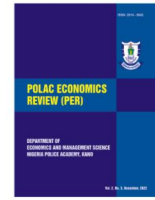




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## TREND ANALYSES OF INTERNALLY GENERATED REVENUES OF SELECTED STATES IN NIGERIA PRE AND POST DIGITALIZATION OF TAX ADMINISTRATION

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### Abstract

*Taxation of individuals and corporate organization remains the most viable and sustainable source of income to governments. However, state governments in Nigeria that constitute the second tier of government in the federal structure are heavily dependent on federal allocations from the centre; thus, constantly surviving on rising fiscal deficits with mounting domestic debts. This is despite the existence of eleven taxes and levies specified as collectable by state governments in the levies and taxes Act 1998. To improve their fiscal capacities, state governments have started digitalizing their tax administration to assist in establishing standard data base of tax payers, improve compliance and enhance Internally Generated Revenue generation. The most important step towards the digitalization of tax administration is having standard data base of tax payers as such through issuance of Taxpayers' Identification Number. Therefore, the aim of this study is to longitudinally analyze the Internally Generated Revenues (IGR) of selected states pre and post digitalization. To achieve this aim, secondary data on IGR of selected states are collected from the National Bureau of Statistics 2009-2020, collected data was analyzed by means of descriptive statistical tools while Adaption theory and Public policy analytical framework underpins the study. Overall, results from the study revealed increasing trends of IGR, while IGR collections post exceeds pre-digitalization collections as confirmed by paired sample t-test. The policy implication of this is for state governments to promulgate enabling laws on digitizing tax administrations while state revenue authorities should strengthen their digitization efforts to enhance their IGR collections.*

**Key Words:** Taxation, Tax Administration, Digitalization, Longitudinal, Adaption Theory

### 1. Introduction

Digitalization is the processes involved in the adoption or increase in the use of digital or computer technology by organizations, industries, nations (Brennen & Kreiss, 2014). Digitalization results in automation and optimization of processes which improves productivity and profitability by saving costs enhance production speed, and significantly reducing errors (Parida, Sjödin & Reim, 2019). Thus, digitalization is identified as the most significant technological advancement driving changes in almost every aspects of life during the last few decades. This is aided by increased use of smart mobile phones,

computers, access to internet, and other Information and Communications Technology (ICT) services (Reis, Amorim, Melão, Cohen & Rodrigues, 2020). The positive development of digitalization of human endeavors is reflected in the conducts of public services with the advent of e-governance (Grönlund & Horan, 2004). An important aspect of public service is perhaps tax administration as taxation remain the most viable and sustainable means of raising public finances used in providing public goods and services (Birungi & Colbourn, 2019). Digitalization of tax administrations entails digitalizing taxpayers' registration, assessment, verification, collection, and dispute resolution

(OECD, 2020) although it is contended that digitalization of tax administrations is about e-filing, e-accounting, e-matching, e-audit and e-assessment (EY, 2017).

Tax administrations across the globe are digitalizing their administrations for enhanced service delivery and compliance and the Organization for Economic Cooperation and Development (OECD) as a block is in the forefront of the digitalization of their tax administrations publishing annual reports on this since 2004 (Organization for Economic Cooperation and Development, 2021). The efforts towards digitalization of tax administrations in the bloc resulted in significant improvements in digital services of tax administrations 2004-2020 increasing digital contacts by 30% in 2020 over 2019. Similarly, digital channels are becoming the dominant means of interactions with taxpayers which recorded around 1.3 billion contacts via online taxpayer accounts, and more than 30 million contacts via chatbots (OECD, 2022a). The digitalization is also identified responsible for the collection of €12.10trillion taxes in 2020 and the bloc recorded average tax to Gross Domestic Product (GDP) ratio of 33.50% in 2020 which is higher than Asia and Pacific countries average of 19.10% and Africa's average of 16.60% (OECD, 2022b; 2022c). Thus, it is evident that increased digitalisation of tax administration has significantly increased the efficiency and effectiveness of tax administrations (OECD, 2020).

