Discussion on Subsidy Removal from Nigerian Economy; Effect on Growth

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Abstract: The aim of the current study is to develop and analyze the contributions of entrepreneurship in the economic development through Small and medium-sized enterprises (SMEs) development in Nigeria. The major findings of this study include the following: SMEs have played and continue to play significant roles in the growth, development, and industrialization of many economies the world over. In the case of Nigeria, SMEs have performed below expectation due to a combination of problems which ranges from attitude and habits of SMEs themselves through environmental related factors, instability of governments and frequent government policy changes etc. Promoters of SMEs should thus ensure the availability or possession of managerial capacity and acumen before pursuing financial resources for the development of the respective enterprise. In total Nigerian entrepreneurship has its own problems and relative solutions was done.

1. Introduction:

Nigeria over the years had been debating the need to either continue subsidy on oil or stop it, the article seeks to determine what may be the short term effect and long-term effect of the recent decision to stop subsidy and letting the natural law of demand and supply rule the industry.

Subsidy is the difference between the Petroleum Products Pricing Regulatory Agency (PPPRA) determined price (landed product cost + regulated margins) of petroleum products and the Ex-Depot price at which Government directs NNPC to sell the products. Ex-Depot price is the price at which the products leave NNPC Depots. This is different from the pump price (Pump price is the price at the filling station).

Pump Price = Ex-Depot Prices + Approved Margins. The Subsidy is calculated based on the PPPRA Template for the petroleum products.
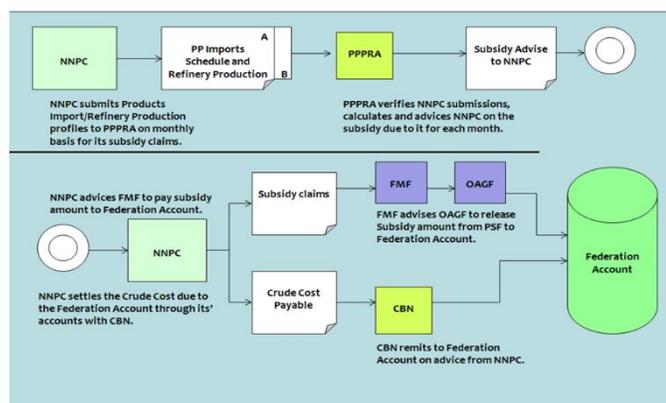
Economic growth is an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. Economic growth can be measured by the monetary growth of GNI per capital minus the rate of inflation. For comparing one country's economic growth to another, GDP or GNP per capita could be used as these take into account population differences between countries, it is used to measure the overall economic well-being of a population in terms of how much of real goods and services are available to the average citizen for consumption and investment. (Todaro, 2011).

1.1. History of Nigeria Oil Sector as it relates to Subsidy

Subsidy on petroleum products has been a regular feature of Nigeria's fiscal policy instrument since the discovery of oil. The country has always subsidized petroleum products owing to a number of reasons including: The widespread perception that, as a major oil producer, its citizens are entitled to enjoy petroleum products at discounted prices; Prices of goods and services are very sensitive to changes in the prices of petroleum products; The belief that keeping petroleum products prices low is essential to compensate for the nation's state of transportation system and power supply.

Prior to November 2003, Domestic crude was sold to NNPC at a discount both in terms of price and exchange rate. Petroleum Products were also sold at highly subsidized rates; NNPC was therefore made whole in the transaction.

On October 22, 2003, Government directed that NNPC should henceforth pay, at prevailing international

market price, for the 445,000 bbls/day crude oil meant for domestic consumption. However, the Petroleum Products that are produced from this crude oil, are sold at controlled and highly subsidized price approved by Government.

Therefore a major imbalance was created in the market, whereby the cost side of our business is determined by the free international market price while the revenue side is pegged at an imposed fixed price. therefore forms the beginning of Subsidy as we know it today.

The Chart below illustrates the subsidy element and how it varies with the landing cost of products. The Government in order to address the issues arising from the implementation of this policy change set up a Committee chaired by the then Senator Ibrahim Mantu in order to compensate stakeholders, including NNPC, and also ameliorate the impact of the impending deregulation of the sector on Nigerian consumers.

That Committee among other recommendations advised Government to set up a funded subsidy scheme, the Petroleum Support Fund (PSF) which would be administered by the PPPRA. The PSF, however, was not established until 2006.

In order to effectively administer the subsidy program, the Government instituted the Petroleum Support Fund (PSF). In its first year, the sum of N300bn was earmarked to support the fund; 50% of which was planned to be provided by the Federal Government and the balance was to come from the States and Local Governments.

However, the PSF was allegedly under-funded by the stakeholders, hence, subsidy claims due to NNPC were never paid directly to the Corporation. Consequently, NNPC uses the combination of (1) proceeds of its subsidized collections from products sales at the depots and (2) subsidy claims approved by PPPRA (through FMF) to settle the gross amount due on the cost of crude oil it purchases. The FMF, on the other hand, is always advised to pay into the Federation Account the monthly sum approved as subsidy due to NNPC to complement its crude oil cost obligations.

This has been the practice since the subsidy administration started. Indeed, in 2006, the FMF appointed a reputable audit firm of international standing to verify the subsidy process and NNPC's records.

The budgeting and funding of the PSF scheme has remained solely within the purview of Federal Ministry of Finance, while the PPPRA makes recommendation of subsidy payable based on deliveries verified by inter-agencies. For instance, the FMF provided for the sum of N247.96bn as subsidy to both NNPC (N108.96bn) and other marketers (N137.00bn) for two months in 2011, in anticipation of full deregulation of the downstream sector.

As earlier stated, in October 2003 NNPC was directed by the Federal Government to commence the purchase of domestic crude oil at international market price, without a corresponding liberalization of prices of petroleum products.

Therefore is that NNPC is unable to generate enough revenue/cash flow that would enable it to settle the cost of crude it purchases from the Federation in full. Thus, it has had to settle its obligations by the remittance of cash-flow generated from sale of petroleum products (made available from the crude oil purchased) and the 'black-out' of subsidy claims approved by PPPRA.   It is pertinent to state that during the period January 2011 to date, there has not been any change in the process through which PPPRA, Federal Government appointed auditors and other relevant government agencies (DPR, Customs, Nigerian Navy, etc) verify subsidy claims due to marketers, including NNPC. It may, however, be noted that there has been appreciable increase in the level of verified subsidy claims due to marketers and approved by the Federal Ministry of Finance. This increase is largely due to the following factors:

Continuous rise in the average daily consumption of petroleum products continued rise in the price of crude oil in the international market Increase in the exchange rates of dollar to Naira Verification in 2011 of the arrears of subsidy claims on HHK for the period July 2009 to May 2011.

