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Crude Oil Resources, Tax Revenue and Sustainable Social Development in Nigeria

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ABSTRACT

The issue of social development has attracted global attention especially in countries that have huge resources without commensurate reflection on social welfare. Some developed countries levy heavy taxes on their citizens' income but provide adequate social facilities to drive the economy. African countries especially the oil-producing ones, have long relied on crude oil revenue but recently realize the need to improve tax revenue collection. In view of the fact that crude oil revenue constitutes large proportion of government revenue, this study investigates the impact of crude oil resources and tax revenue on social development of Nigeria from 2003 – 2019. The study employs the multiple regression techniques of estimation. The findings reveal that crude oil revenue is insignificant in affecting social development in Nigeria. Equally, exchange and inflation rates are both having significant negative impact on social development of the country. Interestingly, tax revenue impacts positively and statistically on social development. The outcomes of this study are unique and show that crude oil resources may no longer drive social development programs in Nigeria. Rather, the government should improve tax revenue collection and administration. The study recommends efficient utilization of public revenue and involvement of citizens in all social development processes.

Keywords: Crude Oil Resources, Tax Revenue, Social Development
JEL Classifications: H20, H27, H51, H52, H53

1. INTRODUCTION

Social development connotes national transformation reflecting in both human and technological advancement. It is basically the process of social modifications that are intended to improve the living standard of a society by enhancing the economic development. The main objective of social development is to bring qualitative growth and development of society where citizens will have equal opportunities and access to good education, quality health care facilities and infrastructures. Thus, a justifiable social welfare should center on democracy and market economy to prevent an unnecessary capitalist structure (Vatavu et al., 2019). However, the social development of a nation is a function of the amount of resources available in that country. The supply of

infrastructure and other public goods and services is determined by the government's income sources. Scholars such as (Hong and Nadler, 2015; Asongu and Jella, 2016) remark that a rise in government revenue, foreign aids, and grants are all variables that can enhance government capital investments. Oil income, tax revenue (non-oil revenue), and other kinds of government revenue sources are examples of revenue springs in a country. There are two major sources of revenue available to the government in Nigeria that can engender improvement of citizens' social welfare. These sources include oil revenue and income from non-oil sources such as taxes levied on companies and individuals. Revenues accruing to the government through these sources are expected to be applied to social and infrastructural upgrade of the country. The general economic and social development of a country through natural

resources such as crude oil depend on the usage of the revenue (Omodero, 2019; Jabir et al., 2020). The decline in the global oil prices has made economic diversification an urgent policy issue. However policy makers are yet to harness more thoughts to enrich policy making in the area of revenue mobilization for adequate social development in the country. Taxation on the other hand is a means of generating revenue by the government for the purpose of providing social services to the people (Ogunsanwo and Ogunleye, 2016).

There are several policy issues surrounding the optimal usage of both tax revenue and oil revenue for the betterment of citizens in Nigeria. Sometimes, it is difficult to believe that the government is not seeing the depletion of social infrastructures in the country amidst huge taxes and oil revenues going into the government's treasury. The issue of corruption, embezzlement and misapplication of resources has caused the country a huge mishap. As stressed by Vatavu et al. (2019), tax revenues are frequently misapplied to create political awareness, in order to heighten fame among supporters, instead of redistributing wealth through social welfare provisions. According to Vatavu et al. (2019), administrations should effectively gather taxes and make available infrastructure, public welfare, healthcare benefits, and other necessary social services to guarantee fiscal growth and human improvement.

