Downstream Deregulation Policy and Stability in Petroleum Products in Nigeria: A Case of South-South Region

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ABSTRACT

Nigeria economy is almost singularly hinged on crude oil and therefore, highly sensitive to internal and external shocks in the oil sector. This study examined the impact of downstream oil deregulation policy on stability in petroleum products in Nigeria. Survey design was used in the methodology of the study. The hypotheses formulated were tested using ordinary least squares linear regression technique. The study revealed that the downstream oil deregulation policy promotes the availability of petroleum products in the economy. The study also revealed that local refining of petroleum products positively impacts on deregulation of the downstream oil policy in the country. It was further revealed from the findings that the removal of petroleum products subsidy and efficient pricing of petroleum products enhances the deregulation of the downstream oil policy in the Nigerian economy. It was recommended that the government should make petroleum products available through efficient liberalization of the downstream sector, remove subsidies, build more refineries or maintain the existing ones and regulate the prices of petroleum products in the country. Government should get all the four refineries working at all costs. This will help to reduce the huge amount of money spent on refined fuel importation and will be diverted to infrastructural development for the economy.

Keywords: Downstream, Deregulation Policy, Stability, Petroleum Products, Nigeria

INTRODUCTION

Oil and gas industry has continued to serve as the mainstay of the Nigerian economy since 1956 when oil was discovered in commercial quantity at Oloibiri in the Niger Delta region. The industry, no doubt, is widely acknowledged as the nation's live-wire because it creates employment opportunities for Nigerians (particularly with the enactment of the local content policy), contributes to Nigeria's gross domestic product as well as government revenue, boosts foreign exchange reserves, provides cheap and readily available sources of energy for industry and commerce through the operations of the local refineries and the utilization of locally discovered natural gas (Odularu, 2008). Nonetheless, despite this benefit, the oil industry is

plagued by various problems which the federal government believed that deregulation of the downstream sector was a solution.

In recent years, deregulation of the downstream sector of the oil and gas industry has become a controversial issue in Nigeria. In 2003, the government bedeviled with fiscal deficit, high external debt, unfavourable balance of payments and inability to sustain the huge subsidy for fuels announced her intention to deregulate the downstream sector of the petroleum industry. Since the announcement, Nigerians have lost count about how many times organized labour went on strike over downstream oil deregulation policy.

Nigeria, Organization of Petroleum Exporting Country (OPEC) 's sixth largest crude oil producer, with her abundant natural resources still import and pay international prices for a natural resource it has in abundance. The federal government complained that the cost of subsidizing importation which was estimated to be as high as $1.5 billion annually has become unbearable to sustain, and that deregulation of the downstream sector would attract investors into the oil and gas industry and provoke competition which would result in reduction in the prices of petroleum products (Monday, Ekperiware & Muritala, 2016; Oti & Odey, 2017).

As part of the deregulation policy, the federal government stopped the sale of oil to Nigerian National Petroleum Corporation (NNPC) as the government was buying refined products at huge international prices only to sell at a heavily subsidized rate. NNPC now buys at the prevailing international price, since its refineries are almost down. Thus, it exports and uses the proceeds to import refined fuel for local consumption. Nigerians are saddled with continuous increase in the cost of locally consumed fuel as international oil prices rise. NNPC, major and independent marketers, have become importers of petroleum products, leaving pricing at the mercy of market forces.

Okafor (2012) averred that the sticky issue of oil is no longer a new phenomenon in the global political arena hence deregulation policy has globally been embraced by several countries in order to lessen public sector dominance and for developing a liberalized market while ensuring adequate supply of products. For this policy to be successful in these countries, they planned and mapped out an effective policy response which transcended into full deregulation. Such is the story in Peru, Argentina, Pakistan, Chile, Philippine, Thailand, Mexico, Canada, Venezuela, Japan and USA, all of which have systematically dismantled their State-owned oil companies, for a significant turning point in the story of their oil industry reform efforts. Most fundamental, it is identified that the economic reforms of the government (deregulation and privatization) become rather imperative since they are geared towards reviving the ailing sectors. The precedence of some sectors that have been fully deregulated and their achievements are so tremendous that Nigerians had forgotten the scars of the initial experiences. Judging from the above-mentioned countries, Nigeria is not alone in this global trend of attempting to revitalize and develop its downstream sector through liberalization and deregulation in order to increased private sector participation. Thus, deregulation of the downstream petroleum sector, as conceived in 2003, involved not just the removal of government control on petroleum products prices, but also the removal of restrictions on the establishment and operations of refineries, jetties and depots, while allowing private sector players to be fully engaged in the importation and exportation of petroleum products and allowing market forces to prevail hence if Nigeria should borrow a leaf from these nations and allow the downstream sector to be fully deregulated, she is sure to have a success story to tell, otherwise, she becomes an onlooker in the polity of oil producing nations. There is no point running away from grasping the reality, hence effort should

