THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

An Empirical Analysis of the Relationship between Natural Gas Revenues and Economic Growth in Tanzania

Jonathan Mukiza Peter Kansheba
Assistant Lecturer, Department of Business Studies, School of Earth Science,
Ardhi University, Tanzania

Abstract:
Like many other countries rich in natural resources, Tanzania has been blessed with natural gas discoveries that have come with multiple benefits. The objective of this study is to empirically analyze the relationship between natural gas revenues and economic growth in Tanzania. The study involved a dependent variable GDP as a proxy of economic growth and Gas Revenue (GREV) as independent variable. Quarterly time series data from 2004 to 2016 was used. The Ordinary Least Square regression model and Error Correction Model were deployed for data analysis. The Augmented Dickey-Fuller (ADF) Unit root test for data stationarityshowed that variables attained their stationarity after 1st level difference. The model results showed that there is a positive and significant relationship between natural gas revenues and economic growth in terms of GDP. A coefficient of determination of 0.59 implies that a unit increase of natural gas revenues would result to 59% increase in GDP. The adjusted R^2 of 0.54 implies that about 54% variation in GDP is explained by variations in natural gas revenues. Despite the positive significant between natural gas revenues and GDP,still Tanzania obtains its natural gas revenues from a narrow scope mainly gas royalties and profit share. The study recommends that government should put more focus on its natural resource fiscal policies, to ensure there is continuous policy reviews to steer more revenues generation from the sector. Proper gas revenue management and utilization will help to align natural resource benefits with citizens' expectations.

Keywords: *Natural gas revenues, economic growth, error correction model*

1. Introduction

It is a typical truth that the natural resource discoveries in both developed and developing countries, come with serious celebration and huge expectations on advent of economic growth and social development as a result of probable stream of revenues(Nweze & Edame, 2016). Given proper revenue management, countries rich in these natural resources found their economies in global map of most leading producers of the world. However there have been contradictory evidences, where to some countries natural resource discoveries have come with both blessings and curse. Talking of Nigeria, a leading oil produce in Africa experiences some downturns with its oil sector where selfish interests of political leaders stagnated wealth accumulated from oil production (Edame & Charles, 2013).

Natural gas discoveries in Tanzania happened way back in 1970s with effective production and commercialization activities that started during 2000s.Given the fact that there has been an increasing global demand for natural gas due to its efficiency usage and its friendly impact on environment, more exploration activities have been conducted and yielded significant results. Big part of these activities in Tanzania are conducted by International oil and gas companies where the Government of Tanzania has remained as the controller to ensure maximum gains are ripped to her people(Ndimbwa, 2014). The sector has come with a lot of benefits such as potential revenues expected to flow into the economy, employment opportunities and other social benefits especially around areas where extractive projects are carried (Boma, 2013). This has necessitated maximum consideration to fiscal and monetary related policies, market related issues, social responsibility issues, and institutional related issues to ensure there is promising sector development (Roe, 2016).

There is always political and public pressure on the sector in fiscal related issues to ensure there is an equitable distribution of returns from the natural resources. Governments strike for the balance distribution between international companies profit and its collected revenue(Baunsgaard, 2014). Natural gas revenues are expected to flow from the channels of fiscal regime such as taxes charges (corporate taxes, production taxes, VAT) and non-tax charges (royalties, production shares bonuses). Fiscal regime is the key mechanism to ensure there is a balance between risk and reward sharing from natural gas sector between host government and the investors. It is a role of government to ensure it designs effective regimes that would maximize its gain but still promote good investment environment for more projects to be undertaken(Tanzania Gas Sector Scoping Mission, 2013).

Natural resources (oil and gas) discoveries play a significant role towards economic development and growth. However, its impacts have been empirically evidenced to be both positive and negative. While some scholars campaign on the development of other sectors due to unpredictable trend of natural resource (oil and gas) businesses, others advocate on the promotion and development of the sector due to its notable paybacks(Ekpulu et al, 2015).

