Does Nigeria Non-Renewable Resource Abundance Leads to Macroeconomic Performance? A Trend Analysis (1970-2014)

Felix Odunayo Ajayi, A. Oluwaseyi Adelowokan, Oluwatosin O. Ogunyomi*

Department of Economics, Olabisi Onabanjo University, Ago-Iwoye, Ogun State, **NIGERIA**

*Corresponding Contact:
Email: tunjipeace6@gmail.com

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ABSTRACT

Theoretically, natural resource abundance is expected to create national wealth; however, the inconclusiveness in the literature and among the African rich resources motivated this study. Our paper investigated that does Nigeria's non-renewable resource abundance leads to sustainable macroeconomic performance? To achieve the objectives of this study, our paper employs descriptive trends analysis, using tables and charts to measure the relationship between the non-renewable resource abundance, proxies as oil and gas variables, and the selected macroeconomic variables to draw an inference within the study period of 1970 – 2014 in Nigeria. In summary, our study concludes that an inverse relationship exists between non-renewable resource abundance and macroeconomic performance in Nigeria for the covered period 1970 – 2014. Therefore, our study conforms to the existing studies of Sachs & Warner, 2001; Gylfason, 2005, Van der Ploeg and Venables, 2013 that African rich-resources countries, including Nigeria, a non-renewable resource abundance retards macroeconomic performance within the period of study. Nonetheless, this study recommends that government should consistently endeavor to increase the proportion of education expenditure to total expenditure as well as same for capital expenditure to total expenditure, and finally, transform the economy from an oil-dependent economy to a non-oil driven economy, that is diversification of the economy, which would change the non-renewable resource-abundant nation from curse to blessing and thus, guarantee sustainable macroeconomic performance in Nigeria.

Keywords: Non-renewable resource abundance, Sustainable macroeconomic, Trend analysis

INTRODUCTION

Over decades the relationship between non-renewable resource abundance and economic development has degenerated into inconclusive debates among development economists, policymakers and in the literature. Historically, the earlier works of the classical

economists led by Adam Smith (1776) in His book title" The Nature and Causes of Wealth of Nations in 1776" advocated that natural resources play a significant role in economic development determinant of a nation. This advocacy was supported in the works of Lewis (1978), Maddison (1995), and Findlay & Lundahl (1999).

Contrary to above preposition, recent studies have observed that resource- poor countries often outperform resource-rich countries in economic growth (DeLong and Williamson, 1994; Sachs and Warner, 1995a). The famous prominent empirical work carried out by Sachs and Warner (1995b) shows an inverse association between natural resources abundance and economic growth in a large cross–country data analysis. Also, Auty (1997, 2001) explains the root causes of resource–curse hypothesis that countries with abundance of natural resources (like oil, diamond, gold and other minerals) have less economic growth countries than do not possess these natural resources. For example, resource poor Netherlands eclipsed Spain, despite the overflow of gold and silver in the 17th century. Also, in 19th Century and 20th century, resource poor countries such as Switzerland and Japan surged ahead of resource–abundant economies such as Russia. While in the past thirty years, the World's star performers have been the resource–poor newly industrializing economies of East Asia, fondly called Asian tigers – Korea, Taiwan & Hong Kong had surpassed most African endowed resource countries like Angola, Nigeria and others.

In Africa context, African countries was ranked the world's third largest oil reserves, with an estimate of 9.5% global oil and gas reserves, behind the middle east (61%) and North America (11.6%). Further, in the area of renewable resources, the African continent hold at least 15 percent of the global gold reserves, and about 60 percent of the world's uncultivated arable land in Africa (Weaber and Wassermann, 2013).

Nonetheless, studies found that most African rich–resource countries, including Nigeria exhibits resource–curse characteristics, sometimes referred to as "Dutch-Diseases" and other syndrome (see Gylfasson, Herbertsson & Zoega, 1999; Sachs & Warner, 2001; Van der Ploeg and Poelhekke, 2009 and Van der Ploeg and Venables, 2013. These characteristics are excessive borrowing, corruption, government complacency, a neglect of education, de-industrialization, macroeconomic volatility, declining per capita GDP growth rate and above all violent uprisings and stagnated growth, rather than growth sustainability (Gylfason, 2005).

Specifically, Nigeria became the fourth country member of organization of petroleum exporting countries (OPEC) in 1971 and also the second Africa country member, after Algeria who joined OPEC in 1969. Thereafter, Nigeria was categorized as one of the rich-resource country with abundance of natural resources, of both renewable and non-renewable resources. Further, Nigeria is the Africa highest oil exporter and the world's twelfth largest crude oil producing country (Ushie et al., 2012; OPEC bulletin, 2013). In addition, Nigeria is ranked 8th and 4th among the largest refinery capacity in world and as OPEC member country (OPEC, bulletin, 2013: 38 – 40). In same vein, Nigeria has realized over US $600 billion from oil & gas revenues since 1960, a figure greater than the resources used by the Marshall plan in rebuilding Europe after world War II but trapped in retrogressive and stagnated growth in real GDP and per capita GDP for over three decades. Unfortunately, by year 2010, Nigeria was ranked 142nd out of 169 countries by the United Nations Human development Index, as the most corrupt practices country. Also, the National Bureau statistics (2012) also confirmed that more than 70% of Nigerians lived below the national poverty line (Ushie et al., 2012).

Following the inconclusive existing studies on the relationship between natural resources and economic performance and the divergence from the classical economics development theory, it becomes pertinent to raise a salient question that "Is there any relationship between natural resource abundance and economic performance? And if any, what type of relationship exists? To this ends, our study aims to investigate the relationship between non-renewable resource abundance and economic performance in Nigeria within 1970 and 2018. Unlike previous studies, the non-renewable resource is limited to oil and gas sector and the selected macroeconomic variables in this study. In addition, the study employs a descriptive trends analysis, using table and charts for inference on the non-renewable resource abundance and sustainable economic performance in Nigeria from 1970 – 2014.

The rest of the paper is organized as follows. Section 2 presents the literature review on the subject matter. Section 3 presents the graphical trends analysis of oil and gas abundant resources performance and growth sustainability indicators in Nigeria for covered period, 1970-2014. Finally, section 4 provides conclusion and recommendations for the study.