The continuous rise in the average daily consumption of petroleum products has increased from an average of 26 million liters per day in 2007 to over 40 million liters per day in 2011. For instance, the number of vehicles running in the country is increasing as confirmed by the Honorable Minister of Trade and Investments, who disclosed that the number of vehicles imported into the country in 2011 increased by 40% over the previous year.

The continued rise in the price of crude oil in the international market. For instance, while the price of crude oil per barrel in 2006 averaged USD65.27, the price is about USD112.04 in 2011, a rise of about 72.31%. Between 2006 and 2011, the exchange rates of dollar to Naira increased from N122.21 in 2006 to N132.56 in 2008 and further increased to N155 in 2011.

The PPPRA in June 2011 resumed the verification of arrears of HHK. To date, a total of N210.98bn had been verified and approved, leaving an estimated balance of N119.40bn yet to be verified. It is worthy of note that verification of HHK subsidy claims due to NNPC was suspended in June 2009 even though the Corporation continued to supply HHK to the market at a subsidized rate.

The overall impact of the above factors is the increase in the annual subsidy gap from N22.74 per liter in 2006 to N77.90 per liter in 2011. This amounts to over 242% increase. The above notwithstanding, subsidy deductions in 2011 is in line with the 2011 Appropriation Act which allows subsidy as a deductible item before payment is made to Federation Account. The Minister of State for Petroleum Resources, Dr. Ibe Kachikwu, has said that the federal government would have had to cough up N16.4 billion every month to offset the subsidy claims of

oil marketers had it not taken the decision to remove the subsidy on petrol.

Kachikwu, in a series of tweets Sunday, explained that at the time the government made the decision, it was incurring about N13.7 Kobo as subsidy on each liter of petrol bought by Nigerians. Kachikwu said at the rate of N13.7 kobo per liter as subsidy claims, the government would have paid out N16.4 billion to marketers monthly, adding that the government does not have such funds in its 2016 budget, more so now that the country's earnings from crude oil have dropped.

He also listed the benefits of the new policy: "There is no provision for subsidy in 2016 appropriation. PMS (petrol) price of N86.50 gives an estimated subsidy claim of N13.7 per liter, which translates to N16.4 billion monthly. There is no funding or appropriation to cover this."

He added: "NNPC has continued to utilize crude oil volumes outside the 445,000 barrels per day, thereby creating major funding and remittance gaps into the Federation Account." So Government announced the commencement of a partial deregulation of the downstream sector to pave way the total deregulation in coming days.

Deregulation Of Downstream Petroleum Sector
Estimated Budget Savings: Oct - Dec 2011
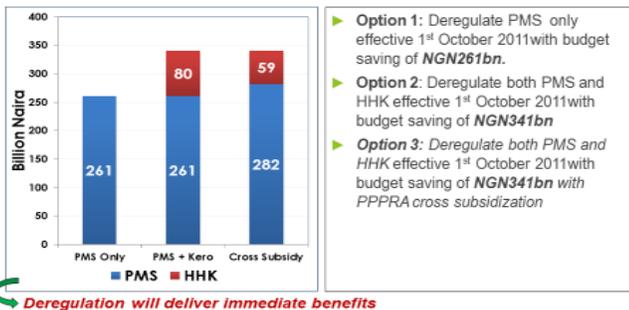
Deregulation Of Downstream Petroleum Sector
Managing The Transition to Full Deregulation
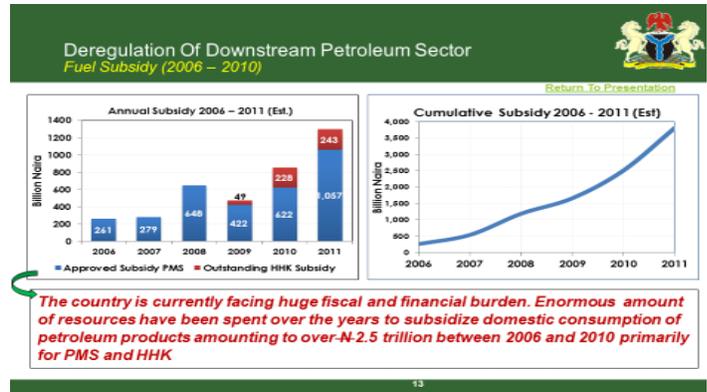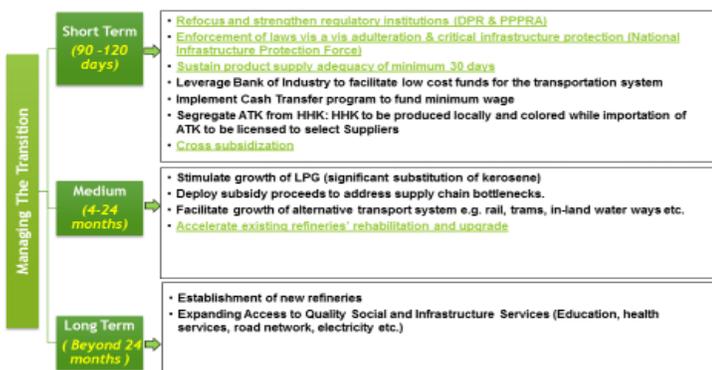
Whenever the price of fuel goes up the prices of everything goes up. This is because transport cost for providing essential services, the prices of goods and services all have multiplier effect on the economy.

This study is therefore aimed at to examine the problems and effects of fuel subsidy removal on the Nigerian economy. The aim of this project work is to enlighten the people on the various possible effect of the removal of fuel subsidy on the economy, how it affects the various sectors especially the real sector.

2. Literature Review:

Ironically, the fuel subsidization which should be a helping factor to the poor and the poorest has become an opportunity for public funds embezzlement by corrupt stakeholders in the downstream sector and has also become more beneficial to the wealthy in the society (the majority consumers of this subsidized fuel). An implication that it is unwise for the government to forge ahead with that, especially considering what the state treasury will look like in the future if the scheme is sustained. This has necessitated the proposal by the vibrant chief executive of the Federation, Goodluck Ebele Jonathan in May 2011- 'the withdrawal of the Fuel Subsidy'.

