

EFFECTS OF NORTH AMERICAN OIL AND GAS DEVELOPMENTS ON THE NIGERIAN ECONOMY

Ikedi Chinyere,

Centre for Petroleum, Energy Economics & Law, University of Ibadan,
Ibadan, Oyo State, Nigeria. +234 7034429824,
chinyereikedi@gmail.com

and

Ayooluwa Adewole,

Centre for Petroleum, Energy Economics & Law, University of Ibadan,
Ibadan, Oyo State, Nigeria, +234 81625459299, ayoadre@gmail.com

*Presented at the 34th USAEE/IAEE North American Conference
“Implications of North American Energy Self-Sufficiency” October 23-26,
2016 at the Hyatt Regency Hotel, Tulsa, Oklahoma, U.S.A.*

ABSTRACT

The rise in unconventional oil and gas production in North America has changed the dynamics of crude oil trade between Nigeria and the United States of America. Hence, Nigeria which once counted on U.S.A as a major destination for crude exports has been forced to explore other trade destinations. The discovery and exploration of Shale oil and gas puts Nigeria's economy at serious risk as Nigeria is currently unable to finance its expenditure as well as accumulate its foreign reserves. Shale has also caused an increase in crude supply in the international market, leading to a decrease in the price of both gas and crude oil, which leads to a sharp decrease in revenue of oil producing nations including Nigeria. The paper uses descriptive analysis to examine the effect of North American oil and gas on the Nigerian economy. It was seen that developments in the exploration of unconventional oil and gas in U.S.A have had a negative impact on the Nigerian economy. It has resulted in a shift in Nigerian crude oil and gas exports from North America to Europe and Asia. It has also resulted in a drop in government revenue, employment (especially in the oil and gas industry), and a depreciation of the Naira (Nigeria's currency). Despite the unpleasant effects of unconventional oil and gas production in North America on the Nigerian economy, it presents an opportunity for policy makers in Nigeria to diversify the economy from its over-reliance on oil and gas, pass credible reforms in the oil and gas industry as well as open the economy to trade in other sectors and with other countries.

1.0 INTRODUCTION

The United States of America and Nigeria are economic giants in their own rights; the U.S.A a global economic powerhouse and Nigeria one of the largest economies in Africa. Over time, both countries are major trading partners with the U.S.A a major destination for Nigerian crude oil (the country's major export) until recently, leaving huge trade balance between both countries. The rise in unconventional oil and gas production in North America has however changed the dynamics of crude oil trade between Nigeria and the United States of America. In recent times Nigeria has been compelled to seek alternative trade destinations for its crude oil exports. These developments coupled with the recent fall in oil prices have caused a downturn in Nigeria's economy. This paper therefore explores the effects of these developments on the economy of Nigeria, using a descriptive analysis. The paper outlines the effects of these developments on the Nigerian government's revenue which is driven mainly by crude oil, the effects on employment, oil and gas exports, investments, and finally the effects on the Naira, the Nigerian Currency. It also explores various options for Nigeria going forward, as well as holds out lessons that can be learnt from the development of non-conventional oil in North America. It examines the prospects of future oil and gas trade between Nigeria and U.S.A.

The outline of the paper is as follows; the first section outlines the history of oil and gas trade between Nigeria and U.S.A. The second section discusses the shale revolution in the United States, while the third section describes how the development in the shale technology has affected the Nigerian economy. The fourth section outlines the lessons Nigeria can learn from the development of unconventional oil and gas in U.S.A. Finally, the fifth section discusses the options for Nigeria in the short to medium terms as well as concludes the paper.

2.0: BRIEF OVERVIEW OF ENERGY (OIL AND GAS) RESOURCES FOR NIGERIA AND USA

Crude Oil was found in Nigeria by the Shell Group in 1956 and three basins are currently being used for production; the onshore Anambra, the offshore Benin/Dahomey (deep water and ultra-deep water) and the Niger Delta (shallow and deep offshore basins). The gravity of Nigeria's crude oil generally ranges from 21oAPI to 45oAPI¹. The major grades of crude exported by Nigeria are Bonny Light (37o) and Forcados (31o). There are four refineries in Nigeria: two located in Port Harcourt, one each in

¹ Lanre , A & Chisom , N. (2013). Shale Gas Development: Their Gain, Our Pain and the Cost. Journal of Politics and Law; 6(1913-9055).

Kaduna and Warri. However, these refineries only operate at about 30% of their installed capacities; giving rise to the need for importation of refined products to meet growing local demand. In Nigeria, petroleum products are primarily supplied via the Petroleum Product Marketing Company's (PPMC) pipeline system. The pipeline system links the refineries to the 21 regional storage/sale depots (Lanre & Chisom, 2013).