Over the years, oil resources dominated the government treasury and made the economy of Nigeria an oil dependent one. Recently, the government started making a shift in that direction, by improving tax administration for more income generation. Tax is indeed a good income generating mechanism for the government. Considering countries that are benefiting from tax revenue, Sweden and Norway are the leading examples as the modern welfare states (Vatavu et al., 2019) They adequately provide social and economic welfare facilities for all its citizens, but intensely levy taxes on huge earnings, in order to decrease income inequalities (Vatavu et al., 2019). The substitution and leisure effects of taxation help to reduce a person's income and minimize leisure time (Hang et al., 2020). Government investment of oil revenue (Jabir et al., 2020) and proper application of tax revenue (Omodero and Dandago, 2019) will always have a positive yield when measured by the social development of a nation. Most empirical works have not tried to compare oil and tax revenues influence on social development. It is against this backdrop that this study aims at solving the stated problem. To achieve this purpose, the study examined empirically the impact of oil and tax revenue on social development in Nigeria.

2. REVIEW OF RELATED LITERATURES

Basically, social development hinges on social change and human resources development (Hamoudi, 2019). Following the introduction of the African Index of Social Development by the United Nations Economic Commission for Africa (UNECA) on March 29, 2015, social development comprises six vital elements which include: education, health, resources for living, survival measures, operational mechanisms and a decent life. The six dimensions of social development highlighted by UNECA centered on the well-being of the masses. Invariably, the development of a nation's human capital through education, provision of adequate health care facilities, employment and environmental security form the rubrics and hallmark of social development (Omodero, 2019). It entails that all citizens will have equal participation and the freedom to benefit from social welfare packages, social segregation and gender disparity do not subsist. Social development principles as summarized by Jamal (2009) comprise: dentification of the society's needs; reliance on local resources; participation of citizens in social development programs; integration of service projects and work coordination; self – effort and obtaining concrete results.

Social development is not yet achieved in Nigeria. The environmental pollutions caused by oil drilling activities and bad roads are subjects of concern. Nigeria has the highest out of school children in the globe. The United Nations Children's Fund (UNICEF) pointed out that the population of out-of-school children in Nigeria increased from 10.5 million to 13.2 million (Adedigba, 2018; VOANEWS, December 11, 2018). Nigeria is the only place in the world that leaders travel to other countries for medical care and healthcare workers also go on industrial revolt due to poor wages. (Michael, 2021). According to the report of Olarewaju (2021) hundreds of patients were not attended to in Lagos University Teaching Hospital (LUTH), University of Maiduguri Teaching Hospital (UMTH) and Federal Medical Center, Gombe in Nigeria's northeast due to the strike of the medical personnel. Environmental cleanness, security, employment, education and health care are the core ingredients of social development. However, Nigeria is at variance with all these components of social attainment.

Hassan and Abdullah (2015) investigated the impact of oil revenue on the economy of Sudan from 2000 to 2012, using regression techniques. The outcome showed a causal relationship between oil revenue and service GDP. The result of the regression analysis proved that oil revenue positively impacted on Sudan's service GDP. Egbetunde (2016) assessed the role of tax revenue on economic growth and social welfare in Nigeria using Vector Error Correction Model. The study covered a period from 1970 to 2013. The findings revealed that social welfare had not supported economic growth in Nigeria. On the other hand, tax revenue from petroleum profit tax and VAT reduced the negative influence. Using company income tax and customs and excise duties, tax revenue had negative impact on the economy. However, social welfare was found to be positively affecting the economy. Ogunsanwo and Ogunleye (2018) assessed the effects of taxation as an alternative to fluctuating oil revenue as it affects Nigeria. The study spanned from 1994 to 2017 using Error Correction Model. The empirical findings indicated that taxation negatively affected Nigeria's economic progress.

Hamoudi (2019) examined the impact of fiscal policy on social development in Algeria. The study hinged on the aim of social development which was to promote and develop families and individuals. The research used indicators such as poverty, unemployment and health. It covered a period from 1990–2018. The researchers computed the tax burden on the income of

households and its impact on their well-being and standard of living. The findings showed that one third of households' income were expended on various taxes and fees especially on consumption tax. Vatavu et al. (2019) examined the effect of tax revenue on the welfare state, using granger causality analysis and concentrating on both economic growth and human development as welfare components. The study covered 1995–2015 and focused on Central and Eastern Europe Countries. The study found evidence that taxes improved economic growth but did not significantly enhance human development.

