

## **Assessment of the Distribution Strategies of Premium Motor Spirit in Nigerian National Petroleum Corporation, Ore Depot**

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**ABSTRACT:** *PMS without gain saying is a commodity which is inevitable to all and Nigeria as a country have gained immensely from the proceeds generated from the sales of PMS. Also over the years, Nigeria economy have experienced major international recognition as a result of this God given resources but the citizenry still experienced major scarcity of PMS. The study therefore assess distribution strategies of PMS in NNPC Ore Depot. In sampling of the opinion of the NNPC executive officer and marketers, the primary and secondary methods were used, while the responses were analyzed and used to test the hypothesis using Pearson correlation coefficient. The result revealed that truck is the major means of distributing PMS to its numerous customers. Also, there were many factors amidst low capacity utilization and refining activities at the nation's refineries, pipelines vandalization, large scale smuggling due to unfavourable economic product at home and higher border prices with the neighbouring countries, low investment opportunities in the sector, and corrupt practices by some members of the distribution chain among other responsible for the ineffectiveness of the distribution strategies. The study recommends that government should put necessarily actions in place to checkmate the malice of illegal diversion of the premium motor spirit. The study concludes that these factors mentioned above be either eliminated or reduced and stringent measures be adopted to act as deterrents to other corrupt practices in the distribution chain.*

**Keywords:** *Distribution Strategies, Premium Motor Spirit, Refinery, Vandalization, NNPC*

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### **I. INTRODUCTION**

The sensitivity of petroleum resource is clearly reflected due to the fact that it has remained or continued to be the goose that lays the golden egg for the Nigerian economy as well as the supreme foreign exchange earner contributing over 80% of government revenue and helping the development of infrastructures and other industries [1]. The issue of irregular distribution of Premium Motor Spirit (PMS) popularly known as petrol, has been dominant in major public gatherings. Apart from the pains being borne at corporate and individual levels, opposition politicians have also latched on the public against the products scarcity to criticize the process put in place by the Federal Government agencies for petroleum products distribution [2].

Nigeria joined the Organization of Petroleum Exporting Country (OPEC) in the year 1971 at a period when the aspiration of most developing nations was to take over commanding heights of their economies. OPEC was then involved in deep negotiations to control a higher share of the rewards of their petroleum resources from the multinational oil companies who were operating in member countries. By a unanimous resolution, OPEC members decided that each member state should take a minimum ownership stake in the oil operations in their countries, and even set out plans for gradually increasing the stake until a majority ownership was altered within a time frame of five years. OPEC member states adopted different strategies in implementing that resolution.

The government of Nigeria, after considering all the available options, ventures for a form of joint venture participation in which:

- i. total ownership and full control of all the petroleum resources in the ground is retained by the state;
- ii. government and oil companies would jointly own (in undivided interest) all the assets created for conducting petroleum operations;
- iii. the oil companies were appointed the operations on behalf of both parties in oil prospecting and mining leases;
- iv. all funds required for petroleum operations would be contributed in the same ratio of ownership of the ventures; and
- v. the rewards would be taken in kind (i.e. in crude oil) and shared in the proportion of ownership of the ventures.

To manage the assets created through government's joint ownership of all existing exploration and production companies the Nigeria National Oil Corporation Decree no 18 of 1971 empowered the corporation to acquire assets and liabilities in existing oil producing companies on behalf of the Nigerian government and authorized its (NNPC) participation likewise other major multinational oil companies in all phases of the petroleum industry.

However, industry players explained that rather than heap the blame of the product scarcity and the indiscriminate hike in the price of fuel on the Petroleum Products Marketing Company (PPMC), which is directly in charge of the products distribution, a clear understanding of the Nigerian situation will set the records rate [2]. Therefore, due to highly technical nature of exploration and production, the sector depends substantially on imported technologies and facilities for most of its operations. In view of the critical importance of the sector to the nation's economy and its capacity to generate far-reaching multiplier effect, the grooming of highly skilled indigenous manpower to participate keenly in the activities of the sector to redress the foreign dominance, becomes imperative [3].

It has been the policy of government to put in place proper facilities in the downstream sector like refinery, and distribution of premium motor spirit (PMS) so as to embrace the value added to our petroleum resources. Presently, Nigeria has four refineries with two at Port Harcourt while Warri and Kaduna has one each. All the refineries have a total production capacity of four hundred and forty five thousand (445,000) barrels per. To ensure the supply of available PMS throughout Nigeria, the Federal Government built about three hundred kilometers (300,000km) network of pipelines covering all parts of the country, interconnected to seventeen (17) petroleum product depot in Nigeria. This was aimed at eliminating the perennial storage's of petroleum in the country.

It is the wish of the Federal Government to ensure steady and regular supply of premium motor spirit. To this end, efforts have been made to expand and inter connect all existing refineries. It will ensure that strategic stock of premium motor spirit is well maintained in the country by allowing quick replenishment of stock in all product depot of which Ore depot is benefitting. The study therefore assess the distribution strategies of premium motor spirit (PMS) in Nigerian National Petroleum Corporation Ore depot.

Nigeria began exporting oil in 1958 with crude oil production of 5000 barrels per day (bpd) rising by 1979 to a peak of 2.3 million bpd. Currently, Nigeria's crude oil production is about 1.5 million barrels per day (bpd) and is expected to rise to 2.5 million bpd. Nigeria is the 13<sup>th</sup> largest oil producer in the world and 6<sup>th</sup> largest oil producer among OPEC [4]. Nigeria is also the leading oil and gas producer in Africa, currently ranked the seventh highest in the world [5]. Despite the ranks and various investments of the government in the oil sector, Nigeria as a country still experience hitches in distribution means of premium motor spirit popularly known as PMS. In spite of the efforts of government, the industry is still facing scarcity of premium motor spirit leading to long queues at the service stations in some cities, towns and villages in the country. In view of the above, the study assessed some of the pertinent issues confronting distribution strategies of premium motor spirit (PMS) at Nigerian National Petroleum Corporation Ore depot.