LITERATURE REVIEW

The empirical study on this subject matter for a longer period had reached on consensus that abundant rich countries results to poor economic growth. Therefore, four theoretical literatures were used to channels the causation between abundant natural resources and poor growth has been identified (see Isham et al., 2003a; Isham et al., 2003b). However, in the most recent literature carried out using advance econometric techniques, found a contrary review on the Sachs & Warner (1995) postulations.

Therefore, the four theoretical economic key linkages between natural resources and economic growth as explained in recent literature are as follows:

Firstly, natural resource abundance can lead to the Dutch–Disease, which can appear in several guises. A natural resource boom and the associated surge in raw materials exports can drive up the real exchange rate of the currency, thus possibly reducing manufacturing and service exports (Corden, 1984). Recurrent booms and burst tend to increase exchange rate volatility (Gylfason and Herbertsson, 1996; Herbertsson et al., 1999), thus reducing investment in the tradable sector as well as exports and imports of goods and services (see Dixit and Pindyck, 1994). Also, the Dutch-Diseases can be experienced with reduce total exports relative GNP (Gylfason, 2005). This may skew the composition of exports away from manufacturing and service exports which may contribute more to economic growth. Thus, this causes negative effect of de-industrialization on economic growth.

The second channel of causation is the relationship between natural resource abundance and rent seeking behavior. Empirically, it was found that in most developing countries, huge natural resources degenerated into ill-defined property rights, imperfect or missing markets and lax legal structures, thus leads to diversion of these rents away from more socially fruitful economic activity (Auty, 2001). Further, the works of Tornell & Lane (1999) found that trade windfalls and natural resources booms trigger political interaction and resulted in current account deficits, disproportionate fiscal redistribution and reduced growth. In extreme cases, civil wars break out- such as Africa's diamond wars in Sierra-Leone and even recent the oil Niger-Delta Militant Groups in Nigeria. Therefore, the works of Collier and Hoeffler (2005) show empirically that natural resource abundance increases the probability of civil war. Also, Knight et al. (1996) show that abundance of natural resources prompt foreign governments to invade and leads to destructive

consequences of domestic authorities spending vast resources on national defense, which inhibits capital formation and resource allocation.

Third, natural resources abundance has often reduce private and public incentives to accumulate human capital due to a high level of non- wage income, such as dividends, social spending, and low taxes. According to Gylfason and Herbertsson (1996) using a cross-country date established that an inverse relationship between school enrolment at all levels and natural resource abundance, measured as the share of the labour force engaged in primary production. Also, Gylfason and Zoega (2002) across countries found that public expenditure on education related to natural capital. In similarly findings like Temple (1999) shows that economic growth varies directly with educational attainment across countries sample. Therefore, the question of causality remains clear that abundant natural resources may reduce the demand for training and education. However, Botswana had been exception, for the rents stream from abundant natural resources resulted in a high priority to education.

Finally, the fourth channel of causation from natural resources to growth identified in the economic literature is that an abundant natural resource exposes such countries to macroeconomic volatility. According to Sachs and Warner (1999) and Rodriguez and Sachs (1999), they postulated that abundant natural resources may imbue people with a false sense of security and lead government to lose sight of the need for good and growth friendly economic management, including free trade, bureaucratic efficiency, institutional quality and above sustainable development. From this perspectives, Burno and Easterly (1998) and Gylfason and Herbertsson (1996), postulate that high inflation reflects flawed policies or weak institution associated with compliancy of abundant resources may impede growth sustainability. That is, Manna from heaven can be a mixed blessing (see Easterly, 2000).

Interestingly, the above four theoretical economic literatures on natural resource abundance had been directly related to poor growth rate as well as shortcut with bivariate cross- sectional relationships study. Also, all the theoretical economic literatures on natural resources abundance on economic growth, devoid the endogeneity growth model which could optimizes the natural resources abundance for a growth sustainability in both developed and developing countries.

However, more recent study, like Brunnschweiler & Bulte (2008) evaluated the empirical basis of the resource curse using two-stage least squares (2SLS) estimation for a cross country sample of 60 countries using data from 1970 to 2000. The study concluded that export dependence does not affect economic growth but rather oil resource abundance positively affects per capita growth. Further, a similar related studies like Ding & Field (2005), Brunnschweiler (2008) and Butkiewicz and Yanikkaya (2010) all found that export dependence does not bring economic curse but prosperity.

In same vein but different methodology, Adu (2010) investigated the relationship between long-run economic growth and natural resources abundance in Ghana, using a time series econometric techniques. This study differs from previous studies using nine indicators to proxy resource abundance. The result rejected the resource curse hypothesis, as only one out of the nine alternative measures consistently show negative, while others were positively related to long run economic growth. In conclusion, the study suggested reasons for growth collapse due to policy distortions, particularly in the agricultural section, trade restriction and growing government consumption.

In the study of Ibrahim (2008), growth prospects of oil and gas abundant economies: the Nigerian experience from 1970 to 2000, concludes that it is obvious from the trends that increasing revenue accruing from the export of extracted oil &gas does not necessarily translate to growth in the Nigerian economy. However, he suggested that for sustainable economic growth is essential for the country to expand her domestic markets, increase absorptive capacity and efficient utilization of factors of production through technological progress. Also, Ushie et al., (2012) in their empirical findings using VAR econometric modeling conclude that Nigerian economy suffers from Dutch – Disease syndrome due to over dependence on oil revenues. Therefore, they suggested that to eliminate oil revenues volatility, a more pragmatic macroeconomic policy, including fiscal and monetary policy should be targeted.