The case of non-oil producing countries without refining capacity is almost similar with that of oil-producing countries without refining capacity. The best option for such countries is to deregulate the downstream oil sector and allow the forces of demand and supply under perfect competition to determine the price of products. Any attempt in providing subsidy could result into a heavy burden on government earnings, and excessive demand products due to the low prices. The paper recommends that for a country to embark on either deregulation of its downstream oil sector or introduce subsidy payment therein it is imperative to consider its position against the criterion discussed in section four of this paper for it to make an informed decision that will guarantee sustainability, minimize waste and bring about growth and development (Sani, 2014).

According to United Nations Environment Programme - UNEP (2008), an energy subsidy is any government action that influences energy market outcomes

by lowering the cost of energy production, raising the price received by energy producers or lowering the price paid by energy consumers. It can be a direct cash payment by a government to a producer or consumer of an energy or any other government actions in forms of regulation, research, and development, or public enterprises, (UNEP, 2008).

Energy/Fuel subsidy has different forms but this paper specifically deals with the form of fuel subsidy aimed at or directed to fuel producers, that is, the payment of grants for each unit of fuel production, to keep the prices below market levels for consumers. Moreover, the type of fuel meant here is petrol/premium motor spirit-PMS. According to the Nigerian petroleum minister, the subsidy on kerosene will stay, and of course, diesel is currently deregulated (The Guardian, 2011).

The death of fuel subsidization scheme in Nigeria, of course, will have both positive and negative effects economically, socially, religiously and environmentally. This chapter will more explicitly discuss the socio-economic and religious effects, classifying them into negative and positive effects.

2.1. Negative Effects

These subsidies are aimed at ensuring the well-being of the people (at least partly) by making the energy and fuel more affordable and accessible to them, and this becomes highly welcomed in a developing country with a low per capita income of $2 per day. 'Worldwide, fossil fuels are nonetheless the most heavily subsidized energy sources on a net basis, (UNEP, 2008:10). Can a state like Nigeria survive without the subsidization of fuel? If it can, what will be the resultant negative effects of the subsidy withdrawal? In other words what challenges will the occupants of the Nigerian territory face as a result of the subsidy withdrawal?

Historically and quite obviously, Nigerians have always been helplessly deceived by their leaders; numerous unfulfilled promises made by these leaders to the masses exist today. More detestable, these administrations give ways for broad corruption and unending dearth of confidence in Nigerian leaders, as held by the lead. This has made it that the masses, especially the poor have expressed strong disapproval of the proposed withdrawal of fuel subsidy (since they believe the government might not set up palliative measures after the withdrawal as she promised). Moreover, our infrastructural state is not impressive. Gross youth unemployment has persisted; educational institutions have nothing to write home about; automobiles, motorcycles and other transporting machines, and even pedestrians uncomfortably move on our roads as a result of their non-commendable states; electricity supply is continuously interrupted and even nonexistent in some areas.

The first effect of the withdrawal of fuel subsidy in Nigeria is that the fuel prices become higher than usual, 'from the current regulated price- N65 to over N130 per liter (Ogundipe, et al., 2011), and this will also raise the prices of products and services in the society, especially in the market. Key components of basic needs indicators such as food, housing, clothing, and health will be affected, as access to them becomes costly. The cost of living becomes higher than it has been. This must be frightening especially to the poor. In the early 1980s when petrol prices climbed from less than 20 kobo per liter to the current regulated price of N65 per liter, there were immediate hikes in the price of virtually every product or service (Ogundipe, et al., 2011).The high-class citizens can hardly feel the impact as the poor masses- the majority of the populace. If the withdrawal is not handled well by the government, then it means the withdrawal is not in line with the Millennium Development Goals, whose number one is –noticeably lessening the number of people living in poverty by the year 2015.

According to The Global Subsidies Initiative (2010, vii), 'a considerable body of works advanced by the World Bank…generally concludes that fossil- fuel subsidy reform would be associated with negative social impacts, but that those impacts could potentially be offset by re-targeting some of the saved subsidy expenditure toward social programs'. In cognizance of this, the country's National Assembly has said that palliative measures must be put in place if at all, it will be withdrawn. In the Daily Sun of 11 December 2011, the president of the Federation, Goodluck Ebele Chukwu Jonathan gave details of how the proceeds from the revenue will be used. This he did in cognizance of the fact that negative effects will result from the withdrawal. 'For a start, he said, a 7-number trust fund akin to the defunct Petroleum Trust Fund (PTF) established during the late Sani Abacha administration would be set up to administer the extra revenue accruable from the subsidy removal'. He also said that 'apart from constructing and rehabilitating some infrastructure, he would direct state governments to forward a list of 20,000 unemployed youths each, for immediate engagement. He equally pledged to use the proceeds to tackle maternal mortality and the decay in the education sector' Bluntly speaking, the withdrawal of fuel subsidy will create pains as a result of the rising inflation, caused by high fuel prices. So this time, the government should not fail in her promises and assurances on assuaging these resultant pains.

2.2. Positive Effects

The reform or withdrawal of the fuel subsidization scheme in Nigeria has sizable helpful effects. The most evident effect of this withdrawal should be that of increasing availability of public funds. 'Direct subsidies in the form of grants… act as drain on government finances', (UNEP, 2008:2). In the year 2011, over 1.3 trillion naira was spent on the subsidy, an amount over 20% of the year's federal budget.

Secondly, 'removing fossil fuel subsidies will enhance the market for new energy solutions, by making

them more competitive, spurring innovation and development, and this presents a great opportunity for entrepreneurs, technologists, scientists and business leaders'(José María Figueres, former president of Costa Rica, cited in GSI 2010:vi). With a similar opinion, the Nigerian finance minister and the coordinating minister of the economy, Dr. Okonjo Iweala 'explained that removal of fuel subsidy would raise investor confidence in the capital market and persuade fleeing investors, both foreign and local, to turn quickly to the market'. This was said is because the government's fiscal policy has become stronger.

Thirdly, the subsidy withdrawal will disrupt the smuggling of 'cheap fuel' out of our country to the neighboring African countries where they can be sold at high prices. Since 'fuel subsidies encourage smuggling of fuels to neighboring countries where selling prices are higher' (UNEP 2008:12), their removal will contribute notably to quenching the secret and illegal transportation of fuels across the borders.

Fourthly, the withdrawal of fuel subsidies would lead to reductions in CO_2 emissions, (GSI 2010:11; UNEP 2008). 'Subsidies that result in lower price to end- users normally increase the consumption of the respective fuels and thus, inevitably have harmful impacts on the environment, including higher air- borne emissions of noxious and greenhouse gases', (UNEP, 2008:12-13). Therefore the withdrawal has helpful environmental effects.