Tanzania like many other natural resource rich countries has been endowed with natural gas discoveries since 1970s.The natural gas industry in Tanzania is still infant facing a number of challenges such as policy issues,infrastructure, few skilled and knowledged personnels, and lack of clear institutional framework to monitor the sector. This poses the question to Tanzania as to whether the country will be able to intergrate its local economy with emerging and modern natural gas economy (Hepelwa, 2015). Tanzania is now trying to move to middle income-country by promoting indusrtial economy.Natural gas sector has been seen as a stepping stone towards this vision.

Despite, stimulating expectations to improved economic growth and increased income that Tanzanian natural gas discoveries have,still many of corporate investment decisions have not yet been thoroughly analysed to articulate their linkage with Tanzanian economic growth.According to Roe, (2016) there was still a room for further analysis and assessment on the impact of this natural gas wealth accumulation on various macro economic indicators such as government revenues generated from the sector.This has generated the need to empirically analyze the relationship between natural gas revenues and Tanzanian economic growth.Therefore, the objective of this study is to determine the relationship between natural gas revenues and Tanzanian GDP.

2. Literature Review

2.1. The Economic Growth

Since the impact of depression in late 1920s and early 1930s there had been the interconnection of the major two economic concepts; economic growth and development. This was brought about by different processes towards solving different economic problems such as unemployment, social wellbeing as well as balance between local and international trading. Thus, this has brought into a debate the interchangeable use of the two terminologies (Petronela, 2012). For the purpose of this study, it has been deemed necessary to precisely define the term economic growth with the aim of avoiding any ambiguity that would arise from the mix between the meanings of other economic terminologies such as economic development.

For the purpose of this study, Economic growth has been referred as the increase of the national income per capita, viewed in quantitative terms as the function of interrelated endogenous variables, estimated as GDP (Gross Domestic Product), GNP (Gross National Product) or NI (National Income). However, GDP has been always taken as the common and popular macroeconomic indicator of economic growth. That is when the economic growth increases, the production of goods and services increase. This in turn will have the positive impact to other macro-economic indicators such as decrease of unemployment rate (Anyanwu, 2014). Furthermore, economic growth can be limited to various factors such as population growth where there is an inverse relationship between the two such that when the population level increases more, the increase in macroeconomic indicators of economic growth such as GDP, the country will experience the retarding growth in its economy (Upreti, 2015).

2.2. Natural Gas Fiscal Regime in Tanzania

Natural gas fiscal regime in Tanzania is governed by Petroleum Act of 1980 (CAP 328, R.E 2000),part III, sub-part VII, section 113 to 123. The Act governs natural gas value chain activities from upstream, midstream and downstream activities where TPCD has the mandate to negotiate the (PSAs) with International Oil and Gas companies. Each PSA has specific fiscal terms which differ from one PSA to another. Royalty is the first fiscal charge, charged on gross total production value. The contractor is allowed to recover cost incurred in development and operation stage within the recovery limit of 60 -70% of production value. This will ensure the government receives a minimum share from production at all time. Unrecovered cost will be carried forward to the next period. The remainder is petroleum profit that will be shared between TPDC and the contractor at the agreed sharing ratio. The contractor then pays the income taxes from the generated profit.

Tanzanian government has adopted the progressive fiscal regime on petroleum profit sharing. The government share of profit increases with daily production rate. However, there is a difference between offshore and onshore projects due to cost differences. This seems to be different in some countries such as Mozambique and Angola where their profit-sharing agreement base on profitability level of projects rather than volume of production.

