Signifikan: Jurnal Ilmu Ekonomi
Volume 7 (2), 2018: 213 - 220
P-ISSN: 2087-2046; E-ISSN: 2476-9223

Tax Revenue and Economic Growth: A Study of Nigeria and Ghana

Francis Chinedu Egbunike[1], Ochuko Benedict Emudainohwo[2], Ardi Gunardi[3]

Abstract

Tax revenue is frequently considered as an alternative form of sustainable financing within a stable and predictable fiscal environment to promote growth and enable governments to finance their social and infrastructural needs. The objective of the study is to examine the effect of tax revenue on economic growth of Nigeria and Ghana. The study used multiple regressions as tools of analysis. The study finds a positive impact of tax revenue on the gross domestic product of Nigeria and Ghana confirming prior studies. The study recommended among others that adequate measure to ensure that revenue generated from the tax is effectively utilized to develop and grow the economy.

Keywords: tax, economic growth, gross domestic product

Abstrak

Penerimaan pajak sering dianggap sebagai bentuk alternatif dari pembiayaan berkelanjutan dalam lingkungan fiskal yang stabil dan dapat diprediksi untuk mendorong pertumbuhan dan memungkinkan pemerintah membiayai kebutuhan sosial dan infrastruktur mereka. Tujuan dari penelitian ini adalah untuk menguji pengaruh penerimaan pajak terhadap pertumbuhan ekonomi Nigeria dan Ghana. Penelitian ini menggunakan teknik regresi berganda sebagai alat analisis. Studi ini menemukan dampak positif yang signifikan dari pendapatan pajak pada produk domestik bruto Nigeria dan Ghana yang mengkonfirmasikan studi sebelumnya. Studi tersebut merekomendasikan antara lain bahwa ukuran yang memadai untuk memastikan bahwa pendapatan yang dihasilkan dari pajak dimanfaatkan secara efektif untuk mengembangkan dan menumbuhkan perekonomian.

Kata Kunci: pajak, pertumbuhan ekonomi, pendapatan domestic bruto

How to Cite:

Egbunike, F. C., Emudainohwo, O. B., & Gunardi, A. (2018). Tax Revenue and Economic Growth: A Study of Nigeria and Ghana. *Signifikan: Jurnal Ilmu Ekonomi*. Vol. 7 (2): 213 – 220. doi: http//dx.doi.org/10.15408/sjie.v7i2.7341.

Received: December 30, 2017; Revised: February 20, 2018; Accepted: March 10, 2018
[1] Nnamdi Azikiwe University. P.M.B. 5025, Awka, Anambra State, Nigeria
[2] Delta State University. Abraka, Delta State, Nigeria.
[3] Universitas Pasundan. Jl. Tamansari 6-8, Bandung, Indonesia
Email: [1]cf.egbunike@unizik.edu.ng, [2]ochuko.bemudainohwo@gmail.com, [3]ardigunardi@unpas.ac.id
DOI: htttp://dx.doi.org/10.15408/sjie.v7i2.7341

Introduction

Todaro and Smith (2006) describe economic growth as "the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national output and income." The growth rate is affected by macro-economic policies, such as taxation, consumption, and investment. A tax is a compulsory payment from firms and household to the government (Goode, 1984). Every tax must be based on a valid statute. If there is no valid statute, no legitimate tax can be imposed (Okafor, 2012). It is a financial charge or other levy imposed upon a taxpayer (an individual or legal entity) by a state or the functional equivalent of a state, usually considered a major source of government revenue for the funding of various public expenditures (Edame and Okoi, 2014).

Tax policy refers to the choice by a government as to what amounts and on whom tax is to be levied. Tax policies implemented for a variety of reasons, the key objectives, including a source of revenue generation for financing government spending, resource allocation, re-distribution of income and reducing inequalities arising from the distribution of wealth among consumers. Also, Romer and Romer (2010) remarked that tax policies are implemented either to: finance a budget deficit and counter other influences in the economy. The government uses the proceeds of the tax to render their traditional functions, which include the provision of public goods, maintenance of law and order, defense against external aggression, regulation of trade and business to ensure social and economic support (Edame and Okoi, 2014; Takumah, 2014). The tax has micro-economic effects (distribution of income and efficient use of resources) as well as a macroeconomic impact (on the level of capacity output, employment, prices and growth (Musgrave and Musgrave, 2004).