It is the claim of the oil subsidy by the federal government that makes the government to fix prices for petroleum products, hence, the removal of subsidy in oil and gas will mean deregulation of the downstream oil sector; the market forces will then set the oil product prices(Umeano, 2011).

In reality, however, these subsidies often benefit mainly the energy companies, equipment suppliers, and the better-off households, especially in towns and cities, (UNEP, 2008:12). In some rural areas in Nigeria, even before the removal of the fuel subsidy and the consequent increase in fuel price, a liter of petrol was sold at prices above the regulated price- N65 per liter. The poorest household may be unable to afford this 'subsidized' fuel and even those ones who are able to benefit consume very little percentage of the whole. The subsidization scheme has been withholding public funds which could be diverted to infrastructural and all- round development in the country. It has also encouraged the smuggling of fuel to nearby countries – cheap fuel. Is this scheme really absolutely good for our country Nigeria?

Nigeria is a country endowed with vast mineral resources prominent among which are the oils and gas reserves. The country possesses 28% of Africa's proven oil reserves, second only to Libya; and is the largest producer of crude oil in the region, producing 2.4million barrels per day in 2010 which is about 24% of the continent's

petroleum (Siddig et al., 2014). However, the country is a large net importer of gasoline to meet domestic needs despite having four refineries that are capable of producing 445, 000 barrel per day operating below 10%.

One of the contentious issues in Nigeria today is the removal of fuel subsidy on Premium Motor Spirit (PMS) (Akinwale et al., 2013).

The subsidy is a form of price manipulation whereby the government fixes the pump price for sale to consumers and pays the retailer difference between the actual market price and the regulated or official price per liter. Iyobhebhe, (2012) asserted that through this fuel subsidy, millions of Nigerians have access to cheap refined petroleum products.

The Federal Government of Nigeria in its effort to deregulate the downstream sector completely decided to remove fuel subsidy on January 1st, 2012. This was made real when President Goodluck Jonathan decided not to make provision for subsidy payment in the 2012 appropriation budget. The president came up with a strong argument that the sum of N3.4 billion is spent in subsidizing fuel went to fraudulent hands (Gyoh, 2012).

Fuel subsidy removal is one of the critical issues that dominate public debate in oil exporting nations and among the G-20.

Akinwale et al. (2013) asserted that larger proportion of the citizens are seriously resisting the government planned policy to remove fuel subsidy which according to them is against the Millennium Development Goals (MDGs) of the government which aim to reduce the poverty level in the country by 2015.

Furthermore, Iyobhebhe (2012) insisted that subsidy is an indirect form of wealth redistribution to the poor majority and if this is taken away, the government must then come up with policies to compensate Nigerians, utilize the savings and explain how the inevitable inflation will be managed. Ogundipe et al. (2011) argued that it is a form of tactics employed by the government to diastase the people without let.

However, proponents of the policy have enumerated the numerous benefits the policy will bring to Nigerians. The Nigerian chambers of commerce and industry insisted that full implementation of the policy will enormous benefits to Nigeria economy (Osagie, 2012).

The government also insisted that fuel subsidy removal will climate fuel snuffling across Nigeria border thereby eliminating scarcity in Nigeria.

The former Central Bank of Nigeria Governor Sanusi Lamido Sanusi once said "If we borrow to subsidize today, it is our children that are subsidizing us. Let us take a difficult decision today and make tomorrow better by supporting the subsidy".

George et al., (2014) summarized the benefits of the policy as follows;
(i) Government hopes the removal will save the government about US$6billion per annum.

(ii) Help address the great imbalance between recurrent and capital expenditure.

(iii) Reduce importation of refined product in the medium and long-term.

(iv) Increase local refinery production.

(v) Free more funds for local investment in the oil sector

(vi) Encourage foreign investment in downstream infrastructure.

(vii) Eventually, stylize market prices as competition increases.

Following the above argument in favour and against fuel subsidy removal, this research work shall examine critically how the policy of fuel subsidy removal using both primary and secondary data to analyze how the policy affects local production of foods and services, transportation cost, the prices of commodities The downstream petroleum sector on 11th May, 2016 received a major policy turn that seemed to have altered the age long dynamics of the industry as the Nigerian National Petroleum Corporation (NNPC) announced the removal of petroleum subsidy and provided new pricing guidelines, designed to be cost reflective in line with market dynamics.

Whilst the new policy has shifted off the Government, a major burden of subsidy payment which over the years pressured fiscal finances; the ambiguity surrounding the current decision, however – should it not be a full-scale deregulation – could continue to potentially impede the development of the downstream petroleum sector.

There is no gainsaying the need for a total market-determined pricing of the pump price of petrol (as in the case of diesel), in order to fully open up the sector for the needed investments and development it seriously requires.

Afrinvest Research has always advocated for a market system in the petroleum sector and foreign exchange administration to guarantee efficiency.

Amidst the various macroeconomic challenges confronting the country stemming from the crash in global crude oil prices since H2:2014, major economic indicators have suffered debilitating setbacks.

Exchange rate has depreciated by 33.6% in 2015 YTD at the parallel market while forex scarcity has impacted on business operations leading to loss of jobs. Pressure on consumer prices has driven inflation to 13.7% as at April 2016 from 2015 average of 9.0% even as the cost of credit further increased when the MPC in response raised MPR to 12.0% from 11.0%.

The overall impact is a drag on economic activities as the GDP decelerated to 2.8% in 2015 on the average against the average growth rate of 5.9% between 2010 and 2014.

The current Government may have leveraged on these weak macroeconomic indicators (tracing the bulk to corrupt politicians and institutions) and its moral capital in gaining power, the overwhelming deterioration of the revenue, in our view may have forced the popular government to take the unpopular decision of petrol subsidy removal.

While we laud the courage and tenacity of the Minister of State for Petroleum – Ibe Kachikwu – in taking this crucial decision we have termed "the inevitable", we fear that it may be described as "Taking the Bull by the Legs "than "Taking the Bull by the Horns "especially in terms of pricing as we expect the NNPC to hands-off pricing regulation in the near term. In this report, we explore the various issues surrounding subsidy removal going down the memory lane while also analyzing the problems associated with the previous regimes. We analyze the implication of the policy to fiscal policy, households, business sector (Oil & Gas), the economy & financial market and conclude with our expectation of the monetary policy response.

3. Methodology:

This article made use of descriptive statistics, which are used to describe the basic features of the data obtained for the study, the statistics are obtained from National Bureau of Statistics, and we also made use of graphics analysis which forms the basis of virtually every quantitative analysis of data of variables from independence. Finally, a correlation analysis was done to get the exact relationship of the variables.

