ABSTRACT
The advent of oil in Nigeria has been both a blessing and curse to the Nigerian economy. Oil brought with it much revenue and this was seen as a blessing to the economy. It enhanced the economic growth and development of the country as well as encouraged environmental pollutions and squandererous spending. Nigeria, during the oil boom era, also became a history nation for many international events and jamborees. More so, government got more heavily involved in economic development of the early 1970s, while the traditional domain of the private sector activities was assumed by the government. This had adverse consequences on the development of the private sector which left to play only a peripheral role on the economic development of Nigeria.

Notwithstanding, the huge oil revenue from the petroleum sector, the sector over the years has been quite inefficient, especially since the oil boom in 1971, which was an aftermath of the oil price shock. The inefficiency in the performance of this sector has really been manifest in the condition of our oil refineries, pricing decisions, which atimes lead to frequent shortages of nearly all petroleum products at one point in time or the other. As such, the government introduced some policies measures, whose effects have not really been felt. Given all these, this paper using available secondary data, tried to evaluate the role and performance of the petroleum sector as well as its prospects in the Nigerian economy.

The study among other found that oil contributed so much to Nigeria’s economic development but her contribution came with it some negative impacts on the economy, while government control of the pricing of this product has been detrimental to the availability of the product. Thus the study suggests among other things that the sector should be deregulated and private individual be allowed to participate fully in the sector while government’s role in the sector should be more of supervisory and regulatory.
1. INTRODUCTION

At the beginning of the search for oil in the country, the first priority was usually to create, through incentives and other policy measures, a climate in which companies with necessary financial resources and know-how are attracted to explore, as intensively as possible in order to discover commercially exploitable deposits of oil. Then, it becomes a question of encouraging than to commercialize production and increases the rate of production as rapidly as possible. At that stage, policy is normally less concerned with maximizing the returns from oil to the economy. But in Nigeria, the situation has been different, the advent of oil has made the government more attractive and self-interested. Interest shifted from enhancing the populace well being to meeting few individual needs.

The general structure of Nigeria economy becomes influenced by the discovery in commercial quantities of petroleum in 1958. Most interestingly, export of crude oil from Nigeria rose in 1972 and reached a peak in 1979. According to a one-time minister of petroleum and oil resources in 1991 “our major challenge in the exploration and production activities were to move from the current level to a desired target by the year 1995”. The international crude oil was characterized by over-supply situation during 1991. The availability of the expanded capacity built-up largely during 1990 allowed Nigeria to reap the benefit of higher-than projected average market price for crude oil from higher quantity of oil. The “operation desert storm” of Iraq/allied war is a good example of such benefit. The way the revenue generated during this period was spent has been a major cause of controversy among Nigerians.

The advent of oil in Nigeria has been both a blessing and curse to the Nigerian economy. Oil brought with it much revenue and this was seen as a blessing to the economy, because it enhanced the economic growth and development of the country. Various regimes (starting from the 1970s) were able to undertake many development projects that would otherwise not have been possible. The oil sector provided jobs for people, manpower development was engaged in, Nigerian foreign earning was enhanced etc. These gains, notwithstanding, some negative impacts of oil were also felt by the economy. In recent times, our leaders have enhanced this negative effect through their quest to meet their selfish interests.

Apart from the numerous environmental pollutions most of the regimes engaged in squandererous spending and not much thought were given to frugal spending. Funds were embezzled; reckless spending of money became the order of the day both during the military and civilians regimes. Elephant projects were embarked upon; some were completed at unimaginable costs while others were abandoned after the contractors absconded only to emerge later as overnight millionaires.
Nigeria, during the oil boom era, also became a history nation for many international events and jamborees. In fact, a former head of state was quoted as saying at the peak of country's wealth that "Nigeria's problem is not money, but how to spend it". But the rapid fall in the prices of the crude oil, which was due to the oil price shock that occurred when there was a sharp increase in the price of oil in 1976, resulted, among others, to the large shrinkage/reduction in oil revenue of all the oil exporting countries (Nigeria inclusive). This further compounded Nigeria's woes, as many of the projects embarked upon during the oil boom period remained unfinished (abandoned projects) while those that were completed could not be maintained.

The upswing in the oil sector fortunes led to the gross neglect of the non-oil sector particularly agriculture, which had hitherto been the main stay of the economy. As if to underscore its new found oil wealth, the government got more heavily involved in economic sector of the early 1970s, while the traditional domain of the private sector activities was assumed by the government with adverse consequences on the development of the private sector which left to play only a peripheral role on the economic development of Nigeria. An equally disturbing problem was that most government expenditure during the boom era was consumption oriented rather than investment oriented. The enormous foreign exchange spent on the importation of such food items like rice could have been used to cultivate it at home. And where government expenditure was investment oriented the return on such investment was almost nil or marginal at best.

Also, notwithstanding, the huge oil revenue from the petroleum sector, the sector over the years has been quite inefficient, especially since the oil boom in 1971, which was an aftermath of the oil price shock. The inefficiency in the performance of this sector has really been manifest in the condition of our oil refineries. Most of the refineries lack enough equipment, have bad management and presently are more like national monuments. Also, government control of this sector (especially in taking pricing decisions) has been more than devastating. This pricing system has led to many dreadful consequences, which include frequent shortages of nearly all petroleum products at one point in time or the other.

In trying to find solutions to these problems of inefficiency in the petroleum sector, the government introduced some policies measures, one of which was the structuring of the NNPC into six functional directorates namely corporate services, refining and petro-chemical, commercial and investments, finance and accounts, exploration and production as well as Engineering and Technical Directorate. But unfortunately many of these policies and programmes have not yielded any meaningful result, due to their lack of dedication to such polices by our policy makers and leaders who tend to concentrate on meeting their selfish interests.
Given the above, this paper using available secondary data tries to evaluate the role and performance of the petroleum sector as well as examine the major constraints on this sector. This will enable us to articulate policies to reduce the problems encountered by this sector.

The rest of this paper is divided into five sections. Section two reviews the literature review with the theoretical framework. Section three contains the background to the study, where the oil sector and the Nigerian economy were examined. Section four is the empirical analysis while Section five concludes the paper.

2.1. REVIEW OF RELEVANT LITERATURE

The petroleum industry in Nigeria has been exploring and producing oil for over five decades. During these periods or decades, roughly 1,665 producing wells were in existence out of which 1,045 is on land/swamp and 620 is offshore and they both provide for the country about 1.9 million barrels of crude oil daily. He also said that as the country witnessed extra ordinary growth in oil production. Eromosole (1997) in his study posited that the petroleum industry in Nigeria, which oscillates around the Nigerian National Petroleum Corporation covers all firms engaged in exploitation and production of crude oil and natural gas, in refining and distribution of petroleum products and petro-chemical manufacturing. He said that participants and activities in the petroleum industry are usually categorized into upstream and downstream sectors. Upstream activities are related to oil and gas exploration and production while downstream activities are related to the transportation and transformation into finished products, of oil and gas and their derivatives. The exploration and production activities have witnessed significant development since the first oil explorers in Nigeria. A number of incentives have been extended to producing companies. For example, in ten years to 1986, NNPC drilled more than 60 wells with an average success rate of six in ten; a result which is capable to what is obtained in technologically advanced countries' (Duke1995).

After forty years of active oil exploration and production, Nigeria is posed to play a key role in world energy supply, well into the next century, if and only if the right strategies are adopted to encourage investment. The main strength of the Nigeria oil industry is derived from the abundance of both proven, unproven and undiscovered reserves of high quality-light, low sulphur oil which can be exploited at relatively low cost comparable with other major oil provinces of the world. For the oil producing nations, oil is both an important source of foreign revenue and a veritable weapon in international politics. In Nigeria, it accounts for over eighty- percent of Nigeria’s GNP and bulk of its foreign earnings. It stands to reason that such an important resource should be properly accounted for to enable the government and citizens of oil producing nations maximize the benefits derivable from their natural endowment.
Agbah (1997) indicated that for many years, Nigeria enjoyed the status of ‘the cheapest gasoline in the world’, a status the citizenry was not in a hurry to drop. Many argued that the status was artificially created by the massive depreciation and devaluation of the local currency (Naira). This was following the implementation of structural adjustment programme (SAP) in the late eighties. Only one-sixth of Nigeria’s oil production is earmarked for local consumption, the balance being exported at international price (Erimosele, 1997).

