

# Financial inclusion and tax revenue in Nigeria

Oreoluwa Omojola<sup>1</sup>, Opeyemi Adebogun<sup>2</sup> and Solomon Audu<sup>1\*</sup>

<sup>1</sup>Department of Accounting, Finance & Taxation, College of Arts, Social and Management Sciences, Caleb University, Imota, Lagos State, Nigeria.

<sup>2</sup>Department of Economics, College of Arts, Social and Management Sciences, Caleb University, Imota, Lagos State, Nigeria.

\*Corresponding author. Email: [solomon.audu@calebuniversity.edu.ng](mailto:solomon.audu@calebuniversity.edu.ng)

Copyright © 2022 Omojola et al. This article remains permanently open access under the terms of the [Creative Commons Attribution License 4.0](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Received 29th October 2022; Accepted 22nd November, 2022

**ABSTRACT:** Tax to GDP ratio in Nigeria is low when compared to her contemporaries in Africa. While financial inclusion tries to widen the participants in the formal financial system. Hence, this study was designed to examine the effect of financial inclusion on tax revenue in Nigeria. The study employed the ex-post facto research design and secondary data was gathered over a timeframe spanning from 2010 to 2019. The data was analyzed using the multiple regression and the result revealed that Automated Teller Machine and Mobile pay have an inverse effect (-0.174, -2.166) on the level of direct tax revenue in Nigeria while Point of Sale (POS) and Web pay have a positive effect (3.454 and 1.564) on the level of direct tax revenue in Nigeria. On the other hand, the result showed that POS has an inverse effect on the level of indirect tax revenue in Nigeria. Based on the results, it was concluded from the study that financial inclusion has a significant effect on the level of tax revenue in Nigeria. It was recommended that revenue authorities in Nigeria should collaborate with the existing financial institutions in promoting financial inclusion in Nigeria.

**Keywords:** Automated teller machine, direct tax, indirect tax, point of sale, web pay.

## INTRODUCTION

The tax revenue to the gross domestic product (GDP) in Nigeria is one of the lowest in Sub-Saharan Africa when compared with her contemporaries (Audu, 2020). Low tax revenue can hamper the development of any economy as it has been identified as the main drive of government expenditure (Audu and Ishola, 2021). Financial inclusion can be described as the situation in which “individuals and businesses have access to useful and affordable financial products and services that meet their needs transactions, payments, savings, credit and insurance delivered in a responsible and sustainable way”. It is one of the important policy tools to increase welfare, reduce poverty and enhance macroeconomic stability (Beck and De La Torre, 2004; Chibba, 2009; Hannig and Jansen, 2010; Cull *et al.*, 2012; Morgan and Pontines, 2014; Park and Mercado, 2015; Kim, 2016). The principle of financial inclusion which is actually a major factor in the economic growth of any nation cannot be overlooked. The exclusion of the lower-class populace in any nation might have an adverse effect

on revenue generation in any economy. Oz-Yalaman (2019) showed that those not included in the financial system who are low-income earners can easily evade taxes and hence the burden of tax is on the income earners and the companies in the tax net. The resultant consequence of this is lower income to the government.

As people become more financially included and their income grow over time, this might in turn increase their tax contributions to the government. Financial inclusion is fast becoming a global topic many countries of the world are adopting and it is therefore important for policy-makers to take advantage of this in order to raise tax revenues. Mehrotra and Yetman (2015) emphasized that access to financial services allows the poor to save besides the traditional means, and helps in managing the risks that they face as a result of economic shocks. Hence, providing access to financial services is increasingly becoming an area of concern for every policymaker for the obvious reason that it has far reaching economic and social

implications. Financial inclusion has therefore become an explicit strategy for accelerated economic growth and is considered to be critical for achieving inclusive growth in a country. However, from extant literature creating the importance of financial inclusion, there seem to be a methodological gap as similar studies (Ajide and Bankefa, 2017; Mpofu, 2022) in Nigeria carried-out used earlier periods and considered total tax revenue without assessing the various component parts (direct and indirect tax).

To achieve financial inclusion and revenue generation, it is important for policy makers to remove barriers like education, gender, age and irregular income so as to enhance access. The main objective of this paper is therefore to examine the effect of financial inclusion on tax revenue in Nigeria. In order to achieve the main objective, the following specific objectives were met:

1. To assess the effect of financial inclusion on direct tax revenue in Nigeria.
2. To determine the effect of financial inclusion on indirect tax revenue in Nigeria.

Based on the above, the hypotheses below were tested in this study.