Nigeria recorded a tax to GDP ratio of 6.0% which is far below the African average of 16.60% in 2019 (OECD, 2022c). This is signifying the need for digitalization of tax administrations in the country to enhance tax revenue generation which in turn improves public revenue generation crucial for national development. There are three tax authorities in Nigeria, the Federal Inland Revenue Service (FIRS) responsible for collecting federal taxes, States and Federal Capital Territory Internal Revenue Service responsible for tax collections in each of the 36 states of the federation and Abuja, the Local Government Revenue Committee (LGRC) responsible for tax collection at local government levels (Federal Inland Revenue Service, 2022). The aim of this study is to analyze the trends of Internally Generated Revenue (IGR) by some selected states 2009-2020 divided into pre and post-tax digitalization periods. This reveals the positive impact or otherwise of digitization of tax administration at state level on tax revenue generation. In this way states that have advanced in the digitization process may be encouraged to consolidate the gains by leveraging more on technology while for states that are yet to digitize, results from the study may entice them to embrace tax digitization. This introduction is section one of the study,

section two is on literature review, section three is on methods and techniques of conducting the study, section four is on results and discussions of the study while section five is about conclusions and recommendations of the study.

## 2. Literature Review

### 2.1 Conceptual Literature

**States Internal Revenue Services (SIRSs):** Section 87(1) of the Personal Income Tax (PIT) Act 104 of 1993 as subsequently amended provided for the establishment of a board to be known as State Board of Internal Revenue (SBIR) with an operational arm to be known as the State Internal Revenue Service (SIRS) in each state of the federation (PIT Act, 1993). However, the most commonly used nomenclature now is SIRS. Part II of the taxes and levies (approved list for collection) Act No. 2 1998, specified eleven taxes that are collectable by SIRS. The taxes are personal income tax including Pay As You Earn and Direct assessment; withholding tax in respect of individuals; capital gains tax for individuals; stamp duties on instruments executed by individuals; pools betting, lotteries, gaming and casino taxes; road taxes; business registration fees; development levies for individuals; naming of street fees in the state capital; right of occupancy fees on lands owned by the state governments; and market taxes and levies (Taxes and Levies Act, 1998). The State Internal Revenue Services (SIRSs) commenced the digitalization of their tax administration with efforts to implement electronic means of identifying taxpayers by means of the Unique Taxpayer Identification Number (UTIN) through the Joint Tax Board (JTB) in 2009 (Nigerian Governors Forum, 2009). After surmounting numerous hitches, Taxpayers Identification Number (TIN) was officially launched on 5<sup>th</sup> April 2011 (Premium Times, 2020). However, full implementation of TIN registration by all SIRS was perhaps achieved in 2013 (Nigerian Governors Forum, 2012). TIN is a unique number composed of ten (10) digits issued to tax payers in Nigeria on completing registration processes of obtaining it. The purpose of issuing TIN is aggregating all necessary data of taxpayers into one single data base thereby creating closer linkage between tax payers and the various tax authorities in Nigeria.

The issuance of TIN has resulted in achieving cooperation, information sharing and closer working relationship among relevant tax authorities, widened tax bases for tax authorities as TIN has aided in increasing the number of taxpayers in Nigeria from 10million in 2015 to 14million in 2017 to 19million in 2018 and about 45million in 2019 and over 3million registered companies as at 2019 (Ezegwu & Agbaji, 2014; The Cable, 2019).

Consequently, and in consistence with OECD (2020), digitalization of tax administration by SIRSs started with electronic registration of taxpayers resulting into issuance of TIN which commenced in 2011. Creation of reliable data base of taxpayers is a vital stage in digitalization of tax administration as it laid the foundation of prompt payment of taxes and effective reduction of tax evasions (Onuiri, Fikayo, Ogheneovo & Ayodej, 2015). Empirical studies have been carried out on the impact of digitalization of tax administration on revenue collections.