DESCRIPTIVE TREND ANALYSIS

Crude Oil Performance in Nigeria

Table 1: Annual Trends in Growth Rate of Crude Oil Production, Consumption, Export and Reserves in Nigeria (1970-2014)

Year	Crude Oil Production	Crude Oil Production Growth	Crude Oil Export	Crude Oil Export Growth	Crude Oil Domestic Consumption	Crude Oil Domestic Consumption Growth	Crude Oil Reserves	Crude Oil Reserves Growth
1970	395		384		11		9.3	
1971	558	41.27	543	41.41	15	36.36	11.7	25.81
1972	665	19.18	651	19.89	14	-6.67	15	28.21
1973	750	12.78	725	11.37	25	78.57	20	33.33
1974	823	9.73	796	9.79	27	8	20.9	4.5
1975	652	-20.78	628	-21.11	24	-11.11	20	-4.31
1976	758	16.26	737	17.36	21	-12.5	19.4	-3
1977	766	1.06	744	0.95	22	4.76	18.7	-3.61
1978	692	-9.66	667	-10.35	25	13.64	18.2	-2.67
1979	841	21.53	819	22.79	22	-12	17.4	-4.40
1980	752	-10.58	700	-14.53	52	136.36	16.7	-4.02
1981	526	-30.05	448	-36	78	50	16.5	-1.20
1982	471	-10.46	366	-18.30	105	34.62	16.8	1.82
1983	451	-4.25	341	-6.83	110	4.76	16.6	-1.19
1984	508	12.64	400	17.30	108	-1.82	16.7	0.60
1985	504	-0.79	454	13.5	50	-53.70	16.1	-3.59
1986	535	6.15	446	-1.76	89	78	16	-0.62
1987	483	-9.72	389	-12.78	94	5.62	16	0
1988	490	1.45	406	4.37	84	-10.64	16	0
1989	626	27.76	557	37.19	69	-17.86	16	0
1990	630	0.64	566	1.62	64	-7.25	17	6.25
1991	691	9.68	588	3.89	103	60.94	16.7	-1.76
1992	716	3.62	580	-1.36	136	32.03	17.5	4.79
1993	695	-2.93	568	-2.07	127	-6.62	20.3	16
1994	665	-4.32	580	2.11	85	-33.07	22.6	11.33
1995	673	1.20	608	4.83	65	-23.53	22.2	-1.77
1996	682	1.34	620	1.97	62	-4.62	24.9	12.16
1997	855	25.37	768	23.87	87	40.32	27.4	10.04
1998	806	-5.73	706	-8.07	100	14.94	27.9	1.82
1999	775	-3.85	678	-3.97	97	-3	28.2	1.07

2000	823	6.19	714	5.31	109	12.37	28.2	0
2001	865	5.10	775	8.54	90	-17.43	31.5	11.70
2002	741	-14.34	663	-14.45	78	-13.33	34.3	8.89
2003	884	19.30	796	20.06	88	12.82	35.3	2.92
2004	910	2.94	878	10.30	32	-63.63	35.9	1.70
2005	919	0.99	844	-3.87	75	134.37	36.2	0.84
2006	870	-5.33	818	-3.08	52	-30.66	37.2	2.76
2007	803	-7.70	792	-3.18	11	-78.84	37.2	0
2008	769	-4.23	724	-8.59	45	309.09	37.2	0
2009	780	1.43	769	6.22	11	-75.55	37.2	0
2010	896	14.87	865	12.48	31	181.81	37.2	0
2011	866	-3.35	822	-4.97	44	41.93	37.2	0
2012	853	-1.50	831	1.09	22	-50	37.1	-0.27
2013	800	-6.21	762	-8.30	38	72.72	37.1	0
2014	799	-0.13	797	4.59	2	-94.73	37.1	0

Note: Crude Oil Production, Crude Oil Export and Crude Oil Domestic Consumption are in millions barrels per calendar day only, while Crude Oil Reserves is in Billions per calendar day.

Source: NNPC Bulletin, 2014; NBS, 2010; OPEC Bulletin, 2015 and CBN, 2014

Table 2: Interval Trends in Crude Oil Production, Export, Consumption and Reserves in Nigeria

	Crude Oil Production (Average)	Crude Oil Export (Average)	Crude Oil Domestic Consumption (Average)	Crude Oil Reserves (Average)
1970-1980	632.7	672.2	23.5	17.03
1981-1990	522.4	437.3	85.1	16.37
1991-2000	738.1	641	97.1	23.59
2001-2010	843.7	792.4	51.3	35.29
2011-2014	829.5	803	26.5	37.13

Source: Authors computation, 2019

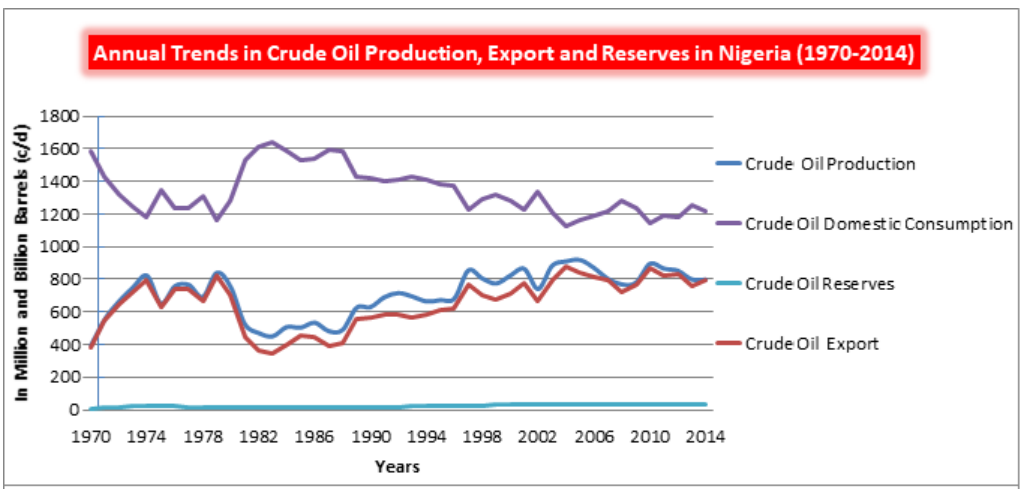


Figure 1: Annual Trends in Crude Oil Production, Consumption, Export and Reserves in Nigeria (1970-2014)