The applied fiscal terms to natural gas value chain in Tanzania include; upstream fiscals (i)5% royalty, ii)30% corporate income tax rate, iii)5 years straight line depreciation on capital expenditure, iv) 10% dividend and interest withholding tax. Upstream production sharing; i)70% cost recovery limit, ii) 35% to 60% gas sharing on daily production rate, iii) 20% government equity on carried basis. There is no production bonus. In Downstream; i) 30% corporate income tax rate, ii)10% dividend and interest withholding tax, iii)10 years straight line depreciation of LNG plant, iv) 15% government equity on full funded basis. (Tanzania Oil and Gas Revenue Management Act, 2015)

The National Natural Gas Policy of Tanzania of 2013 has directed the establishment of the Natural Gas Revenue Special Fund where generated revenue from natural gas will be accrued. The fund is further stipulated in the Tanzania Oil and Gas Revenue Management Act of 2105, part IV sections 8,9,10&11. This has come contrary from the previous tendency where generated revenue from mining sector for example was taken directly to Treasury. This will ensure effective management of natural gas revenues as there will be a monitored and restricted spending habit of these revenues from its fund. The Gas Revenue Fund will increase transparency and accountability to institution that is responsible, and this is Central Bank of Tanzania-BoT (National Natural Gas Policy, 2013).

According to Tanzania Oil and Gas Revenue Act of 2015,part I, section 3, the oil and gas revenue will comprise;"royalty in cash payable by a licensed producer or its subsidiaries or a company under a Production Sharing Agreement; government profit share; taxes payable by licensed upstream, midstream and downstream operators; government participating interest; additional oil and gas entitlements and additional profit tax; dividends from the National Oil Company for Government's equity interest; returns on investment income derived from the Fund; signature bonus, training fees and surface rentals paid by licensed producers; or any other revenue determined by the Minister to constitute gas revenue, derived from upstream, midstream and downstream operations" (Tanzania Oil and Gas Revenue Management Act, 2015).

In order to have a proper spending of these revenues from the Fund, the Act has put the limit on its usage that the money outflow should not be directed to; 1)credit provision to Government, public enterprises, private sector entities or any other person or entity. 2). The money should not be spent as collateral or guarantees, commitments or any other liabilities of any other entity, 3) money should not be spent as rent seeking or be the subject of corrupt practices, embezzlement or theft. (Tanzania Oil and Gas Revenue Management Act, 2015)

2.3. Empirical Literature Review

One of the areas that the resource-rich country is expecting to benefit from the resource abundance is generated revenue which goes to the government. These revenues are composed of revenues from the natural resource products exports (for countries where exports of natural resource products are done), revenues from profit tax from International Oil and Gas companies, royalties as well as from domestic sales(Ujunwa, 2013).

Jones et al, (2015) by using the time series data from 1986 to 2012 and OLS regression analysis, showed the relationship between government total revenue and the Nigerian economic growth. Their unit root test results showed there are both long run and short run equilibrium relationship between real GDP and Government revenue. The model results showed that a total variation of 63.6% indicated by the adjusted R^2 in real GDP was explained by the government collected revenue. In their conclusion they rejected the null hypothesis and concluded that government revenue has both long run and short run significant effect on the economic growth of Nigeria. However, the study was limited in number of explanatory variables. It assumed only government revenue as an independent variable. For the robust results the model should include a maximum number of proxy variables as some explanatory variables when jointly used they provide different results.

The study done by Success and Ifurueze (2012) using the OLS regression analysis showed there is a significant positive relationship between petroleum profit tax and GDP. Basing on the coefficient of determination of 72%, they concluded that petroleum tax and oil revenue positively contribute to economic growth of Nigeria. However, their study lacked evidence on stationary effect of their time series data. The study said nothing about the unit root test to confirm absence of stationary problem (Success, Success, & Ifurueze, 2012)

However, some empirical studies have shown the negative impact of resource revenue on economic growth. For example, the study by Baghebo and Atima, (2013) on petroleum impact on Nigerian Economy, found that oil revenue and corruption index had negative impact on Real Gross Domestic Product-GDP. They depicted that the Dutch Disease problem was the main root for negative impact of oil revenue on Nigerian economy while many corruption scandals in Nigerian Petroleum industry led to negative consequences of corruption index on economy.