3.1. Correlation Analysis

Often two or more variables may be of interest but apparently, if it is not possible to say that one of the variables depends on others then to study the relationship that exist, a correlation analysis is this best in this case.

The correlation coefficient between two variables x and y is consider the situation where five variables say The correlation coefficient for the pair   can be obtained as where the correlation matrix can be obtained as;

3.1.1. Regression Analysis

Regression and Correlation deal with the linear relationship between two or more variables. Regression analysis involves estimation of one variable (the dependent variable) from one or more variables (independent variables). We consider the closely related problem of correlation or the degree of relationship between variables, which seeks to explain how a linear or other equation describes or explains the relationship between variables.

If you have listened to news bulletin or read business pages of a responsible newspaper, you will have come across the phrase ECONOMIC INDICATOR or BUSINESS INDICATOR. Such an indicator is an event which although it may be important in its own right, is of even more important in helping us to predict what is going to happen to other variables in the future. It is commonly believed, for example, that Government's expenditures will affect the level of employment. This is a predictor of

the future event and can be put into regression and correlation pictorially.

3.1.2. Linear Regression

First, we will attempt to discover the nature of the relationship by obtaining an equation enabling us to estimate the value of one variable given that we know the others. The variable we are trying to predict is the dependent variable (one plotted conventionally on y-axis) while the variable we are using as a basis of prediction is the independent variable (one plotted conventionally on x-axis).

THE SCATTER DIAGRAM: The purpose of the scatter diagram is to illustrate diagrammatically any relationships that exist between the dependent and independent variables to the extent that it succeeds, it can help the analyst in three ways:
1. It indicates generally whether or not there appears to be a relationship between the two variables.
2. If there is a relationship it may indicate whether it is linear or non-linear.
3. If the relationship is linear; the scatter diagram will show whether it is negative or positive.
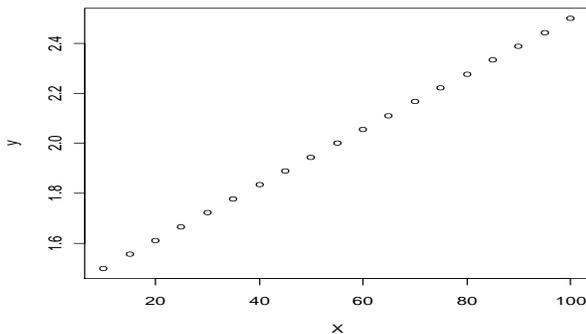
In this case, the equation which best fits this, is an equation of the form: where   is an estimate of the value of corresponding to a given values of ; is the actual value of the independent variable; is the constant i.e. the intercept of the regression line; is the slope of the regression line, also a constant; and is the random error term.
The accuracy of an estimate of this nature naturally depends on the extent to which the regression equation and its graph actually fit the data. Thus, we must try to

3.1.3. Regression Model In Matrix Notation

Suppose we have data on a dependent variable, and k explanatory variables for The linear regression model is given by The above notation is such that is implicitly set to 1 to allow for an intercept. This model can be written more compactly in matrix notation by defining the vectors:

3.1.4. Hypothesis Testing In Multiple Regressions

In multiple linear regression problems, certain tests of hypothesis about the model parameter are helpful in meaning the usefulness of the model. In this project, we describe several important hypothesis STS-testing procedures. These procedure assumed that the in the model be normally and independently distributed with mean 0 and variance. As a result of this assumption, the observation are normally and independently distributed with mean and variance.

3.1.5. Test For Significance Of Regression

The test for significance of regression is to test to determine if there is a linear relationship between the response variable y and a subset of the regression variables.

The appropriate hypothesis is;. . . not

Have the test statistic: Where p is the number of parameter that is Decision rule we reject if   exceeds

ANOVA TABLE

Source of variation	Degree of freedom	Sum of square	Mean square	F-ratio
Regression	SSR	p-1	MSR	
Error	SSE	n-p	MSE	
Total	SST	n-1		

3.1.6. Test Of Individual Regression Coefficient

If the interest is in testing the hypothesis on the individual regression coefficient. Such tests would be useful in determining the value of each of the regression model. The hypothesis for testing the significance of any individual regression coefficient say are; Test statistic: Decision rule: reject if.

3.1.7. Model Selection

One of the most difficult problems in regression analysis is the selection of the set of independent variables to be included in the model. Multiple regression involves the selection of an appropriate set of independent variables that contribute significantly to the model. What is needed in multiple regression is a systematic procedure to search for the best model from a hypothesized set of independent variables. The procedure must be able to reduce substantially the numbers of models that must be tested to select the best model.

We may also use the coefficient of multiple determination as a global statistic to assess, the fitness of a model. The statistic is somewhat problematic as a measure of the quality of the fit for a multiple regression model because it always increases when a variable is added to a model.

Since always increases when a regressors added, it can be difficult to judge whether the increase is telling us anything useful about the new regressor. It is particularly hard to interpret a small increase, many regression users prefer to use an adjusted statistic:

Because is the error or residual mean square and is a constant and will only increase when a variable is added to the model if the new variable reduces the error mean square.

The adjusted statistic essentially penalizes the analyst for adding terms to the model. It is an easy way to guard against overfitting, that is, including regressors that are not really useful. Consequently, it is very useful in comparing and evaluating competing regression models.

Table 1 shows the descriptive statistics for the variables considered. The Jarque-Bera normality test show that only import and export of commodities are normally distributed at 0.05 critical level. The logarithm of GDP is considered in order to eliminate the explosive nature of GDP and also to eliminate skewness in the response variable.

It is often found that, however, a variable is significant in a particular specification of the model, but loses its significance when some other variables are incorporated. This is why it is pertinent to pay attention to evolving flexible model that will capture the subsidy removal situation of countries especially Nigeria (Okpoko, & Eze, 2011).

The current place of this research is to apply the linear regression to model the subsidy removal situation in Nigeria.

4. Data Presentation and Discussion of Result

The presentation and discussion comes in three formats as explained in the methodology, descriptive statistics, graphs and two regression analysis.