Source: Authors Chart, 2019

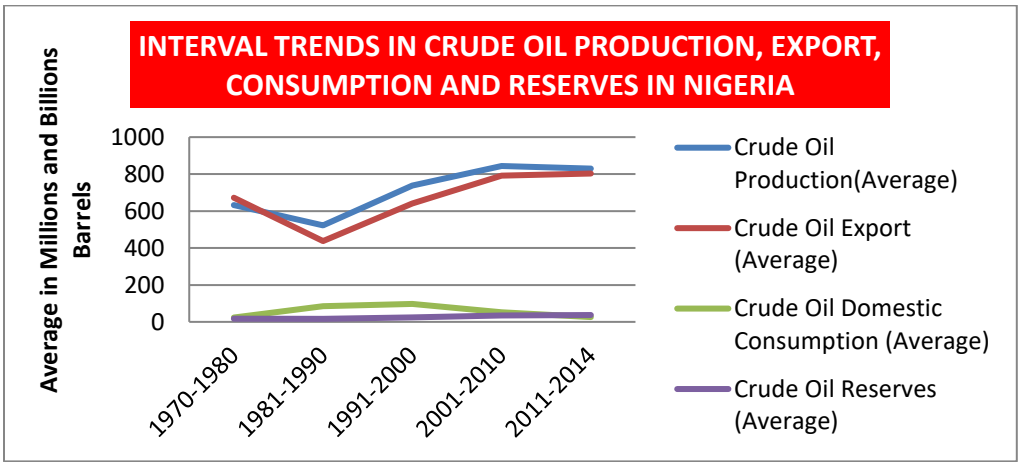


Figure 2: Interval Trends in Crude Oil Production, Export, Consumption and Reserves in Nigeria

Source: Authors Chart, 2019

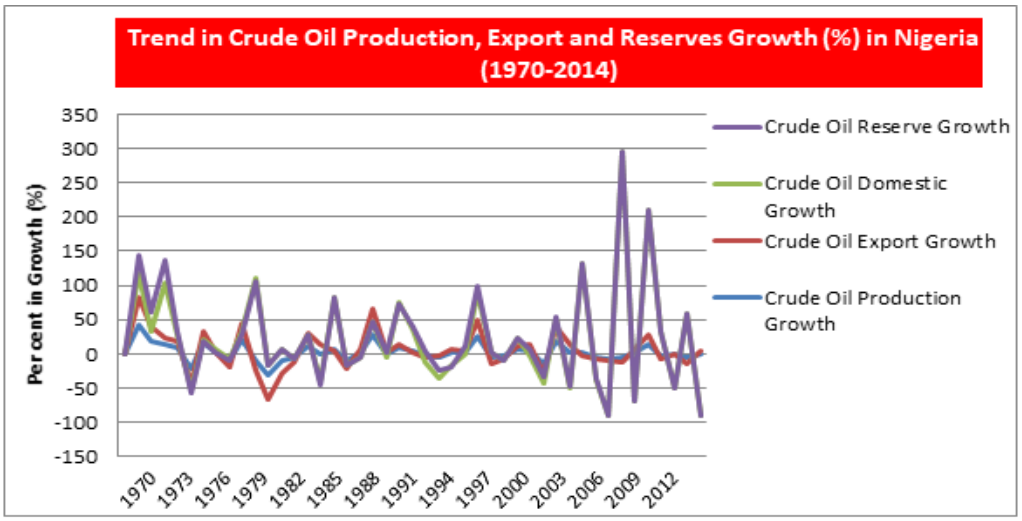


Figure 3: Trend in Crude Oil Production, Consumption, Export and Reserves Growth Per cent in Nigeria (1970-2014)

Source: Authors Chart, 2019

Table 1 and 2 exhibit annual and interval trend in crude oil performance in Nigeria between 1970 and 2014. Specifically, table 1 consists of eight columns excluding the year column, show the annual crude oil petroleum, export, domestic consumption and reserves as well as their respective growth rate for the period 1970 – 2014. While table 2 shows 10 year average crude oil production, export, domestic consumption and reserves, excluding 1970 – 1980 and 2011 – 2014 shows varying average years of 11 year and 4 year respectively. More importantly, table 2 reveals that all the crude oil variables exhibit average increasing trends except for the period 1981 – 1990. Also, between 1970 and 2010, crude oil domestic consumption exhibits average increasing trends but decline in the last interval years, 2011 – 2014, unlike others.

Further, figure 1 – 3 demonstrates the graphical trends analysis of table 1 – 2. Specifically, figure 1 shows the graphical annual trends of the included crude oil variables for the period 1970 – 2014. More importantly, the figure 1 reveals that all the included crude oil variables are relatively volatile for the covered period. Below 1982, the figure 1 reveals that there was high volatility among variables, implying inconsistency in the included crude oil variables performance. Nonetheless, between 1982–2014, it shows that all the included crude oil variables were relatively less volatile and also exhibit a remarkable rising trend, excluding crude oil domestic consumption which was nose-diving, after the highest consumption peak in 1983. Finally, it also reveals that of all the crude oil variables, crude oil export was lower than others, implying the least oil performance variable within the study period.

Also, figure 2 exhibits interval trends analysis of the included crude oil variables performance in Nigeria. Before 1981–1990, there was a sharp fall in crude oil production and export respectively, while it was the opposite for others. Between 1990-2010, an uprising trends were experienced for crude oil production and export, while a relative rise was same for crude oil reserves but crude oil domestic consumption was stagnated and latter continually fell for the period 2011 – 2014. In same vein, between 2011- 2014, all the included crude oil variables experienced relative stagnation in Nigeria.

Finally, figure 3 demonstrates the growth rate of the included crude oil variables for the covered period 1970 – 2014, showing persistent volatile trends among the crude oil variables in Nigeria, implying an unpredictable and inconsistent behavior of the crude oil growth performance. Surprisingly, crude oil reserve growth is most volatile at a decreasing rate and the least volatile is crude oil production growth rate, followed by export and domestic growth, all approaching zero level.

In summary, the above tables and figures conclude that crude oil performance in Nigeria is largely unstable and poorly performed within the study 1970 – 2014.