The aim of this study was to evaluate the distribution strategies of premium motor spirit at NNPC Ore depot. In achieving this aim, the specific objectives were to:

- i. identify the strategies of distributing premium motor spirit at NNPC Ore Depot;
- ii. assess the effectiveness of the distribution strategies of premium motor spirit in NNPC Ore depot; and
- iii. identify causes of scarcity of premium motor spirit in areas being serviced by NNPC Ore Depot

## **II. LITERATURE REVIEW**

### **2.1 Concept of Distribution**

Distribution is the marketing function that ensures that goods and services are made available at the points of need, for the consumers [6]. While corroborating this assertion, [7] state that distribution also known as place is concerned with making goods and services available in the right quantities and locations, when and where on demand by customers. Distribution is one of the variables fundamental to decision making factors in marketing. Distribution provides the necessary support for marketers by ensuring that the right quantities of goods or services are offered at the right point, at the right time. One of the basic ingredients of marketing concept is to know buyers current and potential requirements. Such knowledge extended beyond the intermediaries to the other buyers down the channel. Thus, it may help develop a more complete understanding of trends in the channel serving various customers. A well-managed distribution system gives rise to high level of customer service. This is because, among the objectives of distribution is the need to solidify relations with customers, improve the market coverage, increase deliveries and minimize stock out (shortages). Distribution is the marketing variable which creates the time, place and possession utilities. It has two main components which include: physical distribution and channel of distribution.

### **2.1.1 Physical Distribution**

Physical distribution as one of the processes of marketing that deals with the physical transfer of goods. It is concern with physical movement of goods from producer to wholesaler to the retailer, and from retailer to the customers [8]. Physical distribution according to [9] is the efficient movement of raw materials to suppliers and finished form the end of product line to the ultimate consumer. He further buttress that physical distribution is a process, which consists of all activities concerned with the movement of the right products to the right place at the right time.

### **2.1.2 Channel of Distribution**

According to [6], channel of distribution or distribution channel is the path a product takes as it moves from the producer to the ultimate consumer. These are made up of individuals and organizations, which perform one activity or the other that would ensure movement of the product and exchange of its title from the production to the final consumer. Distribution channel is the route or course taken in transferring the title to a product (manufactured or otherwise) from its producer or first owner to its last owner, an industrial user or the ultimate consumer. Premium motor spirit (PMS) could be regarded as consumer or industrial products. It all depends on the intention of the buyer. If PMS is meant for someone's personal car or for domestic use like kerosene then it is classified as consumer product. But if it is for industrial purchaser with the purposes of industrial machines or commercial vehicles, then it could be seen as an industrial product. This analysis becomes necessary to help us appreciate the number of channel levels or members involved in the distribution.

## **2.2 The Nigeria Petroleum Industry**

Petroleum is no doubt a predominant source of Nigeria's revenue and foreign exchange. The petroleum industry in Nigeria is divided into two main segments; the upstream and the downstream sectors. The upstream refers to activities such as exploration, production and delivery to an export terminal of crude oil or gas. The downstream on the other hand encompasses activities like loading of crude oil at the terminal and its user especially transportation, supply trading, refining distribution and marketing of petroleum [10].

Previous studies on the Nigeria economy in the last decade reveal that the petroleum industry has been playing a dominant role and occupies a strategic position in the economic development of Nigeria [11]. This is evidenced by the total oil revenue generated into the Federation Account from 2000 to 2009 which amounted to N34.2 trillion while non-oil was N7.3 trillion, representing 82.36% and 17.64% respectively. The mean value of oil revenue for the 10 year period is N3.42 trillion compared to non-oil revenue at N732.2 billion [12]. Further evidence was ten year's average crude oil and condensates production of 832,866,752.1 barrels from 2000 to 2009. The importance of crude oil to the economic development of Nigeria cannot be over emphasized, Nigeria gained an extra \$390 billion in oil-related fiscal revenue between 1971 and 2005 [12].

## **2.3 Key Participants in the Nigeria Petroleum Industry**

Taking a through observation of the activities in the petroleum industry over the past thirty years, one can observe the existence of four major players in Nigeria petroleum industry. They include Government, NNPC, Oil Marketers, and Petroleum Inspectorate

### **2.3.1 Government**

Acts in capacity of administrative facts, which is often carried out through the face of law

### **2.3.2 NNPC**

The NNPC itself also serves as the next major player through its joint venture Organization, National Petroleum Industry Management Service (NAPIMS). This arm of the corporation is responsible for monitoring and vetting all operators' programmes, budgets, designs studies, contractors etc. NAPIMS is also responsible for providing government's share of the funds required for executing the joint venture operations. The NNPC carries out most of its distribution and marketing activities through its newly emerged subsidiary the pipelines and products marketing company (PPMC). Its mission is to ensure adequate and secure supply of petroleum product to the domestic market at low operating cost, provide excellent customers service by effectively transporting crude oil to the refineries. Also, moving petroleum product to the existing and future markets through a network of pipelines and depots, costal ward, rail transportation, and to market special product competitively in the domestic and international market. The vision of the subsidiary is to become a dominant supplier of refined petroleum product to the existing domestic and growing export market within West Africa Sub region. PPMC is structured to operate under a Board of Directors headed by a non-executive Chairman. The Company is daily managed by a Chief Executive Officer, the Managing Director who is assisted by four Executive Directors namely; Executive Director Operations, Executive Director Services, Executive Director Commercial and Executive Director Finance and Accounts [13].