The handling of oil exports in Nigeria is nationally prescribed and therefore, it is the primary determinant of Nigeria’s national economic performance, the welfare of its citizens and indeed the states of the nation. As a result of this, crude oil marketing must be conducted with a sense of purpose and missionary dedication. To buttress this point Emenuga (1993) opined that Nigeria’s earnings from oil went up from just N8.8 million 1960 to N4.733 million in 1975 and N888.08 million in 1979. According to him, the so-called oil boom arrived with its windfalls. Thus as the country’s oil wealth was expanding rapidly, the traditional exports of the country such as groundnut, cocoa, and palm produce – were rapidly approaching their vanishing points. Indeed, most sectors of the economy were not healthy at this point in time and would not have been because they were just emerging from the ravages of the thirty-month civil war and were still undergoing reconstruction and rehabilitation.

Furthermore, since Nigeria’s petroleum industry occupies a very prominent and strategic position in the economy and also accounts for a substantial proportion of the country’s foreign exchange earnings, it is therefore, important that it remains in a thriving business. The industry occupies a strategic position in the Nigerian economy as it annually contributes more than nine-tenth of Nigeria’s total export earnings. Thus, the petroleum can be said to be the cornerstone of Nigeria’s economy since the early 1970s. The petroleum sector is not only the major source of internal and external revenue but that it is also the most important sources of agricultural, industrial and commercial energy in the country.

One major problem with the petroleum sector in Nigeria is the fact that the prices of petroleum products are always fixed by the government. This also affects the earnings from the sector especially when there is price shock in the international market. In fact, until late 1994, the most practical issue concerning petroleum marketing was that of prices and subsidy levels. This gave rise to the call for deregulation. The question in this case is whether petroleum product prices should be fixed by decree and not by the forces of demand and supply. This is also strongly linked with privatization in this sector. Petroleum products have always had an official price fixed by government or its agency (NNPC) and price differentiation was applied on the basis of distance from the refinery or depot. The country was divided into six zones and as such, there were six different
official prices of fuel. In the case where the refineries are not producing there would be nothing to market. A combination of several inter-locking factors can be responsible for such of which the most important is inadequate and delayed funding.

Akpan, (1999) wondered if oil is the only viable source of revenue and his answer to this was to the contrary. This is due to the fact that Nigeria is blessed with about 30 different mineral resources, which are distributed among various states, and localities in Nigeria and that it was a pity that no incentive was made to develop these diverse resources. Oil alone is responsible for most of Nigeria’s foreign exchange earnings and also accounts for more than three-quarter of Nigeria’s total revenue (Sagay 1997). According to him, oil has been vital in financing the country’s economic growth and development. Oil fuels state power and activity because the government’s activities will grind to a halt if oil money is not available to it. In the same vein, a former petroleum resources minister, Dr. Chu Okongwu re-affirmed that ‘oil is for Nigeria a strategic mineral in every sense’ (NNPC 1992). Thus, apart from the revenue yielding aspects, oil keeps the nation in motion.

As regards manpower development the government stipulated quite clearly in the petroleum decree of 1969 that oil companies producing in Nigeria should within ten years of the commencement of production have Nigerianized their most senior positions up to at least seventy-five percent and the other cadres by one hundred percent. In order to implement the decree, the participation agreement was negotiated with the oil companies from 1973 onward and with sizeable training budget for Nigeria national oil corporation. In addition, a petroleum training institution was started in Warri in 1975 for the production of technicians. It is fair at this juncture to conclude that with respect to employment generation and development of skilled manpower, the oil industry in Nigeria after 33 years of production and exploitation has really made a significant impact.

Olashore (1989) further pointed out that one of the most discomforting shortcomings of contemporary Nigeria has been the total neglect and non-commercialization of her abundant natural gas resource, a resource which through careful planning and development could turn the economy round and possibly propel us into another era of boom. Natural gas has been used commercially as a fuel for over 150 years in America and for centuries in China. The production and distribution of the gas has become an important segment of most economies in the both the developed and developing world.

In his own view, Uchechi (1990) noted that throughout the 1970s about 90% of Nigeria’s crude oil production on the average went for export, in other words, the domestic market accounted for less than 10% of Nigeria’s export. The wider implication of this is that the overall direction of the economy is governed by the fortunes of the international oil market over which the nation has not control consequently, Nigeria’s balance of payment, the exchange rate policy, the
monetary and fiscal policies adopted in the country are dependent on the fate of one single commodity in the external market. He further explained that the endemic nature of the petroleum form the conflicts of interest between oil producers and consumers. And over 70% of the world oil reserves are found in the third world (developing) countries, where total demand for it is less than 20%. On the other hand, the highly industrialized countries that consume about 80% of the world oil production. These countries produce less than 20% of the total world oil reserves.

Nigeria, as an oil producing country, depends on oil for national survival, over 90% of the foreign exchange earnings as well as total government revenue are derived from oil. Similarly, the industrialized countries want to retain control of a commodity that has been so instrumental to their well being and would want to exert political influence and/or pressure if necessary to achieve their desire objective. Over-riding political interests with significant impacts on the market are often brought to bear on what otherwise could has been pure economic decision. Although, the need to diversify the national economy was long recognized in virtually all the countries national development plans, no major success was achieved in the area.

The trend in Nigeria’s oil sector indicates that the oil boom era is a curse to Nigeria because of the negligence of other sectors and agriculture in particular, has led nation’s economy to proverbial shadow of death. Nwankwo (1982) who stressed that the Nigerian soil has produced at least 90,000 barrels of oil regretted that the discovery of oil in our land has caused great damage of many years of prospecting and exploration, our water has been polluted and rendered undrinkable while fishing, our main occupation and source of income is no more. For the people in these villages, the discovery of oil is a curse. It means fire than poverty, hungry and disease inflicted by the immense ecological damage done through many years of oil exploration. The life in oil producing areas (the Niger-Delta region) are today some of the most backward and most neglected areas in Nigeria. Most of their farmlands are no more operating because they are turned into oily marshy territories. Also they experienced both water and air pollutions which made the people to contact whooping cough among others.

Idolor (1990) stressed that they have been disposed of their farmlands and little or no compensation paid then. Farmlands, too, have lost their fertility and farming hitherto a lucrative occupation, has become a fruitless gamble with every season often leaving its trails hungers and poverty and there is no hospital in the villages. But the oil companies has continued to recognize the need for joint effort in environmental protection measures, which would allow for clean up. As such, during the 1979 biennial seminar on ‘The Petroleum industry and the Nigerian Environment’, a corporate solution was passed to form an industry-wide corporate organization rule with the primary purpose of responding to oil spills (from medium to major). Before this, oil companies were made to look wicked and
exploitative and also the government was believed to have left its responsibilities to the oil-producing people. In order to set this straight, there came the establishment of the Niger Delta Development Board (NDDB) in 1961. This board was said to have commissioned several studies to clearly define the problems of these communities with a view of tackling them.

In all, the only way we can control the oil industry, is to adapt it to suit our future national aspiration, to have men with vision, knowledge and skill; training manpower for all aspects of the industry should be our national priority at any cost so that the benefits accrued to other oil producing countries like Venezuela, Mexico, Saudi-Arabia Kuwait, etc. will also accrue to Nigeria in abundance.

2.2. THEORETICAL FRAMEWORK

This study expected the petroleum sector to impact on the Nigerian economy in a similar method as in the Lewis two-sector model. The Lewis two-sector model became the general theory of the development process especially in the third world where surplus labour existed during the 1960s and early 1970s. It still has many adherents today, especially among American development economist.

