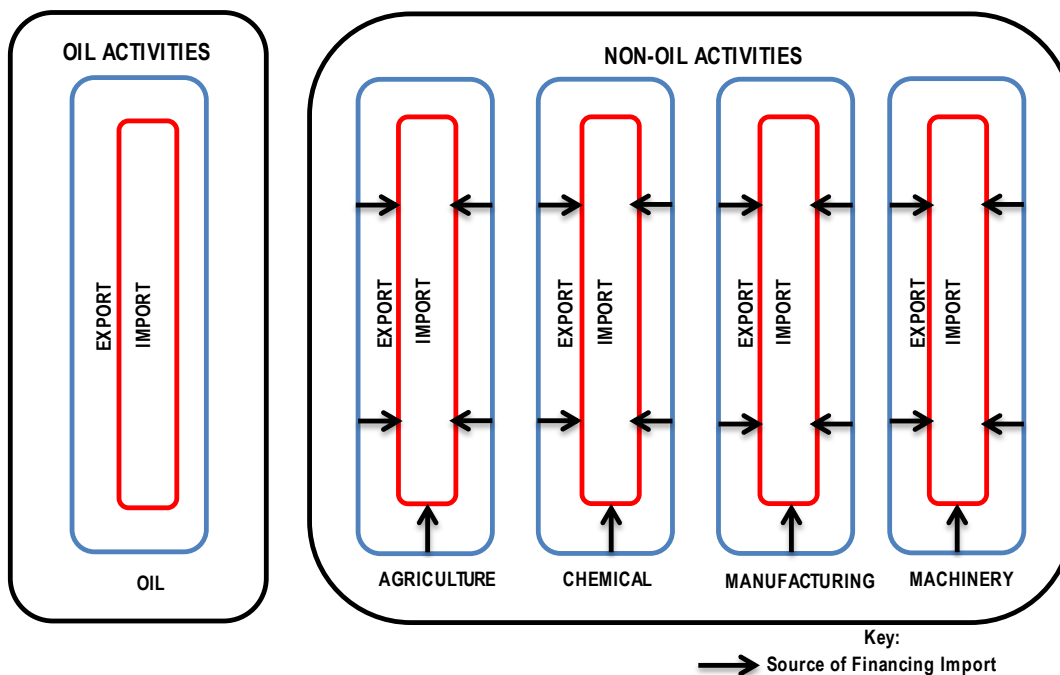
NIGERIA EXTERNAL TRADE OUTLOOK
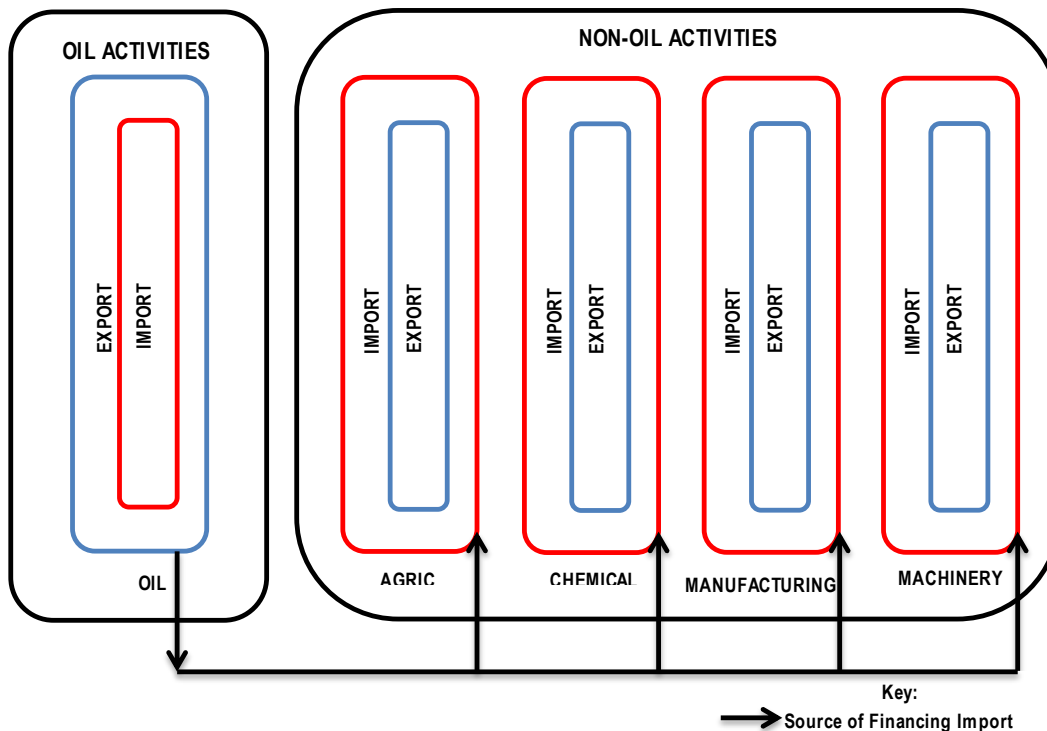
Source: Developed for this Study