Oil exploration in the United States dates back to 1859, when oil was found in commercial quantities by Edwin Drake for the Seneca Oil in Pennsylvania². This was the first time that oil was tapped at its source, using a drill, and this discovery led to what is known as the first major oil boom. Over the past decade, there has been another oil boom of sorts, as a combination of horizontal drilling and hydraulic fracturing has provided access to large volumes of oil and natural gas that were previously uneconomic to produce. These oil and gas resources are found in geological formations composed of shale, sandstone, and carbonate with low permeability, and Shale plays are found in about 48 states in the US.

As such, the United States is ranked second globally after Russia in shale oil resources and is ranked fourth globally after China, Argentina and Algeria in shale natural gas resources. It is estimated that the United States has approximately 610 Tcf of technically recoverable shale natural gas resources and 59 billion barrels of technically recoverable tight oil resources. There are 139 operable refineries in the United States, with 2 refineries idle (EIA, 2016). A look at some macroeconomic statistics for Nigeria and the U.S.A (see Table 1) reveals that in 2015 Nigeria's GDP stood at \$481 billion making it the largest economy in Africa, while that of USA was about \$17.9 trillion positioning it as one of the largest in the world (EIA, 2016). Nigeria had its 2014 exports valued at \$70 billion with oil exports accounting for over 90% of this (EIA, 2016). The U.S.A on the other hand had its 2014 exports valued at \$1.9 trillion. Exports in the United States averaged \$49,922.37 million between 1950 and 2016, reaching an all-time high of \$20, 0236 million in October, 2014 (EIA, 2016). Both nations have similar crude oil reserves as the Nigerian reserves are estimated to be 37,062 billion barrels as at 2014 while that of U.S.A are estimated to be 39.9 billion barrels (WDI, 2016). There is however a significant gap in the amount of refinery output as that of USA was valued to be 18.5mbpd while that of Nigeria was about 101.9tbpd in 2012.

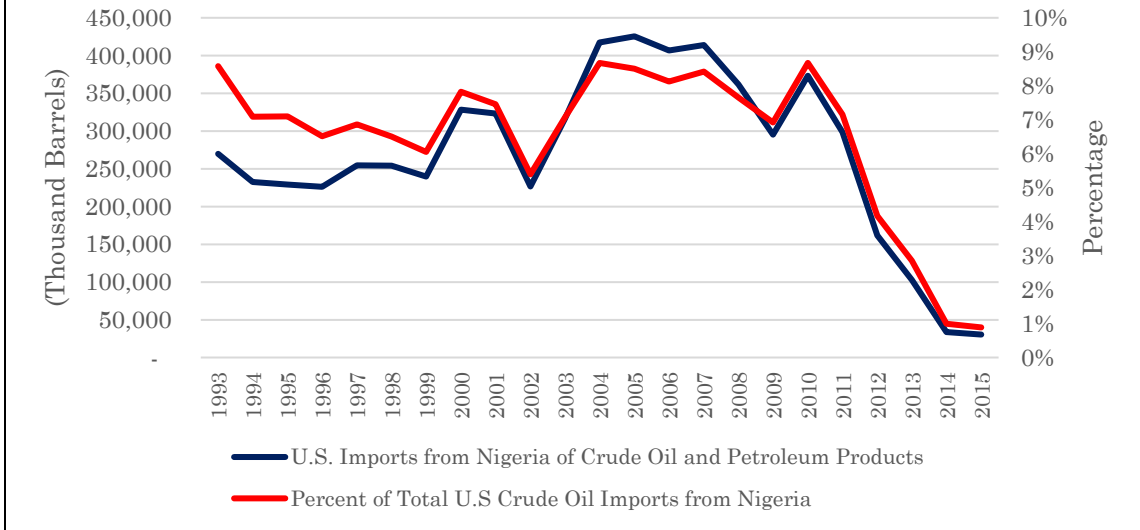
² US State. (2016). Infoplease.com. Retrieved 18 August, 2016, from <http://www.infoplease.com/us-states/pennsylvania.html>

TABLE 1: SOME KEY ENERGY INDICATORS FOR U.S.A. AND NIGERIA		
INDICATOR	Nigeria	United States
Exports of goods and services (constant 2005 Billion US\$)	70.49	1,976.18
GDP at market prices (current Billion US\$) - 2015	481.066	17,947
GDP per capita (constant 2005 US\$)	1,098.04	46,405.25
Land area (sq. km)	910,770.00	9,147,420.00
Oil rents (% of GDP)	10.84	0.76
Population density (people per sq. km of land area)	194.86	34.86
Population, total in millions	177.47	318.85
Proven crude oil reserves (billion barrels)	37.062	39.9
Total Oil Supply (Thousand Barrels Per Day) 2014	2,427.75	14,020.82
Natural gas exports (million cubic metres.) - 2015	26,703.5	50,503.43569
Total Refinery Output of Petroleum Products (Thousand Barrels Per Day) - 2012	101.91989	18563.95355
Petroleum Consumption (Barrels per day) - 2013	280,000	19,030,000
<i>Data sources: World Development Indicators, US Energy Information Administration</i>		