instead be made to face the challenges stoically than postponing the evil day that will eventually come (Okafor, 2012; Oti, Eze & Odey, 2016).

The need to deregulate the downstream oil sector of the Nigerian economy arises from the sorry state of the nation's existing local refineries with its concomitant inefficiency in distribution, ineffective and fluctuating price of the petroleum products and the negative tendency of monopolistic structure which has had tremendous adverse effects on the economy. This has been a contentious issue in national discourse hence the non-availability of petroleum products found beneath our soil in quantum as well as poor pricing mechanism as the price of petroleum product in Nigeria has but fluctuated and skewed against the masses while the government top officials smile to the bank. As a way out, it is believed that the deregulation of this strategic sector will bring success to Nigeria and make the products rapidly and readily available as well as cheap since it will engender competition as witnessed in the telecommunication sector in Nigeria which gave way for more competition and eventually lower tariffs.

Statement of the problem

The nation spends 3.0 trillion naira on fuel subsidy between 2019 and 2020 according to the Central Bank of Nigeria (CBN, 2021). This represents a reasonable chunk of the budget for the fiscal year 2020. This has slowed the rate of stability in petroleum products and economic development in the country. That is why Ayankola (2010) advocated for its removal and the introduction of deregulation in its place. He further contended that it would be difficult to get adequate financing and investment in refineries in a regulated pricing regime, and observed that this country spends approximately 600 million naira per day on oil subsidy, while government struggles to fund infrastructure, health, transport and other competing needs in the economy. Nigeria, ever before this reform had weighed its pros and cons and there is no place in the world where reforms are embraced without agitations. If statistics of nations already adopted deregulation is taken, it will be shocking to know that its take-off met with lots of road blocks.

Nigeria economy is almost singularly hinged on crude oil export and therefore, highly sensitive to internal and external market shocks in the oil sector. What this means is that a fractional rise in cost of fuel has unmitigated ripple effect on the industrial sector and key components of basic need indicators such as food, housing and health. Secondly, the ripple effects are without boundaries as social liberties for example, become less accessible to the average Nigerian and well removed from the less privileged who consist the vast majority of the over 185 million populations. If Nigeria should borrow a leaf from these nations and allow the downstream sector to be fully deregulated, we are sure to have a success story to tell. Otherwise, Nigeria becomes an on-looker in the polity of oil producing nations. There is no point running away from grasping reality, efforts should instead be made to face challenges stoically. It is of a paramount importance that petroleum tax be implemented because it is a must food to be eaten one day. The Nigeria 's daily fuel imports was down 45 percent in 2011, or by 27 million liters a day, on the back of the partial removal of petroleum subsidies by the government. Meanwhile government is said to have borrowed N850 billion in 2011 to import products. A look at the pricing template of the Petroleum Pricing Regulatory Agency (PPPRA) for PMS for December 2011 showed that the landing cost of a litre of petrol is N124.76 while the distribution margin for transporters, retailers, bridging fund, marine transport average (MTA) and administrative charge is put at N15.49. This however brought the total cost of petrol to N140.25. Meanwhile, when the initial official pump price was N97 per liter, the government is said to subsidize the difference of N43.25. Most of the scholars were talking about how subsidy removal will lead to employment,

some are of the opinion that it would bring hardship and others were talking about the inflation rate going up and coming down in the long run. They failed to tell us if the partial removal of fuel subsidy would lead to increase in government funding on social welfare, if corruption is the reason why government can no longer maintain fuel subsidy and if regulation of the downstream oil sector has undermined the revenue generated from the sector, petroleum products supplies have always been problematic for successive Governments in Nigeria.

