Digital economy and tax administration in Nigeria

[1]Audu, Solomon Ibrahim   [2]Ishola, Kayode

[1,2]Caleb University, Imota, Lagos.

Abstract

With the advancement of the fourth industrial revolution which is marked by digitalization of processes, there is a need to ensure that methods of collecting government revenue is maintained in order to ensure that public goods and services are provided for the welfare of the citizens this study therefore examined the effect of a digitalized economy on tax administration in Nigeria. The study employed a quantitative research method and an expost factor research design. The study covered a time frame ranging from 2010 to 2017 which sums up to eight years. Linear regression was used to analyze the secondary data gotten on the independent variable (ICT) on the dependent variables (tax revenue and tax evasion). The result of the analysis reveals the adjusted R square as -0.028 and a computed p-value of 0.406 which indicates that ICT has non-significant low adverse effect on tax revenue in Nigeria. It also reveals the adjusted R square of 0.38 and the computed p-value of 0.061 in respect of the second hypothesis which indicates that ICT has a non-significant low positive effect on the level of tax evasion in Nigeria. It is therefore concluded that the digital economy does not have a significant effect on tax administration in Nigeria. It is recommended from the study that laws and processes be set in place to ensure that the tax revenue authorities across all levels in Nigeria are not left behind in the transition to the digital economy.

Keywords*: Digitalization, ICT, Tax Administration, Tax Evasion, Tax Revenue*

1. Introduction

With the break down in the barriers to trade across geographical locations and with the transition to the fourth industrial revolution, tax authorities are faced with the challenges of gathering the appropriate tax revenue and the problem of tax evasion which is made simpler by the click of a button. This mounts to the already existing challenges faced with tax administration in which Ayodeji (2017) identified as collusion between revenue officials and taxpayers, tax evasion activities, errors arising from manual computations, inadequate management of taxpayers' database amongst others. Digitalization on the other hand, is bringing change to the order of economic and social processes within our country (Etim, Jeremiah & Dan, 2020). Adewoye and Olaoye (2014) opine that these changes ought to cause an equal reaction that should lead to changes in the existing laws and in the implementation of existing laws. Ibrahim, Jeremiah and Ithnin (2008) explain that a digital economy is built firmly on the foundations of information communications technology (ICT). Therefore, it is imperative that tax administrators need to embrace ICT in revolutionizing their processes in order to curb some of the challenges faced with manual processing. Numerous studies in this direction have produced various results. These studies can be broadly classified into two based on their findings. The first stream of studies show that ICT can lead to a negative growth in tax revenue or increasing tax evasion (Etim, Jeremiah & Dan, 2020; Schaefer & Spengel, 2002). While on the other hand, the second stream of literature agree that ICT has a positive effect on tax revenue and improves the administration processes (Ajala & Adegbie, 2020; Olatunji & Ayodele, 2017; Oseni, 2016). The importance of tax revenue cannot be overemphasized especially with the emergence of the fourth industrial revolution therefore, this study is designed with a primary objective to assess the effect of a digitalized economy on tax administration in Nigeria. In order to accomplish the primary objective of this study, the following specific objectives were formed which are:

i. To assess the effect of information communication technology on tax revenue in Nigeria; &

ii. To determine the effect of information communication technology on tax evasion in Nigeria.

The following research questions were posed in order to achieve the secondary objectives of this study and they are:

i. To what extent does information communication technology affect tax revenue in Nigeria?

ii. What is the effect of information communication technology on tax evasion in Nigeria?

2. Literature Review

Conceptual Review

A brief review of the key variables in this study is reviewed based on evidence from literature

Digitalized Economy

Digital economy can simply be explained as an economy driven by information and communications technology (ICT) in other to achieve productivity (OECD, 2014). Mesenbourg (2001) identified three parts that make up the digital economy which are the infrastructure, and e-commerce. While the infrastructure refers to the human capital, telecommunication network and the gadgets programmed to connect humans, e-business refers to the processes set by businesses over this electronically processes. Finally, e-commerce refers to the exchange of goods and services or values electronically. Digital economy is referred to as the new economy where information will be available and will be used to enhance business operations at a reduced cost and to meet various customers' expectations through the use of ICT devices (Tapscott, 1997). This is made possible through the breaking of barriers due to mobile and communication technology linked on the internet.