3.0 NIGERIAN OIL AND GAS TRADE WITH THE UNITED STATES AND THE REST OF THE WORLD

The United States was traditionally the largest importer of the Nigerian crude, but this trend changed in recent years as U.S. production (driven by unconventional oil and gas finds) largely displaced imports of light, sweet crude oil. Specifically, the United States rank fell from being the largest importer of Nigerian crude oil in 2012 to the 10th largest in 2015. From a supply perspective, Nigeria fell from being the 5th- largest foreign oil supplier to the United States in 2011 (accounting for 9% of U.S. crude imports) to the 11th in 2015 (accounting for less than 1% of crude imports). Prior to 2012 the United States typically imported between 9% and 11% of its crude oil from Nigeria. However, this share has fallen significantly, with the U.S. imports of Nigerian crude oil accounting for less than 1% of its total crude oil imports in 2014. The United States imported an average of 57,000 b/d of crude oil from Nigeria in 2015, representing a drop of over 90% from the average volume imported in 2010 (see Figure 1 below).

Figure 1: U.S Imports of Nigerian Crude Oil



This development represents a major change in trade relations between both countries, and is primarily attributed to the growth in the U.S. light, sweet crude oil production from the Bakken and Eagle Ford (EIA, 2015). The oil produced is of similar quality to the Nigerian crude, hence the fall in the U.S. importation from other countries including Nigeria.

As the exports of crude oil from Nigeria to the U.S. declined over the past few years, Nigeria has sought further afield for market for its crude oil with exports to regions such as Europe and Asia on the rise. The exports of crude and condensate to Europe increased year-on-year by more than 40% in 2011 and by 30% in 2012 (EIA, 2015). Hence, Europe is the largest regional importer of the Nigerian oil. In 2015, Europe imported over 800,000 b/d of crude oil from Nigeria, and this translates to about 41% of total Nigerian oil exports. In 2015, Nigeria exported 1.98 million barrels of crude oil daily³. Nigeria’s export to Europe was driven by factors such as the European embargo on Iranian crude imports and sporadic supply disruptions in Libya. In 2015, European imports of Nigerian crude decreased by 100,000 b/d, reflecting a decrease in Nigerian crude production along with more European imports from other countries such as Iraq (see Figure 2). By country, India is the largest importer of Nigeria's oil, importing about 20% of Nigeria's total crude exports in 2015 (EIA, 2015).

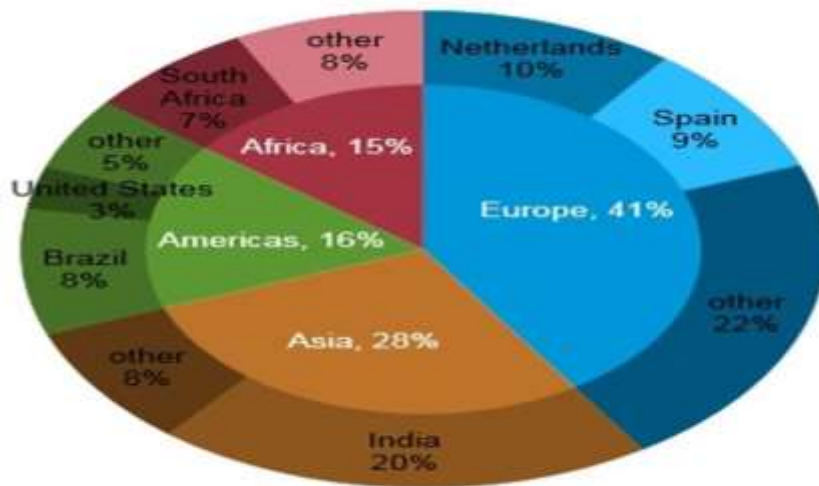
³ According to an analysis of data from Lloyd's List Intelligence (APEX tanker data).

4.0 NIGERIA-US TRADE RELATIONS

Trade relations between Nigeria and the United States started during the Cold War rivalry between the United States and the former Soviet Union. Diplomatic relations between both countries started in 1960, in the aftermath of Nigeria's independence from the British. The United States was the largest foreign investor in Nigeria, with