The company carries out most of its activities around in different parts of the nation through its area offices depots and pump stations. PPMC performs its activities through five-area offices, which are located in Port Harcourt, Warri, Mosimi, Kaduna and Gombe. The Port Harcourt area office has seven depots under its jurisdiction namely: Port Harcourt depot, Enugu depot, Markudi depot, Calabar depot, Okirika Jetty, Bonny Export Terminal, and Aba depot. The Kaduna depot comprises nine depots which are Kaduna Depot, Abaji Pump Station, Izom Pump Station, Minna Depot, Suleja Depot, Sarkin Pawa Pump Station, Zaria Pump Station, Kano Depot, Gusau Depot. Five stations make up of Gombe depot which includes: Jos Depot, Gombe Depot, Yola Depot, Biu Pump Station, and Maiduguri Depot. The Warri depot comprises of seven depots as well namely Warri depot Warri, Warri jetty, Benin depot, Auchu pump station, Abudu pump station, Lokoja pump station and the Escravos Terminal. The Mosimi depot comprises Mosimi depot, Atlas cove jetty & depot, Satellite (Ejigbo Lagos) depot, Ibadan depot, Ilorin depot and Ore depot. The NNPC Ore depot, which is located in Okitipupa local government area of Ondo state, was commissioned in 1976. Being one of the depots under the Mosimi operational area, it receives its petroleum product from Mosimi in Shagamu Ogun State. NNPC major and independent marketers' peddlers and the directorate of petroleum resources carry out its marketing operation at the depot. The depot receives petroleum product namely PMS petrol, DPK kerosene, and AGO diesel. These products are brought by the marketers and taken to their various petrol stations or outlets for further production process or purchase by final consumers [13].

### **2.3.3 Oil Marketers**

The set of players who are directly responsible for managing our petroleum resources are the oil companies who have been appointed operators of the joint ventures. They are responsible for drawing up plans; work programmed and budgets, as well as for getting the work done either directly or through contractors and their sub-contractors. In other words, the operators are responsible for meeting the target and programme agreed upon between themselves and NNPC. The independent marketers (mobile, oando, conoil, forte oil etc), the transporters, dealers could be added to this group.

### **2.3.4 Petroleum Inspectorate**

The petroleum inspectorate now renames the department of petroleum resources (DPR) is the fourth agent in the management of the nation's petroleum resources. In the first quarter of every year, every company searching for or producing crude oil in Nigeria mandatory submits to the DPR its work programme for the year, which the company must defend before experts of the DPR. Such programmes are specially scrutinized, for the quality of the operator's oil field management and gas utilization programmes. Manpower training and development is a statutory responsibility, which also come under the supervisor of the petroleum inspectorate.

In paragraph 37 of schedule 1 (section 2) to the petroleum decree 51 of 1969, the law requires that within ten years from the grant of an oil mining lease the lease shall ensure that the number of Nigerian employed in the managerial professional and supervisory grades is at least 75% of the staff strength in these cadres. Its major responsibility is to issue licenses and to monitor activities of all oil companies in the petroleum industry to ensure that petroleum operations are undertaken with good oil industry practices and standards.

## **2.4 Petroleum Products Marketing and the Nigerian Economy**

The antecedents of oil or refined petroleum products marketing in Nigeria date back to the early 1930s when precursors of Shell and Mobil engage in the distribution of petroleum products. The prominent brand of cooking oil or kerosene then was 'sunflower'. The domestic petroleum products market was dominated by the downstream arms of the multinational oil prospecting companies: National Oil (now Conoil), Mobil Oil, Elf, Total Nigeria, Agip Nigeria, British Petroleum (later African Petroleum, now Forte Oil), and Unipetrol (now Oando). Royal Dutch/ Shell Petroleum use to own 40 per cent equity in the former National Oil. Other shareholders were Nigerian government through NNPC (40 per cent), while the remaining 20 per cent of the equities was held by the Nigerian public. However, it becomes imperative to state that a number of these multinational oil companies have been indigenized or fully privatized, while most of the major petroleum marketing companies are quoted on the daily official list of the Nigerian Stock Exchange [14].

The local oil market in Nigeria is still largely regulated and pump prices of fuels, such as premium motor spirit (PMS) that is petrol, automotive gas oil (AGO) diesel, and domestic pure kerosene (DPK) kerosene, are fixed by government. In the past, the bulk of domestic fuel requirements were supplied by local refineries. However, the bulk of local fuel consumptions are now being supplied via importation of refined petroleum products due to parlous state of refineries in the country. Massive importation of refined petroleum products commenced in 1996 under the military regime headed by Late General Sani Abacha.

In 1998, the erstwhile military regime of General Abdulsalami Abubakar moved towards deregulation, which the industry has always wanted, by allowing the oil marketing companies to import fuel directly. In the past, this was only done by government through the NNPC. More so, as importation was unattractive to the

major oil marketing companies due to the local fixed price regime. The major oil marketing companies, as well as independent oil marketers (the small -to- medium sized indigenous oil marketing companies) began to import fuels directly following the new policy. At the time, this helped to stem the growing supply shortfalls which had caused serious economic problems, and aggravated the country's economic downturn. A typically scenario were fuel queues that stretched for miles at virtually all parts of the country especially during the military regime. But the respite was short lived.

Meanwhile, the low international price of crude oil, \$9 to \$12 per barrel at the time, made fuel imports economic, rising prices of crude oil in the year 1990 made the oil marketers stop imports of fuels, particularly PMS (petrol), AGO (diesel) and DPK (kerosene). By the second half of 1999, the NNPC had become the major importer of fuels for domestic consumption, which it had to do for strategic reasons, to avoid a political backlash that may have security implications [15].

## **2.5 Refining and Distribution of Petroleum Products**

Nigeria's total installed refining capacity is 445,000 barrels of crude oil per day, as at 1990 till date. On paper 300,000 barrels of crude oil per day is allocated to local refining and consumption. But on average, about 240,000 barrels is given to the local refineries on a daily basis, up till the mid-90s. The breakdown of refineries and lack of adequate turn-around maintenance (TAM) between 1996 and 1998 under the military junta have contributed in no small measure to the reduction of the local capacity in processing crude oil into refined petroleum products. For instance, Warri and Port-Harcourt refineries presently operate at 30% capacity, while Kaduna refinery is still undergoing another round of TAM [14].