The study done by Mahona andKiwia, (2016) explained the role of financial system towards trapping the natural gas revenue in Tanzania. The study showed the necessity of the country towards having strong and effective financial systems that will attract easy collection of natural gas revenue. The estimated model was a simple regression equation which its estimated results cannot be relied as it provides spurious results. The study utilized time series data which suffer from non-stationary problem. The study lacked unit root test evidence that would prove the estimated data were stationary. The study utilized data from 2006 to 2014, thus there is a need to widen the time range to provide the robust results on long and short run relationship among the variables. The study did not explore the impact of trapped government revenue on economy. Thus, the current study has focused on empirically testing the impact of natural gas revenue on Tanzanian economic growth.

3. Methodology

3.1. Research Design

This study has utilized time series quarterly data of natural gas revenues and Gross Domestic Product (GDP) as proxy for economic growth from the period of 2004 to 2016.Data on gross domestic product (GDP) was collected from Bank of Tanzania (BoT) where data on natural gas revenues has been obtained from audited financial statements of Tanzania Petroleum Development Corporation (TPDC). The study used Ordinary Least Square regression model to estimate and describe the instruments used in analyzing the data. The pattern of relationship between the dependent variable (GDP) and independent variable (Natural Gas Revenues) was finally tested and statistically analyzed using econometric techniques.

The regression equation specifying the relationship between variables has been written as follows: -

$GDP_t = \beta_0 + \beta_1 GREV_t + \varepsilon_t$.....(1)

Where

GDP_t = Gross Domestic Product at time t

$GREV_t$ = Natural gas Revenue at time t

ε_t= Stochastic error term at time t, it captures all independent variables unexplained in the model but still could have the influence on the dependent variable.

β_0 = Constant term. It shows the influence on dependent variable if specified independent variables could not be there. In other words, is an average value of dependent variable when independent/explanatory variables are set equal to zero.

β_1, = Coefficient of determination or slope attached to explanatory variable. It shows the proportionate changes in dependent variable given the unit change in the respective independent variable.

The model is linear in parameters of both dependent and independent variables. Natural logarithms were applied to the equation making variables unit less for easy estimation. This is due to the fact that gathered data were at different monetary currencies. Thus the (*ln)* was introduced to the regression equation:

$LnGDP_t = \beta_0 + \beta_1 lnGREV_t + \varepsilon_t$ ..... (2)

3.2. Unit root Test

To ensure data are stationary, the Unit Root test was carried out where the Augmented Dickey-Fuller-ADF test was employed. The ADF value was compared with the critical value at 5% significant level. When the ADF value is greater than the critical value then it is said the data are stationary, but when the ADF value is less than critical value, data are said to be non-stationary and have a unit root problem thus must be differenced to whether first or more differences until they become stationary. The study used the following regression to test for data stationarity:

$$\Delta Y_t = \delta Y_{t-1} + \sum_{i=1}^{k} \alpha_i \Delta Y_{t-i} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Where;

$\mu_t$represents the pure white noise error term,

$\Delta Y_{t-i} = Y_{t-1} - Y_{t-2}$ and δ are the coefficients of the lagged lengths Y_{t-1} (this coefficient is generally expected to be negative, as well the estimated t-statistic will have a negative sign. Hence the large negative t value is an indication of stationarity).

Therefore, the hypothetical test was:

The null hypothesis, H_0: $\delta = 0$ (meaning there is a unit root problem, the time series data are non-stationary)

The alternative hypothesis H_1: $\delta < 0$ (meaning there is no unit root problem, the time series data are stationary)

3.3. Goodness of Fit

Goodness of fit of the regression model was tested by observing the R^2 and the adjusted R^2, these represent the coefficient of determination and they determine the explanatory power of the model. The R^2 value ranges from 0 to 1, describing by what percent the explanatory variables (independent variables) explain the variations in dependent variable. The value of 1 implies that the variations in the explanatory variables perfectly explains the variations in the dependent variables while that of 0 signifies that there is no relationship between the independent variables and the dependent variables.