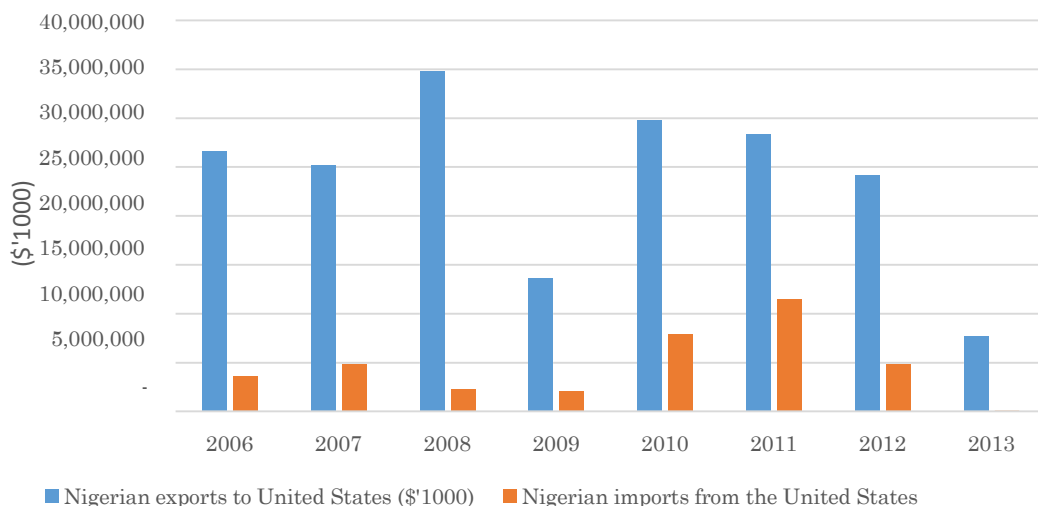
U.S. foreign direct investment concentrated largely in the petroleum/mining and wholesale trade sectors. Nigeria imports items such as wheat, cars, machines, plastic from the US, and exports items such as crude oil, cocoa, rubber, antiques, and food waste to the United States. A significant agreement between both countries was the United States-Nigeria Trade Investment Framework signed in 2000. The agreement provides a mechanism for regular, high-level dialogue on enhancing U.S.-Nigeria economic ties and improving coordination on multilateral and bilateral trade and investment issues (Lanre & Chisom, 2013). Recently, the value of exports from Nigeria to the U.S.A has outweighed the value of import from the U.S.A to Nigeria (see Figure 3).

Figure 2: Nigeria's Crude Oil and Condensate Exports by Destination (2015)



Source: EIA, 2015

Figure 3: Nigerian Trade with U.S.A (2006-2013)



Data source: UN Comtrade database, 2014

5.0: THE SHALE REVOLUTION IN THE UNITED STATES

In the United States, certain macroeconomic outcomes, such as oil price volatility, inflation and recessions caused by its dependence on imported energy led to a search for alternative energy sources. This development led to commercial exploration of oil and gas found in shale rock formations through the use of horizontal drilling and hydraulic fracturing. This shale revolution has positioned the United States as one of the largest producers of dry natural gas in the world, accounting for about 20% of the world's total supply, 40% of which is derived from shale.

In the early 2000s the US economy witnessed increase in its oil and natural gas prices causing employment in the sector to rise by about 169,000 jobs between 2010 and 2012. Significant shale oil drilling began in 2007 across the U.S though resource potential was absent until 2011. After 2008 the production of oil and natural gas from shale formations became significant, accounting for about 862 trillion cubic feet of natural gas shale recoverable resources, 35 trillion cubic feet of proven reserves and 20 trillion cubic feet of inferred reserves excluding 56 trillion cubic feet of undiscovered resources in 2011. By 2013, there was production of about 1.5 mbd of crude oil compared with little production in 2006. This development also increased the country's Gross Domestic Product (GDP), reduced its dependence on imported energy, and created employment (EIA, 2011).

Oil shale is not the same as shale oil. Oil shale is the first product of shale called kerogen that introduces the oil trapped in the rocks with low permeability. Shale oil is obtained from converting kerogen in oil shale into shale oil through thermal dissolution, pyrolysis, or hydrogenation. Shale and tight oil with low porosity and permeability makes it difficult for producers to extract hydrocarbons. Shale oil reservoirs may stretch horizontally where the presence of clay stone is large for thousands of miles. Tight oil formations are made of mudstone or siltstone without a lot of clay in the reservoir (Leonardo, 2013).

The Northeast region of the United States contains Marcellus shale and the Gulf Coast region contains Haynesville shale which account for the largest concentrations of shale gas. Shale oil wells exhibit their peak production rates during the first weeks of operation. The average recoveries expected per well is between 0.12 billion cubic feet (Bcf) and 3.6 Bcf with a majority of shale oil located in Monterey/Santos. The recoverable resource for, Bakken, Eagle Ford, Monterey/Santos, Avalon & Bone Springs is approximately 24 Billion barrels of oil (BBO) across nearly 13,000 square miles. About 460 thousand barrels of oil (MBO) is expected on the average for the plays (Leonardo, 2013).