In the Lewis model, the undeveloped economy consist of two sectors: a traditional, overpopulated rural subsistence sector characterised by zero marginal labour productivity (a situation that permit Lewis to classify this as surplus labour in the sense that it can be withdrawn from the Agricultural sector without any loss of output) and a high productivity modern urban industrial sector into which labour from the subsistence sector is gradually transferred. The primary focus of the model is on both the process of labour transfer and the growth of output and employment in the modern sector. Both labour transfer and modern sector employment growth are brought about by output expansion in that sector. The speed with which this expansion occurs is determined by the rate of industrial investment and capital accumulation in the modern sector. Such investment is made possible by the excess of modern sector profit over wages on the assumption that capitalists re-invest all their profits. Finally, the level of wages in the urban industrial sector is assumed to be constant and determined as a given premium over a fixed average subsistence level of wages in the traditional agricultural sector.

Lewis made two assumptions about the traditional sector. First, there is surplus labour in the sense that marginal product of labour is zero, and second, all rural workers share equally in the output. This implies that the rural wage is determined by the average and not the marginal product of labour (as will be the case in the modern sector).

By implication and for the purpose of this study, the Nigerian economy can be divided into two sectors: the petroleum sector, which stands for the modern sector and other sectors. These two sectors are not evenly developed. The
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petroleum sector, which tends to be more developed, provides profits and resources, with which can be utilized to develop other sectors of the economy. Thus, it is the profit from the petroleum sector that should be transferred to develop other sectors, this is given the fact that the bulk of Nigeria’s revenue is from the petroleum sector. But instead, proceeds from the oil sectors are spent injudiciously and recklessly on unproductive ventures in the economy. This attitude should be stopped as it tends to retard the development of the country. All other sectors in the economy should be made to benefit from the proceeds of the oil sector, this will allow for a gradual and systematic development of these sectors in particular and the economy as a whole.

3.1. STRUCTURE OF THE NIGERIAN PETROLEUM INDUSTRY

The Nigerian petroleum industry has the government as a major and dominant actor whose agent is the Nigerian National Petroleum Corporation (NNPC). The NNPC, which is charged with the responsibility for monitoring oil exploration, production, research, transportation, refining and marketing of the petroleum products and its derivatives was set up by the NNPC act of 1977 as the successor agency to the Nigerian National Oil Corporation (NNOC). The defunct NNOC was established in April 1971 to execute government’s bold and elaborate policy and programme aimed at taking control of the petroleum sector as enunciated under the 1970-74 development plan. The overall strategy was the exploration of the strategic natural resources by the government solely or in partnership with private concerns in which in all cases, the government remains the dominant partner. The objectives of the policy and programme in the plan were to:

i. Achieve a maximum possible rate of economic development and industrialization of the country.

ii. Expand the opportunities for employing Nigerians in high level of technical and management positions in the industry thereby promoting the cause of oil technology acquisition.

iii. Speed up indigenous development of petro-chemical industries.

iv. Achieve a greater familiarity with the oil business and hence a better monitoring of oil operations and capital operating expense and also to achieve a better tax administration in the sector.

v. Achieve an even distribution of refined petroleum products and an equalization of their prices nationwide.

The NNPC is presently structured into six functional directorate namely the corporate services, refining and petro-chemical, commercial and investments, finance and accounts, exploration and production as well as Engineering and Technical Directorate (Ojo and Anyanwu, 1996). The ministry of petroleum resources surpasses the NNPC. The ministry was created in 1985 and the
petroleum inspectorate was thereafter transferred it by Presidential fiat in March 1988. It has the full responsibility for the following:

i. The overall supervision of the Nigeria oil industry including the activities of the NNPC and its subsidiaries;

ii. The development of the hydrocarbon industry including natural gas and oil processing and petrochemical;

iii. The licensing of all petroleum operation and activities;

iv. The fixing of prices for crude oil, natural gas, petroleum products and their derivatives;

v. All policy matters relating to the disposition of crude oil and petroleum products;

vi. Administration of government joint venture interests.

vii. All concession policies;

viii. Conservation, control and inspection of the Nigeria oil industry;

ix. Relations with international organization dealing with petroleum and national institutions such as the petroleum-training institute.

The department of petroleum resources of the ministry is charged specially with the responsibility for the enforcement of the Acts and Regulations relevant to the upstream and downstream activities. These acts includes:

a. Issuing permits, licenses, lease and giving authority and approval, as they are required under the various acts and regulation governing the oil industry.

b. Overseeing that the activities of all companies engaged in petroleum operation are conducted in accordance with all applicable laws and regulations;

c. Keeping records of all petroleum activities, data, sales and other operational occurrences.

d. Monitoring and control of oil industry operations to ensure compliance with national goals and governing policies of the country.

e. Guarding and protecting the oil companies to ensure their continuity in the Nigerian oil industry.

In her bid to internationally become an oil exporter, Nigeria joined the membership of the organization of Petroleum Exporting Countries (OPEC) in July 1971. This was a period when OPEC was striving hard to acquire a greater "say" in the exploration of the petroleum resources of its member nations. The strategy of OPEC to take working interest in the operations of the concession-holding companies was explained clearly in its resolution XVI, Article 90 of June 1968, which ordered all member countries to acquire participating interests in the operations of the oil companies according to a prescribed time-table by which each member country would achieve 51% participation by 1982.

Prior to 1971, the Nigerian petroleum sub sector was exclusive and completely operated by the foreign multinational oil companies. The
government’s role then was limited to the collection of taxes on terms essentially dictated by the oil companies. During this period, the country adopted a soft oil policy, which in turn attracted the foreign investors. This included the petroleum profit tax ordinance of 1959 where 50% of profits covers rents, royalties, labour dues and so on. However, between 1966 and 1970, the government started a process of gradual exercise of its authority by reducing capital allowance, establishing posted prices and loyalties. Government further required all operating companies to be registered in Nigeria through the 1968 companies decree while it also made the petroleum decree 51 of 1969 publicly announced. The decree reduced concession period of 20 years, redefined the period and stages of surrender of the averages granted under concessions.

On the private sector participation in the oil sector, this is noticeably the preserve of foreign companies especially the seven multinationals. They include; mobile producing unlimited; Chevron Nigeria; Texaco overseas (Nigeria) petroleum company unlimited; Shell Petroleum Development Company; Nigeria Agip oil; Phillips oil company, Nigeria; Elf Petroleum Nigeria, and Pan Ocean Oil. Their dominance is due to their possession of advanced technology, financial capability, management enterprise and also goodwill in the international markets. They explore for and also produce crude oil in Nigeria as operating partners to the NNPC. Shell Petroleum Development Company, which is a combination of Royal Dutch, and British petroleum is the largest. The company, which started operations in Nigeria in 1937, struck oil in commercial quantity in 1956 and they stated oil exportation in 1958. Between 1960 and 1965, other companies such as Mobil, Elf Satrap, Gulf, Texaco and Agip obtained concessions. The Gulf oil company (presently renamed as Chevron) commenced its production and export of crude oil in 1965. Elf Nigeria started exportation of oil in 1965, Agip started in 1967 while Mobil producing Nigeria started in 1970.

The upstream sector in the Nigerian Petroleum Industry has been the basis of their strength, since this is were they concentrate most of their exploring activities and the inherent greater risk encountered by them in this sector compared to that of other ventures also increased the need for the to attract more capital and ensure a greater participation. As a result of this, the government has continued to encourage activities in the upstream sector. For example, the government granted with effect from 1st of April, 1997 various form of incentives such as tax credit, increase in annual capital allowances and reduction in royalty and profit tax. The government also allowed all exploration drilling costs including that of the first two appraisal wells in a field to be expenses. Other incentives include he reduction of tax rate to 65.75% for the period of amortization of the prevailing 85% tax rate.