Gas Performance in Nigeria

Table 3: Annual Trend in Growth Rate of Gas Production, Utilization, and Reserves in Nigeria (1970-2014)

Year	Gas Production	Gas Utilized	Gas Flared	Gas Reserves	Gas Production Growth	Gas Utilized Growth	Gas Flared Growth	Gas Reserves Growth
1970	8	0.1	7.9	na				
1971	12	0.22	11.78	na	50	120	49.11	na
1972	17	0.23	16.77	na	41.67	4.55	42.36	na
1973	22	0.4	21.6	na	29.41	73.91	28.80	na
1974	27	0.39	26.61	na	22.73	-2.5	23.19	na
1975	19	0.32	18.68	na	-29.63	-17.95	-29.80	na
1976	21	0.66	20.34	na	10.53	106.25	8.89	na
1977	22	0.87	21.13	na	4.76	31.82	3.88	na
1978	20	1.05	18.95	na	-9.09	20.69	-10.32	na
1979	27	1.38	25.62	na	35	31.43	35.20	na
1980	25	2.34	22.66	na	-7.41	69.57	-11.55	na
1981	17	3.64	13.36	na	-32	55.56	-41.04	na
1982	15	3.44	11.56	na	-11.76	-5.50	-13.47	na
1983	15	3.24	11.76	na	0	-5.81	1.73	na
1984	16	3.44	12.56	na	6.67	6.17	6.80	na

1985	19	4.65	14.35	na	18.75	35.17	14.25	na
1986	19	4.82	14.18	na	0	3.66	-1.18	na
1987	17	4.98	12.02	na	-10.53	3.32	-15.23	na
1988	20	5.51	14.49	2476	17.65	10.64	20.55	na
1989	25	6.3	18.7	2832	25	14.34	29.05	14.38
1990	28	6.02	21.98	2840	12	-4.44	17.54	0.28
1991	31	6.8	24.2	3400	10.71	12.96	10.10	19.72
1992	32	7.58	24.42	3716	3.23	11.47	0.91	9.29
1993	34	7.91	26.09	3683	6.25	4.35	6.84	-0.89
1994	34	6.77	27.23	3450	0	-14.41	4.37	-6.33
1995	35	8.11	26.89	3474	2.94	19.79	-1.25	0.70
1996	35	8.86	26.14	3475	0	9.25	-2.79	0.03
1997	37	10.38	26.62	3483	5.71	17.16	1.84	0.23
1998	37	13.41	23.59	3512	0	29.19	-11.38	0.83
1999	44	21.27	22.73	3512	18.92	58.61	-3.65	0
2000	43	18.48	24.52	4106	-2.27	-13.12	7.88	16.91
2001	58	14.9	43.1	4633	34.88	-19.37	75.77	12.83
2002	101	16	85	4997	74.14	7.38	97.22	7.86
2003	53	19	34	5055	-47.52	18.75	-60	1.16
2004	70	22.39	47.61	5229	32.08	17.84	40.03	3.44
2005	58	22.4	35.6	5125	-17.14	0.04	-25.23	-1.99
2006	58	28.5	29.5	5207	0	27.23	-17.13	1.6
2007	68	32.5	35.5	5292	17.24	14.04	20.34	1.63
2008	73	32.83	40.17	5292	7.35	1.02	13.15	0
2009	57	23.21	33.79	5110	-21.92	-29.30	-15.88	-3.44
2010	72	28.1	43.9	5154	26.32	21.07	29.92	0.86
2011	84	41.32	42.68	5118	16.67	47.05	-2.78	-0.70
2012	85	42.57	42.43	5111	1.19	3.03	-0.59	-0.14
2013	80	38.41	41.59	5111	-5.88	-9.77	-1.98	0
2014	86	43.84	42.16	5111	7.5	14.14	1.37	0

Note: Gas Production, Gas Utilized and Gas Flared are in millions barrels per calendar day only, while Gas Reserves is in billions per calendar day. na-Not Available

Source: NNPC Bulletin, 2014; NBS, 2010; OPEC Bulletin, 2015 and CBN, 2014

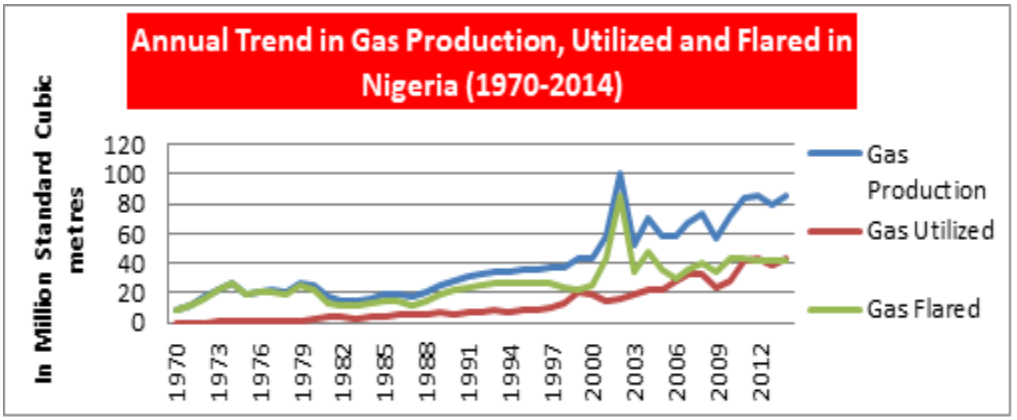


Figure 4: Graphical Annual Trends in Gas Production, Utilization and Flared in Nigeria (1970-2014)

Table 4: Interval Trends in Gas Production, Utilized and Reserves in Nigeria

Years	Gas Production (Average)	Gas Utilized (Average)	Gas Reserves (Average)
1970-1980	20	0.21	na
1981-1990	19.1	4.6	na
1991-2000	36.2	10.96	25.24
2001-2010	66.8	23.98	42.82
2011-2014	83.75	-41.54	42.22