This new supply source which is mostly found in tight oil formations now accounts for 36% of total U.S. crude oil production. As a result, the United States has reduced its requirement for oil and gas from other countries hereby boosting the country's post-2008 economic recovery. Well operation efficiency has been improved by the various drilling technologies. With the combination of hydraulic fracturing and horizontal drilling shale gas has multiplied its share of the market enabling the United States to significantly increase its production of oil and natural gas. For shale oil and gas, the evolution of resource estimates is expected to continue. Shale gas has been forecasted to grow by 4% p.a. between 2014 and 2035 accounting for around three-quarters of total US gas production in 2035, almost 20% of global output, while tight oil is expected to reach nearly 8 Mb/d, accounting for almost 40% of total US oil production by 2030 (bp,2016). Though tight oil in North American is predicted to grow by 2.5 Mb/d between 2015 and 2025, and by 1 Mb/d between 2025 and 2035 (BP, 2016). Estimates of global deposits are also significantly high which will obviously change the phase of global economy and politics.

6.0: EFFECTS OF THE SHALE GAS DEVELOPMENTS ON THE NIGERIAN ECONOMY

The effects of shale oil and gas developments are analyzed in four different areas. Firstly is the effect on oil and gas investments, then the effect on oil production and exports. Then we explore the effects on the Nigerian currency and employment. Finally, the effect on GDP and government expenditure is examined.

6.1 Oil and Gas Investments

Even though it is not directly linked, the shale oil revolution in the United States contributed significantly to the last major episode of oil price shocks consisting of oil prices declines from over \$100 a barrel in 2013 to less than \$50 in 2015 (EIA, 2016). This had effects on oil and gas investments globally, and on the Nigerian oil and gas sector specifically. The Nigerian National Petroleum Corporation (NNPC) highlighted that capital expenditures would be cut by 40 per cent from the proposed budget of \$13.5 billion in a report to its joint venture partners. The \$13.5 billion level had been maintained in the past three years, however, due to the drastic decline in oil prices that level could not be sustained anymore.

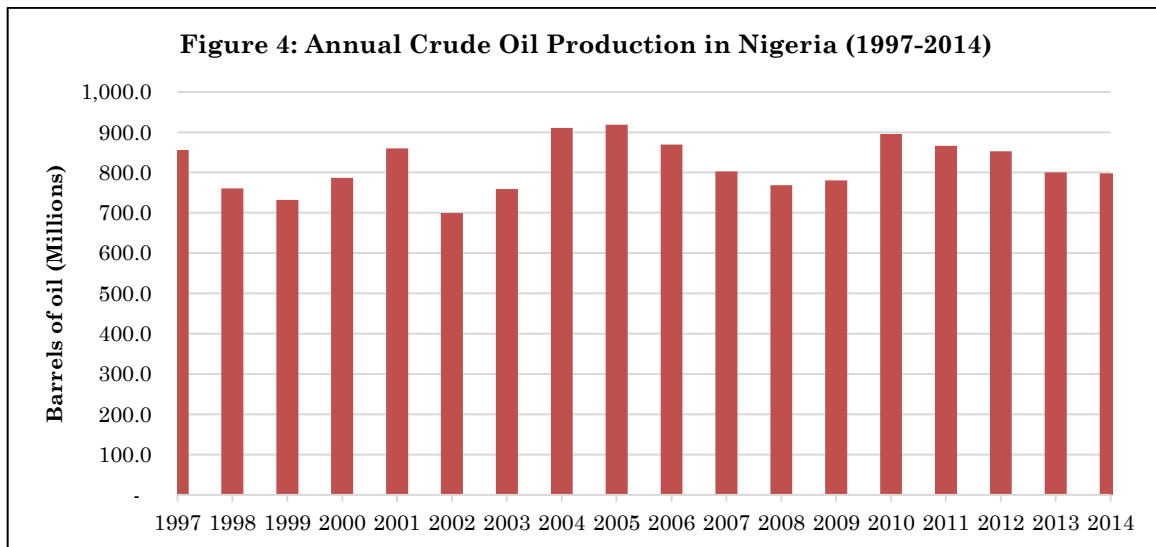
The report added that the Nigerian government had proposed \$7.5 billion to fund its share of the oil joint venture operations with foreign oil firms providing \$6 billion. Since the budget was agreed in the last quarter of 2014, however, there have been major developments in the sector that crucial to the partners. This is a major issue the Petroleum Industry Governance Bill (PIGB) seeks to address. The PIGB is the latest of the Government's attempt at reforming the Nigerian oil and gas industry.

This reduction last year was announced at a time when oil prices were around \$50 per barrel. With the present market conditions still not favoring a rebound to higher prices, there could be a further decline in investments in the oil and gas sector in Nigeria. This is also coming at a time that three deep water offshore oil projects and one shallow water oil field are at risk of being delayed or cancelled outright because of the decline in oil prices.