The refineries are meant to process crude oil to the various component functions like: PMS (petrol), AGO (diesel), DPK (kerosene), coal tar, heavy oils, such as engine oil, petroleum jellies, lubricants, etc. Initially, Nigeria was planned to be self-sustaining in terms of these various by-products, however due to cumulative negligence and poor maintenance culture, most of these products are now being imported for local consumption Amanze-Nwachukwu (2010). The major oil depots in Nigeria are situated in Aba, Benin, Enugu, Ibadan, Gombe, Ilorin, Jos, Kaduna, Kano, Lagos (Ejigbo), Maiduguri, Markurdi, Mosimi (via Shagamu), Ore, Port Harcourt and Warri. All these oil depots are under direct monitoring, supervision and management of the NNPC.

## **2.6 Theoretical Framework**

The study adopt the Lean theory on transportation in means of distributing premium motor spirit. This lean theory on transportation is a functional model that basically discounts the value of economies of scale and focuses on how to reduce costs as a result of small, incremental and continuous improvement [16]. Lean transportation has certainly become increasingly significant in transport management. Initially organizations involved in manufacturing of products used to involve themselves in lean manufacturing techniques, this has ceased as lean has expanded beyond manufacturing [16]. Lean transportation law seeks to explain how organizations should manage its transportation system and needs. It states that transportation can be used as a strategic differentiator by the organization and further goes on to say that not all transportation is about waste [16]. The theory states that transportation strategies developed by an organization should support the customer's needs and expectations. Transport strategies should not be a driver on how and when a product will be delivered to a customer, rather, the customers' expectations should be understood and transport strategies is designed purposely to meet those expectations [16]. Real savings can only be realized through day to day management and optimization of transportation requirements variability. This therefore implies that costs associated with transportation cannot be achieved through inconsistent transportation network designs. Lean transportation poses the problem of cost inefficiencies in that the transport manager is challenged with the responsibility of always moving smaller quantities for both inbound and outbound shipment. This in itself contradicts the assumption of the large size cost efficiency [17].

## **2.7 Review of Empirical Literature**

Petroleum products in general play a critical role in the economic development of Nigeria. Premium Motor Spirit (PMC) or petrol serves as an intermediate input to production, and thus changes in its price, quantity or quality affect the profitability of production and productivity of other factors of production. Given the role of fuel in the economy, most governments in Africa-especially Nigeria-intervene extensively in the oil market. The relationship between petrol price changes (price hike) and distribution in Nigeria is an area that was not given direct attention by scholars. Nevertheless, many authors researched on several related topics and came up with different findings. For instance, Raymond [18] in his paper entitled: "The Relationship among petroleum prices" evaluates in a multivariate framework the relationship among the spot prices of fuel, gasoline, heating oil and diesel. The author examined the relationship among the petrol prices with focus on assessing whether or not the direction of price information flow was predicated on derived demand theory. The

econometric results provided strong evidence that the price of oil and its refinery products are co integrated. The author argued that in terms of long run adjustment, the oil price is found to be weakly exogenous and many factors are responsible for the adjustment towards the long-run equilibrium.

Authors shared their views that the distribution of petroleum products in the Nigerian economy is fraught with complex problems resulting sometimes in products outages, inflated price of products and contentions on the pump price of products. Their research examines the various issues regarding the distribution of products and recommends that the downstream activities of the industry be completely deregulated to allow private sector and entrepreneur's full participations in the distribution of the products. Their findings hypothesized that the participation of entrepreneurs will drive effectiveness into the sector. Effectiveness according to them will bring down cost of operations with the consequence reduction of price of products for the benefit of all the stake-holders in the country [19].

Furthermore, [20] posit that incessant price hike of petroleum products have led to crisis and industrial actions led by some pressure groups in Nigeria. Based on this problem, their research examine petroleum Motor Spirit pricing crisis and the Nigerian public passenger transportation system. They used perception scale on a 4-point Likert scale to elicit response from the operators of public passenger transport system. The Mean Weight Value (MWV) was calculated from the ranking of the perception scale. The results of these MWV were compared with the Group Arithmetic Mean (GAM) of each group to determine whether to accept or reject a problem item as being a reflection of the thinking of the majority for taking a decision. The results from that study indicated that price increase in PMC have increased transport fare, led to hoarding of fuel and many other related problems too numerous to list here. The study suggested that further research in related areas be carried out to identify more problems that exerted a lot of hardship on the people and the economy of the country to the extent that the poor were the worst hit. Many scholars in the past have talk extensively on the issue of incessant effect of price changes on petroleum product in Nigeria but most of them have failed to capture its effect on all the macro-economic variables, [18] look at the effect of price changes of petroleum product in the short and long run and the factors responsible for the changes itself, he failed to realize that both the short and long run if taken as a variable is a function on its own, as they will reflect as an independent variable which its efficacy will be a function of dependent variable i.e. price changes.

In addition [19] study the causes of fuel shortage in Nigeria and how it can be resolved but it only proffer recommendations on how the issue can be resolved base on the economic situation of Nigeria as at the time of the research, he failed to look at it from the futuristic point of view, though the recommendations if properly applied in the economy as at the time of the study will work but it will fail to last long as the policy on crude-oil sale especially the deregulation of the downstream sectors and the removal of fuel subsidy will generate other problems which the study did not cover.

The researchers only limit their work to price hike of petroleum products crisis and transportation system but the present study investigate the effects of price changes of petroleum products taken into consideration all the macro-economic variables like inflation, unemployment, poverty, petroleum distribution, gross domestic products and the resulting effect on the standard of living which no previous study have captured [20].