For offshore operations, royalty was reduced from 20 to 18.5% for areas that were up to 100 meters and 16% for areas beyond 100 meters of water. In order to further firm up operation and investment activities, relevant legislation
and applicable investment which recognized the geologic, economic and political
risks faced by operations were put in place. This formed the basis of the
memorandum of understanding (MOU) signed with each company. This was in
the form of a joint venture company between the government and the oil
companies. In January 1986, at a time when depressed oil prices were reducing oil
exports and the resultant declining of exploration activities threatened to result in
a net loss of reserves. It was essentially a fiscal package to encourage investment
by guaranteeing national margins to companies depending on the levels of cost
efficiency and investment. The MOU was designed not only to ensure new
investment in the industry, but also to guarantee that having made such
investments there is increased resources and production as well as the
maintenance of market shares.

Prior to 1993, NNPC's holding in these companies was 60% while the
equity holdings of the joint venture companies was pegged at a maximum of 40%.
However, in 1993, the government, through the NNPC, decided to reduce its
share in the joint venture companies below 60%. This led to the divestment of
5% of her equity holdings in shell petroleum Development Company of Nigeria
that was taken to Elf, thus bringing NNPC's share in shell petroleum
Development Company to 55% and Elf's to 10%. In recent years, the NNPC has
successfully established several upstream joint ventures to expand the oil and gas
reserves and increase production capability. An instances is the $900million
NNPC/Mobil producing OSO condensate joint ventures in which both NNPC and
Mobil contributed $290 million while other international financial agencies
provided the remaining in the following ways: World bank – 218 million; IFC -
$170 million, Export import Bank of USA - $95 million, Export – import Bank
Japan - $47 million. Other notable joint venture agreements are the $390 million
Nigeria Agip/Phillip/NNPc Joint Venture, the $660 million methyl Tertiary Butyl
– other (mtbe) project of standard petrol chemical (SPIL) consortium, the $450
million methanol plant of pencol group, the $300 million NNPC/Elf Qua Iboc–
River condensate. All companies involved in the upstream industry are JVC's
with the Federal Government through the NNPC. The average crude oil stream
contributions to the annual production quota by these arrangements are as
follows: Shell (25%), Agip (18.05%), Mobil (15%), Chevron (11%), Elf (6%),
Texaco (4%), Asuland (3%), Pan Ocean (0.03%), Tenneco (0.19%) and Dubri
(0.01%).

After two years of negotiation, the government and the oil companies
concluded production-sharing contracts (PSC) in the first half of 1993 for the
newly allocated blocks in 1990 and 1991, most of which lies in the frontier areas.
Under the PSC, the operator would take proportion/percentage of the production
and leave the balance to the operator to regroup its costs with a margin of profit.
This modality was first operated in Indonesia in 1994, where the government
officially announced that it would not enter into any new joint venture
agreements. Rather, future projects with foreign oil companies would be for the PSC. Already, PSCs have been signed with Chevron and Shell to explore the high risk Benue Trough.

Other features of the MOU include the introduction of a tax relief for each year the company increases its investments beyond a certain agreed level. There will also be a bonus for any company that increases reserves by more than it is producing for a year, thus increasing the net reserve of the country. A revised MOU between the NNPC and operators came into effect in July 1991 with guaranteed increased profit margin. The work programme of the revised MOU expired in 1995 and negotiations on a new agreement have progressed.

More than 21 indigenous prospecting companies have also been active in the industry while 18 newly created Nigeria companies were allocated block acreages in 1990 and 1991 with the implicit understanding that they would need to secure foreign technical and financial partners. There had been reported cases of crude oil found in commercial quantities by four of the indigenous prospectors. The four prospectors are: Consolidated oil limited, Dubril oil company limited, Express petroleum and Gas Company limited and Summit oil international limited.

Crude oil production in Nigeria is characterized by relatively small fields and many wells with each well producing between 50 and 50,000 barrels per day of which approximately 65% of the oil produced is light, sweet crude. In December 1992, Mobil OSO condense field came on stream with an average approximate production of 110,000 barrels per day, which does not count toward Nigeria's OPEC quota. Shell is responsible for more than half of the oil produced in Nigeria (from its nearly 1,000 different fields). Prior to the most recent awards of new acreage, the shell joint venture already had concessions covering 26,000 square kilometers in onshore land and swampy areas and 4,700 square kilometers in its offshore areas. The oil reserves of this venture stands at around 11 billion barrels, while productivity capacity is over 1.05 million barrels per day. The chevron and Mobil Joint Ventures compete for second place Mobil producing Nigeria operates off shore from Eket in Akwa Ibom state, while Chevron Nigeria is principally an offshore producer with its operational base in Escraves, in Delta state. It was awarded 12 shore blocks in the Benue Basin in 1991.

Basically, there are four world standard refineries in Nigeria with a total installed refining capacity of 445,000 barrels per day. The oldest is the Port Harcourt I refinery, which was commissioned in 1965 with an initial capacity of 35,000 barrels per day but which later expanded to 55,000 barrels per day following the repairs to civil war damages, which put the plant out of operation. Its installed capacity was finally raised to 60,000 barrels per day. Initially shell and British Petroleum held majority of its shares while, the Federal Government and defunct Eastern Region Government had minority participation. The refinery later came under the ownership and operation of the NNPC in January 1986.
The Warri refinery was commissioned in 1978 and it had a capacity to process 100,000 barrels per day and this later expanded to 125,000 barrels per day in 1987. Also, the Kaduna refinery was commissioned in 1980 with an installed capacity to produce 100,000 barrels per day but this was later upgraded to 170,000 barrels per day in 1986. Then came the Port-Harcourt II refinery, which is the second, and new refinery in Port Harcourt which was commissioned in 1989 with 150,000 barrels per day processing capacity.

All these refineries produce the normal range of petroleum products such as the liquefied petroleum gas (LPG), fuel oil, kerosene, premium motor spirit and automatic gas oil. In addition, the Kaduna plant producers lubricating oil, bitumen, base stocks and waxes from heavier crude bleed which are imported from Venezuela and Saudi Arabia in a deal involving the importation 56,000 barrels per day of crude oil.

3.2. PROBLEMS OF THE PETROLEUM SUB-SECTOR

Despite the role and performance of the Nigeria petroleum sub-sector, it encountered some (inherent) problems that have hindered its performance. These factors have constrained the performance of this sub-sector. Some of these factors include:

a. Inefficiency:- This has been experienced more in (the administration of) our refineries. For example, diagnostic for Warri and Kaduna refineries under 1989 World Bank Refinery Rehabilitation Programme describe both companies as “suffering from severe equipment default management deficiencies”. The report also noted the problem of over-employment in the in the refineries with 7,500 staff instead of about 2,000.

The situation was further buttressed by Okigbo who noted that given the “per unit operating expenses per unit of output in our refineries, the Nigerian refinery system in relation to foreign operated ones, spend one and half times more on chemicals, loses thirty seven and half more on raw materials such as crude oil, with only 70% of capacity utilized and 15% lost in operations and that the refinery system in Nigeria is producing at only 60% of its potential. All these make the Nigerian production relatively inefficient” (Okigbo, 1993). He further stated that though the installed capacity of the refineries is adequate to satisfy all of Nigeria’s need for petroleum products, yet, because of frequent shut downs, and heavy inputs losses in processing of crude by the refineries, Nigeria imports 25 to 30% of her domestic requirements.

b. Lack of autonomy:- Since the petroleum industry is dominated by a single public enterprise which is the NNPC and the Ministry of Petroleum Resources regulates the NNPC. The NNPC is faced with the problem of management instability. For example, between 1977 and 1998, the NNPC has
had eight Managing Directors with an average of one every two years. Also, there has been nothing less than four major attempts at its re-organization in 1978, 1980, 1985 and between 1986 and 1988. A World Bank report in 1992 noted that NNPC strategic intention of operation, as a commercial and financial autonomous oil company is not being achieved. There are also other external factors such as its inability to set its own prices, lack of adequate capitalization and autonomy of the Board and Management”, (Onyia, 1993). The report further stated, “NNPC has not made appreciable progress towards commercialization and now lags behind other parastatals being commercialized by the TCPC”.