4.6. Unit Root Tests for Stationary

This study test whether the time series is stationary or nonstationary in order to avoid the danger of obtaining apparently significant regression results from unrelated data when nonstationary series are used in regression analysis. Such regressions are said to be spurious. Thus this study perform unit root tests for stationary for all the variables (MOBT, MNBT, MTBT and MGDP for Malaysia data and NOBT, NNBT, NTBT and NGDP for Nigeria data) using the Augmented Dickey-Fuller Tests equation. Since calculated Dickey-Fuller tests statistics for these variables: MOBT (0.0684), MNBT

(-0.7867), MTBT (-0.1665), MGDP (4.5204), NOBT (1.6601), NNBT (9.0717), NTBT (-1.7335) and NGDP (4.6239) are all greater than 5% respective critical value of (-2.9411), this study did not reject the null of nonstationary. In other words, the variables Malaysia oil balance of trade (MOBT), Malaysia non-oil balance of trade (MNBT), Malaysia total balance of trade (MTBT), Malaysia GDP, Nigeria oil balance of trade (NOBT), Nigeria non-oil balance of trade (NNBT), Nigeria total balance of trade (NTBT) and Nigeria GDP are nonstationary series.

4.7. Conintegration Tests

To tests whether the nonstationary variables MOBT, MNBT, MTBT and MGDP for Malaysia data and NOBT, NNBT, NTBT and NGDP for Nigeria data are cointegrated, this study equally examined separately the properties of three regression residuals respectively for Malaysia (MGDP = -52705.62 + 14.8866MOBT, MGDP= 1523220 + 5.9917MNBT and MGDP = 80961.71 + 4.7276MTBT) and Nigeria (NGDP = 99409.91 + 2.9632N0BT, NGDP = 337093.7 − 6.6261NNBT and NGDP = 707657.2 + 4.4523NTBT). Since calculated Dickey-Fuller tests statistics for these respective equations: Malaysia (-1.7220, -1.9965 and -2.4651) and Nigeria (-3.8355, -2.4582 and -2.8290) are all less than 5% critical value for regression-based cointegration tests of (3.37), this study reject the null of no integration. In other words, the variables in the respective three regressions are cointegrated.

4.8. Model Explanatory Powers

Goodness of fit (i.e., r^2) provides an indication of the variation in the dependent variable being explained by the independent variable(s) in a regression model (Jordan, Waldron & Clark, 2007). It is often used as a measure of the comparative predictive and explanatory abilities among models (e.g., see Dechow, Hutton, Kim & Sloan, 2011; Jordan, Waldron & Clark, 2007; Greenburg, Johnson & Ramesh, 1986; Murdoch & Krause, 1989; McBeth, 1993). Generally, the higher the r^2, the greater is the predictive and explanatory power of a model. Using r^2 as a gauge of explanatory power, the equation investigating the relationship between GDP and Nigeria oil and non-oil balance of trade respectively reflecting r^2 of 97% and 92% possesses the most superior explanatory abilities. Equations investigating the relationship between GDP and Malaysia oil and total balance of trade exhibit closely related r^2s of 88% to 87% respectively. Finally the models that established the relationship between GDP and Nigeria total balance of trade and Malaysia non-oil balance of trade with respective r^2 of 84% and 74% have the worst explanatory power. Following Jordan, Waldron & Clark (2007), Lorek & Willinger (1996), Cheung & Krishnan (1997) and Neter & Wasserman (1974) models with higher r^2s may not necessarily be the best predictors. This is because even a model with a high r^2 may have a mean square error that is too large for inferences to be drawn when accurate predictions are needed (Neter & Wasserman, 1974, p. 229). Jordan, Waldron & Clark (2007) and Akresh & Wallace (1982) state that predictive ability is best examined not only by evaluating a model's r but also by analyzing the size of the residuals or error terms resulting from the model's predictions.

5. Conclusions and Recommendations

This study was able to investigate the analytical impact of oil and non-oil balance of trade on Malaysia and Nigeria GDP. The Malaysia oil, non-oil and total balance of trade impact positively and favourably on the GDP. However, while the Nigeria oil and total balance of trade exhibit positive relationship with GDP, Nigeria non-oil balance of trade adversely impact on the GDP, suggesting that the Nigeria non-oil potentials are not optimally tapped. This conclusion is consistent with Oyejide & Adewuyi (2011) who affirmed that the Nigerian economy is largely dependent on its oil sector which supplies the bulk of its foreign exchange earnings and income.

This study particularly conclude that despite the ability of a nation to finance its total import from total exports (that is total exports exceeds total imports) resulting into surplus balance of trade, unalloyed consideration is given majorly to specific impacts of dichotomised international trade activities (oil and non-oil activities). From the above results it is crystal clear that the ability of a nation to finance or accommodate her non-oil imports from/in her non-oil exports is a major determinant of the country's GDP quality.

Therefore, in view of the fact that crude oil is an exhaustible asset which makes it unreliable for sustainable development (Ozurumba & Chigbu, 2013), this study recommends that Nigerian government should borrow leaves from Malaysian government to diversify the nations export base by facilitating and expanding the non - oil export sector.

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