### **III. Methodology**

The study was carried out in NNPC distribution depot of Ondo State Nigeria. Ondo State lies between latitude  $5^{\circ} 45^1$  and  $8^{\circ} 15^1$  North and longitude  $4^{\circ} 45^1$  and  $6^{\circ}$  East. This means that the State lies entirely in the tropics. The State is bounded in the North-West by Ekiti State, West-Central by Osun State, South-East by Ogun State, South-East by Delta State and in the South by Atlantic Ocean. The people of the State are predominantly Yorubas. They are broadly classified into the following dialectical groups: Akoko, Owo, Ondo, Ikale, Ilaje and Akure. Total Population as at 2006 (NPC) was 3,460,877. After considering the objectives of this study, the survey research techniques design was chosen. This provides answer to the objectives relating to evaluating the distribution strategies of premium motor spirit at NNPC Ore depot Ondo State Nigeria. The target population for the study comprises the executive officers of NNPC Ore depot which are 5 and the depot's marketers which are 10. Judgemental sample technique was applied to select the respondent for the research which include five (5) executive officers of NNPC Ore depot and ten (10) marketers. This made a total sample size of fifteen (15).

Primary data were obtained through the use of focus group questions and well-structured questionnaire developed from the initial identification of likely variables. Primary data such as personal information about respondent, distribution strategies for PMS and their effectiveness were collected from respondents using focus group discussion technique. Group participants (the executive officers) were interview based on the questions in the questionnaires designed for the purpose. Questionnaires were also used to solicit responses from the marketers of NNPC Ore depot. The questionnaire was structured in such a way to assess the effectiveness of distribution strategies of premium motor spirit in NNPC Ore Depot. A total of 15 copies of questionnaire were returned and found useful, which amounts to a return of 100% response rate. All the questionnaires were

retrieved, accounting for 100% response rate. The analysis of data was done through the use of descriptive and inferential statistics. The descriptive statistics includes frequency, percentage and mean rank which helps to provide simple summaries about the observations that have been made. Also Spearman Correlation rank order analysis was used to describe the strength and direction of the linear relationship between two variables (i.e. relationship between perception of depot executives and depot marketers on effectiveness of distribution means).

#### IV. Results and Discussion

This section presents the results and discussion of the study on the distribution strategies of premium motor spirit at NNPC Ore depot. Five (5) copies of questionnaire were administered to the executive officers of NNPC Ore depot and also another ten (10) copies of questionnaires were administered to the marketers of the depot, making a sum of fifteen (15) respondents involved in the focus group exercise and questionnaires distribution. All the questionnaires were retrieved, accounting for 100% response rate. It is viewed by the researcher that the total response rate of 100% is adequate to achieve a balance analysis of the problem at hand.

##### 4.1 Social-Demographic Profiles of the Respondents

"Table" 1a shows two categories of respondents for these research. Respondent comprises five (5) executives of NNPC Depot Ore and ten (10) officers from their marketers. "Table" 1 (ai) presents the age range of the respondents. The age of NNPC Depot executives fall within the ranges 36-45 years and 46 and above years. While 3 (60%) fall within the former age range, 2 (40%) falls between the latter range. None were in the remaining range. On the other hand, no marketer is within 18-25 years, 1 (10%) is within 26-35 years, 5 (50%) are within 36-45 years and four of them is in the range 46 years and above. "Table" 1 (aii) highlights that the male gender forms the larger percentage of the respondents with all the three (100%) executives in the depot being male, whereas in the case of marketers, they were six (60%). The remaining 4 (40%) in marketers, category were female. High number of male could be due to the fact that men in general, occupy positions in these organizations. It is also noted that men participate more actively in the organization or business due to the nature of the job involve. "Table" 1 (aiii) revealed that all the respondents have at least Higher National Diploma (HND) or First degree which means they are all educated and can supply adequate information on the subject under consideration. Specifically, three of the depot executives (60%) are HND/BSc certificate holders while one of them (40%) has postgraduate certificate. On the other hand, all the marketers (100%) are either HND or First degree certificate holder. Therefore, if education level relates to professionalism then one can assume that the information provided is valid and reliable information. "Table" 1 (bi) shows that the operational experience and effectiveness that comes handy with the length of years of operation cannot be ignored. Most oil depots are not doing well today in terms of plant maintenance and productivity due to limited number of years of experience of the depots and employees at their disposal. 2 (40%) of the respondents have spent between 5-10 years and between 11 – 15 years whilst 1 (10%) has spent 16 – 20 years in the industry. "Table" 1 (bii) shows the years of patronage of the respondents (marketers). 4 (40%) of the respondent have been a customer with NNPC Ore depot between 1-10years, 3 (30%) of the respondent have been customers with the depot for about 11 – 20years whereas 3 (30%) of the respondents have been customers with the depot for about 21-30years. The result depicts that the respondents (customers) have full knowledge of the distribution strategies adopted by NNPC Ore depot because they have been customers of the depot for years.

**Table 1a: Social-Demographic Profile of the Respondents**

(i) Age Distribution	NNPC Depot Executives		Marketers	
	Frequency	Percentage (%)	Frequency	Percentage (%)
18 - 25 years	0	0.00	0	0.00
26 - 35 years	0	0.00	1	10.00
36 - 45 years	3	60.00	5	50.00
46 years and above	2	40.00	4	40.00
<b>Total</b>	<b>5</b>	<b>100</b>	<b>10</b>	<b>100</b>
(ii) Gender Distribution	NNPC Depot Executives		Marketers	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Male	5	100.00	6	60.00
Female	0	0.00	4	40.00
<b>Total</b>	<b>5</b>	<b>100</b>	<b>10</b>	<b>100</b>
(iii) Educational Profile	NNPC Depot Executives		Marketers	
	Frequency	Percentage (%)	Frequency	Percentage (%)
SSCE	0	0	0	0.00
OND/NCE	0	0	0	0.00
HND/BSc.	3	66.67	10	100.00
Postgraduate	2	33.33	0	0.00
<b>Total</b>	<b>5</b>	<b>100</b>	<b>10</b>	<b>100</b>