## 2.2 Empirical Review

Martíneza, Arzozb and Arreguic (2022) examined tax collection efficiency improvements sequel to digitalization of tax administrations in 28 countries of Organization for Economic Cooperation and Development (OECD). Data for the study on technical efficiency estimates of the studied 28 OECD countries was collected over the period 2004–2017 by means of Data Envelopment Analysis (DEA). This is followed by an exploration of how technical efficiency is affected by fiscal decentralization and tax structure variables. Results from the study revealed that technical efficiency in form of digitalization of tax administration has a positive and significant impact on the efficiency of tax collection.

Adegbie, Enerson, and Olaoye (2022) conducted an empirical investigation into the relationship between electronic tax management system and tax revenue collection efficiency in selected states in South West, Nigeria 2008–2020. The study adopted the survey research in which total of 2,670 copies of structured questionnaires were distributed to respondents across the three selected three states of Lagos, Oyo and Ogun states to obtain qualitative data. Similarly, quantitative data on IGR of the selected states was obtained from National Bureau of Statistics (NBS) annual reports. Collected data was analyzed using descriptive and multiple regression inferential statistics while Technology Acceptance Model (TAM) underlined the study. Findings from the study revealed that electronic tax management system have significant positive relationship with tax revenue collection efficiency.

Studies by Martíneza, Arzozb and Arreguic (2022) and Rosario and Chavali (2021) are conducted in settings different from Nigeria while studies by Adegbie, Enerson, and Olaoye (2022) focus on selected states in South-West, Nigeria. The studies by Olusuyi and Yidiat (2021), Ajala and Adegbie (2020), and Chijioke, Leonard, Bossco, and Henry (2018) focuses on revenue collections by FIRS. This study which although is focusing on revenue

collection by states, it is undertaken from a broader perspective covering 12 states, selecting 2 states from each of the six geopolitical zones in the country. Overall, there are differences of time period, type of data, data collection methods and analysis and theoretical underpinnings between reviewed studies and the current study. Thus, this study may confirm what these studies found, or reveal new insights on the impact of digitalization of tax administration in Nigeria.

Rosario and Chavali (2021) investigated digitalization of tax administration and tax revenue collection in India. The study collected qualitative secondary data on tax digitalization efforts and quantitative data on direct taxes and percentage of direct taxes to Gross Domestic Product (GDP) from the Reserve Bank of India (RBI) 1988-2017. Collected qualitative data on government digitization efforts 1982-2017 were qualitatively described while descriptive statistical tools of charts were used to present analyzed quantitative data on direct taxes and its contribution to GDP. Obtained results from analyzed qualitative data revealed that successive Indian governments have been making significant efforts to the digitalization of tax administration from 1982. Results from the analyzed quantitative data revealed growing trends in direct tax collections which was \$1.26billion in 1988 increasing to \$121.01billion in 2017 while the contribution of the direct taxes to GDP showed improved but fluctuating trends from only 0.73% in 1988 to 8.01 in 2007 decreasing to 7.57% in 2017.

Olusuyi and Yidiat (2021) investigated whether there is significant difference in government tax revenue divided into oil tax, non-oil revenue and total revenues in Nigeria prior to e-tax filing (2011-2014) and post e-tax filing (2016-2019). The study was designed as a correlational research aimed at determining whether e-filing influences government revenue in Nigeria. Data for the study was sourced from secondary data on quarterly revenue collections from the Federal Inland Revenue Service (FIRS). The study is underpinned by Technology Acceptance Model (TAM). Collected data was analyzed using descriptive analysis, trend analysis and one-way Analysis of Variance (ANOVA). Obtained results from the study revealed that e-tax filing had significant influence on oil tax revenue in Nigeria. However, e-filling do not significantly impact on total non-oil tax revenue and total government tax revenue in Nigeria.