NNPC’s finances are associated with that of the government and this hinders financial autonomy. For instance, the NNPC and the government jointly controls the enterprises export revenues with government deciding how much would be allocated to cover cash calls requirements with JVCs and other priority investments. Also, the government who also dictates domestic crude and refined product prices owns the crude produced by NNPC.

c. Distribution problems:- This have led to the periodic shortage of nearly every petroleum products at one time or the other. These problems have either been caused by bottlenecks in the pipeline system or industrial disputes by tanker drivers. Some of these bottlenecks include:

i. Frequent interruption of the power of pipeline stations.
ii. Inadequate incentives for transporters to serve remote areas.
iii. Inadequate capacity of port, pipelines and depots. For instance, product evacuation is a serious issue at the Port-Harcourt refineries as only a fraction of their products can be handled through Okrika jetty, which terminates at Makurdi. Similarly, evacuation is also a problem at the Warri refinery as the Port on River Warri cannot handle ships above 5,000 dead weight tons. Kaduna refinery stopped exportation of LPFO and AGO in 1990 because of high overhead cost. The products are now economically shipped from Warri and Port Harcourt.

iv. The un-connected nature of the three-existing pipeline systems
v. Poorly maintained and inadequate rolling stock and trucking fleet.

All the combined effects of the above and also the frequent labour actions by the oil tankers drivers association usually necessitated the shipment a product by over land trucking or sea boat from one storage spot to another in order to reduce regional shortages.

d. Cash flow problems:- As a result of the fact that there had always been the tendency to have cash call payments in arrears, such arrears has escalated over time. For instance, as at August 1994, according to industry sources, such arrears were over $800 million despite earlier payments. Due to this, there have often
been cash flow problems for the JVCs and the NNPC itself. This so because, the accumulation of arrears on cash calls obligations affects the ability to the JVCs to maintain the required level of drilling. It also affects adequate maintenance of refineries, as the NNPC itself becomes cash strapped.

These cash calls which represent NNPC's share of the upstream joint venture exploration and production costs as established in the MOU's, signed with its joint venture partners, are funded from off-shore petroleum export revenues. Also, industry sources reveal that there is often a considerable uncertainty about what cash calls should pay for and the consequences of this is that the process of negotiating this between the NNPC and Federal Ministry of Finance has often led to several months of cash calls arrears payment to the JVCs.

e. **Problem of petroleum pricing:** It is a known fact that the prices of petroleum products are fixed by the government rather than by the market forces. Until October 1994, the official pump price for petrol was well below international levels but subsequent price and exchange rate movement have indirectly reverted the situation to the pre-November 1997 level. This system of pricing has led to so many consequences of which are:

i. **Wasteful consumption and inefficient utilization:** An example of this is that over 75% of oil consumed on this country is used in the transportation sector while the equivalent figure for Britain is 42%. Substantial oil price measure will attract private sector investment for cheaper fuel conversion while gasoline could be released for export.

ii. **Smuggling and diversion of petroleum products:** The disparity in the price between Nigeria and neighboring countries gives real incentives for the smuggling of petroleum products across the border. This has led to many incidents of fuel scarcity in the past and also led to the need to import the product at world price. It has also created a higher demand than that which the existing crude oil refineries can cope with. This is also due to the fact that Nigeria unofficially supplies her neighboring countries. As a result of inappropriate pricing, gross margins for petroleum marketers have diminished over time. This has further slowed down development on the retail network system.

iii. **Products adulteration:** In this case, the adulteration of gasoline with cheaper kerosene is a serious problem as fraudulent sellers take advantage of the price disparity between the two products.

iv. **Fraudulent domestic marketing practices:** Some dealers often hoard petroleum products in anticipation of shortages only to sell them at greatly increased black market prices.

Also, the residual refining margin accorded the NNPC under the pricing system could not cover the estimated refining cost thereby, leading to losses with the
attendant inadequate financial resources to maintain trouble-free refinery operation. Virtually most of the problems encountered by the petroleum sector were due to gross inefficiency in domestic production manifested in the perennial massive importation of petroleum products. In this respect both the Nigeria National Petroleum Corporation (NNPC) and Products and Pipelines Marketing Companies (PPMN) has not helped matters.

The turnaround maintenance (TAM) at the refineries does not take place as when due and this has led to the serious deterioration of facilities. Some refineries have caught fire several times and often times due to poorly executed TAM. Three of the refineries got burnt in the second half of the 1990s (Kaduna, (twice) and Port-Harcourt). The turn around maintenance was done in Warri and Kaduna in 1995, and Port Harcourt -2 in 1996. Some of them are just undergoing TAM. It has been argued that most of the factors underlying the unsatisfactory performance of the refineries have to do with public sector ownership. In 1997, the ministry of finance and petroleum resources under the infamous Abacha regime engaged themselves publicly on the billions of U.S. dollars purportedly spent on the rehabilitation of the refineries, and improvement in fuel supply. And as a cover up for this huge spending, which was unproductively spent, toxic fuel was imported on a large scale to solve the problem of fuel shortage.

Community disturbance, agitation by host communities for resource control due to increasing economic hardship, has resulted in more frequent disturbances aimed at holding the oil companies and their agent to ransom. This has caused substantial disruption to the production of the product, the consequence of which includes the loss of revenue to the joint venture operators and government.

Pipeline vandalisation by unscrupulous element, for the purpose of oil bunkering in the host communities has also caused damages both to the distribution network and human lives in this operation's areas. In 1999, thousand of lives were lost to inferno arising from vandalized pipelines which also make supply of petroleum products inadequate. The resultant effect is scarcity and loss of revenue to government. This vandalisation has continued persisted.

There is also the problem of oil spills and hydrocarbon pollution. According to the official estimates of the Nigerian National Petroleum Corporation (NNPC), based on the quantities reported by the operating companies, approximately 2,300 cubic meters of oil are spilled in 300 separate incidents annually. It can be safely assumed that, due to under-reporting, the real figure is substantially higher, conservative estimates place it at up to 10 times higher. Statistics from the Department of Petroleum Resources indicate that between 1976 and 1996 a total of 4,835 incidents resulted in the spillage of at least 2,446,322 barrels (102.7 million U.S. gallons), of which an estimated 1,896,930 barrels (79.7 million U.S. gallons; 77 percent) were lost to the environment, (Niger Delta Environmental Survey Final Report, 1998). Another
calculation, based on oil industry sources, estimates that more than 1.07 million barrels (45 million U.S. gallons) of oil were spilled in Nigeria from 1960 to 1997, (Oil Spill Intelligence Report 1997).

Two serious spills took place in early 1998. On January 12, 1998, a major spill of more than 40,000 barrels of crude oil (1.7 million U.S. gallons) leaked from the pipeline linking Mobil’s Idoho platform with its Qua Iboe onshore terminal in Akwa Ibom State. Mobil estimated that more than 90 percent of the oil had dispersed or evaporated naturally, though the spill traveled “hundreds of kilometers farther than expected,” and some 500 barrels (21,000 U.S. gallons) washed ashore, (Unsworth, 1998). By the end of February 1998, about 14,000 claims for compensation had been submitted from individuals or groups, totaling an estimated U.S.$100 million. About twenty communities, with a total population of about one million, were considered to be the worst hit, especially at the mouth of the Pennington River, (Oil Daily, February 27, 1998). Clean Nigeria Associates, an oil industry-funded spill-response cooperative, was mobilized to assist in containing the spill and dealing with its effects. However, shoreline cleanup had still not begun by January 28, because “staff had to train crew leaders and deliver appropriate gear to the sites,” and as late as March some sites were still visibly contaminated, (Oil Spill Intelligence Report, 1998).

On March 27, 1998, a further spill of 20,000 barrels (840,000 U.S. gallons) took place from Shell’s Jones Creek flow station, Delta State, in the brackish water of the mangrove forest, killing large numbers of fish. Shell identified the cause of the spill as “pipeline failure” and closed in 110,000 bpd of oil from eight flow stations. As a result of the small size of the oilfields in the Niger Delta, there is an extensive network of pipelines between the fields, as well as numerous small networks of flow lines—the narrow diameter pipes that carry oil from wellheads to flow stations—allowing many opportunities for leaks. In onshore areas, most pipelines and flow lines are laid above ground. Many pipelines and flow lines are old and subject to corrosion, 15 years is the estimated safe lifespan of a pipeline, but in numerous places in the delta pipelines aged 20 or 25 years can be found.