Source: Field Survey (2016)

**Table 1b** Social-Demographic Profile of the Respondents

(i) NNPC Depot Executives Work Experience		Frequency	Percent (%)
	Less than 5 years	0	0.00
	5 - 10 years	2	40.00
	11 - 15 years	2	40.00
	16 - 20 years	1	10.00
	Above 20 years	0	0.00
	<b>Total</b>	<b>3</b>	<b>100.0</b>
(ii) Marketers years of patronage		Frequency	Percent (%)
	1 - 10 years	4	40.00
	11 - 20 years	3	30.00
	21 - 30 years	3	30.00
	<b>Total</b>	<b>10</b>	<b>100.0</b>

Source: Field Survey (2016)

#### 4.2 Distribution Strategies Adopted by NNPC Ore Depot

Distribution refers to how you deliver your product to the customer. The means of distribution of a product is very important to get the product across to the final consumer. From the answer to the question on the strategies used in the distribution of premium motor spirit, two major means were identified each relating to the depot and the marketers of the depot. These are:

- i. Pipeline
- ii. Truck

While Pipelines are used to transport the product from the refinery to depot, trucks are used to distribute the product to the ‘major marketers’ who in turn distribute to the ‘independent marketers’. The term ‘major marketers’ was used to refer to marketers who have enough capital to get the much quantity of the product from the depot and then sell it to filling stations that can also be refer to as ‘independent marketers’ who are able to get little quantity in comparison to the major marketers. Railway was used when the means of transportation was still efficient in Nigeria but it is no longer in used as found.

Distribution of products from depots to service stations numbering several thousand when they are retailed to the final consumers involves the use of road as the mode of transportation and the products are moved by large trucks. Road transportation through trucks is relevant to the bridging activities of NNPC and its subsidiary the Pipelines and Products Marketing Company (PPMC). Road transportation is used to make up for shortage in supply across the nation. Movement of products in large quantities sometimes requires the use of sea as the mode of transportation. Marine tankers and coastal vessels are used for coastal transportation of petroleum products and to ferry from the coastal refineries of Warri and Port Harcourt, to Lagos. This involves heavy products in terms of high demand. The most suitable means of transportation of liquid substance is the pipeline. Hence PPMC uses pipelines frequently to convey products from refineries to depots which are located in strategic places across the country. Products moving into Lagos through the coastal vessels are discharged primarily at the Atlas Cove Terminal where they are received into storage tanks for onward pumping to Mosimi depot near Sagamu in Ogun State from where the products are pumped to Ore depot and other depots in that axis (Ibadan and Ilorin).

However, according to Kupolokun (2006), over 75% of the pipelines have been vandalized, and are not currently in use. The petroleum products available for distribution through an elaborate 4,000 kilometers of pipelines used to be intercontinental to 21 widely dispersed depots. The products were obtained either from the four local refineries or in the event of a supply short-fall from offshore refineries by way of import of processed Nigerian crude oil. In some cases, and mostly through vandalism. These pipelines get burst into flames, causing serious damages.

#### 4.3 Effectiveness of Distribution Strategies Used for PMS in NNPC Ore Depot

Some variables were identified for determining the effective means of distribution strategies of premium motor spirit. They are divided into two based on supply to the depot from the refinery via pipeline and supply to the marketers through truck.

##### a. Pipeline (From Refinery to Depot)

- (i) Minimization of cost of delivery
- (ii) Cycle time (amount of time it takes to be serve from the source)
- (iii) Quantity of PMS transported from the source
- (iv) Increase sales and rate of return
- (v) Satisfaction level

**b. Truck (From depot to marketers)**

- (i) Coverage (Number of marketers served in a given time)
- (ii) Satisfaction by customers
- (iii) Minimization of cost of delivery
- (iv) Response time to customer demand
- (v) Cycle time (amount of time it takes to serve the customers)

**4.3.1 Perspective from Executives of NNPC Ore depot**

"Table" 2 present the effectiveness of the distribution means used for PMS in NNPC Ore Depot. "Table" 2a indicated the responses of the five executives of NNPC Ore depot. This was summarizes with "Table" 2b. At least, three of them noted that cycle time (amount of time it takes to be serve from the source), quantity of PMS transported from the source, increase sales and rate of return and satisfaction level are moderately effective in relation to using pipeline to transport PMS to the depot. But they unanimously believed that minimization of cost of delivery is effective using this means. That is why it was ranked first in effectiveness, followed by cycle time, satisfaction level, quantity of PMS transported from the source and flow of PMS in that order. On the other hand, diverse view emerged in their response to the effectiveness of truck as a means of distributing premium motor spirit to marketers. Three believed satisfaction of customers is effective but the remaining two stated it is moderately effective. Minimization of cost of delivery is moderately effective for three of them whereas effective for two. Coverage is effective for most (4) of them even though it was moderately effective for one executive. Cycle time was moderately effective from the view of four whilst effective for one. Response time to marketers' demand was moderately effective for all the executives. Satisfaction of the customers however, has the highest effectiveness while response time has the lowest effectiveness.