Jabir et al. (2020) estimated the effects of oil revenues on economic growth through the development of financial markets. The study was carried out on 83 oil producing countries from 1990 to 2015 using a two-step generalized method of moments. The results showed that government investment of oil revenue had positive outcome on economic growth. As for the private sector investment of oil revenue, the economic response was negative. Onyeke et al. (2020) used structural vector autoregressive model to assess the impact of oil price shocks on sectoral returns in Nigeria's stock market. The study covered a period from 2010 to 2018. From the finding, oil price fluctuations had a significant negative impression on sectoral returns. Ologunde et al. (2020) examined the relationship between sustainable development and crude oil revenue in selected oil-producing African countries from 1992 to 2017. The study used pooled mean group estimator and panel autoregressive distributed lag model. The study established no long run relationship between crude oil revenue and sustainable development. The study highlighted the need for oil-producing African countries to stop depending on crude oil revenue which could be having negative long term impact on their economies.

Faris et al. (2020) investigated the impact of petroleum and non-petroleum indices on the financial development of the Sultanate of Oman from 1978 to 2017. The study applied autoregressive distributed lag model which provided evidence that oil and service sector GDP promoted financial development in the long run. However, it was revealed that oil and non-oil revenues significantly and positively affected domestic credit in the short run. Zulfigarov and Nevenkirah (2020) applied Vector Autoregressive Models to examine the nexus between oil price fluctuations and economic activity in Azerbaijan from 2002 to 2018. The findings revealed that GDP decreased when oil price changed. The study also disclosed that oil price fluctuation resulted to higher inflation. On the general note, the study showed that both interest rate and exchange rate respond to decreases in oil prices. Hang et al. (2020) examined the impact of tax policy on social development in Vietnam. The study employed Autoregressive Distributed Lag (ARDL) Model and time series data spanning from 1990 to 2017. The result showed that domestic savings and investment impacted significantly on unemployment in both short and long run.

3. METHODOLOGY AND DATA

This study assesses the impact of crude oil and tax revenues on social development in a growing nation Nigeria. Ex post facto research design is considered most appropriate owing to the fact that the data employed were already available. Thus, ex post facto research design

is a research design that permits usage of data captured from events that have already taken place. The implication is that the researcher does not have the opportunity to adjust or alter the data. The data for this study span from 2003 to 2019. We collected data on government expenditure on social development, which is the response variable. The data sourced on the predictor variables include: crude oil and tax revenues, obtained from Central Bank of Nigeria (CBN) Statistical Bulletin and Federal Inland Revenue respectively. The data on inflation and exchange rates were gathered from the World Bank Economic Indicators. Due to the variance in values, we made use of logarithm form of the data to make data communication easy and comprehensible. To achieve the aim of this study, which examines the impact of the independent variables on the dependent variable, the study employs multiple regression techniques. The study also applied other symptomatic tests that validate model legitimacy, accuracy and normalcy of the data set. We also guarantee that the regression result is not bogus through CUSUM recursive and squares tests at 5% level of significance. Thus, the stability of the regression result is established if the blue line is lying between the two dotted red lines in both CUSUM recursive and squares figures.

3.1. Model Specification
The functional form of the model for this study is as follows:

SDVT=f (CRUD, TXRV, EXGR, INFR)

The econometric form of the model when linearity is assumed is indicated as:

$LogSDVT = \beta_0 + \beta_1 LogCRUD + \beta_2 LogTXRV + \beta_3 LogEXGR + \beta_4 LogINFR + \mu$

Where:

SDVT= Social development; CRUD = Crude oil resources; EXGR = Exchange rate; INFR = Inflation rate
β_0 = Constant; β_1-β_4 = Regression coefficients; μ = Error term.
On the a priori, we expect; $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$, $\beta_4 > 0$.

3.2. Statement of Hypotheses
In line with the research objective, this study is guided by the null hypotheses stated below:

H_{01}: Crude oil resources does not have a significant influence on Nigerian social development;

H_{02}: Tax revenue does not impact considerably on Nigerian social development;

$H_{03:}$ Exchange rate variation has no effect on Nigerian social development;

H_{04}: Inflation rate does not affect Nigerian social development.