In both developed and developing economies, the government has to play an active role in achieving economic growth (Edame and Okoi, 2014). In this sense, fiscal policy is an essential vital instrument of government in promoting economic growth. An important part of the fiscal policy is taxation. Many economists believe that tax revenue is one of the most significant factors that contribute to a country's growth (Myles, 2000). It has provided developing countries with a stable and predictable fiscal environment to promote growth and to finance their social and physical infrastructural needs. Garba (2014) observed that a country's tax system is a major determinant of other macroeconomic indexes. In Ghana, for instance, the economy is highly dependent on tax revenue as a source of government expenditure for developmental purposes (Takumah, 2014). For Nigeria, it has provided the government an opportunity to collect additional revenue besides other sources, needed to discharge its pressing obligations (Garba, 2014). Combined with economic growth, it reduces long-term reliance on aid and ensures good governance by promoting the accountability of governments to their citizens (Romer and Romer, 2010).

The extent to which tax revenue stimulates economic performance in an economy especially in developing nations has continued to attract empirical debate (Babatunde et al., 2017; Garba, 2014). In 2014, eight African countries - Cameroon, Côte d'Ivoire, Mauritius, Morocco, Rwanda, Senegal, South Africa and Tunisia reported tax revenues as a percentage of gross domestic product (GDP) ranging from 16.1 to 31.3%. Previous studies

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have examined the effect of a tax on economic growth. However, these studies present mixed findings. Ugwunta and Ugwuanyi (2015); and Dasalegn (2014) found a positive relationship between tax and economic growth. Besides that, there is some research that found a negative relationship such as Saibu (2015), Delessa (2014), Keho (2013), Marire and Sunde (2010). The study by Bonu and Pedro (2009) found no significant impact of income tax on the economic growth of Botswana, which is also a developing nation.

Adegbie and Fakile (2011) call for the need to see the impact of all tax revenues on the Nigerian economy. Owolabi and Okwu (2011) remarked that there is lack of comprehensive research on the effect of tax revenue on the Nigerian Economy. Instead, most studies focus only on a single aspect of the tax sources. The World Bank, World Development Indicators show that tax revenue in Ghana as a ratio of Gross Domestic Product (GDP) was 14.31 percent in 2007. This ratio is lower than the sub-Saharan African average of 18 percent. Besides that, in 2012, it was 17.31 percent as compared to 26.9 percent in sub-Saharan African (Nyamadi, 2014). According to Nyamadi (2014), the available tax receipts in Ghana are increasingly inadequate to meet the ever-increasing government expenditure. Similarly, Garba (2014) noted that only a substantial portion of revenue is realized from taxes in Nigeria. This result places both economies at a similar loss achieving the needed economic growth. Using data from two countries, this study seeks to examine the effect of tax revenue from all major sources on economic growth of two developing nations, Nigeria and Ghana. The International Monetary Fund (IMF) for the year 2017 for all current 191 members as well as Hong Kong and Taiwan, ranks Nigeria 23rd with USD 1,124,627, and Ghana 79th with 131,498 million dollars. Therefore the study comprehensively examines the effect of gross tax revenue of Nigeria and Ghana, to confirm a positive or negative impact exists.

The primary objective of this study is to ascertain the effect of the tax on the economic growth of Nigeria and Ghana. The specific goals of the study are: First, to determine whether there is a positive effect of tax revenue on the gross domestic product of Nigeria. Second, to determine whether there is a positive effect of tax revenue on the gross domestic product of Ghana.

Method

This study is aimed to determine the relationship between Tax Revenue and GDP in Nigeria and Ghana and comprises the period 2000–2016. Yearly data from 2000 to 2016 is used in the analysis. The data for the analysis is retrieved from the Central Bank of Nigeria Statistical Bulletin and Bank of Ghana Statistical Bulletin. The duration of the study was 17 years; which gave rise to a time series data.

This research is using Granger causality to examine the causality between tax and economic growth. Besides that, to examine the relationship between Tax Revenue and GDP is estimated by using the Least Squares Method (LSM). The specific model adopted for this study is:

$$LogGDP_{NIG} = \alpha + \beta_{11} (LogTR_{NIG}) + \mu$$

$$LogGDP_{GHA} = \alpha + \beta_{21} (LogTR_{GHA}) + \mu$$

Result and Discussion

Table 1 presents the descriptive statistics of the variables. Next, the stationary of the time series is determined, because when non-stationary variables are used, it results in a spurious regression. The study used the Augmented Dickey-Fuller test (ADF) method. Stationary time series tend to return their mean value and fluctuate around within a more-or-less constant range. On the other hand, non-stationary variables become stationary after been differentiated, and in this case, first-order differentiation is sufficient (Temiz and Gökmen, 2014). The results show in Table 2.