**Table 2a:** Response of Depot Executives on the Effectiveness of Distribution Strategies Used for PMS in NNPC Ore Depot

<i>Executive officer One</i>	Very effective (5)	Effective (4)	Moderately effective (3)	Of little effectiveness (2)	Not effective (1)
Pipeline (From the source to Depot)					
Minimization of cost of delivery			*		
Cycle time (amount of time it takes to be serve from the source)			*		
Quantity of PMS transported from the source			*		
Increase sales and rate of return		*			
Satisfaction level		*			
Truck (From depot to marketer)					
Coverage (Number of marketers served in a given time)		*			
Satisfaction by customers		*			
Minimization of cost of delivery			*		
Response time to customer demand			*		
Cycle time (amount of time it takes to serve the customers)			*		

<i>Executive officer Two</i>	Very effective (5)	Effective (4)	Moderately effective (3)	Of little effectiveness (2)	Not effective (1)
Pipeline (From the source to Depot)					
Minimization of cost of delivery			*		
Cycle time (amount of time it takes to be serve from the source)		*			
Quantity of PMS transported from the source			*		
Increase sales and rate of return		*			
Satisfaction level			*		
Truck (From depot to marketer)					
Coverage (Number of marketers served in a given time)			*		
Satisfaction by customers			*		
Minimization of cost of delivery			*		
Response time to customer demand			*		
Cycle time (amount of time it takes to serve the customers)			*		

<i>Executive officer Three</i>	Very effective (5)	Effective (4)	Moderately effective (3)	Of little effectiveness (2)	Not effective (1)
Pipeline (From the source to Depot)					
Minimization of cost of delivery			*		
Cycle time (amount of time it takes to be serve from the source)			*		
Quantity of PMS transported from the source			*		

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Increase sales and rate of return		*			
Satisfaction level			*		
Truck (From depot to marketer)					
Coverage (Number of marketers served in a given time)		*			
Satisfaction by customers		*			
Minimization of cost of delivery			*		
Response time to customer demand			*		
Cycle time (amount of time it takes to serve the customers)			*		

<i>Executive officer Four</i>	Very effective (5)	Effective (4)	Moderately effective (3)	Of little effectiveness (2)	Not effective (1)
Pipeline (From the source to Depot)					
Minimization of cost of delivery			*		
Cycle time (amount of time it takes to be serve from the source)		*			
Quantity of PMS transported from the source			*		
Increase sales and rate of return		*			
Satisfaction level			*		
Truck (From depot to marketer)					
Coverage (Number of marketers served in a given time)		*			
Satisfaction by customers			*		
Minimization of cost of delivery		*			
Response time to customer demand			*		
Cycle time (amount of time it takes to serve the customers)		*			

<i>Executive officer Five</i>	Very effective (5)	Effective (4)	Moderately effective (3)	Of little effectiveness (2)	Not effective (1)
Pipeline (From the source to Depot)					
Minimization of cost of delivery			*		
Cycle time (amount of time it takes to be serve from the source)			*		
Quantity of PMS transported from the source		*			
Increase sales and rate of return		*			
Satisfaction level		*			
Truck (From depot to marketer)					
Coverage (Number of marketers served in a given time)		*			
Satisfaction by customers		*			
Minimization of cost of delivery		*			
Response time to customer demand			*		
Cycle time (amount of time it takes to serve the customers)			*		

Source: Field Survey (2016)

**Table 2b:** Summary of Views of five Executives on Effectiveness of Distribution Strategies

	(5)	(4)	(3)	(2)	(1)	Mean	Rank
Pipeline (From the source to Depot)							
Minimization of cost of delivery	0	5	0	0	0	4.0	1
Cycle time (amount of time it takes to be serve from the source)	0	2	3	0	0	3.4	2
Satisfaction level		2	3	0	0	3.4	2
Quantity of PMS transported from the source	0	1	4	0	0	3.2	4
Flow of PMS to depot	0	0	5	0	0	3	5
Truck (From depot to marketer)							
Satisfaction by customers	0	3	2	0	0	3.6	1
Minimization of cost of delivery	0	2	3	0	0	3.4	2
Coverage (Number of marketers served in a given time)	0	4	1	0	0	3.2	3
Cycle time (amount of time it takes to serve the customers)	0	1	4	0	0	3.2	3
Response time to customer demand	0	0	5	0	0	3.0	5

Source: Field Survey (2016)

#### 4.3.2 Perspective from Marketers of NNPC Ore depot

"Table" 3 presents the view of the ten (10) marketers on the effectiveness of truck as a distribution means of PMS to them. Eight (80%) of them opined that truck in term of satisfaction of the marketers is effective even though 1 (10%) stated it is moderately effective and of little effectiveness each. Minimizing cost of delivery to most of them (7, 70%) is effective whereas 2 (20%) and 1 (10%) observed it is moderately effective and of little effectiveness respectively. Coverage is another variable for measuring the effectiveness of distribution means. It is effective in the view of 5 (5%) marketers but moderately effective to 4 (40%) and of little effectiveness to 1 (10%). When the marketers measured the effectiveness of truck as a means of getting PMS to them with respect to amount of time it takes to serve them, 4 (40%) believed in its effectiveness, 7 of

them stated that it is moderately effective and only 1 (10%) prefer to say it is of little effectiveness. Response time to marketers' demand is moderately effective to as much as 7 (70%), however, 1 (10%) stated that it is of little effectiveness. When these responses were analysed using mean rank, satisfaction of marketers ranked first, followed by minimizing cost of delivery, then coverage (amount of time it takes to serve the customers), cycle time and response time to customer demand respectively.