4. RESULTS AND INTERPRETATION

The Ramsey Reset test is conducted to determine the steadiness of the regression model. The result in Table 1 discloses that P = 0.89.

The result shows that the model is firm as the P-value is higher than 5% material level. Figures 1 and 2 also affirms this result as the blue line falls between the two red dotted lines indicating the 5% significance level borders. The test for serial correlation on Table 1 indicates that the F-statistic P = 0.33 is >5% statistical level. Hence, there is no serial correlation in the model used in this study. The outcome of Durbin-Watson in Table 2 also validates this result.

Table 1: Investigative tests

Type diagnostic tests	F-statistics	P-value
Ramsey reset test for stability	0.019	0.89
Breusch-Godfrey serial correlation LM test	1.231	0.33
Heteroskedasticity test: Breusch-Pagan-Godfrey	0.367	0.828
Histogram normality test	0.012	0.994
Multi-Collinearity test:	**Coefficient variance**	**VIF**
LOGCRUD	0.051	2.198
LOGTXRV	0.045	6.412
LOGEXGR	0.972	8.057
LOGINFR	2.419	3.698

Authors' Computation, 2021

Table 2: Regression result

Dependent variable: LOG_SDVT
Method: Least squares
Sample: 2003 2019
Included observations: 17

Variable	Coefficient	Std. error	t-statistic	Prob.
LOG_CRUD	0.017022	0.225150	0.075603	0.9410
LOG_TXRV	0.993321	0.211953	4.686512	0.0005
LOG_EXGR	−2.738092	0.985705	−2.777802	0.0167
LOG_INFR	−3.644009	1.555360	−2.342872	0.0372
C	9.601684	3.406727	2.818448	0.0155
R-squared	0.853164	Mean dependent var		2.912326
Adjusted R-squared	0.804219	S.D. dependent var		0.233672
S.E. of regression	0.103393	Akaike info criterion		−1.460628
Sum squared resid	0.128282	Schwarz criterion		−1.215565
Log likelihood	17.41533	Hannan-Quinn criter.		−1.436268
F-statistic	17.43101	Durbin-Watson stat		1.831156
Prob (F-statistic)	0.000061			

Authors' computation, 2021

The indicative test for Heteroskedasticity is to certify that the model coefficients projected using ordinary least squares are not unfairness. The presence of Heteroskedasticity is ostensive when the variance of errors or the model is not homogenous for all observations. In such a scenario, the P-value of the F-statistic will be lower than 5% level of significance. In this study, the P = 0.83, which is > 0.05 significance level. Thus, there is no Heteroskedasticity in the model.

The Variance Inflation Factor (VIF) is an arithmetic tool used to ascertain the incidence of multicollinearity among the predictor elements. Multicollinearity occurs when two or more autonomous variables intersect in a study. VIF of such explanatory variables is generally greater than the value of 10 (Gujarati and Porter, 2009). Thus, multiple regression model relies on the premise that all independent variables used in a study are not interrelated (Australian Property Institute, 2015). Consequently, the VIFs of all the descriptive variables in this study are less than the value of 10. Therefore, the result confirms absence of multicollinearity in the model.

4.1. Normaity Test
Figure 3 is the histogram normality which provides information on the suitability of the data set and the distribution. The information is derived from the Jarque-Bera, which shows that the data set is normally distributed when the P > 5% material level. In this study, Jarque-Bera P= 0.99 > 0.05. The Kurtosis is normal at the value of 3. The result in Figure 3 confirm that the distribution is normal as the Kurtosis is approximately 3. There is a low spread indicating that the distribution is clustered around the mean. The result is also showing a negative skewness but do not have any effect on the model.