Table 1: *Descriptive statistics of the variables used*

	GDP	LGDP	OILPRICE	INFLATION	IMPORT	EXPORT
Mean	1.03E+11	24.73636	23.54083	21.86705	20.99337	29.13817
Median	3.62E+10	24.31155	8.000000	13.51745	20.68948	29.92614
Maximum	5.69E+11	27.06715	97.00000	113.0764	36.48173	51.73036
Minimum	1.52E+10	23.44212	0.060000	-5.665685	7.903450	13.31603
Std. Dev.	1.44E+11	1.005284	31.02787	25.65714	7.340792	9.710985
Skewness	2.126350	1.047328	1.141258	2.079888	0.412193	0.222072
Kurtosis	6.262392	2.992273	3.007696	7.276582	2.703443	2.200976
Jarque-Bera	50.27517	7.678383	9.117400	62.28754	1.343230	1.462480
Probability	0.000000	0.021511	0.010476	0.000000	0.510883	0.481312
Sum	4.31E+12	1038.927	988.7150	918.4160	881.7216	1223.803
Sum Sq. Dev.	8.51E+23	41.43442	39471.88	26989.85	2209.376	3866.432
Observations	42	42	42	42	42	42

Many studies have searched for empirical regularities between subsidy removal effects and a variety of economic determinants. Unfortunately, there is no commonly-agreed-upon theory on which to base an empirical model of subsidy removal effects. At the same time, numerous regression models incorporating a wide variety of explanatory variables have been specified to explain subsidy removal effects and to find the 'true' determinants (Musa, Hounsou, & Adeyele, 2014).

Correlation matrix revealed that there exist strong positive relationship between oil price, GDP, and log of GDP.

Correlation Matrix

	GDP	LGDP	OILPRICE	INFLATION	IMPORT	EXPORT
GDP	1.000000					
LGDP	0.921512	1.000000				
OILPRICE	0.887801	0.929429	1.000000			
INFLATION	-0.071945	-0.126481	-0.133809	1.000000		
IMPORT	-0.191529	-0.000242	0.049761	-0.127577	1.000000	
EXPORT	-0.088872	0.061600	0.160242	0.154851	0.545521	1.000000

Graphical analysis
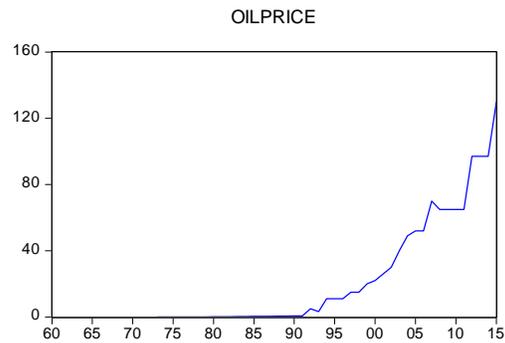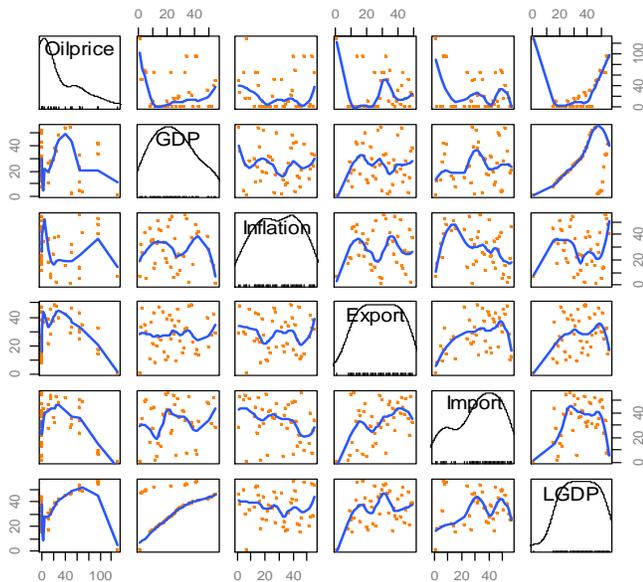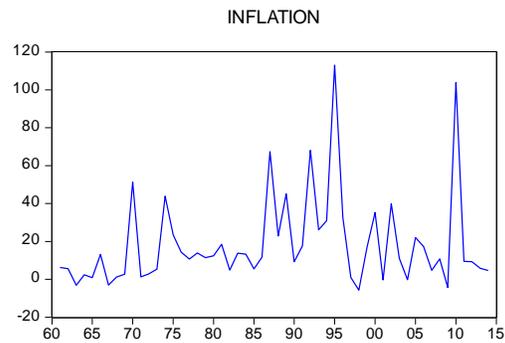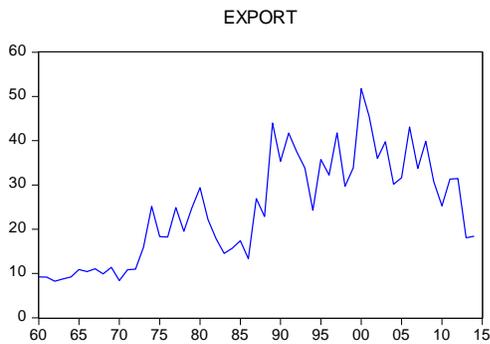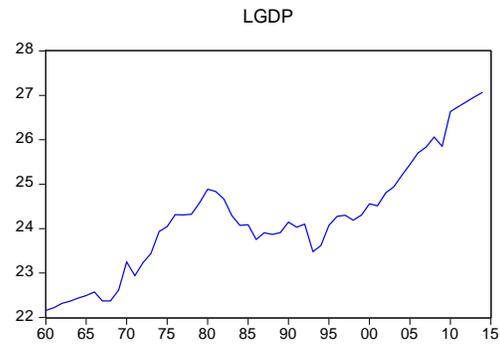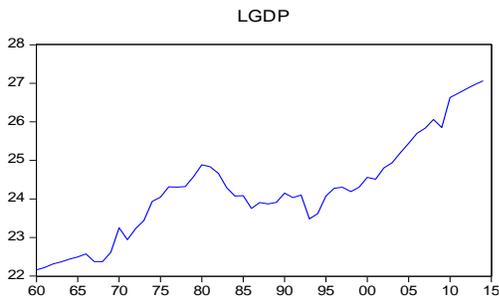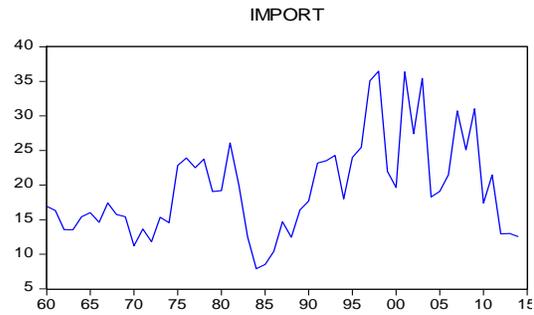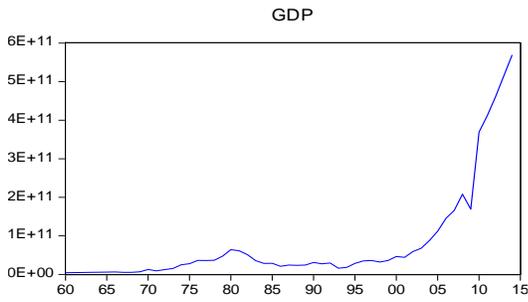
4.1. Regression modeling of subsidy effect on Nigeria economy