Tax Revenue

Tax revenue can be seen as a basic source of government revenue. Tax shows the level of activities a government can carry-on without incurring debt (Brautigam, 2008). Naiyeju (2010) states that a critical factor to the collection of tax revenue is the system put in place. To further elucidate this, Onyeka and Nwankwo (2016) state that the level of tax collected is a reflection is the quality of the tax management system put in place. According to Omolehinwa and Naiyeju (2015) tax revenue is a fiscal tool in the economy used in achieving certain macroeconomic objectives. They further show that tax revenue is gathered in the federation account and distributed among the federating units (Federal, State and Local government) of Nigeria.

Tax Evasion

Tax evasion is seen as an illegal action in which the taxpayer attempts to reduce tax liability by dishonest means (Onyeka & Nwankwo, 2016). Aguolu (1999) points out examples of acts that are classified to be tax evasion. This includes failure to pay tax, under-casting income, over-

casting expenses, omission or misstatement of transactions to be included in the annual returns. All of these are aimed at reducing the tax liability but not within the provision of the law. Technically, it seems impossible to measure tax evasion because if such taxes were known, they won't have been evaded. However, Onyeka and Nwankwo (2016) provide how this can be measured in literature by arriving at tax evasion as a sum product of the difference between budgeted tax and actual tax. This can be further explained to be logical as targets which forms the budgeted are set based on what is realizable. Hence, anything short of this, shows that such expected revenues in the form of tax have escaped the government tax revenue collection purse and classified as been evaded.

Theoretical Review

The theory of reasoned action forms the theoretical framework for this study. The theory was established by Fishbein, Martin and Ajzen, Icek in 1977. The premise of the theory states that individuals or entities actions are based on their intentions. Intention they posited is based on the attitude, norm of the environment and behavioral control. The theory is being criticized for basing all actions on intentions (Ogden, 2003). However, Hagger and Chatzisarantis (2005) were able to explain between affective attitudes and instrumental attitudes therefore basing every action on intention whether magnified or not therefore they were able to justify the validity of the theory. The theory is considered suitable for this study in that it seeks to explain relationship between the independent variable and dependent variable. It shows that the ICT will be used in tax management only if the level of digitalization in the economy is seen to have a significant effect on tax revenue or on the level of tax evaded.

Empirical Review

Scholars have examined the theme of this study in various dimensions. Some of these studies are shown below, in order to understand the extent of work done on the theme of this study. For instance, Schaefer and Spengel (2002) carried out a study adopting a qualitative research design in order to examine the effect of ICT on international corporate taxation. They found out that ICT facilitates tax shift tax from host countries of subsidiaries to the host country of the parent country.

Similarly, Otieno, Oginda, Obura, Aila, Ojera and Siringi (2013) conducted a study in Kenya in order to assess the effect of ICT on revenue collection in Kenya by the use of the survey research

design. They revealed that there is a positive relationship between ICT and the effectiveness and efficiency of revenue collection.

On a larger scale, Koyuncu, Yilmaz and Unver (2016) carried out a study among 157 countries with the aim of examining the impact of ICT on tax revenue. The expost facto research design was used. It was revealed that ICT penetration has a positive significant association on tax revenue.

In Nigeria, Oseni (2016) conducted a study with the objective of assessing the effect of ICT on tax administration in Nigeria. The qualitative research method was used adopting content analysis to process the data gotten. It was shown from the study that ICT will expose the activities of tax evaders.

Also in Nigeria, Olatunji and Ayodele (2017) examined the effect of ICT on tax productivity in Southwest Nigeria using the survey research design. The data gathered were analyzed using the regression and Pearson correlation. They revealed that ICT affect tax productivity in South Western Nigeria.

McCluskey, Franzsen, Kabinga and Kasese (2018) conducted a study to measure the effect of ICT on tax revenue in Africa. The qualitative research method was used and a case study of four African countries formed the focus of the study. It was shown from the study that ICT improved tax revenue.