4.2. Robustness check
Table 2 is the regression outcome of this study. Sequel to the result in Table 2, the correlation value (R) is 92.4% (square root of R-squared). The value demonstrates that the connection between the reliant and autonomous variables is robust. The relationship

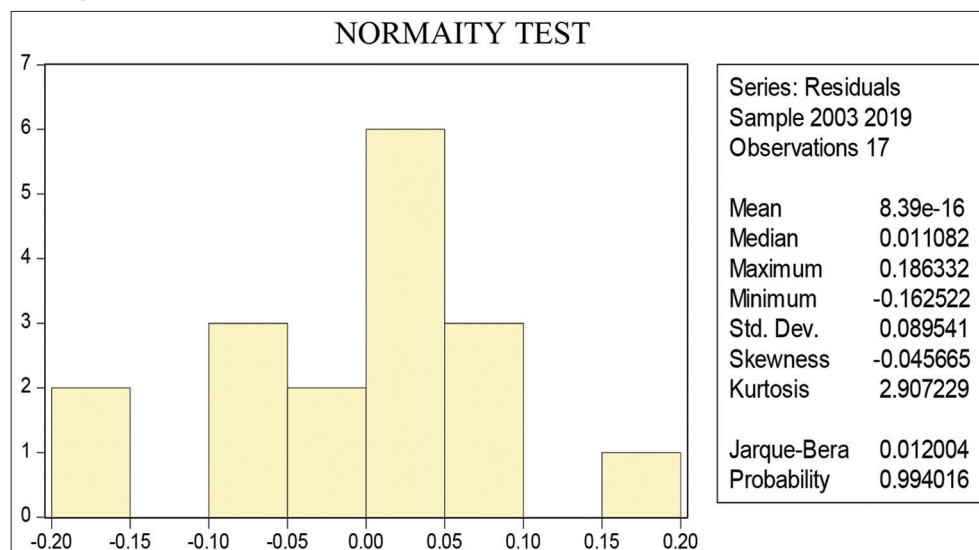**Figure 1:** Recursive estimates of the CUSUM test. CUSUM = Cumulative sum control chart

NORMAITY TEST

Series: Residuals	
Sample 2003 2019	
Observations 17	
Mean	8.39e-16
Median	0.011082
Maximum	0.186332
Minimum	-0.162522
Std. Dev.	0.089541
Skewness	-0.045665
Kurtosis	2.907229
Jarque-Bera	0.012004
Probability	0.994016

Figure 2: Recursive estimates of CUSUM of squares test. CUSUM = Cumulative sum control chart
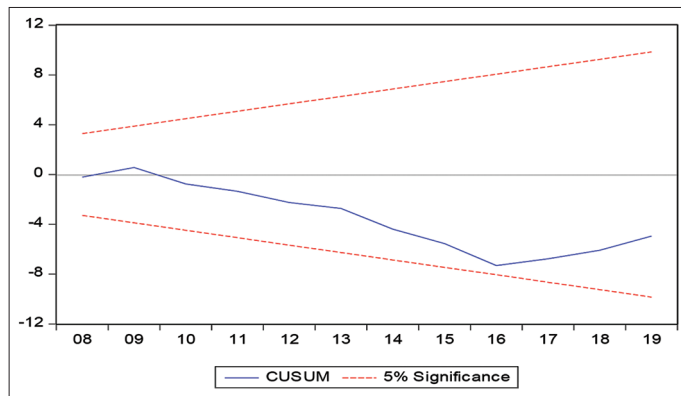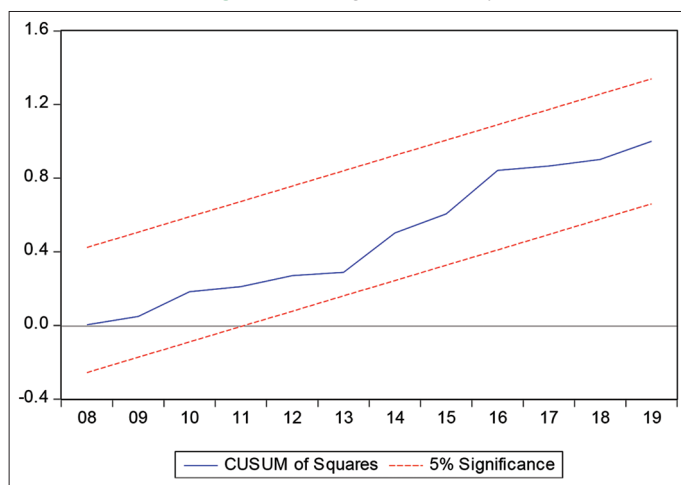