6.2 Oil Production and Exports

As highlighted earlier, the shale oil and gas developments in the U.S has signaled lower exports to the North America, even though this has been offset by exports to Europe and Asia. However, the resultant effects the shale oil revolution had on oil prices which declined has

seen oil production levels in the country drop from 852 billion barrels in 2010 to 798 billion barrels in 2014 as highlighted in Figure 4. Some optimism remains, as this decline has not reached the levels experienced in 2002, when production declined to 699.7 billion barrels.

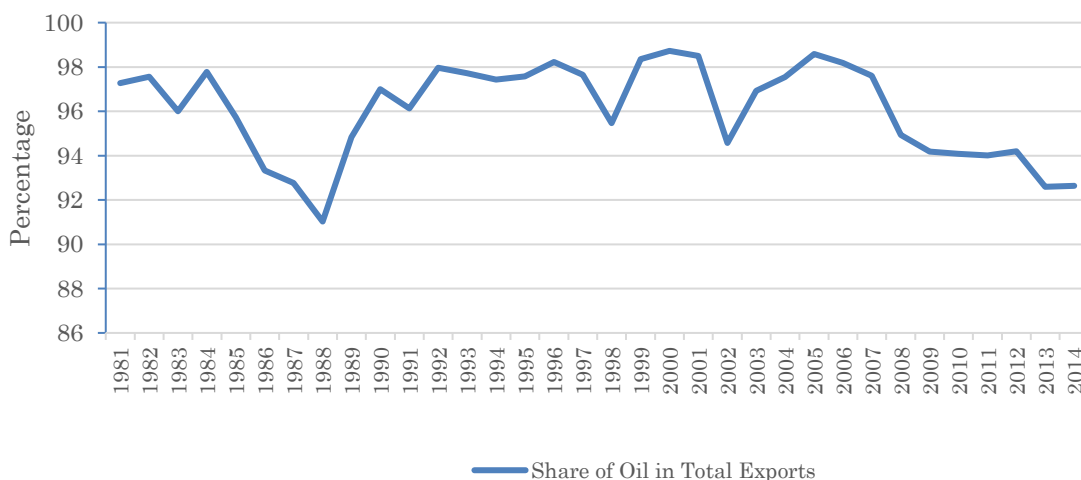


Data source: Nigerian National Petroleum Corporation, 2014

6.3 Nigerian Currency

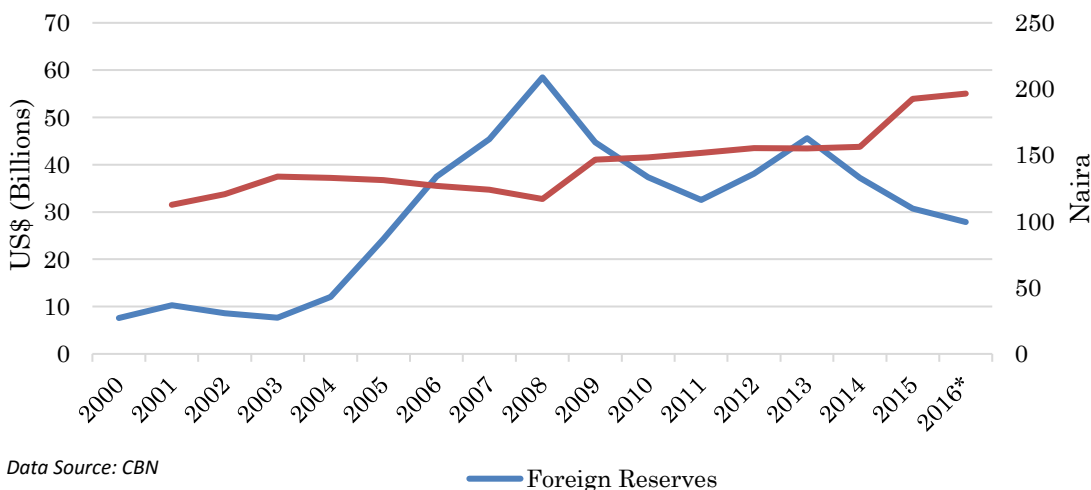
The Nigerian economy is highly dependent on foreign exchange earnings from oil and gas sales abroad. The oil and gas sector contributes over 90% of export earnings in Nigeria (See Figure 5). A further drop in Nigeria’s oil export earnings as a result of falling oil prices driven by the shale revolution is likely to lead to further depreciation of the naira below its present value. The over exposure of the Nigerian economy to the oil and gas industry coupled with inept economic policies have resulted in a fall in the value of the naira to a 43-year low. The currency was placed under restriction by the Central Bank of Nigeria (CBN) as the spread between the CBN official rate (N199 to a dollar) and the rate at the parallel market widens. Another reason for the CBN restrictions was the shortfall in foreign reserves which declined below \$29.34bn in December, 2015 (see Figure 6).