The contemporary passion and tension that usually characterize petroleum discourse is due to unquantifiable deprivations and sufferings it causes to Nigerians in the South-South region. As the 6th largest producer of petroleum, it is a contradiction that in the past decade, supply of all products has been changeable and on sharp decline. Ironically, as supply declined, products prices have been on the increase as successive governments searched for "appropriate pricing". The combined impact of unreliable and inadequate supply and unending price increases have brought untold hardship to the citizenry and worse too, prevented economic recovery as promised by the democratically elected governments given that capacity utilization in the manufacturing sector nose-dives due to shortages of industrial products. Indeed, many industries have been compelled to close due to non-availability of some of these products. There has been continuous increase in petroleum prices with persistent scarcity of petroleum products. It was expected that deregulation would give room for competition which would transform to price reduction and excellent supply and distribution network. The problem is, has the deregulation of the downstream petroleum sector stabilized the pricing of petroleum products in Nigeria? This study therefore, attempts to unravel the implication of the deregulation on the stability of petroleum products in Nigeria. The main objective of this study is to ascertain the impact of downstream oil deregulation policy on stability of petroleum products in Nigeria.

REVIEW OF RELATED LITERATURE

The concept of deregulation

Deregulation is the gradual withdrawal or removal of regulation in the way of liberating the economy. The concept is also referred to as the system of removing impediments to trade; control of the movement of goods and services, thereby allowing free flow interplay of the forces of demand and supply in the determination of the price of commodities and wages of services rendered (Ojo & Adebusuyi, 1996). Deregulation therefore occurs when the government seeks to allow more competition in an industry that condoles near monopolies hence, a general word that refers to the practice of transforming an economy to one that is open to all interested players and is usually driven by market forces. Akinwumi et al. (2005), sees deregulation as the removal of government interference in the running of a system. This means that government rules and regulations governing the operations of the system are relaxed or held constant in order for the system to decide its own optimum level through the forces of supply and demand (Ekundayo & Ajayi, 2008). In any society, government is there to formulate and implement public policies to enhance the living standard of the people; and deregulation of any aspect of the economy is one of such public policies that government can adopt. Public policy is the formal or stated decisions of government bodies or a plan of action adopted by government or its agents. It involves the use of state coercive agencies to enforce and ensure compliance (Ikelegbe, 2006). Deregulation of any aspect of a nation's economy on the other hand could take the form of privatization or divestiture of an aspect of the economy from government to private investors (Gberevbie, Ibietan, Ugochukwu & Nchekwube, 2015).

Commenting on the importance of deregulation of an aspect of the economy of a country, Nwagbara (2006) argues that "when market forces are allowed to play out, and when the private businesses are given pre-eminence in the economy, then the economy would be rejuvenated and sustainable development would consequently ensue." In this study, the policy framework of downstream oil deregulation is used.

Stability of petroleum products

Stability of petroleum products is a process by which there is availability and efficiency in supply and pricing of petroleum products in an economy. The stability in petroleum product in this study is captured by the availability of petroleum products, efficiency in local refining of petroleum products, removal of petroleum products subsidies, and efficient ricing of petroleum products in Nigeria.

Benefits and costs of the deregulation of the downstream oil sector of Nigeria

Many have offered different perspectives and motives for the government deregulation of the oil and gas sector in Nigeria, yielding different opinions and two schools of thought. Those supporting deregulation argue that deregulation of the downstream oil and gas industry would help government to eradicate fuel scarcity and ensure constant fuel supply across the country. Deregulation of the industry would create an inflow of foreign investment while persistent smuggling of petroleum products and inefficiencies in the sector will be eliminated. They also posit that Nigeria has the lowest price of petroleum products in the world and with deregulation the international market equilibrium would allow government to channel funds to other sectors of the economy. Furthermore, they argue that it would break the monopoly enjoyed by the Nigerian National Petroleum Corporation (NNPC) ((Gberevbie et al, 2015). Essentially, deregulation would lead to the uninterrupted operation of the refineries and would also guarantee a steady supply by enabling stakeholders and independent marketers to participate in product importation and marketing (Nwagbara, 2006). Their view is also that the regulated regime by way of subsidy is a way of the government enriching few petroleum products marketers. Nwagbara (2006) indicates that Nigerians believe deregulation and privatization will usher in sustainable development and would be a blessing rather than a curse. Nwagbara (2006) recommends the complete deregulation of the downstream sector to reduce corruption, inaccurate record keeping, inefficiency, smuggling and insufficient product supply. Ekundayo and Ajayi, (2008) suggests that making deregulation work involves providing an enabling environment and framework for efficient production, supply and distribution. Akinwumi et al. (2005) recommends that business as usual in NNPC under regulation by way of product importation and distribution is inappropriate because it represents a wrong step for government to continue with; instead, the government should fully deregulate the downstream oil and gas sector.