The results in Table 2 confirm the presence of unit roots in the series (Loggh_gdp, Loggh_tax_rev, Logng_gdp, Logng_tax_rev), however, when the first difference of the variables are taken, the null hypothesis is rejected, and the alternate which state that the series is stationary. Thus, variables' first difference is found to be stationary, and hence the variables are integrated of order one, I (1). Next, we check for whether there is a long-term correlation between the variables or not.

Table 1. Descriptive Statistics of Variable

	N	Minimum	Maximum	Mean	Std. Deviation
NG-TAX REV	17	134.10	5007.90	2129.229	1634.735
NG-GDP	17	.000	90136.990	28080.918	31665.476
GH-TAX-REV	17	.00	22.360	13.771	7.104
GH-GDP	17	0	325	14456.180	13154.634

Source: Data Processed

The OLS result summarized in Table 4 revealed an R-square of .769 for Nigeria and R-square of .630 for Ghana indicating that 76.9% and 63% variation in the dependent variable was accounted for by the independent variable. The F statistic revealed statistically significant F-statistic of 7.316 for Nigeria and 3.745 for Ghana (p-value < 0.05). From Table 3 also the results suggest that tax revenue for both Nigeria and Ghana has a strong significant and positive relationship with the GDP at 5% levels of significance indicating that any increase in the unit values of Tax Revenue will result to a corresponding rise in the Unit value of GDP.

Table 2. ADF Test Results

Variables	ADF test statistics	p-probability	Constant, trend	Test results
Loggh_gdp	-0.5283 (1)	0.8414	Constant	Non-stationary
Loggh_tax_rev	-1.7883 (2)	0.3690	Constant	Non-stationary
Logng_gdp	-1.5637 (1)	0.4631	Constant	Non-stationary
Logng_tax_rev	-2.3890 (3)	0.1597	Constant	Non-stationary
DLoggh_gdp	-3.2164 (1)	0.0429	Constant	Stationary
DLoggh_tax_rev	-3.1983 (2)	0.0458	Constant	Stationary
DLogng_gdp	-3.6537 (1)	0.0031	Constant	Stationary
DLogng_tax_rev	-5.2830 (3)	0.0009	Constant	Stationary

D refers to first difference.

Note: If P-value is greater than 0.05, we decide that 'it has a unit root'; otherwise, we decide that 'it does not have a unit root'. The results are obtained from MacKinnon's table (MacKinnon, Haug, & Michelis, 1999).

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The study found strong support for the effect of gross tax revenue on economic growth proxies using GDP in both countries. This process could stem from some ways: *First*, higher taxes can discourage the investment rate (net growth in the capital stock). This flow through high statutory tax rates on corporate and individual income, high effective capital gains tax rates, and low depreciation allowances. *Second*, taxes may reduce labor supply growth by discouraging labor force participation or hours of work, or by distorting occupational choice or the acquisition of education, skills, and training. *Third*, tax policy has the potential to discourage productivity growth by decreasing research and development (R&D) and the development of venture capital for "high-tech" industries, activities whose spillover effects can potentially enhance the productivity of existing labor and capital that may lead to increase in economic growth (Engen and Skinner, 1992).

Table 3. OLS estimation results

Variables	Coefficient	Std. Error	t-Statistic	Prob.
DLoggh_tax_rev	3.0569	0.5371	5.6918	0.0047
DLoggh_tax_rev(-1)	0.4057	0.6699	.6055	0.5775
DLoggh_tax_rev(-2)	0.3072	0.6720	0.4571	0.6713
DLoggh_tax_rev(-3)	-0.0643	0.5209	-0.1233	0.9078
DLogng_tax_rev	0.6585	0.2844	2.3157	0.0537
DLogng_tax_rev(-1)	0.3358	0.3182	1.0551	0.3264
DLogng_tax_rev(-2)	0.1526	0.3235	0.4718	0.6514
DLogng_tax_rev(-3)	0.2026	0.2487	0.8145	0.4422

Concerning Nigeria, the study findings support previous studies such as Garba (2014) who explored the relationship between taxation in Nigeria and economic growth. Garba (2014) revealed that petroleum profit tax, company income tax, and value-added tax have a positive impact on Nigeria's economic growth while custom excise and duties impacted negatively but overall, a significant relationship between tax revenue and the Nigerian economic growth exists. Ihenyen and Mieseigha (2014) hypothesized the link between corporate income tax and value-added tax to economic growth in Nigeria.