3.4. The Empirical Regression Equation with Error Correction Model-ECM

To have robust results the estimated model should gauge both short run and long run relationships between variables. The regression equation at level provides analytical results for short run perspective only. Thus, to ensure the study capture both short run and long run dynamics of an economic variable, the ECM should be introduced to the regression equation.

The ECM can be presented as follows

$$\Delta y_t = \alpha + \sum_{i=1}^{p} \phi_i \Delta y_{t-i} + \sum_{i=0}^{p} \delta_i \Delta X_{t-i} + \Pi ECT_{t-i} + \varphi_t \ldots\ldots\ldots\ldots\ldots\ldots (4)$$

ECT_{t-1} stands for one period lag residual term for long run relationship,

φ_t stands for white noise error term, where $\alpha, \phi_i, \delta_i, \Pi$ are parameters. However, the ECM can be directly generated and estimated by the usual Ordinary Least Square (OLS) method. Thus, the study estimated an integrated empirical regression model with a lagged ECM, which can be presented as

$lnGDP_t = \beta_0 + \beta_1 lnGREV_t + \beta_2 lecm_{t-1}$ ..... (5)

3.5. Data Analysis Techniques

Data analysis involves determining whether parameters' estimates are theoretically meaningful and statistically significant. The study involved comparing the results with formulated hypotheses. Estimated coefficients and signs of each parameter were used to conclude on the hypotheses tested. To test for the significance of the parameter, the p-value was used at 5% significance level.

4. Findings and Discussion

This section consists of study findings and model results based on delineated methodology. It discusses the ADF Unit root test results that ensures for data stationary as wells goodness of fit of the model fit by discussing the coefficient of

determination R-Squared. It also presents the descriptive statistics for all variables used in the study. The section finally discusses the regression model results basing on formulated hypotheses and literature review.

4.1. Descriptive Statistics

Sum 1ngdp 1ngrev					
Variable	OBS	Mean	Std Dev	Min	Max
1ngdp	52	29.01984	.2245951	28.54655	29.41425
1ngrev	52	21.04487	.4615954	20.07681	21.68511

Table 1: Descriptive Statistics
Source: Computation by Researcher

It is observed form Table.1 above that mean or average of log of GDP is 29.02 with standard deviation of 0.22, where the maximum log of GDP is 29.41 with minimum value of 28.55. Log of Gas revenues has a mean of 21.04 where the maximum log of gas revenues has been observed to be 21.69 and minimum value of 20.08. It is observed from the Table.1 that natural gas revenues are exposed to more risk than GDP basing on the measure of risk the standard deviation. Natural gas revenues have got higher deviation of about 46% compared to GDP with a standard deviation of 22%.

4.2. ADF Test for Unit Root Problem

The study employed time series financial data which in most cases are not stationary thus suffer a unit root problem. The use of non-stationary time series data may provide spurious results that may not be relied on for decision making. Natural logarithm was applied to all data before performing the unit root test. The study performed the unit root test using the Augmented Dickey-Fuller (ADF). The test followed the Null hypothesis that variables are not stationary which means they suffer the unit root problem. For any time, series data to be stationary, the t-statistic value should be greater than the critical value, where the study used the critical value of 5% confidence. Appropriate lag length was selected by comparing the selection order criteria. Therefore, the optimal lag was based on Akaike Information Criterion (AIC), Final Prediction Error (FPE) and Adjusted Likelihood Ratio test (LR) that select a maximum number of lags 4(Table.2)

Varsoc lngdp lngrev					Selection-order criteria			
Sample: 5 - 52					Number of obs = 48			
lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	14.4627				.00204	-.519279	-.489815	-.441312
1	80.8841	132.84	4	0.000	000151	-3.12017	-3.03178	-2.88627
2	102.643	43.518	4	0.000	000072	-3.86012	-3.7128	-3.47029
3	106.876 8	.4658	4	0.076	000072	-3.86982	-3.66358	-3.32406
4	124.9000	36.048*	4	0.000	.00004*	-4.45416*	-4.18898*	-3.75246*