The opposing group argues that Nigeria petroleum industry must not be deregulated completely; instead, the government should maintain the status quo and restructure the sector to improve efficiency for the overall national interest. They opine that the root cause and clamour for deregulation is because of the massive corruption in the sector and therefore this should be tackled rather than embarking on deregulation. They further argue that deregulation helps increase profit margins for the importers; interestingly this is the position of the labour union and the organized civil society. Furthermore, Akinwumi et al. (2005) assert that the fair distribution of economic benefits derived from petroleum has proven elusive and therefore predicts same for deregulation. Barkido (2010) and Ndem, Unuafe, & Egbe (2019) argues that removal of subsidy

may cause dislocation to the gas price because of high demand and inadequate supply. Jega (2000) doubted government sustaining the gain of deregulation due to the undue interference in NNPC's affairs, resulting to near collapse and dismal performances which encouraged the clamour for privatization and deregulation.

Theoretical underpinning

This study is rooted on the public interest theory by Arrow (1970). This theory accounts for deregulation from the point of view of public interest. This public interest is described as the best possible allocation of scarce resources for individual and collective goods. In theory, it can be demonstrated that, under certain circumstances, the allocation of resources by means of the market mechanism is optimal. Because these conditions are frequently not adhered to in practice, the allocation of resources is not optimal and a demand for methods for improving the allocation arises. One of the methods of achieving efficiency in the allocation of resources is government deregulation (Arrow, 1970). According to public interest theory, government deregulation is the instrument for overcoming the disadvantages of imperfect competition, unbalanced market operation, missing markets and undesirable market results. Deregulation can improve the allocation by facilitating, maintaining, or imitating market operation.

The public interest theory is applicable to this study because it predicts that deregulation would occur if the market deficiency which compelled regulation in the first place were to disappear. The theory also predicts that deregulation would occur if a regulatory regime which had been perceived to be in the public interest was defective.

Empirical Studies

Ibrahim (2007) in a study to determine the growth prospects of oil and gas abundant economies with emphasis on Nigeria, observed that over reliance on exogenous technology application for extraction and export of oil due to emphasis on revenue weakens the absorptive capacity of domestic production structures. This is because as oil is produced and exported in order to earn more foreign reserve, there is no commensurate effort to generate economic activities that will promote growth using the revenue earned from oil. As a result, the economy as a whole is exposed to international price and demand shocks which come with over dependence on imports and hence destabilize petroleum products availability in the domestic economy.

Maduka, Ihonre and Anochiwa (2015) carried out an econometric analysis of the impact of deregulation of the downstream sector on Nigerian economy. Adopting the Ordinary Least Squares (OLS) method the study found that deregulation of the downstream oil sector has positive and significant effect on the Nigerian economy.

Monday, Ekperiware and Muritala (2016) empirically analyzed the relationship between deregulation of the downstream sector and Nigerian economic stability using annual data from 1980 to 2009, applying the Ordinary Least Squares (OLS). The findings revealed that increase in price of petroleum products was not as a result of deregulation, and deregulating price of petroleum products significantly influence stability in the economy.

Anyadike (2013) examined the implication of the downstream oil sector on the Nigerian economy by highlighting the main thesis of the proponents and that of the opponents of deregulation and fuel subsidy removal. Descriptive statistics and chi-square were used and results revealed that deregulation of the downstream oil sector is a good policy that was wrongly implemented hence the existing four refineries are left in their comatose state with promises of a total turn around maintenance.