Ajala and Adegbie (2020) examined the effect of digitalization on tax administration in Nigeria. The study is designed as survey research in which 2,857

questionnaires are administered to management and administrative staff of six selected multinational companies, FIRS Lagos office and Lagos State Internal Revenue Service (LSIRS). Sample size of 641 based on stratified sampling technique was selected for the study while theory of digital diffusion underpinned the study. Collected data was analyzed using descriptive and inferential statistical tools in Statistical Package for Social Sciences (SPSS). Results obtained revealed that digitalization of tax administration in Nigeria has positive statistical significant effect on effective tax assessment with a p-value of 0.000.

Chijioke, Leonard, Bossco, and Henry (2018) examined the impact of digitalization of tax administration on Nigeria's revenue collections by empirically examining how the implementation of digitalization of tax administration in Nigeria in 2015 has affected tax revenue, total federally collected revenue and tax to Gross Domestic Product (GDP) ratio. The study collected secondary data from Federal Inland Revenue Service (FIRS) and the Central Bank of Nigeria (CBN) quarterly Statistical and Economic Reports covering the second quarter 2013 to fourth quarter 2016. Collected data is divided into two periods of pre and post digitalization of tax administration and the collected data is statistically tested using paired sample t-test. Findings from the study revealed that digitalization of tax administration has not improved tax revenue, federally collected revenue and tax-to-GDP ratio in Nigeria.

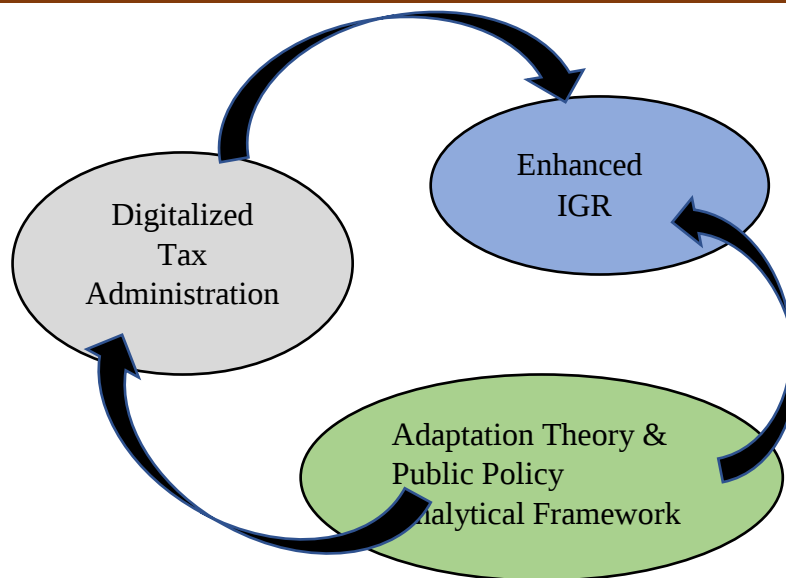
## 2. Methods and Techniques

The aim of this study is to longitudinally analyze the Internally Generated Revenue (IGR) of selected states pre and post digitalization. There are 36 states in Nigeria and TIN registration which is regarded as crucial stage of digitalization of tax administration (OECD, 2020) was fully implemented in all the states in 2013. However, this study allowed for additional one year for compliance with the new technology; thus, within the context of this study 2014 is also considered as pre-digitalization period (Mohammed, 2016). From 2015-2020 is six years which is the post digitalization period in consistence with Adegbe, Enerson, and Olaoye (2022). To allow for proper comparison of pre and post digitalization revenue collections, six years to 2015 which is 2009-2014 are also assessed. In selecting sampled states, implementation of TIN is considered as the minimum threshold of selecting a state.