Source: Authors computation, 2019

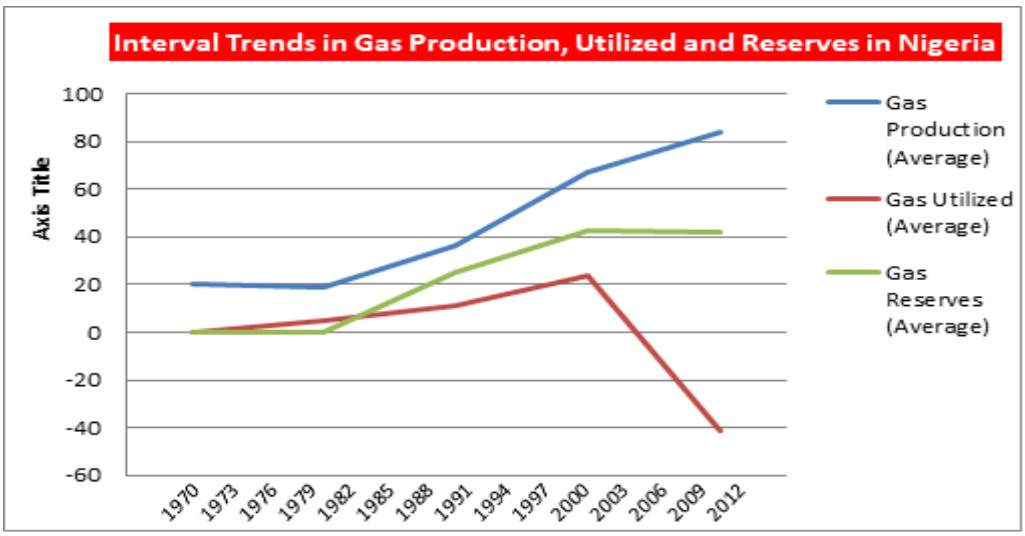


Figure 5: Graphical Interval Trends in Gas Production, Utilized and Reserves in Nigeria
Source: Authors Chart, 2019

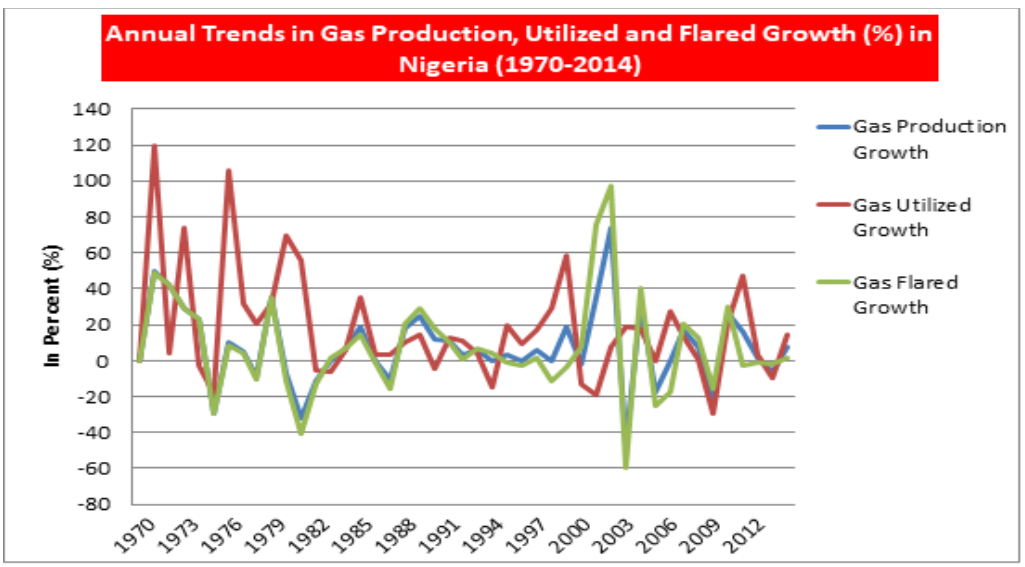


Figure 6: Graphical Annual Trends in Gas Production, Utilization and Flared Growth per cent in Nigeria (1970-2014)
Source: Authors Chart, 2019

As shown in table 3 and 4, the annual and interval average trends in gas production, utilized and reserves respectively for the covered period 1970 – 2014. In addition, table 4 shows the 10 year average trends excluding 1970 – 1980 and 2011 – 2014, which are 11 year and 4 year average trends respectively.

Further, figure 4 – 6 exhibits the graphical analysis of the dataset in table 3 and 4. Specifically, figure 4 shows that all the included gas variables have an increasing trends for the covered period 1970 – 2014.

More importantly, the annual gas production trends was persistently above annual gas flared and utilized trends and in addition, annual gas utilized trends was least below in figure 4. This implies that gas utilization for the period 1970 – 2014 is at least optimal in Nigeria. Also, figure 5 shows the graphical interval trends in gas production, utilized and reserves in Nigeria. Specifically, between 1970 – 1980 and 1981 – 1990, there was stagnated growth rate in average gas production and reserves respectively, excluding average gas utilization which exhibits increasing trends in same period. Surprisingly, all the included gas variables show an average increasing trend between 1991 – 2000. However, all but average gas production witnessed a continuous increasing interval trends from 2001–2010 to 2011–2014, while average gas utilized and reserves interval trends experienced a sharp fall and stagnation respectively. This results support the conclusion in figure 4 and also reiterate the government leadership between 2001–2010 and 2011- 2014, did little or nothing to improve the gas sector performance, unlike previous administrations interval years.

In summary, the result shown in table 3 and 4 as well as figure 4 – 6, concludes that the abundant gas resources performance is underutilized and relatively unstable for the covered period 1970-2014 in Nigeria.