Etim, Jeremiah and Dan (2020) carried out a study to assess the effect of digitalization of the economy on tax compliance in Nigeria. The survey research design was used. The findings from the study shows that digitalization of the economy has an inverse effect on tax compliance level in Nigeria.

Ajala and Adegbie (2020) examined the effect of ICT on tax assessments in Nigeria using the survey research design. They revealed that ICT has a positive effect on tax assessment which is significant.

From the empirical review it shows that both the quantitative and qualitative research methods have been used in examining the theme of this study. However, majority of the quantitative studies have adopted a survey research design. Hence creating a methodological gap. Hence, this study is filled this gap by using the expost facto research design which was used to provide empirical evidence from Nigeria.

3. Methodology

To reach the specific objectives of this study, the following hypotheses which are stated in their null form are posed below:

   i. H_0: Information communication technology does not have a significant effect on tax revenue in Nigeria.

   ii. H_0: Information communication technology does not have a significant effect of tax evasion in Nigeria.

The ex-post facto research design is adopted in this study. Secondary data were collected on the variables (ICT, tax revenue and tax evasion) for a time period ranging from year 2010 to 2017 which adds up to 8 years. The simple linear regression was used in analyzing the data in order to examine the effect of the explanatory variable on the dependent variables. While the Analysis of variance (ANOVA) is used to measure the significance of the regression result. The linear regression is as shown below:

$Y=f(X)$

Tax Management = f (Information Communication Technology).

Mathematically, this can be written as shown below:

$TR = \beta_0 + \beta_1 ICT + e$……………..i

$TE = \beta_0 + \beta_1 ICT + e$………………ii

Where

TR = Tax revenue (Dependent Variable)

TE = Tax evasion (Dependent Variable)

β_0 = Intercept where independent variables are zero

$\beta_1 ICT$ = Information Communication Technology (Independent Variable)

e = error term

Table 1. Measurement of Variables

S/N	Variable	Type	Measurement	Source
1	ICT	Independent Variable	Measured by number of ICT	Statista.com

			users	
2	Tax Revenue	Dependent Variable	Measured by the tax total revenue collected and pooled in the Federation account (Audu, 2020)	CBN 2018, Statistical Bulletin
3.	Tax Evasion	Independent Variable	Measured as the difference between budgeted tax revenue and actual tax revenue collected (Onyeka and Nwankwo, 2016)	FIRS Website

Source: Researchers (2021)

4. Data Analysis and Discussion of Findings

The result of the inferential statistics analysis carried out is as displayed below:

Test of Hypotheses

Hypothesis One

H₀: Information communication technology does not have a significant effect on tax revenue in Nigeria.

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.343[a]	.118	-.029	.08947

a. Predictors: (Constant), LGICT

Table 2 shows that there is a low adverse effect of information communication technology on the level of tax revenue in Nigeria. This is represented by the adjusted R square of -2.9%. This means that the higher the level of ICT, the lower the level of tax revenue in Nigeria.

Table 3. ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.006	1	.006	.800	.406[b]
	Residual	.048	6	.008		
	Total	.054	7			

a. Dependent Variable: LGTR
b. Predictors: (Constant), LGICT

Table 3. shows that the computed p-value is 0.406 which is lower than the set p-value therefore the null hypothesis rejected signifying that the null hypothesis is rejected and the alternate hypothesis which states that 'information communication technology does not have a significant effect on tax revenue in Nigeria' is retained.

Table 4. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.719	3.478		1.932	.102
	LGICT	-1.461	1.634	-.343	-.894	.406

a. Dependent Variable: LGTR

Table 4 highlights the integers of the independent variable and the coefficient contained in the regression model that was used in analyzing hypothesis one. It shows that the value of the intercept is positive while that of the independent variable is negative which suggests a negative effect of information communications technology on tax revenue.