Whatever the long term impact on the environment, spills can be devastating for those directly affected, especially in the dry land or freshwater swamp areas, where the effects are concentrated in particular locations. Oil leaks are usually from high-pressure pipelines, and therefore spurt out over a wide area, destroying crops, artificial fishponds used for fish farming, “economic trees” (that is, economically valuable trees, including those growing “wild” but owned by particular families) and other income-generating assets. Even a small leak can thus wipe out a year’s food supply for a family, with it wiping out income from products sold for cash.

The consequences of such loss of livelihood range from children missing school because their parents are unable to afford the fees, to virtual destitution.
Even if the land recovers for the following year, the spill has consequences over a much longer period for the families directly affected. In tidal salt water areas, where fishing grounds tend to be open, individual families are less likely to be totally wiped out, while spills will in any event disperse more quickly.

3.3 The Contribution of the Petroleum Sector to National Income (NI)

In dealing with the Contribution of the Petroleum Sector to National Income, we decomposed the component of national income into Government Revenue and Balance of Payment (BOP). This was to allow for clarity in the analysis.

Government Revenue

Oil revenue accrues to the federal government from petroleum profit taxes and mining royalties, rents and fees. And in recent times oil revenue has been the main pivot around which Nigeria’s development objectives and growth target are built. When the oil was first discovered in commercial quantities in 1958, the contribution of oil to government revenue was N0.12 million while total government revenue stood at N154.6 million. This represents 0.08% of the total revenue of the government. This continued to increase in value and by 1973 total oil revenue had risen to N1,410.7 million while total government revenue rose to N2,240.1 million. This shows that oil revenue accounted for 53.8% of the total revenue of the government. From 1980 to 1998, oil has contributed tremendously to government revenue, thereby succeeding in changing the economic order of the country.

The increased oil revenue derived in 1971 and 1975 induced the 1975/80-development plan to envisage a reliance of up to 91% on internal capital for financing the third plan programmes. Also, the self-reliance goal of the plan materialized with internal self-financing of its projects (Amu, 1986). The Nigeria economy turned from agro-based to one that relies almost completely on oil, which provided about 96.8% of total government revenue annually.

Table 3.1 shows the inconsistency in the oil revenue (income) accrued to federal government. In 1980, Out of the total government revenue of N15,234.0 million, crude oil accounted for a total of N12,353.8 million. This shows that the share of oil revenue to government was 81.1%. The revenue continued to fluctuate in the proceeding years until 1989 when its share rose to 81.9%. For instance, in 1982, from the total revenue of N11,767.4 million accrued to the government, N7,814.9 million came from the proceeds of crude oil. And this represents 66.4% of the total revenue. This showed a decline of about 14.7% in crude oil’s share in 1980. The fluctuation was attributed to the unstable price of crude oil in the international market and distortions in the production of the product at home as well as its export.

Table 3.1: Federal Government Revenue 1980 – 1997 (N’ Million)
<table>
<thead>
<tr>
<th>Year</th>
<th>Federally Collected Revenue</th>
<th>Oil Revenue</th>
<th>Non-Oil Revenue</th>
<th>Surplus Revenue</th>
<th>% of Oil Revenue on Total Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>15,234.00</td>
<td>12,355.80</td>
<td>2,880.20</td>
<td>n.a</td>
<td>81.1</td>
</tr>
<tr>
<td>1981</td>
<td>12,180.20</td>
<td>8,564.40</td>
<td>3,615.80</td>
<td>n.a</td>
<td>70.3</td>
</tr>
<tr>
<td>1982</td>
<td>11,767.40</td>
<td>7,814.90</td>
<td>3,949.50</td>
<td>n.a</td>
<td>66.4</td>
</tr>
<tr>
<td>1983</td>
<td>10,508.70</td>
<td>7,253.00</td>
<td>3,255.70</td>
<td>n.a</td>
<td>69</td>
</tr>
<tr>
<td>1984</td>
<td>11,191.20</td>
<td>8,269.02</td>
<td>2,922.00</td>
<td>n.a</td>
<td>78.9</td>
</tr>
<tr>
<td>1985</td>
<td>14,689.10</td>
<td>10,923.70</td>
<td>3,765.00</td>
<td>n.a</td>
<td>74.4</td>
</tr>
<tr>
<td>1986</td>
<td>12,302.00</td>
<td>8,107.30</td>
<td>4,194.70</td>
<td>n.a</td>
<td>66</td>
</tr>
<tr>
<td>1987</td>
<td>25,098.80</td>
<td>1,907.00</td>
<td>6,072.80</td>
<td>n.a</td>
<td>75.8</td>
</tr>
<tr>
<td>1988</td>
<td>27,595.00</td>
<td>19,831.50</td>
<td>7,763.30</td>
<td>n.a</td>
<td>72</td>
</tr>
<tr>
<td>1989</td>
<td>47,798.30</td>
<td>39,130.50</td>
<td>8,667.80</td>
<td>n.a</td>
<td>81.9</td>
</tr>
<tr>
<td>1990</td>
<td>69,788.20</td>
<td>551,215.90</td>
<td>18,362.30</td>
<td>n.a</td>
<td>79.1</td>
</tr>
<tr>
<td>1991</td>
<td>78,640.70</td>
<td>60,315.50</td>
<td>18,325.20</td>
<td>n.a</td>
<td>76.7</td>
</tr>
<tr>
<td>1992</td>
<td>138,617.00</td>
<td>115,391.70</td>
<td>23,225.30</td>
<td>n.a</td>
<td>83.2</td>
</tr>
<tr>
<td>1993</td>
<td>138,873.80</td>
<td>106,155.40</td>
<td>32,718.40</td>
<td>n.a</td>
<td>76.4</td>
</tr>
<tr>
<td>1994</td>
<td>65,047.30</td>
<td>45,275.40</td>
<td>19,771.80</td>
<td>n.a</td>
<td>69.6</td>
</tr>
<tr>
<td>1995</td>
<td>459,987.30</td>
<td>244,902.30</td>
<td>135,439.70</td>
<td>79,645.30</td>
<td>53.2</td>
</tr>
<tr>
<td>1996</td>
<td>520,190.00</td>
<td>266,000.00</td>
<td>151,000.00</td>
<td>103,190.00</td>
<td>51.1</td>
</tr>
<tr>
<td>1997</td>
<td>600,357.20</td>
<td>434,357.20</td>
<td>166,000.00</td>
<td>n.a</td>
<td>72.3</td>
</tr>
</tbody>
</table>

3.4 The Impact on the Balance of Payments (BOP) of Nigeria

Anything that adversely threatens the export of oil will might have a severe impact on the country’s foreign exchange reserve and therefore militate against her ambitions towards her development programmes. This can be deuced from Table 3.2, which shows Nigeria’s crude oil production and export. Specifically, the balance of payment records transaction in goods, services and income; changes in ownership and other changes in an economy’s holdings of monetary gold, Special Drawing Rights (SDRs), and claims and liabilities to the rest of the world.