**Table 3:** Marketers' View on the Effectiveness of Distribution Strategies

	(5)	(4)	(3)	(2)	(1)	Mean	Rank
Truck (From depot to marketer)							
Satisfaction by customers	0	8	1	1	0	3.7	1
Minimization of cost of delivery	0	7	2	1	0	3.6	2
Coverage (Number of marketers served in a given time)	0	5	4	1	0	3.4	3
Cycle time (amount of time it takes to serve the customers)	0	4	5	1	0	3.2	4
Response time to customer demand	0	2	7	1	0	3.1	5

Source: Field Survey (2016)

#### 4.4 Causes of Scarcity of Premium Motor Spirit in Areas Being Serviced by NNPC Ore Depot

Respondents identified corruption as the main cause of scarcity of petroleum products in Nigeria. The respondents argued that it was corruption aggravated to poor performance of local refineries, vandalization of petroleum infrastructures, hoarding and diversion of petroleum products by various bodies and individuals. They all agreed that the availability of petroleum products is only hanged on the readiness of the concern authority in the petroleum sectors to eschew corruption. This is one of the reason why former president Olusegun Obasanjo inaugurates the Independent Corrupt Practices and other related Commission (ICPC) on September 29<sup>th</sup>, 2000; where he said "I have for many years held the view that corruption, in its entire ramification, is the greatest single impediment to our national aspiration to enter the new millennium with confidence. Indeed corruption is the antithesis of development and progress". This issue occurs in when oil blocks are awarded to private individuals who use this opportunity to hoard the product causing artificial scarcity of the product. Corruption also occur in the process of exporting crude oil for refine and importation after refining process, awarding of contracts and bunkering. Other causes of scarcity identified include: economic instability and political influences or policies for instance in the area of payment of subsidy and happenings in the international oil market.

#### 4.5 Hypothesis Testing

Hypothesis was set up to test whether there is relationship between the perception of NNPC Depot Ore Executives and their Marketers on effectiveness of distribution means. It is stated as follows:

**H<sub>0</sub>:** there is no significant relationship between the perception of NNPC Depot Ore executives and their marketers on effectiveness of distribution means

"Table" 4 shows the spearman rank correlation coefficient and significance probability for the relationship between the perception of NNPC Depot Ore executives and their marketers on effectiveness of distribution means. The value (0.765) describes a strong positive relationship between the perception of NNPC Depot Ore executives and their marketers on effectiveness of distribution means. In the same vein, the significance probability for the relationships is 0.038. Since correlation is significant at the 0.05 level (2-tailed) for this research and all the significance probabilities values were less than this 0.05, the null hypotheses (H<sub>0</sub>) is rejected, hence the acceptance of alternate (H<sub>1</sub>) hypothesis. There is significant relationship between the perception of NNPC Depot Ore executives and their marketers on effectiveness of distribution means. This confirms the rank given to measures of effectiveness in "Table" 4. Every effort by depot executive at ensuring the means is effective which yield a positive is being perceived by the marketers as effective. An increase in the level of the effectiveness in the distribution means used will greatly influence the level of marketing of PMS in a positive manner i.e. an increase in the level of the effectiveness and operation of the distribution strategies will produce an increase in the marketed PMS. Over 70% of PMS movements in Nigeria are distributed by trucking, which has been affected by the bad and deplorable state of Nigerian roads causing accidents that resulted to loss of thousands of lives. The repairing of the over 5001 Kms pipeline network to all the NNPC depots nationwide for easy, quicker and safer delivery of petroleum products to retail outlets nationwide will help in a great way in reducing the economic loss suffered as a result of the trucking distribution strategy.

In terms of strictly national security considerations, oil pipelines and facilities are sensitive strategic assets that must be protected at all times. Oil pipeline sabotage, regardless of whether it is perpetrated by nationals, foreigners, or terrorist groups, is a serious threat to national security, particularly for a country that depends heavily on oil exports for survival. This is essential because in a situation of war with another country, pipelines are usually one of the first targets of an enemy and preserving them could be the difference between victories and defeat (Adeniyi, 2007).

**Table 4:** Test of Relationship between the perception of NNPC Depot Ore Executives and their Marketers on Effectiveness of Distribution Strategies using spearman correlation

Spearman's rho	Executives	Correlation Coefficient	Executives	Marketers
		Sig. (1-tailed)	1.000	.765*
		N	6	6
	Marketers	Correlation Coefficient	.765*	1.000
		Sig. (1-tailed)	.038	.
		N	6	6

\*Correlation is significant at the 0.05 level (1-tailed). -if significance probability is lesser than the level of significance, correlation is significant -Spearman's rank order correlation coefficient, N- Number of measures of effectiveness

Source: Field Survey (2016)

## V. CONCLUSION AND RECOMMENDATIONS

The study has been able to empirically assess the distribution strategies of premium motor spirit in Nigerian National Petroleum Corporation (NNPC) Ore depot. Questionnaire was distributed and administered among the executive officers of Nigerian National Petroleum Corporation (NNPC) Ore depot and her various customers (marketers) who purchased premium motor spirit from the depot. The study concludes therefore that:

- i. truck is the means of transporting PMS from NNPC Ore Depot to marketers while it is transported to the depot from its source through pipeline .
- ii. distribution strategy for PMS in NNPC Ore depot is moderately effective going by the perception of the depot executives and their marketers.
- iii. also in assessing the effectiveness of a distribution means, many criteria such as its ability to minimize the cost of delivery, cycle time (amount of time it takes to be served from the refinery), quantity of PMS that should be transported from the source, increase sales and return as well as satisfaction level among others needs to be considered and if not properly considered it could lead to more scarcity of the products.
- iv. corruption as a key factor have been identified as the main cause of scarcity of petroleum products in Nigeria which aggravate to poor performance of local refineries, vandalization of petroleum infrastructures, smuggling, hoarding and diversion of PMS by various bodies and individuals.

The study recommend that:

- i. Government should rehabilitate major roads, to forestall more accident of trucks used in the transportation of petroleum products while various measure must be put in place to ensure the product are been distributed to the required location
- ii. Government should upgrade existing and building more pipelines for distribution and marketing of the product, which will serve as an alternative to trucking system of transportation
- iii. Government should put in place, strict measures to tackle illegal marketers in order to reduce the rate of smuggling, hoarding and diversion of the product if not totally eradicated and also the introduction of computerized surveillance stationed at strategic places to forestall the destruction of pipelines.
- iv. Government should encourage private participation in the petroleum products distribution by intervention scheme to arrest any challenges (Finance, Logistic, Human created blockage etc.). This will provide constant support to the NNPC at any point of shortfall in supply of petroleum products.

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