**H<sub>01</sub>:** Financial inclusion does not have a significant effect on direct tax revenue in Nigeria.

**H<sub>02</sub>:** Financial inclusion does not have a significant effect on indirect tax revenue in Nigeria.

### Theoretical framework

This study is underpinned on the systems theory of financial inclusion which was credited to Frederick Winslow Taylor in the late 19th century. The theory explains that the result of financial inclusion is achieved based on the existing interrelating sub-systems in the economy and as a result, increased financial inclusion will have an increasing benefit for the system as a whole (Ozili, 2020). Demerits of this theory as pointed out by Ozili (2020) include inefficiencies of sub-systems which are also included in the process of financial inclusion. Furthermore, the theory does not consider factors outside the main system. Finally, the theory assumes that there is a direct association between financial inclusion and its benefits to the system.

Despite the demerits of the system theory, the following merits were highlighted by Ozili (2020) who states that the theory recognizes the functions to be played by the various sub-system, the theory also focuses on the macro-economic view of the country rather than the micro-economic perspective. Finally, the theory posits that all the sub-systems will get a benefit derived from financial inclusion.

Hence, the system theory of financial inclusion is chosen as the suitable theory for this study as it points out that every sub-system such as the public and private sector, the revenue authorities amongst many others all have a role to play in financial inclusion and in playing their part, the benefit will accrue to the various sub-systems such as greater profits and seamless transaction efficiency for the private sector, wider spread of the taxpayers net for the revenue authorities amongst others (Nguyen, 2021).

### REVIEW OF EXTANT LITERATURE

Various studies have been carried out on financial inclusion to either examine strategies on how to deepen it or to weigh its benefit to the economy. For instance, Babajide *et al.* (2015) investigated the effect of financial inclusion on economic growth in Nigeria. Secondary data was collected and analyzed using ordinary least square method. The study showed that financial inclusion does have a significant effect on the level of production and the per capita of individuals.

Ajide and Bankefa (2017) assessed the effect of financial inclusion on tax revenue in Nigeria. Secondary data was gathered over a time frame from 1981 to 2014. The outcome of the study showed that financial inclusion has a significant effect on the level of tax revenue generation in Nigeria.

Omojolaibi (2017) examined the relationship between financial inclusion and investment infrastructure, per capita and GDP in Nigeria. Secondary data over a period from 1980 to 2014 was collected and analyzed using the Generalized Method of Moment estimation technique. Among others, the study revealed that financial inclusion has the tendency to enable income and wealth redistribution.

Wakdok (2018) assessed the impact of financial inclusion on the level of economic growth in Nigeria. Secondary data was sourced over a time frame spanning from 1990 to 2014. The error correction model was used to analyze the data. It was revealed from the study that financial inclusion has a positive significant effect on economic growth in Nigeria.

Oz-Yalaman (2019) assessed the relationship between financial inclusion and tax revenue among 137 selected countries. Secondary data was collected over a period ranging from 2011 to 2017. Panel data was used to analyze the data. The result from the study showed that there is a significant positive association between financial inclusion and tax revenue.

Al-Own and Bani-Khalid (2021) assessed the association between financial inclusion and tax revenue among 28 European countries. Secondary data was collected over a period that spanned from 2011 to 2017 using panel data. The result of the study revealed that financial inclusion has a significant effect on the level of tax

revenue generation.

Okonkwo and Nwanna (2021) examined the impact of financial inclusion on economic growth in Nigeria. Secondary data over a span range from 1992 to 2018 was collected and analyzed using regression. The study showed that loans given to individuals in rural areas have a significant effect on economic growth in Nigeria.

Mpofu (2022) examined the effect of mobile tax revenue on financial inclusion in Africa. The qualitative method through a desktop review of existing literature. The study showed a mixed result, some authors agreed that mobile money led to the increase in government tax revenue while others opposed the view. Hence, no consensus as to the overall effect of financial inclusion on tax revenue.

Ekong and Ekong (2022) investigated the effect of digital currency on the economic prospect of Nigeria. Secondary data was collected and the outcome of the study shows that ATM has a significant effect on financial inclusion in Nigeria.

Raouf (2022) investigated the association between financial inclusion and tax revenue of 45 selected countries from Africa, Europe and Middle East. The study showed that there is a non-linear association between financial inclusion and tax revenue.

From the literature reviewed, it shows that little work has been done on financial inclusion and tax revenue and even among those done, few assessed tax revenues on the various component parts of tax revenue. Hence, creating a methodological gap which will be examined in this study.