Figure 5: Share of Oil Exports in Nigerian Export Revenue (1981 - 2014)



Data Source: CBN, 2015

Figure 6: Nigeria's Foreign Reserves vs Naira-Dollar Exchange Rate (2000 - 2016)



Data Source: CBN

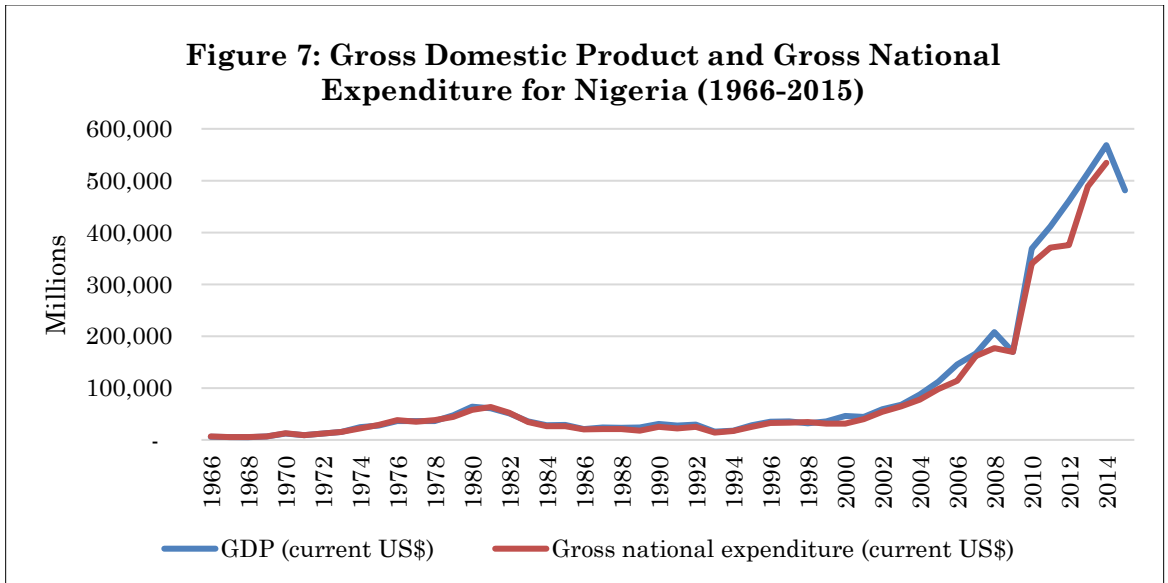
An analysis of the foreign reserves and the Naira-US Dollar exchange rate shows that changes in foreign reserves seem to have an inverse relationship with the value of the naira. This implies that each time the foreign reserves decline, there's a sharp decline in the value of the naira, however, a rise in the foreign reserves does not always lead to a corresponding rise in the value of the naira as seen in Figure 6 above. Oil revenues contribute hugely to the foreign reserves and a fall in oil prices resulting from shale-led oversupply might further strengthen downward pressures on the naira's value.

6.4 Employment

Recently, oil firms in Nigeria have been taking measures to tackle the impact of the oil price slump. Data from the Petroleum Technology Association of Nigeria (PETAN) reveals that over 20,000 workers have been laid-off since the oil price crash in 2014. They also estimate that over 6,000 technical workers, including geologists, engineers and other ancillary workers have been sacked following oil price slump. Oil service companies employ about 20,000 technical workers with indirect employees of about 100,000. With continued shale oil production, further downward pressure expected on the price of crude oil, and firms that provide technical services might see employment levels drop further.

6.5 Economic Output and Government Expenditure

As seen in Figure 7, the GDP of Nigeria (which was rebased in 2010) fell in 2015 from \$568.5 billion to \$481 billion and this was primarily attributed to the fall in oil prices. Even though data on government expenditure for 2015 is not yet available, it is expected that this would have also declined as it has followed a similar trend to GDP over time.



7.0: LESSONS TO BE LEARNED FOR NIGERIA FROM THE DEVELOPMENT OF UNCONVENTIONAL OIL AND GAS IN U.S.A

The shale revolution was caused by an inter play of numerous factors some of which might facilitate or hinder its development in Nigeria. Firstly, the land and resource ownership rights in the United States are unique as landowners are also owners of the resources beneath the ground. However in Nigeria, the land and the resource beneath the ground belong to the government. With numerous issues in the Niger Delta region hinged on ownership and control of the oil and gas resources, it might be difficult for shale exploration to pick up in Nigeria. It would require a lot of buy-in from host communities who might be skeptical to such developments due to the experience of the communities in the Niger Delta region still feel marginalized.

Secondly, the shale revolution in the United States was driven by investment and access to capital which allowed lots of investment that the exploration companies needed at the initial stage of the revolution. The Nigerian capital market witnessed a huge reduction in market value over the past two years as the investment climate in the country has looked bleak. A number of traditionally strong companies, especially banks lost market share value due to over exposure to the oil and gas market.