Non-Renewable Resource Abundance and Economic Performance in Nigeria

Table 4: Annual Trends in Total Non-Renewable Resources Abundance and Macroeconomic Variables in Nigeria (1970-2014)

Year	Total Non-Renewable Reserves (Oil and Gas only)	Total Non-Renewable Resources Revenue (% GDP)	GDP growth Rate (%)	PCI	INFL	Export on Non-oil (% Total Export)	Total EDU Exp (%TGE)
1970	9.3	4.68		0	13.8	42.38	0
1971	11.7	11.11	0	0	16	26.32	0
1972	15	10.57	0	0	3.2	17.98	0
1973	20	15.17	0	0	5.4	16.89	0
1974	20.9	36.41	0	0	13.4	7.40	0
1975	20	24.98	0	0	33.9	7.35	0
1976	19.4	24.68	0	0	21.2	6.36	0
1977	18.7	27.73	0	0	15.4	7.31	8.39
1978	18.2	25.27	0	0	16.6	10.93	7.13
1979	17.4	55.93	0	0	11.8	6.18	12.18
1980	16.7	42.66	0	2.19	10	3.91	10.37
1981	16.5	30.19	0	2.11	21.4	3.11	8.59
1982	16.8	29.51	1.81	2.1	7.2	2.47	9.54
1983	16.6	36.5	-1.19	2.05	23.2	4.01	10.03
1984	16.7	48.12	0.60	1.98	40.7	2.72	8.71
1985	16.1	47.49	-3.59	1.87	4.7	4.24	6.52

1986	16	32.94	-0.62	1.81	5.4	6.18	6.73
1987	16	34.01	0	1.75	10.2	7.09	2.95
1988	18.48	30.91	15.5	1.98	56	8.84	4.75
1989	18.83	42.03	1.89	1.96	50.5	5.09	4.73
1990	15.84	46.24	-15.88	1.61	7.5	2.96	3.80
1991	20.1	44.51	26.89	2.01	12.7	3.84	2.34
1992	21.22	41.7	5.57	2.06	44.8	2.06	2.22
1993	23.98	67.69	13.01	2.26	57.2	2.28	4.18
1994	22.95	55.99	-4.29	2.12	57	2.59	6.39
1995	25.67	40.66	11.85	2.31	72.9	2.42	5.11
1996	28.38	43.83	10.56	2.48	29.3	1.78	4.55
1997	30.83	43	8.63	2.63	8.5	2.35	3.72
1998	31.41	29.62	1.88	2.61	10	4.53	5.49
1999	31.71	32.99	0.95	2.57	6.6	1.64	3.33
2000	32.31	47.36	1.89	2.56	6.9	1.28	9.63
2001	36.13	44.17	11.82	2.80	18.97	1.50	5.87
2002	35.3	29.14	-2.29	2.65	12.88	5.43	10.75
2003	40.36	35.97	14.33	2.96	14.03	3.07	6.48
2004	41.13	38.31	1.90	2.93	15	2.46	6.57
2005	41.33	43.86	0.48	2.83	17.86	1.46	6.58
2006	42.41	39.33	2.61	2.88	8.23	1.82	8.52
2007	42.5	35.82	0.21	2.81	5.39	2.39	6.15
2008	42.49	38.09	-0.023	2.74	11.58	2.43	6.57
2009	42.31	26.63	-0.42	2.64	12.54	3.46	5.23
2010	42.35	18.05	0.09	2.58	13.74	3.59	6.16
2011	42.32	20.35	-0.07	2.50	10.83		7.87
2012	42.21	17.3	-0.25	2.38	12.22		7.56
2013	42.21	8.49	0	2.31	8.5		7.53
2014	42.21	7.63	0	2.28			6.79

Note: All in per cent but total non-renewable resources and per capita income (PCI) are in barrels per calendar day and ratio values

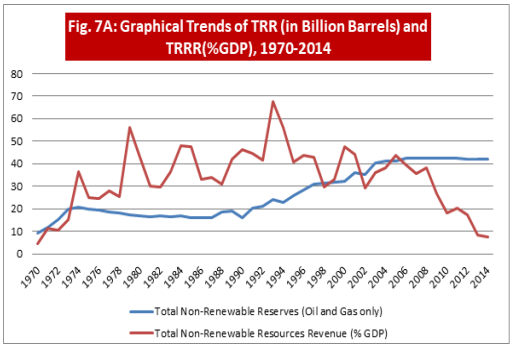
Source: OPEC Bulletin, 2015; World Bank Database, 2013; and CBN Statistical Bulletin, 2006, 2014.

Table 4 above shows the annual trends of non-renewable resources abundance and the selected macroeconomic variables in Nigeria between 1970 and 2014. All variables were in percentage except total non-renewable resources and per capita income (PCI) expressed in values.

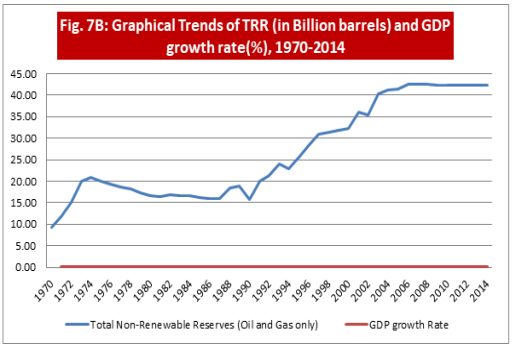
Figure 7 consists of 7A–7F to demonstrate each graphical trend of non-renewable resources abundance and the selected macroeconomics variables for the covered period 1970 – 2014. Specifically, each figure 7A to 7F explains the trends behavior between non-renewable resource abundance and the macroeconomic variables and thus draw inference on the type of relationship in existence in Nigeria for the period 1970 – 2014.

First, figure 7A shows the graphical trends between the non-renewable resources and the non-renewable resources revenue (% GDP) for the period 1970 – 2014. As shown in figure 7A, there was an opposite trending behavior between the two variables, the total non-renewable resources exhibits a persistent increasing trend while the proportion of non-renewable resources to GDP exhibit an inconsistent decreasing trends for the period 1970 – 2014. This concludes that in-spite of the abundant non-renewable resources; the income accrued from the non-renewable had contributed insignificantly to the total sector

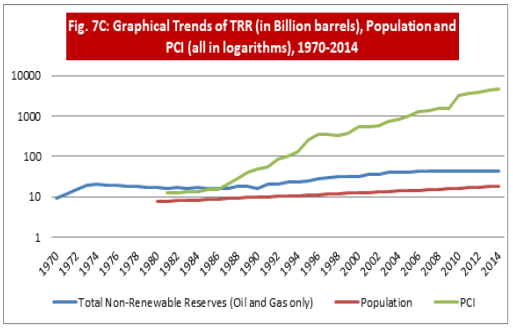
productivity in Nigeria for the period 1970 – 2014, thus, a negative relationship exist between non-renewable resource and nation wealth in Nigeria which is commonly characterized as resource-curse syndrome.