The economic model considered is;

$$LGDP_t = C + \beta_1 OILPRICE + \beta_2 IMPORT + \beta_3 EXPORT + \beta_4 INFLATION + \varepsilon$$

Where;
$LGDP$: Log of GDP
$OILPRICE$: Price of PMS
$IMPORT$: Import of goods and services (% of GDP)
$EXPORT$: Export of goods and services (% of GDP)
$INFLATION$: Inflation (% of GDP)

Note the subsidy effect is captured here by change in oil price. Specifically, increase in oil price corresponds to reduction or removal of subsidy on oil price.

Table 2: Regression estimate result for all the variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.27068	0.213161	113.8610	<0.001
OILPRICE	0.030673	0.001966	15.60438	<0.001
IMPORT	0.001017	0.009988	0.101857	0.9194
EXPORT	-0.010005	0.007709	-1.297932	0.2023
INFLATION	0.000631	0.002454	0.257183	0.7985
R-squared	0.871900	Mean dependent variance	24.73636	
Adjusted R-squared	0.858051	S.D. dependent variance	1.005284	
S.E. of regression	0.378752	Akaike info criterion	1.007472	
Sum squared residual	5.307755	Schwarz criterion	1.214337	
Log likelihood	-16.15690	Hannan-Quinn criterion	1.083296	
F-statistic	62.95913	Durbin-Watson stat	0.773162	
Prob(F-statistic)	0.000000			

Table 2 shows estimated and model adequacy for the model presented above. The Prob column indicates the significance of the model parameters. Only the constant and oil price effects are significant at 5% level. This suggests that the only variable that contributes to change in GDP is oil price.

Table 3: Regression estimate result for all the variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.02748	0.073064	328.8534	0.0000
OILPRICE	0.030113	0.001890	15.93012	0.0000
R-squared	0.863839	Mean dependent variance	24.73636	
Adjusted R-squared	0.860434	S.D. dependent variance	1.005284	
S.E. of regression	0.375559	Akaike info criterion	0.925644	
Sum squared residual	5.641772	Schwarz criterion	1.008390	
Log likelihood	-17.43852	Hannan-Quinn criterion	0.955974	
F-statistic	253.7688	Durbin-Watson stat	0.612028	

Table 3 shows estimated and model adequacy for the model presented above. The Prob column indicates the significance of the model parameters. The effect of oil price (PMS) is positive and significant at 5% which implies that change in oil price will significantly increase the country income proxy here by GDP. In addition, the model adequacy captured by F-test indicates that the model is significant. Hence the validity of the regression model

$$\widehat{LGDP}_t = 24.02748 + 0.030113 OILPRICE$$

The R-squared value 0.8638 indicates that about 86% variation in GDP is accounted for by change in oil price. Precisely speaking, a N1 increase in oil price (PMS) will corresponds to about $0.03 increase in log GDP and $1.03 increase in GDP. Thus removal of subsidy corresponds to increase in oil price which in turn results to increase in-country income.

5. Summary and Conclusion

In summary it has shown that over the short run the effect may seem harsh on the economic growth of the country with the influence of other variables like forex, but as the time series predict the transfer of the huge funds diverted to other growth enabling projects to grow enterprises and the agricultural sector would see a shift in the use of subsidy funds gradually growing the economy into stability. This is shown below, the summary of such gradual impact.

5.1. Impact on Fiscal Policy and Budget Implementation

Subsidy payments have in the past constituted a huge drain on public finances. In 2015, we estimated that N680.0bn – equivalent to the capital vote for the year and 17.4% of recurrent spending of the FGN – was paid to marketers for accumulated debt despite sub-US$50.0/barrel crude oil prices.

If the previous price cap (N86.50/liter) had been maintained post-adjustment of the pricing template to a

more realistic exchange rate (N285.00/US$1.00) needed to incentivize private marketers to start importing petrol, subsidy payment would have increased to N58.50/liter or N81.6bn per month and estimated N979.2bn in a year.

This would have been equivalent to 54.4% of annual capital vote and 120.0% of annual oil revenue of the FGN assumed in the 2016 budget.

Besides the fact that paying such humongous amount as subsidy payment would have implied extra-budgetary spending (since the recently passed budget does not make provision for subsidy), the current revenue structure could barely accommodate it.

Revenue estimates in the budget is already under threat due to the vandalism of oil installations in the Niger Delta which has pruned oil production to 1.67mbpd (relative to 2.2mbpd assumed in the 2016 budget) in April according to S&P Global Platts.

If the cost adjustment had not been transferred to retail consumers, the FGN's share of the US$550.0m Federation earnings from oil in April would barely be enough to cover subsidy payment for May.
Hence, we believe that:
I. The removal of subsidy will help in better fiscal budget performance as the pressure on government finances reduces and funds are channeled to more productive sectors of the economy.
II. As the process of deregulation is eventually completed, overhead cost of enforcement of retail pump prices will eventually drop off in alignment with the current fiscal thrust to prune down overhead cost of governance.

5.2. Impact on Individual Households

In the short term, increase in PMS prices will pressure consumer spending as households re-prioritize consumption upon steep increase in electricity tariff, imported and locally produced consumer non-durables and now petrol prices.

Real income will also further experience a drag as we estimate inflation rate to likely overshoot the 14.0% mark in May. There is no reliable survey yet to estimate nominal wage trend but our best guess is that increase in wage rate if any, will not likely match inflationary trend. Our assumption is based on expected contraction in per-capital income in H1:2016 if GDP growth remains under 2.0% (Afrinvest forecast) and population grows at the mean rate of 3.0%.

Estimating the potential benefits of a partial deregulation on household will be contingent on, 1) how much the price adjustment solves the problem of shortages in petrol supply, and 2) implementation rate of the capital component of the 2016 budget and impact on GDP growth and per-capita income. On the former, we are conservative due to lack of an exchange rate policy and bullish outlook for crude oil which could fuel speculation of another adjustment in the pricing template while for the latter, we

are more confident on government meeting its capital spending vote.