Huang et al. (2018) explored the issue of causality between real oil price and the economic stability brought about by available petroleum products in tourists' destinations. Based on their results, they argued that a rise in oil price that is large when compared with recent volatilities would amount to reallocation of resources and lowering of aggregate output. Even though this result is logical, it does necessarily follow because from the Nigerian perspective, we have seen large increases in oil prices yet there was no resource reallocation, the poor continued to be poor, while infrastructural decay persisted.

Omotosho (2019) studied the macroeconomic implications of oil price shocks and the extant fuel subsidy regime for Nigeria. He developed and estimated a New-Keynesian DSGE model that accounts for pass-through effect of international oil price into the retail price of fuel. The results show that oil price shocks generate significant and persistent impacts on output, accounting for about 22 percent of its variations up to the fourth year. Under our benchmark model (i.e., with fuel subsidies), it shows that a negative oil price shock contracts aggregate GDP, boosts non-oil GDP, increases headline inflation, and depreciates the exchange rate.

Olusola (2021) investigated the necessity for deregulation of the downstream petroleum sector to tackles shortfalls and to enhance quantities of petroleum commodities in Nigeria. The study embraces a conceptual legal approach utilizing existing literature to aid a doctrinal legal study technique. The research also utilizes primary and secondary founts of legislations, such as, constitutional and case laws. The finding of the research is the absolute authority of the government in the industry and incongruous valuing of oil commodities which made the industry unappealing to financiers to found private refineries that will ensure adequate supply of petroleum and reasonable profits on their investments owing to excessive regulation of the industry by the government.

Ekeinde, Adewale, Diepiriye and Dumbili (2022) examined the deregulation of the downstream sector of the Nigerian oil industry and its impact on pump price of petroleum products. The paper analyzed the concept of deregulation and how a well-planned and deregulation policy can be effective to achieved the desired goals of product availability and minimal pump prices. It proposes that if the deregulation of the downstream is to yield best outcomes especially in product pump price, then having an effective domestic refining capacity is very imperative which would include revamping the state-owned refineries, issuing licenses for the construction of new refineries and operating them optimally.

Predicated on the reviewed of previous studies, it can be observed that none of the studies was able to systematically discussed downstream deregulation policy and stability in petroleum products in south-south region of Nigeria, where the oil is being produced. Hence, this study is to fill the gap, considering the simultaneous study of how the downstream oil deregulation policy promotes the availability, local refining, subsidy removal and efficient pricing of petroleum products in the region and Nigeria at large.

METHODOLOGY
Research design

To determine the impact of downstream deregulation policy on stability in petroleum products in Nigeria, the survey research design was adopted. The choice of the design was influenced by the nature of the study which was both descriptive and analytical. Also, the geographical area of the study was well defined and the respondents who possess the required information were clearly identified which enabled the use of survey tools so as to gather data for the study in order to establish cause-effect relationship between the independent variable and the

dependent variables. The study focuses on the impact of downstream deregulation policy on stability in petroleum products in the South-South region of Nigeria. The region comprises of six (6) states which include Akwa Ibom (5,482,177); Bayelsa (2,277,961); Cross River (3,866,269); Delta (5,663,362); Edo (4,235,592) and Rivers (7,303,924). The population of the study comprises of all the entire population of the six states, which is 28,829,288 (CBN, 2016). The petroleum products that were selected for study are petroleum motor spirit (PMS), kerosene, diesel and liquefied natural gas.

This study employed stratified sampling technique. Stratified sampling technique is a probability sampling technique wherein the researchers divide the entire population into different sub-groups or strata, then randomly selects the final subjects proportionally from the different strata. This is because the study focused on particular characteristics of a population that are of interest. Taro Yamane formula is used to select the sample size. It is important to use Taro Yamane formula to avoid bias. The Taro's formula is expressed thus:

$$n = \frac{N}{1 + N (e)^2}$$

Where:

n   =   sample size
N   =   population size
e   =   tolerable error (0.05)
1   =   constant

Substituting the values in the above formula we have:

28829288/1+28829288 (0.05)^2

= 28829288/1+28829288 (0.0025)

=28829288/1+72074.2

=28829288/72074.2

= 399.9945

=400

In applying the Taro Yamane formula on the population of the six states, the total sample size that best represents the population of the study was 400.