Source: Authors Chart, 2016



Source: Authors Chart, 2019



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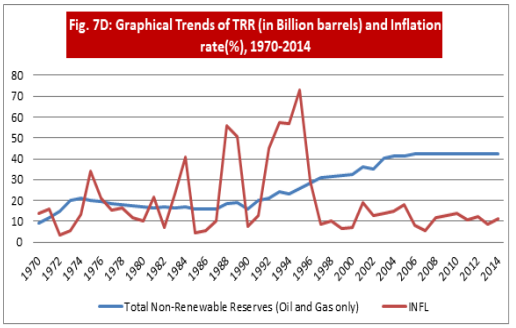

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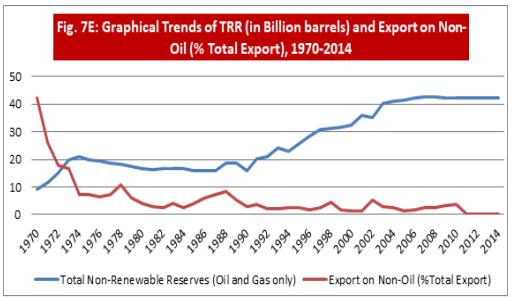

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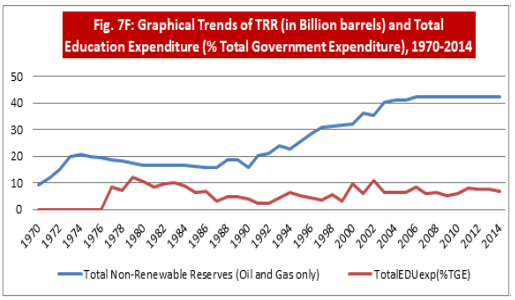

Source: Authors Chart, 2019

Figure 7: Graphical Annual Trends in non-renewable resources Abundance and the selected Macroeconomics Variables Performance in Nigeria: A Resource Curse Graphical Analysis (1970-2014)

Second, figure 7B exhibits graphical trends between abundant non-renewable resources and GDP growth rate for the covered period 1970 – 2014. As shown in the figure, it reveals that despite a continuous increasing trend in abundant non-renewable resources, the GDP growth rate had persistently remain stagnated for the covered period, 1970 – 2014. This findings confirms that Nigeria is resource-curse, with stagnated and a very low insignificant GDP growth rate of less than 5 percent's despite persistent uprising abundant non-renewable resources. This implies a negative association exhibit between non-renewable resource and GDP growth in Nigeria within 1970-2014.

Also, figure 7C which shows the graphical analysis between total non-renewable abundant resources, population and PCI. It shows that all included variables are increasing trends but the maximum and minimum increasing trends are non-renewable abundant resources and this implies that the country, Nigeria abundant non-renewable resources are under-utilized, thus, retards the people standard of living in Nigeria within the study 1970 – 2014. Further, figure 7D also shows the graphical analysis between total non-renewable resources and inflation rate in for the period 1970 – 2014 in Nigeria. Evidently, only inflation rate exhibits unstable trends but remarkably a decreasing trends earmark from 1999–2014, unlike previous years. This implies that within period of study, there was price instability but more pronounced in 1994, during political unrest in Nigeria. More importantly, since the democratic era, the inflation rate had continually reduce with slight fluctuates between 1997–2014. In summary, the study concludes that despite abundant non-renewable resources, there was a relative high inflation rate experienced in Nigeria, and thus, characterized as a resource curse nation. Also, figure 7E shows the graphical trends relationship between total non-renewable abundant resources and the proportion of non-oil export to total export for the covered period 1970 – 2014. As shown in the chart above, as the non-renewable abundant resources increases, the proportion of non-oil exports to total export continually declines and almost approaches zero, implying a poor real sector performance and heavy dependent oil sector economy. Therefore, with this attributes, Nigeria is an example of Dutch-diseases syndrome.

Finally, figure 7F also shows the graphical analysis of total non-renewable abundant resource and proportion of education expenditure to total government expenditure for the covered period 1970–2014. As shown above, the proportion of education expenditure to government expenditure had been relatively unchanged for the covered period. However, the highest proportion of education expenditure to government expenditure was experienced in 1979 and thereafter, continually declines was experienced from 1980–1999. This implies that there is a negative relationship between non-renewable resource abundance and education performance in Nigeria within 1970-2014 in this study.

With the table and graph results, it reveals that there is a negative relationship between non-renewable resource abundance and economic performance indicators in Nigeria within 1970-2014 in this study. .

CONCLUSION AND RECOMMENDATIONS

Based on our findings, the study concludes that the Nigeria non-renewable resource abundance leads not to sustainable economic performance within 1970-2014, using trend analysis. That is, the included macroeconomic variables are in an opposite direction with the non-renewable resources (oil and gas) in Nigeria for the covered period 1970 – 2014. Therefore, our study conform with the existing studies (Sachs & Warner, 2001; Gylfason, 2005, Van der Ploeg and Venables, 2013) that African rich-resources countries, including Nigeria, a non-renewable resource abundance retards macroeconomic variables performance.

Nonetheless, this study recommends the following to change non-renewable resource abundance nation from curse into blessing as follows:

First, the government should increase education expenditure allocation, so as to efficiently utilize the abundant non-renewable resources to stimulate economic growth and

guarantee sustained macroeconomic variables as reiterated by Gylfason (2005) and demonstrated by the Asia-tigers.

Second, the government should transform the economy from oil dependent economy to non-oil driven economy, that is, diversification of the economy to achieve magnitude increase in proportion of non-oil sector export to total export as well as proportion of total non-oil sector revenue to GDP in the country, as demonstrated by United Arab Emirates (UAE), diversifying from oil abundant resources into tourism, agricultural and manufacturing sectoral development.

Finally, the way out for Nigeria resource curse into blessing is to increase the proportion of capital expenditure to total government expenditure, so as to increases gross capital formation (infrastructure) and thereafter, reduces domestic inflation rate, increases employment opportunities and consolidate other monetary and fiscal policies towards the attainment of sustainable economic performance in the country, Nigeria.

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