Figure 3: Histogram normality

depicts that crude oil resources and tax revenue are very vital in government's execution of social responsibilities and development programmes. This is in line with the social development principle of reliance on local resources and self-effort to obtain a concrete result (Jamal, 2009). It is further supported by Peacock and Wiseman (1979) hypothesis that revenue availability is a function of government spending on public goods and services. The R-squared value of 85.3% submits the degree to which crude oil resources and tax revenue describe the variations in social development in Nigeria. Other variables not recognized in this study account, for the remaining 14.7%. The Standard Error of regression measures the correctness of the forecast calculations. The value is more suitable when it is less than the value of 1. So, in this study, the standard error of the regression is 0.1, which is an indication that the regression result is accurate. The Durbin-Watson of 1.83 specifies nonexistence of auto-correlation. The F-statistic P = 0.00, which is lower than 0.05 substantial level. The result shows that the model has statistical importance, and it is a good fit for this study. Further, the autonomous variables mutually influence the conditional variable.

The t-statistic aids the assessment of the null hypotheses (HO_1-HO_4) expressed for this study. From the regression outcome in Table 2, Crude oil resources (CRUD) has a t-statistic of 0.0756

with a $P = 0.94 > 0.05$. This result shows that CRUD has an inconsequential bearing with social development (SDVT) in Nigeria. Therefore, HO_1 is accepted while the study declines the alternate submission. The result confirms the findings of (Ologunde et al., 2020) but conflicts with the findings of (Hassan and Abdullah, 2015). Conversely, the t-statistic of tax revenue (TXRV) is 4.686 with a $P = 0.00 < 0.05$. The result expresses that TXRV has a noteworthy positive effect on SDVT in Nigeria. Thus, HO_2 is declined and the alternative suggestion accepted. The result agrees with the findings of (Faris et al., 2020) but disagrees with the evidence from (Ogunsanwo and Ogunleye, 2018). The exchange (EXGR) rate t-statistic is -2.778 while the $P = 0.01$. The result shows a significant negative impact of Exchange rate on SDVT. Thus, HO_3 is believed while alternative opinion is hereby rejected. The inflation (INFR) rate t-statistic is -2.342 with a $P = 0.03 < 0.05$. This result shows that inflation rate has a significant negative impact on SDVT. Therefore, Ho4 is accepted, and the substitute dropped. The results on exchange rate and inflation rate agree with the findings of (Nevenkirah, 2020).

5. CONCLUSION AND RECOMMENDATION

In this study, the impact of crude oil resources and tax revenue on social development in Nigeria from 2003 to 2019 was examined. This study compared tax revenue and crude oil resources effects on social development, as part of its uniqueness and originality. It is a significant digression from other studies that concentrated on either oil revenue or tax and economic growth. From the results that emerged, crude oil resources have insignificant bearing with social development in Nigeria. We associate this outcome with the overall crash in global oil prices, fraud and maladministration of public resources. However, this result also corroborates the study of Ologunde et al. (2020) which suggests that, oil-producing African countries should limit their reliance on crude oil revenue to avoid long term economic impediments. Exchange and inflation rates impacts on social development were significant and negative.

These results are pointers that exchange rate instability and inflation are equally responsible for the slow pace of social development in the country. However, tax revenue exerted a considerable positive impact on social development. This is an indication that the government's effort to harness more local resource can improve the well-being of the society. However efficient utilization of the resources and involvement of the citizens are the key success factors.

6. ACKNOWLEDGEMENT

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