Hypothesis Two

H_0: **Information communication technology does not have a significant effect of tax evasion in Nigeria.**

Table 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.685[a]	.469	.381	700.45042

a. Predictors: (Constant), Information Communication Technology

Table 5 shows that information communication technology has a low positive effect on the level of tax evasion in Nigeria. This is shown as 38.1%. Which means that the higher the cost of debt the higher the level of public expenditure in Nigeria.

Table 6. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2604014.683	1	2604014.683	5.307	.061[b]
	Residual	2943784.764	6	490630.794		
	Total	5547799.447	7			

a. Dependent Variable: Tax Evasion

b. Predictors: (Constant), Information Communication Technology

Table 6 reveals that the computed p-value is 0.000 which is lower than the set p-value therefore the null hypothesis is rejected and the alternate hypothesis which states that 'cost of public debt does not have a significant effect on public expenditure in Nigeria' is retained.

Table 7. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-13021.879	5602.273		-2.324	.059
	Information Communication Technology	95.776	41.573	.685	2.304	.061

a. Dependent Variable: Tax Evasion

Table 7 shows the value of the integers of the regression model that was used in analyzing hypothesis two. It shows that the value of the intercept and the independent variable are positive.

Discussion and Policy Implication of Findings

The findings from the study shows that ICT has a low inverse effect on the level of tax revenue in Nigeria. This is represented by and adjusted R-square of -0.29 in Table 2. The result further shows that this is ICT does not have a significant effect on tax revenue generation in Nigeria.

This means that the higher the level of ICT development or the digitalization of the economy, the lower the tax revenue realized though, not at a significant level. This finding contradicts the position of McCluskey, *et al*. (2018) who opined that ICT improved tax revenue among African countries. The possible reason for the variation in result might be due to difference in methodology. While this study used the expost facto research design to analyze based on data gotten from reports, McCluskey, *et al*. (2018) employed the qualitative research design and made use of the case study research method in which data was gathered based from the case study entities based on the bias of the authors. Hence might not be objective.

In addition, the result also show that ICT has a low positive effect on the level of tax evasion in Nigeria. This is indicated by an adjusted R square of 38.1% in Table 5. The result further indicates that the effect of ICT on tax evasion is not significant. This is also shown by the computed p-value of 0.061 on Table 6. This means that the more the advancement in the use of ICT in Nigeria, the higher the taxes that are being lost or evaded. This finding is in tandem with the position of Schaefer and Spengel (2002) who opined that ICT enables tax revenue to be lost from the host country where such incomes are raised to the parent company's country or totally hidden through the use of haven countries. Finally, based on the theoretical lens of the reasoned approach theory, it appears that revenue authorities in Nigeria do not have high motivation to fully go digital in their processes and also regulate the digital space as the result of the findings show that the level of the digitalization of the economy is still insignificant on tax revenue and evasion in Nigeria.

5. Conclusion

The study set out to examine the effect of a digitalized economy on tax administration in Nigeria over a period of eight years which spans from 2010 to 2017. It was revealed from the study that there is an inverse effect on the development of ICT in the economy and the tax revenue which is not significant. It also reveals that ICT has a positive significant effect on the level of tax evasion in Nigeria which is not significant. Hence, it is concluded from the study that digitalization of the economy does not have a significant effect on tax administration in Nigeria.

6. Recommendation

From the study and based on the findings, it is recommended that:

First of all, tax authorities at all levels should invest more in ICT and embrace ICT in the collection of taxes as it tends to improve the tax revenue drive of Nigeria. This should be done

by ensuring that filing of taxes to the obtaining of tax clearance certificate is automated to reduce human interference. In addition, members of staff of revenue authorities across all levels of government in Nigeria who are involved in the collection of taxes and perform other important roles should be adequately trained in order to harness the potential benefit presented by ICT usage in the tax administration process.

Furthermore, as the economy embraces innovations and becomes more digitalized, there is urgent need for the government at all levels to put in place tax laws to block loopholes and regulate the collection of taxes in an ICT (digitalized) economy. Therefore, the tax authorities at all levels should work hand in hand with the legislative bodies at their respective levels of government to provide technical assistance in the drafting of formidable laws that will curb tax evasion activities in a digitalized economy.

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