TABLE 3.1
Determination of sampled respondents in the 6 States of South-South regions of Nigeria

S/N	State	Population	Sample computation	Sampled Respondents	percent
1	Akwa Ibom	5,482,177	5,482,177*400/28,829,288	76	19.0
2	Bayelsa	2,277,961	2,277,961*400/28,829,288	32	8.0
3	Cross River	3,866,269	3,866,269*400/28,829,288	54	13.5
4	Delta	5,663,362	5,663,362*400/28,829,288	78	19.5
5	Edo	4,235,595	4,235,595*400/28,829,288	59	14.8
6	Rivers	7,303,924	7,303,924*400/28,829,288	101	25.3
	Total	**28,829,288**		**400**	**100**

Source: Researchers' computation, 2022

In this study, data was collected from both primary and secondary sources. The primary data was collected through field survey basically from households in the selected states. The method used in the collection of data was survey. The instrument used was the questionnaire. The secondary data were collected from journals, CBN Statistical bulletin and internet. The questionnaire was designed following the 5-point Likert scale of strongly agreed (SA), agreed (A), undecided (U), disagreed (D) and strongly disagreed (SD). The questionnaire consists of two sections, A and B. Section A basically contains the respondents' biometrics such as age, gender, educational qualifications etc. Section B comprises of questions related to impact of downstream deregulation policy and stability in petroleum products in Nigeria. The researchers adopted the 5-point Likert scale which range from: Strongly Agree (SA) = 5; Agree (A) =4; Undecided (U)= 3; Strongly Disagree (SD) = 2; and Disagree(D) =1.

Validity and reliability checks were done on the questionnaire to ascertain the degree to which the measuring instrument measure what it is designed to measure. Two levels of validity were carried out. First, the questionnaire passed through face validity; checked by experts in measurement and evaluation for criticisms and purification. Reliability of the instrument which has to do with consistency of the measuring instrument was carried out through the test-retest method. To establish the reliability of the instrument, the researchers conducted a trial test of the instrument on 100 households, and the reliability index ranges from 0.54-0.80, which is adjudged to be reliable.

Model specification

The model bears the parameters in which the dependent and independent variables are specified. Thus, the model is stated below:

$$DODP = f(APP, LRPP, RPPS, PPP) \qquad 3.1$$

The econometric form is:

$$DODP = b_0 + b_1APP + b_2LRPP + b_3RPPS + b_4PPP + Vt \qquad 3.2$$

Where:

DODP= Downstream oil deregulation policy, APP = Availability of petroleum products, LRPP = Local refining of petroleum products, RPPS = Removal of petroleum products subsidies, PPP = Pricing of petroleum products, b_0 = constant term and U_t = error term. Data analysis was undertaken using qualitative as well as quantitative techniques. It was expected that a major segment of the information collected during the survey were qualitative and may not be easily quantified. Descriptive statistics such as frequencies, percentages etc. was employed in most of the analyses in summarizing trends, changes and comparison across certain characteristics. The data collected was analyzed with relevant statistical tool such as the ordinary least squares (OLS) technique of multiple regression models applying the Statistical Package for Social Science (SPSS, 22). The study also made use of tables for presentation as appropriate.

ANALYSIS AND DISCUSSION OF RESULTS
Data presentation and analysis

The table presented below contains the analytical details relating to the findings from the respondents. Of the 400 questionnaires distributed to the respondents, 391 copies representing

97.8 percent were correctly filled and returned to the researchers, while 9 copies of the questionnaire representing 2.2 percent were not returned by the respondents to the researchers. However, from the above analysis, the 391 was considered to be the workable sample size used in the data analysis and was the true representation of the study population.

Demographic Profile of the Respondents
The table below showed the summary of the responses on the personal data of the respondents.

Table 4.1

Sex	No. of respondents	Percentage (%)
Male	205	52.4
Female	186	47.6
Total	391	100
Marital status		
Single	150	38.4
Married	183	46.8
Divorced	19	4.9
Widow	39	9.9
Total	**391**	**100**
Qualification		
FSLC	164	41.9
SSCE	115	29.4
NCE/ND	58	14.8
Bachelor/HND	32	8.2
Masters & Ph.D	22	5.6
Total	**391**	**100**
Year		
11-20 years	30	7.7
21-30years	144	36.8
31-40years	173	44.2
40years& above	44	11.3
Total	**391**	**100**

Source: Field survey, (2022)

From table 1, 205 respondents representing 52.4 percent of the total respondents were male while 186 respondents representing 47.6 percent of the total respondents were female. Therefore, it can be affirmed that majority of selected households in the study area were male.