However, 17 states based on data obtained from their websites have moved further on TIN registration such that they are offering registration, filling, payments, payment verification and attending to taxpayers' complaints online in consistence with OECD (2020). Consequently, states that have achieved these five digitalization capabilities and are having full IGR data obtained from publications of National Bureau of Statistics (NBS) over the period of the study 2009-2020 are selected and where there are more than two states in a geopolitical zone, the two are selected randomly. The IGR of the selected states are then analyzed and presented using descriptive statistical tool of chart and table in Microsoft Excel to portray the trends of collected IGR pre and post digitalization of tax administration in the sampled states. Similarly, paired sample t-test is conducted on collected IGR revenue pre and post digitalization to statistically determine existence of differences between the mean of IGRs over the two periods.

### 3.1 Theoretical Frameworks

Adaptation derived from Latin word *adaptatio* means the action of adapting or the sense of adjusting or the adjustment between two things (Simonet, 2010). Organizational Adaptation Theory (OAT) although is discussed from different perspectives (Simonet, 2010), it is considered within this study as intentional decisions made by organizations, and taking observable actions with the aim of reducing the distance between the organizations and their economic and institutional environments; this theory is employed as one of the two theories underpinning the study. Public policy denotes laws, regulations, procedures and administrative actions of governments and institutions that affect members of the public (CDCP, 2015). Analysis of public policies resulted into public policy analysis (Bromley, 1990) that entails critical evaluation of established policy (Patton, 1987) which could be one or more of formative, process, outcome, and impact evaluations. Impact evaluation assess the effectiveness of a policy in achieving its ultimate goals (Centre for Disease Control, 2022) and this study undertakes trends analyses of IGR of selected states to know the impacts of digitalization of tax administration on the collected IGR 2009-2020; thus, this study employed public policy analytical framework to underpin it. Consequently, the study employed organizational adaptation theory and public policy analytical framework as theoretical underpinnings of the study as in Figure I.

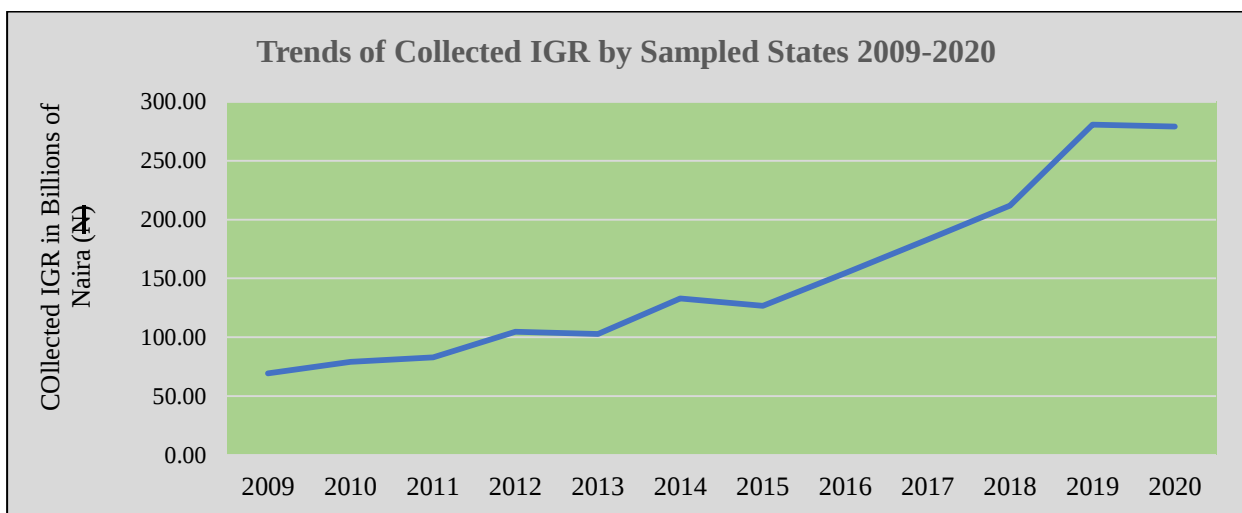


**Figure I: Theoretical Framework of the Study (Source: This Study)**

From Figure 1, Adaptation theory explained the adaptation by samples states of the prevailing global best practice of digitalization of tax administrations; digitalization of tax administration in turn, translated to enhanced IGR collections by the sampled states. Public policy analytical framework explained that adaptation of digitalization of tax administration by sampled states as a public policy has enhanced the IGR of the states.