Table 3.2: Nigeria Crude Oil Production and Export (1980 – 1997)

<table>
<thead>
<tr>
<th>Year</th>
<th>Production</th>
<th>Export</th>
<th>Value (N’m)</th>
<th>Crude Oil % of Total Export</th>
<th>Total Export</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>2056.41</td>
<td>1904.1</td>
<td>13,632.3</td>
<td>96.1</td>
<td>14,186.00</td>
</tr>
<tr>
<td>1981</td>
<td>1439.2</td>
<td>1285.2</td>
<td>106,80.50</td>
<td>98.9</td>
<td>11,023.00</td>
</tr>
<tr>
<td>1982</td>
<td>1289.4</td>
<td>1100.4</td>
<td>1,803.20</td>
<td>97.5</td>
<td>8,206.40</td>
</tr>
<tr>
<td>1983</td>
<td>1235.4</td>
<td>1074.1</td>
<td>7,201.20</td>
<td>96</td>
<td>9502.50</td>
</tr>
<tr>
<td>1984</td>
<td>1390.4</td>
<td>1234.5</td>
<td>8,840.60</td>
<td>97.3</td>
<td>11,720.80</td>
</tr>
<tr>
<td>1985</td>
<td>1498.9</td>
<td>1333.1</td>
<td>11,223.60</td>
<td>95.8</td>
<td>8,920.50</td>
</tr>
<tr>
<td>1986</td>
<td>1468.3</td>
<td>1337.1</td>
<td>8,368.40</td>
<td>93.8</td>
<td>30,316.60</td>
</tr>
<tr>
<td>1987</td>
<td>1324</td>
<td>1069.9</td>
<td>28,208.60</td>
<td>92.9</td>
<td>31,971.20</td>
</tr>
<tr>
<td>1988</td>
<td>1450.9</td>
<td>1193.9</td>
<td>28435.40</td>
<td>91.2</td>
<td>57,971.20</td>
</tr>
<tr>
<td>1989</td>
<td>1714.8</td>
<td>1431.5</td>
<td>55,016.80</td>
<td>94.2</td>
<td>109,886.70</td>
</tr>
<tr>
<td>1990</td>
<td>1809.7</td>
<td>1502.1</td>
<td>106,625.50</td>
<td>97</td>
<td>121,533.70</td>
</tr>
<tr>
<td>1991</td>
<td>1890</td>
<td>1602.2</td>
<td>116,856.50</td>
<td>96.2</td>
<td>205,613.10</td>
</tr>
<tr>
<td>1992</td>
<td>2019.6</td>
<td>1892.4</td>
<td>201,384.80</td>
<td>98</td>
<td>218,778.80</td>
</tr>
<tr>
<td>1993</td>
<td>2187.2</td>
<td>2056.1</td>
<td>213,778.80</td>
<td>97.7</td>
<td>206,159.20</td>
</tr>
<tr>
<td>1994</td>
<td>2116.8</td>
<td>2093.6</td>
<td>200,710.20</td>
<td>97.4</td>
<td>825,669.20</td>
</tr>
<tr>
<td>1995</td>
<td>2487.4</td>
<td>2306.7</td>
<td>805,566.80</td>
<td>97.6</td>
<td>825,669.60</td>
</tr>
<tr>
<td>1996</td>
<td>3118.8</td>
<td>2988.4</td>
<td>1,105,630.80</td>
<td>98.2</td>
<td>1,125,690.30</td>
</tr>
<tr>
<td>1997</td>
<td>3709.2</td>
<td>3497.5</td>
<td>1,065,501.60</td>
<td>97.7</td>
<td>1,091,130.90</td>
</tr>
</tbody>
</table>


Table 3.2 shows the exports and the values of petroleum products between 1980 and 1997. In 1980, the total production was 205.64 barrel out of which 1,904.18 barrels was exported. This was valued to worth N13,632.3 million representing 96.1% of the total export value of N14,186.0 million. Nigeria is a mono-product country and this is manifest in the performance of crude oil revenue accrued to the government. The crude oil share in the total export had been tremendous and within the period under review it accounted for more than 90% in each year. Between 1990 and 1997, it was quite above 95% of the total
export. In 1991, the value of crude oil export was ₦116,856.5 million out of the total value of exports of ₦121,533.7 million representing 96.2%. The trend continued till the year 1997 when the value of oil exports represented 97.7% of total exports. Overtime, crude oil exports have significantly influenced the balance of payment of the country.
3.5. The Impact of Petroleum on the Other Economic Indicators

External Reserve

Before 1970, agriculture was the main source of foreign exchange for Nigeria. From 1970 when oil introduced its dominance in the economy, the external reserves have been increasing. Oil kept on impacting positively on the external reserve and the reserve continued to increase or maintain its weight until 1982 and 1983 which due of oil price crises and also the mismanagement of Shagari regime it fell. Despite the increase, not minding the fall, the debt burden of the country became too much to allow for any gaiety.

Table 3.3: Nigeria’s Total Oil Reserves (1980 – 1997)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TOTAL RESERVES (Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>5445.6</td>
</tr>
<tr>
<td>1981</td>
<td>2,424.80</td>
</tr>
<tr>
<td>1982</td>
<td>1,026.50</td>
</tr>
<tr>
<td>1983</td>
<td>7081.7</td>
</tr>
<tr>
<td>1984</td>
<td>1,143.80</td>
</tr>
<tr>
<td>1985</td>
<td>1,641.10</td>
</tr>
<tr>
<td>1986</td>
<td>3,587.40</td>
</tr>
<tr>
<td>1987</td>
<td>4,643.30</td>
</tr>
<tr>
<td>1988</td>
<td>3,272.70</td>
</tr>
<tr>
<td>1989</td>
<td>13,457.10</td>
</tr>
<tr>
<td>1990</td>
<td>34,953.10</td>
</tr>
<tr>
<td>1991</td>
<td>44,249.60</td>
</tr>
<tr>
<td>1992</td>
<td>13,992.50</td>
</tr>
<tr>
<td>1993</td>
<td>67,245.60</td>
</tr>
<tr>
<td>1994</td>
<td>30,455.90</td>
</tr>
<tr>
<td>1995</td>
<td>40,333.20</td>
</tr>
<tr>
<td>1996</td>
<td>174,309.80</td>
</tr>
<tr>
<td>1997</td>
<td>194,487.40</td>
</tr>
</tbody>
</table>


The fluctuation noticed in the Table 3.3 was as a result of the Nigerian economy’s dependent on the proceeds from the oil revenue, which constituted 90% of total foreign exchange. Invariably, whenever oil prices rise (fall) the fortune of increased (decreased) revenue will automatically manifest itself on the economy of Nigeria.

3.6 Capital Formation

The term capital formation is associated with investment since it had been established that oil sector is providing Nigeria with about 90% of the national income, it then implies that it provide the bulk of capital flow into Nigeria and it
had contributed to the encouraging net flow of foreign private capital investment in Nigeria. The trend in the net inflow of foreign private capital (investment) from our trading partners shows that from a total of N467.0 million in 1980, it rose to N2,499.6 million in 1986. This was made possible because of the availability of crude oil in the country, which was our major export product. Though, there were fluctuations in the net inflow of foreign private capital, it reached the peak in 1995 when it increased to N48,677.0 million. Oil has also attracted a lot of investors into Nigeria as well as influencing foreign private capital flow into the country.

3.7. Industrial and Manufacturing Sector

Recently, it is a common phenomenon to classify countries as either developed or underdeveloped. While highly industrialized countries are regarded as developed, those that are not are referred to as underdeveloped or developing. In doing this the manufacturing sector plays a very strategic role. In Nigeria’s quest for industrialization, the role of the manufacturing sector cannot be underestimated. Despite this, the sector has refused to grow notwithstanding the enormous infrastructural and economic base provided by the government, mostly through revenue generated from the crude oil.

In fact, available data had shown that though there was a rise in the index of industrial production, the manufacturing sector has remained relatively underdeveloped as it contributes less than 10% to GDP (Marinlo, 1985). This was confirmed by the available data from the Central Bank of Nigeria. The percentage contribution of the sector has fluctuated between 7.82% and 9.90% for the period 1981 through 1985. Between 1986 and 1996, it contributed less than 8% to the GDP. Its contribution fell considerably to 4.84% in 1996, and rose marginally to 5.08% and 5.15% in 1997 and 1998. The above trend may be as a result of the absence of a strong linkage between this sector and the petroleum sector. Also, this seems to explain why the petroleum sector behaves as an enclave in the Nigerian economy.

The destabilizing feature of the industrial sector had been the concentration and massive influence of the petroleum sector. Investors shy away from investing in other sectors of the economy and concentrate more on the petroleum sector. Thus, the manufacturing sector has been depending heavily on importation of spare parts, raw materials, capital equipment and skilled manpower. All these cause the growth of the manufacturing sector to shrink.