183 respondents representing 46.8 percent were married, 38.4 percent representing 150 respondents out of 391 respondents were still single. 4.9 percent representing 19 respondents out of 391 respondents were divorced, while 9.9 percent of the respondents representing 39 respondents out of a total of 391 respondents were widows. Therefore, it can be affirmed that majority of the respondents in the study area were married.

On the educational level of respondents, 164 and 115 respondents representing 41.9 and 29.4 percent were FSLC and SSCE holders, respectively. 58 and 32 respondents, representing 14.8 and 8.2 percent of the respondents are NCE/ND and B.Sc./BA/HND holders, while 22 respondents representing 5.6 percent were holders of M.Sc./MA/MBA/Ph.D. This revealed that many of the respondents were FSLC holders. On the age distribution of the respondents, about 173 respondents representing 44.2 percent of the total respondents are between 31-40 years. 144 respondents representing 36.8 percent of the total respondents falls within the age bracket of 21-30 years, 44 respondents representing 11.3 percent of the total respondents equally were 40 years and above, while 30respondents representing only 7.7 percent of the total respondents falls within 11-20 years' age bracket. Therefore, it can be affirmed that majority of the respondents are between 31-40 years of age.

Presentation of Results
Dependent variable: DODP

Variable	Coefficient	Std. Error	t-Stat	Sign
Constant	.403	.222	1.815	.070
APP	.045	.030	1.523	.129
LRPP	.028	.024	1.158	.248
RPPS	.101	.026	3.916	.000
PPP	.959	.027	35.227	.000
R-squared	.774			
Adjusted R-squared	.771			
F-statistic	329.867	Durbin-Watson stat	2.074	

Source: Statistical result from SPSS 22.

The equation regressed the availability of petroleum products (APP), local refining of petroleum products (LRPP); removal of petroleum products subsidies (RPPS); and pricing of petroleum products (PPP) on downstream oil deregulation policy (DODP). Thus, from a careful examination of the regression result and related statistics the following facts emerged; the regression coefficient of the availability of petroleum products (APP) carries a positive sign but the t-value is statistically insignificant at 5 percent level of significance. This implies that a 1 percent increase in the availability of petroleum products will instigate an increase of 0.045 percent in downstream oil deregulation policy. This implies that the deregulation of the downstream oil policy will enhance the availability of petroleum products in the economy. The a priori test is in line with the findings that the deregulation of the downstream sector of the oil industry in Nigeria will lead to the availability of petroleum products.

The relationship between local refining of petroleum products (LRPP) and downstream oil deregulation policy (DODP) carries a positive sign but the t-value is statistically insignificant at 5 percent level of significance. This implies that a 1 percent increase in local refining of petroleum products will lead to an increase in downstream oil deregulation policy by 0.028 percent. This implies that the deregulation of the downstream oil policy will increase the local refining of petroleum products in the country. The nexus between the removal of petroleum products subsidies (RPPS) and downstream oil deregulation policy (DODP) is positive and statistically significant. Hence, a 1 percent increase in subsidies' removal will lead to a rise in downstream oil deregulation policy by 0.101 percent. This is confirmed by the P-value of the t-statistic for RPPS which is 0.000. The level of significance of 0.05 is greater than the p-value of 0.000. This implies that the deregulation of the downstream oil policy will promote the removal of petroleum products subsidies in the country. The a priori test is in line with the findings that the deregulation of the downstream sector of the oil industry in Nigeria will lead to the removal of petroleum products subsidies. The relationship between pricing of petroleum products (PPP) and downstream oil deregulation policy (DODP) is positive and statistically significant at the 5 percent level. This implies that a 1 percent increase in pricing of petroleum products in the country will lead to a rise in downstream oil deregulation policy by 0.959 percent. This is confirmed by the P-value of the t-statistic for PPP which is 0.000. The level of significance of 0.05 is greater than the p-value of 0.000. This implies that the deregulation of the downstream oil policy will enhance the pricing of petroleum products in the country. The a priori test is in line with the findings that the deregulation of the downstream sector of the oil industry in Nigeria will lead to the efficient pricing of petroleum products. The adjusted R^2 of 0.771 is instructive and indicates a good fit for the model. Simply put, about 77 percent of the total variation in the dependent variable (DODP) is accounted for by the independent variables in the estimated model. The value of Durbin Watson (DW) statistic is 2.074. The tabulated DW at 5 percent level of significance using 391 observations indicated that lower limit of Durbin Watson statistic is 1.758 while the upper limit is 1.779. The calculated value (DW) = 2.074 is greater than the upper limit (Du) = 1.779, hence there is no evidence of serial correlation in the estimated model.