Table 2: Lag Selection Criteria
Source: Computation by Researcher

Variable at Level	ADF Test Statistic at Level	5% Critical Value	Status	Variable After 1st Difference	ADF Test Statistic After 1st Difference	5% Critical Value	Status
lngdp	1.729	3.512	Not Stationary	dlngdp	3.577	3.512	Stationary
lngrev	2.913	3.512	Not Stationary	dlngrev	4.001	3.512	Stationary

Table 3: ADF Test results
Source: Computation by Researcher

Table.3 shows that natural logarithm of GDP was stationary at 1st difference. This follows its t-statistic of 3.577 being greater that critical value of 3.512 at 5%confidence interval. The natural logarithm of gas revenues (lngrev) from Table.3 was found to be stationary at 1st difference with t-statistic of 4.001being greater than the critical value of 3.512 at 5% confidence interval.

4.3. Model Fit

Model fit (goodness of fit) refers to how much independent variables explain the variations in dependent variable. This has been assessed by observing the Coefficient of Determination; R-squared. The model results showed the R-squared of 0.56 which means independent variable (natural gas revenues) can explain the variation in dependent variable (Economic growth measured in terms of GDP) by 56%. Model specification is further justified to be relied by observing the probability value of 0.0000 being less than the benchmark of 0.005.

4.4. Regression Results Interpretation and Discussion

The study deployed the ordinary least square (OLS) regression to analyze data. Basing on that ground the study consisted of one dependent variable GDP as the function of one independent variable; natural gas revenues generated from natural gas sector. General regression equation specifying the relationship between variables was as described in methodology equation (2). However, in order to ensure robust results, the study deployed an empirical regression equation as an extension of general regression equation (2) by adding the Error Collection term (ECM) that allow for broader discussion of both short run and long run relationships between variables.

Thus, the study estimated final regression equation has been shown as:

$dlnGDPt = \beta_0 + \beta_1 dlnGREV_t + \beta_2 lECM$ …….(6)

reg dlngdp dlngrev lecm						
Source	SS	df	MS	Number of obs	=	51
				F(1, 50)	=	19.11
Model	.427446907	2	.213723454	Prob> F	=	0.0000
Residual	.536934037	48	.011186126	R-squared	=	0.5632
				Adj R-squared	=	0.5400
Total	.964380944	50	.019287619	Root MSE	=	.10576
dlngdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
dlngrev	.5900417	.0327932	13.04	0.000	.3272335	.4936212
lecm	-.9155596	.1566367	-5.85	0.000	-1.230497	-.600622
_cons	-.002639	.0152888	-0.17	0.864	-.0333792	.0281012

Table 1: Regression Model Results
Source: Computation by Researcher

The model results in Table.4 shows there is positive and significant impact of gas revenue on economic growth in terms of GDP.1% increase in gas revenue would lead to 59% increase in GDP. This impact is significant at 5% level of confidence interval. Thus, the null hypothesis that there is no significant impact of natural gas revenue on Tanzania GDP is rejected. Tanzania obtain gas revenues mainly from royalties, gas profit shares, sales of geological data and other fiscal fees such as signature bonuses, more gas revenues are expected during major gas production that will start in near future and more gas being sold domestically and exported.

The results of ECM show there is both short and long run association between independent variables (representing natural gas sector) and dependent variable (economic growth in terms of GDP). The coefficient of lagged ecm is negative (-.916) and significant meaning that natural gas revenues has both long run and short run equilibrium relationships with economic growth in Tanzania.

5. Conclusion and Recommendation

The major objective of the study was to empirically analyze the relationship between natural gasrevenues and GDP as proxy for economic growth in Tanzania. The study used quarterly time series data from 2004 to 2016. The study attempted to test the null hypothesis that generated natural gas revenue has no significant relationship with GDP in Tanzania. The study used Ordinary Least Square (OLS) regression model to analyze data. The model used GDP as dependent variable, where natural gas revenue was the independent variable. It has been found that there is a positive and significant relationship between of natural gas revenues and Tanzanian GDP, where 1% increases in gas revenues would lead to 59% increase in GDP.