4.1. Model Specification

The study made use of two models. The first model used a single equation to empirically evaluate the contribution and performance of the petroleum sector on the Nigerian economy. This model concentrates on growth in the petroleum
sector. In the model, the GDP was used as a measure of economic growth and activities of the economy, thus the model tries to empirically examine whether or not the petroleum sector has any significant influence on Nigeria's economic growth. The following equation was estimated:

$$\text{GDP} = f(\text{TCP})$$

For regression and estimation purposes, equation 1 was re-written as:

$$\text{GDP} = a_0 + a_1 \text{TCP} + U_t$$

Where:

- \( \text{GDP} \) = Gross Domestic Product which was our proxy for economic growth and activities.
- \( \text{TCP} \) = Total Contribution of the Petroleum Sector to the economy. This is measured by its contribution to the GDP.
- \( U_t \) = Error term
- \( a_0 \) and \( a_1 \) = are the coefficients.

The log form of the above equation was also estimated. The Logarithm form helps to capture the elasticities components of the model through the value of the coefficients. Also, it helps to capture the discrepancies in the data. The Logarithm form of the model that was estimated is written as:

$$\text{LGDP} = b_0 + b_1 \text{LTCP} + U_t$$

The second model follows from the Lewis two-sector labour surplus model. The model bears little resemblance to the Lewis theory which involves resource transfer. It tries to capture how the revenue from petroleum sector can be used to the benefit of all other sectors in the economy. It provides empirical estimates of the direction and magnitude of the overall impact of the petroleum sector on economic growth and the signs of the externality effect. The model is specified as follows:

$$\Delta Y/Y = \alpha_0 + \alpha_1 I/Y + \alpha_2 \Delta L + [\phi/(1 + \phi) - \beta] \Delta P(Y) + \beta \Delta P + U$$

Where:

- \( Y \) = Real GDP; \( I \) = Investment; \( L \) = Labour employment; \( P \) = Contribution of the Petroleum sector to the GDP; \( U \) = the error term.
- \( \phi/(1 + \phi) \) = intersectoral factor productivity differential between petroleum sector and non petroleum and agriculture sector.
- \( \alpha_1 \) = Marginal productivity of capital in the agricultural and non petroleum sector.
- \( \alpha_2 \) = Output elasticity of labour in the agricultural and non petroleum sector.
- \( \beta \) = Marginal externality effect of petroleum production on economic growth, that is, the increase in agricultural and non petroleum sector output as a result of a unit increase in petroleum production.

All the equations were estimated using the Ordinary Least Square (OLS) method and the Econometric Views (E-Views) software package.
4.2. Results

From the result in equation 2, GDP was positively related to the TCP. This is manifest in the sign of TCP in the regression result. Also, TCP was a significant determinant of the variations in the GDP. It determines 92% of the movements in the GDP. This is shown in the value of our co-efficient of determination ($R^2$), which was 0.920. It was also significant at 1% level as was indicated by the ‘t’ statistics. On the overall, the model was significant given the value of the ‘F’ statistics, it was also devoid of the problem of serial autocorrelation. This was manifest given the value of the Durbin Watson statistics.
Equation 2
GDP = 37838.4 + 7.61TCP
(0.5388)  (18.68)*
$R^2 = 0.923$
Adjusted $R^2 = 0.920$
Durbin Watson Statistic = 1.918
F Statistic = 348.9
T Statistics are in parenthesis
* Significant at 1% level

In equation 3, LGDP was positively and significantly related to the TCP. The co-efficient of variation indicates that the TCP determine about 83% of the movements in the GDP while the ‘t’ statistic shows that the LTCP was significant at 1% level. Also there was no evidence of serial autocorrelation in the model given the Durbin Watson value of 1.72.

Equation 3
LGDP = 8.639 + 1.317LTCP
(1.5323)  (2.9167)*
$R^2 = 0.839$
Adjusted $R^2 = 0.811$
Durbin Watson Statistic = 1.72
F Statistic = 5.507
T Statistics are in parenthesis
* Significant at 1% level

Equation 4
$\Delta Y/Y = -5.517 + 1.094 I/Y + 0.25 \Delta L + 1.394 \Delta P(P/Y) + 2.404 \Delta P$
(3.42)  (0.637)  (1.98)**  (2.34)*  (5.58)*
Where $\phi = 0.01$ and $(\phi/1+\phi) = 9.901$
$R^2 = 0.862$; adjusted $R^2 = 0.785$; DW = 1.73; F-Statistic = 256.8
T-Statistics are in brackets.
*(**) significant at 10% (1%) level.

From the result in equation 4, it can be deduced that the marginal externality effect of the petroleum sector on economic growth in Nigeria is fairly large given its value of 2.404 and it is significant at 1%. This shows that a unit increase in petroleum production tend to lead to a more than proportionate increase in the productivity of the agricultural and non petroleum sectors. Also, the output elasticity of capital in the agricultural and non petroleum sectors indicate a fairly elastic situation which implies that variations or changes in these sectors with respect to capital may have considerable effect on Nigeria’s economic growth though it was not significant. But for the output elasticity of
labour in the agricultural and non petroleum sector, a fairly inelastic situation is obtained however it was significant.

There was also a large and significant intersectoral factor productivity difference between the petroleum sector and agriculture and non petroleum sectors. This was manifest given its value of 9.901, implying that the petroleum sector may be more factor productive than other sectors in the economy. As such resource (factor) transfer from this (petroleum) sector to other sectors may help reduce this intersectoral factor productivity difference by enhancing the productivity and contribution of these other sectors to the economy. Furthermore, the results demonstrate that the petroleum sector significantly influences economic growth in Nigeria. Noting that from equation 2 and 3, the petroleum sector contributes significantly to the GDP and coupled with the nature of the elasticities obtained, especially that of capital in the agriculture and non petroleum sectors, it becomes apparent that benefits (resources and/ revenue) from the petroleum sector can be transferred to other sectors in such a manner that a near-even development of all the sectors will be enhanced.

The implication of this result is that whatever happens to the petroleum sector will definitely affect the rest of the Nigerian economy. The direction of change determines the nature of the influence. Thus government must be very care in designing policies that affects the petroleum sector.

5. CONCLUSION

The Nigerian oil sector no doubt has been an engine of growth of the Nigerian economy. The bulk of government revenue is generated from this sector. The government should thus have it as her priority to help diversify the Nigerian economy so that the over dependence on the petroleum sector will be reduced. Investments should be enhanced in both the petroleum sector and all other sectors of the economy. Proceeds from the petroleum sector should be used to develop other sectors of the economy. The agricultural and manufacturing sector in particular should be developed and not neglected, because they are capable of providing us with more foreign exchange (through exporting of other products other than petroleum products).

Privatization of the refineries as well as the deregulation of the petroleum sector should be encouraged and hastened up. This will help attract the private sector whose management expertise can help in facilitating efficiency and improving the supply of the product. In the interim, reputable and credible partners should be chosen for each of the four refineries and each of the pipelines systems. This is to ensure that adequate measures like agreement with appropriate technical outfit, financing arrangement etc. are put in place to ensure timely execution of turn around maintenance of the existing refineries Government should concentrate on regulating and not controlling the industry because this will
improve the present low refinery operating efficiency while frequent failures in depots operation will be reduced to the barest minimum.

The oil producing communities should be made to have more sense of belonging in the production activities. This will help make them more dedicated and will reduce incidences of pipeline vandalization. The flow of petroleum revenue would certainly not continue forever thus judicious use must be made of the oil revenue since this would guarantee the future destiny of our country as well as adapt it to suit our future national aspirations. There is no doubt that the petroleum industry has been and is still being a catalyst towards the attainment of industrial progress in the country. But it is saddening to note that Nigeria’s oil which portrays us as people living in the mist of plenty has been used by our leaders to worsen the societal welfare. This obviously leads to the question of how can we be suffering in the mist of plenty?

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