Discussion of Findings

This study was carried out to investigate the impact of downstream oil deregulation policy on stability in petroleum products in Nigeria. It was revealed from the findings that the availability of petroleum products, and the deregulation of the downstream oil policy will enhance the local refining of petroleum products in the country. The a priori test is in line with the findings of Maduka *et al.* (2015) and Adigun (2012) who opined that the deregulation of the downstream sector of the oil industry in Nigeria will lead to the availability of petroleum products, as it will bring sanity into the oil and gas industry since smuggling of petroleum products, vandalizing of pipelines and all other vices in the sector will be totally removed. Full deregulation of the downstream sector will encourage private sector participation in the building of refineries and bring down prices in the long run.

On the downstream oil deregulation policy and removal of petroleum products subsidy model as well as the downstream oil deregulation policy and pricing of petroleum products nexus, it was found that the deregulation of the downstream oil policy will promote the removal of petroleum products subsidy in the country, and equally enhance the pricing of petroleum products in the country. These findings are in consonance with the views of Anyadike (2013) and Ibrahim (2007); who asserts that subsidies removal will generate enough domestic oil savings

which can translate to higher revenue for the economy. Deregulation will help in the dismantling of the natural monopoly of the state-owned enterprises by privatizing and deregulating price controls, which will lead to the creation of competition in the downstream by encouraging more companies to get involved and eventually supplying the market at competitive pricing levels, thereby reducing the cost government spends on subsidizing the sector. The regulation and payment of subsidy encourages lack of competition, corruption and wastage because of lack of plan, which has been responsible for demurrage and other factors that inflate the cost of fuel in the country. The over reliance on exogenous technology application for extraction and export of oil due to emphasis on revenue weakens the absorptive capacity of domestic production and pricing structures. Refined petroleum products are imported due to the fact that the refineries are operating either below capacity or are not functioning, which is an indication that fluctuations in oil prices, which lead to increase in oil prices, will have a negative impact on economic growth and cause instability in petroleum products.

Conclusion and Recommendations

The study revealed that the availability of petroleum products, local refining of petroleum products, removal of petroleum products subsidy as well as the pricing of petroleum products have improved due to the partial downstream oil deregulation policies adopted over the years in the country. The study concludes that the downstream oil deregulation policy should be holistically carried out to enhance availability of the products, promote the establishment of local refineries, remove subsidies to enhance efficiency and deregulate the prices of petroleum products in the country. The government should make petroleum products available through efficient deregulation of the downstream sector, remove subsidies, build more refineries or maintain the existing ones and regulate the prices of petroleum products in the country. Government should get all the four refineries working at all costs, which will help to reduce the huge amount of money spent on refined fuel importation and will be diverted to infrastructural development for the economy. Government should encourage more private sector participation so that better equipped oil infrastructures (refineries and pipelines) can be built and the cost of refining crude oil and its distribution will reduce. Government should partner with the major oil companies like Chevron, Shell BP, and Total etc., to build more refineries in Nigeria and at the same time fast tracking the turnaround maintenance of the refineries. A transparent system must be put in place for monitoring the use of fuel subsidy programmes so that citizens could review and scrutinize expenditure. Fuel subsidy removal should not be an instant decision without palliative measures like making the power sector more effective, which would reduce burden of subsidy removal on the people. Government should regulate the activities of fuel marketers and some unscrupulous elements in the petroleum marketing channel that sabotage the efforts of government by creating artificial scarcity for personal benefits. Government, through the Petroleum Product Regulatory Agency (PPPRA), should fix prices of petroleum products, and any corrupt official or firm that wants to make abnormal profit should be made to face the law.

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