Thirdly, the shale revolution was able to take off because it occurred at a time of sustained high oil prices. With the currently market realities in favor of prices remaining low in the nearest future, it would be slightly difficult to have such a revolution in Nigeria. However, with low oil prices, it can be a period where Nigeria, as a country goes back to the drawing board and develops strategies that would position the nation to reap the gains from the price rebound.

It should also be noted that the United States focused on meeting local demand before exports which Nigeria can also do as a country, especially with incessant fuel scarcity. While it is understandable that foreign sales of oil and gas generate revenue for government, the sector should focus on meeting growing domestic demand. There should be a balance in generating revenue and energy security concerns for Nigeria as a country, even though presently, the Nation seems to focus on the former rather than the latter.

Finally, technology and infrastructure were two major factors that worked hand in hand to promote the shale revolution in United States (EIA, 2016). However, there is a long way to go in promoting technology and infrastructure in Nigeria. The infrastructure gap in Nigeria would take huge investment to offset and a number of universities in Nigeria

need to ensure that their scientific and technological research helps solve societal problems and is relevant to the industry.

7.1: SHORT TO MEDIUM TERM OUTLOOK FOR NIGERIA AND CONCLUSION OF THE PAPER.

The discovery and exploration of Shale oil and gas puts Nigeria's economy at serious risk as Nigeria is currently unable to finance its expenditure as well as accumulate its foreign reserves. Shale has also caused an increase in crude supply in the international market, leading to a decrease in the price of both gas and crude oil, which leads to a sharp decrease in revenue of oil producing national especially Nigeria. The fact that shale oil is almost the same specification with Nigeria's Bonny Light; it will bring about stiff competition and reduce the demand for Nigeria's crude. Hence, to recover from the effects of these, the nation can;

- Diversify the economy away from the oil sector, focusing on sectors with less volatile returns,
- Build more crude oil refineries: will increase the sale of Nigeria's crude oil products, both locally and internationally, and
- Pass the Petroleum Industry Governance Bill which has caused us to losses huge investments over the years.

In summary, it has been seen that developments in the exploration of unconventional oil and gas in the United States, has had a negative impact on the Nigerian economy. It has resulted in a shift in Nigerian crude oil and gas exports from North America to Europe and Asia. It has also resulted in a drop in government revenue, employment (especially in the oil and gas industry), and a depreciation of the Naira (Nigeria's currency). Various lessons which Nigeria can learn from the development of shale oil and gas in the United States were also presented and discussed.

REFERENCES

- Lanre, A & Chisom, N. (2013). Shale Gas Development: Their Gain, Our Pain and the Cost. *Journal of Politics and Law*; 6(1913-9055).
- Leonardo, M (2013). Belfercenter. Retrieved 18 August, 2016, from <http://belfercenter.ksg.harvard.edu/files/draft-2.pdf>
- BP. (2016). Bpglobal. Retrieved 18 August, 2016, from <http://www.cfr.org/united-states/shale-gas-tight-oil-boom-us-states-economic-gains-vulnerabilities/p31568>
- Central Bank of Nigeria (2015) .Central Bank of Nigeria Statistical Bulletin Retrieved 16 August, 2016, from <https://www.cbn.gov.ng/documents/Statbulletin.asp>
- Energy Information Administration,(2011). Review of Emerging Resources: US Shale Gas and Shale Oil Plays. Retrieved 18 August, 2016, from <https://www.eia.gov/analysis/studies/usshalegas/pdf/usshaleplays.pdf>
- Energy information administration,(2015).(EIA.gov). Retrieved 18 August, 2016, from https://www.eia.gov/energy_in_brief/article/shale_in_the_united_states.cfm
- Energy Information Administration. (2016). EIA. Retrieved 18 August, 2016, from [https://www.eia.gov/dnav/pet/pet_pnp_cap1_a_\(na\)_800_Count_a.htm](https://www.eia.gov/dnav/pet/pet_pnp_cap1_a_(na)_800_Count_a.htm)
- Energy information administration.(2015).(EIA.gov). Retrieved 18 August, 2016, from https://www.eia.gov/energy_in_brief/article/shale_in_the_united_states.cfm
- Infoplease. (2016). Infopleasecom. Retrieved 18 August, 2016, from <http://www.infoplease.com/us-states/pennsylvania.html>
- Nigerian National Petroleum Corporation (2015). Nigeria Slashes 2015 Joint Venture Oil Capex by 40% to \$8.1 Billion. Retrieved 16 August, 2016 from <http://www.platts.com/latest-news/oil/lagos/nigeria-slashes-2015-joint-venture-oil-capex-26997557>.
- World Development Indicators, (2016) worldbank.org Retrieved 16 August 2016 from <http://data.worldbank.org/products/wdi>