### 3. Results and Discussions

This section is devoted to discussions of results obtained in the study based on literature, theory and practice confirming what is known about the impact of digitalization of tax administration or bringing out new findings useful to knowledge in the area. Figure 1 is on the trends of collected IGR by the sampled 12 states 2009-2020.



**Figure 2: IGR collection by sampled states 2009-2020**

From Figure 2, total IGR collections by the sampled states in 2009 is about ₦69.41billion which rises to ₦79.21billion in 2010 indicating an increase of about ₦9.80billion over 2009 collections giving a growth rate of 14.12%. Collected IGR in 2011 is ₦82.89billion giving an increase of ₦3.68billion or 4.65% growth over 2010 collections. In 2012, total IGR collection is

₦104.76billion depicting an increase of ₦21.86billion or about 26.38% growth over 2011 IGR collections. Total collected IGR in 2013 is about ₦102.95billion indicating decreased collections of ₦1.81billion or about 1.73% decrease compared to 2012 collections. In 2014, total IGR collection is ₦133.08billion portraying an increase in IGR by about ₦30.13billion or 29.26%

growth rate over 2013 collections. Total IGR collected in 2015 is ₦126.83billion showing a decrease of ₦6.24billion or 4.69% negative growth compared to 2014. In 2016, total IGR collected by the states is ₦154.35billion indicating an increase of ₦27.52billion or 21.69% growth rate over 2015 collections. The decline in IGR collections in 2015 could be attributed to pre and post general election apprehensions (Acar, 2019; Ashindorbe, 2018) which perhaps affected the performances of businesses and IGR collection

In 2017, sampled states collected ₦182.96billion as IGR thereby giving an increase of ₦28.63billion or 18.55% growth rate over 2016 collections. IGR collections in 2018 are ₦211.72billion depicting an increase of 28.73% growth rate over 2017 collected IGR. A total IGR collection in

2019 is ₦280.59billion giving an increase of ₦68.86billion or 32.53% growth rate in comparison with 2018 collected IGR. In 2020, total collected IGR is ₦278.89billion indicating a decrease of ₦1.70billion or 0.61% negative growth when compared with 2019 collected IGR. This might be explained by the Covid-19 lock down imposed in the country in March 2020 (Ibrahim, Ajide & Julius, 2020) and the lock down is reported to have negatively affected the economy (Ataide, Nimenibo & Samuel, 2021). The trends of IGR collections by sampled states showed fluctuating trends 2009-2020. However, despite the fluctuations, post digitalization era 2015-2020 IGR collections depicts higher values than pre-digitalization years with the exception of 2015 which is lower than 2014 collections by -4.69%. The pre and post digitalization trends are broken down as presented in Table I.

**Table I: Total IGR broken down into pre and post digitalization collections**

| Years        | Pre-digitalization IGR (₦) | Years | Post-digitalization IGR (₦) | Difference                |
|--------------|----------------------------|-------|-----------------------------|---------------------------|
| 2009         | 69,408,669,645.56          | 2015  | 126,834,628,369.25          | 57,425,958,723.69         |
| 2010         | 79,208,380,181.38          | 2016  | 154,352,169,155.24          | 75,143,788,973.86         |
| 2011         | 82,893,797,722.09          | 2017  | 182,986,773,860.38          | 100,092,976,138.29        |
| 2012         | 104,759,048,072.03         | 2018  | 211,718,759,932.00          | 106,959,711,859.97        |
| 2013         | 102,949,006,292.79         | 2019  | 280,594,539,404.67          | 177,645,533,111.88        |
| 2014         | 133,077,222,223.33         | 2020  | 278,892,926,135.19          | 145,815,703,911.86        |
| <b>Total</b> | <b>572,296,124,137.18</b>  |       | <b>1,235,379,796,856.73</b> | <b>663,083,672,719.55</b> |