Generated Natural gas revenues have been found to have positive and significant impact on country economic growth in terms of GDP. However, currently Tanzania is still obtaining its natural gas revenues from a narrow scope of fiscal terms. It relies mainly on gas royalties and gas profit share. The government should put more focus on its natural resource fiscal policies, to ensure there is continuous policy reviews to steer more revenues generation from the sector. Proper gas revenue management and utilization will help to align natural resource benefits with citizens' expectations.

Generated revenues should be used to develop other non-gas sectors such as agriculture where natural gas can be used in production of different agricultural fertilizers, Infrastructures development, education especially on human resource and capacity building, and health. The government should strengthen its anti-corruption agencies and enforce more stiff anti-corruption regulations to safeguard generated natural gas revenues.

6. References

i. Anyanwu, C.J. (2014). Factors Affecting Economic Growth in Africa:Are there any Lessons from China? African Development Review, 26 (3), pp 465-493.
ii. Baunsgaard, T. (2014). United Republic of Tanzania:Selected Issues on Natural Gas Industry. Washington,DC: International Monetary Fund.
iii. Boma, K. (2013). Natural Gas Sector in Tanzania:Suggestions for Better Framework to Benefit the Country. University of Lapland.
iv. Edame, G.& Charles, E. (2013). The Trend Analysis of Oil Revenue and Oil Export in Nigeria. Journal of Business and Management, 10 (3), pp 1-8.
v. Ekpulu,G.A.,Donwa, P. A & Mbame, C. O. (2015). Economic Growth:Oil and Gas Contribution. Sci-Afric Research Journal of Accounting and Monetary Policy, 1(2), pp.102-103.
vi. Hepelwa, A. (2015). Maximizing Gains from Natural Resources to Transform The National Economic Base:The Natural Gas Potential in Tanzania. (L.A.Msambichaka, Ed.) How Can Tanzania Move from Poverty To Prosperity,pp.309-323.
vii. Jones, E. Ihendinihu, J.& Nwaiwu, J. (2015). Total Revenue and Economic Growth in Nigeria:Empirical Evidence. Journal of Emerging Trends in Economics and Management Sciences (JETEMS), 6(1), pp.40-41.
viii. Mahona, B. (2016). Trapping Revenue From Natural Gas Industry:Does the Financial System Matter? Case of Tanzania. IOSR Journal of Economics and Finance, pp.7, 52.
ix. Ministry of Energy and Minerals.(2013).National Natural Gas Policy of United Republic of Tanzania.
x. Ministry of Energy and Minerals.(2015).Tanzania Oil and Gas Revenue Management Act. United Republic of Tanzania..
xi. Ndimbwa, M. R. (2014). Natural Gas Conflicts in Tanzania and The Impact to the Population in Mtwara Municipality. Norwegian University of Life Sciences.
xii. Nweze, P.& Edame, G. (2016). An Emprical Investigation of Oil Revenue and Economic Growth in Nigeria. European Scientific Journal, 12 (25), pp 271-294.
xiii. Petronela, A. (2012). The Concept of Economic Growth and Development.Challanges of Crisis and of Knowledge. Romani: Romanian Academy Branch of Iasi.
xiv. Roe, A. R. (2016). Tanzania-From mining to oil and Gas. United Nations World Institute for Development Economics Research Journals,pp. 1-4.
xv. Success, E.& Ifurueze, M. (2012). Impact of Petroleum profit tax on Economic Development of Nigeria. British Journal of Economic Finance and Management Sciences, 5(2), pp.60.
xvi. Tanzania Gas Sector Scoping Mission.(2013):World Bank.
xvii. Ujunwa, I. F. (2013). The Impact of Oil Revenue on The Economic Growth in Nigeria. Enugu: Caritas University,Amorji-Nike.
xviii. Upreti, P. (2015). Factors Affecting Economic Growth In Developing Countries. Major Themes in Economics Spring. pp.37-52.