Table 4. Model Summary

Model Results	Nigeria	Ghana
R-square	0.768816	0.629962
Probability-value	0.003018	0.031701
F	7.316213	3.745336
Std. Error of Estimate	18362.38	9650.85
Std. Deviation of Predicted Value	27764.96	10440.85
Std. Deviation Resid	15225.28	8002.062
Durbin-Watson	2.509578	1.925203
Mean-Predicted Value	28080.92	14456.18

Onwuchekwa and Aruwa (2014) explicitly assess the impact of the value-added tax on the economic growth of Nigeria. They found that VAT contributes significantly to the total tax revenue of government and by extension the economic growth of Nigeria. While, Afuberoh and Emmanuel (2014) using primary data discovered among others that, taxation has a significant contribution to revenue generation and tax has a substantial contribution to Gross Domestic Product (GDP). Similar to our study, Okafor (2012) using ordinary least square (OLS) regression indicate a positive and significant relationship between tax revenue and the GDP in Nigeria. Also, Chigbu et al. (2012) showed that taxation affects the economic growth.

However, contrary to our study evidence of causality is not supported (See Table 5). But, Chigbu et al. (2012) showed that taxation Granger causes the economic growth of Nigeria. Also, Adereti et al. (2011) found no causality between GDP and VAT Revenue of Nigeria. Contrary to the study, Akhor and Ekundayo (2016) revealed a negative and significant impact of the value-added tax on the real gross domestic product.

Table 5. Granger Causality Analysis

Null Hypothesis:	Obs	F-Statistic	Prob.
LOGGH_TAX_REV does not Granger Cause LOGGH_GDP	7	0.5379	0.5039
LOGGH_GDP does not Granger Cause LOGGH_TAX_REV		0.9830	0.3775
Null Hypothesis:	**Obs**	**F-Statistic**	**Prob.**
LOGNG_TAX_REV does not Granger Cause LOGNG_GDP	9	0.4371	0.6734
LOGNG_GDP does not Granger Cause LOGNG_TAX_REV		15.5324	0.0130

Concerning Ghana, the study findings support previous studies such as Takumah and Iyke (2017) found substantial evidence of unidirectional causal flow from tax revenue to economic growth, and that taxation can influence economic growth. Owusu-Gyimah (2015) reported a positive and significant impact of gross tax revenue on economic growth. Which support a prior study by Takumah (2014) that showed both short-run and long-run relationship between economic growth and tax revenue and a unidirectional causality between tax revenue and economic growth. The tax system of any country plays a crucial role in economic growth through stabilization, redistribution, and allocation. The tax system constitutes a variety of major tax categories such as direct, indirect and international trade taxes.

Conclusion

This study investigated the effect of the tax on the economic growth of Nigeria and Ghana for 17 years. The findings of the study are summarized as follows: First, there is a significant positive effect of tax revenue on the gross domestic product of Nigeria. Second, there is a significant positive effect of tax revenue on the gross domestic product of Ghana. Third, pairwise comparisons showed significant differences between standardized results of both countries. Thus, Nigeria had a marginally higher tax revenue rate than Ghana. But Ghana had more stable tax revenue than Nigeria.

The government should put in place adequate measure to ensure that revenue generated from taxes effectively utilized to develop and grow both economies. The federal government

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should prudently manage the financial resources generated from taxes and also reduce drastically municipal waste of funds. Practical application of tax revenue to solving problems surrounding welfare of the citizens' will result in more generation of tax revenue. The government should pay attention to encouraging her citizens to build trust in it by tax accountability, ensuring that the promises made to the citizens highly delivered. It should also ensure that the tax system is very transparent and the proceeds from taxes used honestly for the betterment of the citizens.

The positive impact of the tax on the economy can be sustained and enhanced if the government makes efforts and its relevant agencies to exempt local infant industries from tax payment over agreed upon period. Also, the management, administration, and implementation of Taxes in Nigeria and Ghana should be done in such a way that it would not have an adverse effect on the economy by distorting the free forces of demand and supply. Besides that, the government must put stein punitive measures in place to sanction corrupt officials as well as establishments that refuse to remit collected Tax funds.

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DOI: htttp://dx.doi.org/10.15408/sjie.v7i2.7341