**Source: This Study**

From Table I, 2009 is the first year of pre-digitalization period in which total of ₦69.41billion was collected as IGR by the sampled states. Conversely, 2015 is the first-year post digitalization and the sum of ₦126.83billion was collected as IGR; thus, first year post digitalization IGR collections exceed first year pre-digitalization IGR collections by ₦57.43billion. Similarly, second year post exceeds second year pre-digitalization collections by ₦75.14billion; third year post also exceeds third year pre-digitalization by ₦100.09billion. IGR collections in fourth-year post also exceed fourth year pre-digitalization by ₦106.96billion. Likewise, in the fifth-year post, IGR exceed fifth year pre-digitalization by ₦177.65billion. Finally, in the sixth-year post digitalization, IGR collections exceed pre-digitalization collections by ₦145.82billion. On the overall, total collected IGR pre-digitalization period 2009-2014 is about ₦572.30billion while total post digitalization IGR collections is about ₦1.24trillion

indicating that post digitization IGR exceeds pre-digitalization IGR by ₦663.08billion.

Trends of IGR collections 2009-2020 by sampled states in Figure I indicated higher values in trends of post digitalization 2015-2020 collected IGR than in trends of values of collected IGR pre-digitalization 2009-2014. Similarly, when the trends are broken down into pre and post digitalization as in Table I, post digitalization collections exceeds pre-digitalization on compared annual bases and in total collections. Similarly, two sample paired t-test result revealed 0.00175 which at 5% significance level statistically confirm that post digitalization mean value significantly exceeds pre-digitalization mean value. Thus, digitalization of tax administration has improved IGR collections by sampled states. These results that confirmed that digitalization enhances revenue collection are consistent with Martíneza, Arzozb and Arreguic (2022), Rosario

and Chavali (2021), Adegbe, Enerson, and Olaoye (2022), Olusuyi and Yidiat (2021) and Ajala and Adegbe (2020) that found digitalization of tax administration has enhanced revenue collection. However, the findings contradict Chijioke, Leonard, Bossco, and Henry (2018) that reported decrease in tax revenue post digitalization period in Nigeria.

From the theoretical perspective, digitalization of tax administration is identified as most prevalent in the developed economies and is described as inevitable phenomenon that tax administrations globally must comply with (OECD, 2020). Therefore, sampled state revenue services that have so far achieved the five levels of online registration, filling, payment, payment verification and complaints could be contended as having adapted global best practice which is better described by adaptation theory. Digitalization of tax administration in Nigeria is a policy jointly implemented by FIRS and SIR services through the JTB beginning with TIN in 2011. This policy of digitalization of tax administration in Nigeria has proved useful by enhancing IGR collections post

digitalization. This is indicating that digitalization of tax administration has impacted IGR collections by sampled states which is better explained by the lens of policy analysis analytical framework. Practically, Nigeria as a nation is good in adopting global best practices with the main problem being proper implementation; thus, it is not astonishing that SIRs have adapted to digitalization of their tax administration.

## 5. Conclusions and Recommendations

Based on findings from this study that assessed the trends of IGR collections by sampled SIRs of some selected states in Nigeria, it could be concluded that digitalization of tax administration has enhanced IGR collections by the sampled states. Consequently, states that have made progress on the digitalization should make further improvements to be able to carry out online investigations, detailed data analytics and of refunding taxpayers. Likewise, states that are lagging behind in the digitalization process should make commitments to the digitalization of their internal revenue services.

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