Household expenditure accounts for more than 65.0% of aggregate nominal GDP measured under the expenditure approach and the impacts of double-digit inflation, real wage pressure, FX and petrol shortages, higher unemployment rate and salary backlogs (especially at the sub-national level) will no doubt weigh on aggregate spending in the economy in the short term.

But we believe that if the deregulation of the petrol market ensures consistent supply, States, where petrol is currently being sold above N170.0/liter, will subsequently revert towards the normal market rate and ease consumer burden. Ready availability of products will reduce man-hour wastages which is also positive for productivity.

While the reprioritization of government spending towards capital projects and strategy also being mapped out to ease conditions of doing business could transition Nigeria in the medium term, from a consumer market where growth is driven by household consumption expenditure (dependent on oil wealth), to an investment market where growth is driven by investment spending of the government and the private sector.

5.3. Impact on Businesses and Oil & Gas Sector

Effect on Supply and Demand Dynamics: Energy is a common supply variable for businesses, most especially SMEs who depend majorly on petrol as the source of power. Expectedly, new petrol pricing regime will have a cascading impact on supply in the interim.

While short-term impact may be soft on large firms that essentially use diesel, impact will be significant on SMEs with huge dependence on petrol. In addition, effect on real wage will pressure demand significantly, thereby depressing revenue growth, especially in the immediate quarter. This will likely outweigh the short-term benefit of increased productivity expected to stem from improved availability of fuel. Therefore, short-term impact will be negative on demand and supply dynamics to businesses.

Long Terms Benefit will come from Fiscal Impulse: Our argument for fuel subsidy removal had been based on the notion that subsidizing consumption rather than production misguides growth. The huge fiscal burden (N680.0bn in 2015 or 17.4% of budgeted recurrent spending) of subsidy payment in the light of impaired oil revenue and external reserves, makes it imperative to deregulate the market and free up cash flow to invest in higherpriority capital projects necessary to boost productivity in the real sector.

For instance, total spending on Subsidy in 2015 (N680.0bn) equals 37.8% of total capital expenditure (N1.8tn) appropriated for 2016, this is 1.6x capital spending allocated to Ministries of Works, Power and Housing (N433.6bn), 3.4x allocation for transportation and 2.2x capital spending on Defense (N134.0bn), Health (N35.6bn), Education (N37.0bn) and Agriculture

(N47.0bn) put together. Thus, long terms benefit of subsidy removal will be reduction in operating cost to firms, which will improve operating margins and enhance overall welfare of the economy.

5.4. Effects on Oil & Gas Companies

In the interim, retail price will converge at the upper cap (N145/liter) due to price peg, however, as the removal of import quotas & licenses brings about improvement in supply across the country. Thus, performance metrics for Oil marketing firms will normalize. However, in the medium to long term, exchange rate pressures will likely serve as disincentive for importation and accelerate domestic production with the Dangote Group already eyeing the completion of the largest refinery in Africa. Development of the midstream Oil & Gas sector may crash petrol prices in the long run.

5.5. Impact on the Nigerian Economy Social Instability

The hike in fuel price will worsen prices, most especially in major cities like Lagos and Abuja, as transport and electricity, gas and other fuels which constitute 23.2% of the CPI weighting pressure May inflation and beyond. Hence, increase in general price level will hurt real wage rate significantly.

Accordingly, Labour Union will be justified to propose review of the minimum wage. Thus, Government will have to choose between readjusting pump prices downward or an upward review of minimum wage.

On a balance of factors, an upward review of minimum wage will moderate the gains from subsidy savings but will ease consumption spending and have a much more long-lasting impact on the economy.

5.6. Higher Inflationary Pressures

Without doubts, empirical review of past increases in pump price of fuel shows it always mount pressure on domestic prices. The recent steady rise in Inflation (from 9.6% in Jan-2016 to 11.4%, 12.8% and 13.7% in February, March, and April respectively) is linked partly to high fuel prices across States in Nigeria.

In our view, the increase in pump price of fuel, coupled with the attendant impact on transportation cost and staple food prices, should mount at least a 1.9% M-o-M pressure on the overall CPI which would translate to 14.6% headline inflation for May 2016.

5.7. Output Growth

In the short to medium term, demand and supply pressures fueled by the hike may constrain GDP growth as expansion in cost margins and weaker consumption spending drag corporate earnings.

As a result, GDP is likely to contract in H1:2016 on the back of delayed fiscal spending and FX challenges which had hindered economic activities in Q1 and overarching impact of petrol price hike in Q2. However, government spending on critical infrastructure will boost performance in the long run with a multiplier effect on operating margins and consumption spending.

5.8. Emergence of Mid-Stream Sector

As noted earlier, FX pressures may disincentive importation and spur competition and the growth of the mid-stream sector. This also portends a long-term benefit to the economy via changes in the structure of FX demand and utilization and a likely improvement in FX reserves accretion via improvement in exportation of refined fuel to neighboring states. In essence, diversion to nearby countries can be legalized in form of export if domestic production is more than enough to meet daily demand. Furthermore, this will end the never-ending spiral of fuel price adjustment crisis in the country and eliminate long queues at petrol stations.

5.9. Job Creation

A fully deregulated downstream sector will also spur job creation in the economy. According to Honorable Minister of State for Petroleum Resources, about 200,000 jobs will be created by this new policy. Most of these jobs are expected to come from the elimination of import quotas & licenses that now allows anyone with the capital required to import fuel and distribute the same across the country. With increased participation, we expect demand for labor to increase.

5.10. Impact on the Financial Market

Improved Sentiment in the Equities Market. We expect sentiments on listed downstream stocks to be buoyed by recent policy as lee-way to import fuel will enhance fundamentals thus improving valuations.

Overall impact is expected to be an improvement in the performance of the Broader All Share Index as demands by both foreign and domestic participants strengthen market activities. However, a caveat to this remains the CBN's silence on the outlook for the local unit which is expected to endure another episode of demand pressure in the parallel market following the directive of the government that marketers should now source their FX requirement for imports from autonomous sources.

Higher Yields on Fixed Income Securities. In the bonds market, galloping inflation will trim real return on debt securities, but investors will reprice assets, driving yields northwards. Meanwhile, improved sentiments on equities may temper appetite for bonds. However, this is subject to the position of the Apex's Bank to yield to the pressure to adjust the domestic currency exchange rate, a move expected to trigger influx of foreign portfolio investment into the system.

Conflicts of Interest:
Authors declared no conflicts of interest.

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