**METHODOLOGY**

The *ex-post facto* research design was used in this study as data was obtained from secondary source which cannot be controlled or manipulated. Secondary data on the variables (ATM, POS, Web pay, Mobile pay, direct tax and indirect tax) for 2010 to 2019 were obtained from the Central Bank of Nigeria statistical bulletin. The multiple regression was used to analyze the effect of the independent variable (financial inclusion) on the dependent variable (tax revenue) while the hypotheses were tested at 5% level of significance using the analysis of variance (ANOVA). The linear regression model used is as shown below:

$$DTR = \beta_0 + \beta_{1ATM} + \beta_{2POS} + \beta_{3WPA} + \beta_{4MPA} + e \dots\dots\dots i$$

$$ITR = \beta_0 + \beta_{1ATM} + \beta_{2POS} + \beta_{3WPA} + \beta_{4MPA} + e \dots\dots\dots ii$$

Where: DTR = Direct tax revenue (Dependent Variable), ITR = Indirect tax revenue (Dependent Variable),  $\beta_0$  = Intercept where independent variable is zero,  $\beta_{1ATM}$  = Money value of ATM transactions (Independent Variable),  $\beta_{2POS}$  = Money value of POS transactions (Independent Variable),  $\beta_{3WPA}$  = Money value of web pay transactions

(Independent Variable),  $\beta_{4MPA}$  = Money value of mobile pay transactions (Independent Variable), and e = error term

**RESULTS**

**Hypothesis H<sub>01</sub>: Financial inclusion does not have a significant effect on direct tax revenue in Nigeria**

Table 1 shows that financial inclusion proxied by Mobile pay, Web pay, ATM and POS explain about eighty-nine percent approximately of changes that happen in direct tax revenue. This means that financial inclusion has a strong effect on the level of direct tax revenue collected in Nigeria.

Table 2 shows a computed p-value of 0.003 which is lower than the set p-value of 0.05 for this study. This means that the null hypothesis is to be rejected and the alternate which states that ‘financial inclusion does have a significant effect on direct tax revenue in Nigeria’ is to be retained.

Table 3 reveals that ATM and Mobile pay have an inverse effect on the level of direct taxes collected in Nigeria. The result also shows that POS and Web pay transactions have a positive effect on the level of direct tax revenue generated in Nigeria.

**Hypothesis H<sub>02</sub>: Financial inclusion does not have a significant effect on indirect tax revenue in Nigeria**

Table 4 shows that Mobile pay, ATM, Web pay and POS transactions explain about eighty-three percent approximately of the level of indirect tax revenue in Nigeria. The result reveals that there is a high level of influence of financial inclusion on indirect tax revenue level in Nigeria.

Table 5 reveals a computed p-value of 0.010 which is lower than the set p-value of 0.05 for this study, hence the null hypothesis is rejected and the alternate hypothesis which states that ‘Financial inclusion does have a significant effect on indirect tax revenue in Nigeria’ is retained.

Table 6 shows that POS transactions has an inverse effect on the level of indirect tax in Nigeria. While ATM, Web pay and Mobile pay all have a positive effect on the level of indirect tax revenue in Nigeria.

**DISCUSSION**

From this study, it is expected that financial inclusion (ATM, POS, Web, Mobile) will have a significant effect on tax and non-tax revenue. The result of hypothesis one actually shows that financial inclusion has a strong (adjusted R square = 0.937) positive influence on the level of direct tax revenue in Nigeria. This is in line with the

**Table 1.** Model summary.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.968 <sup>a</sup>	0.937	0.886	461.037

<sup>a</sup>Predictors: (Constant), mobile, ATM, web, POS.

**Table 2.** ANOVA<sup>a</sup>.

Model		Sum of squares	Df	Mean square	F	Sig.
1	Regression	15730776.439	4	3932694.110	18.502	0.003 <sup>b</sup>
	Residual	1062777.646	5	212555.529		
	Total	16793554.084	9			

<sup>a</sup>Dependent variable: Direct tax; <sup>b</sup>Predictors: (Constant), mobile, ATM, Web, POS.

**Table 3.** Coefficients<sup>a</sup>

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. error	Beta		
1	(Constant)	3098.461	482.628		6.420	0.001
	ATM	-0.174	0.196	-0.281	-0.889	0.415
	POS	3.454	1.510	2.814	2.288	0.071
	Web	1.564	2.914	.252	0.537	0.614
	Mobile	-2.166	0.591	-2.481	-3.668	0.014

<sup>a</sup>Dependent variable: Direct tax.

**Table 4.** Model summary.

Model	R	R Square	Adjusted R square	Std. error of the estimate
1	0.950 <sup>a</sup>	0.903	0.825	204.120

<sup>a</sup>Predictors: (Constant), Mobile, ATM, Web, POS.

**Table 5.** ANOVA<sup>a</sup>.

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	1935806.767	4	483951.692	11.615	0.010 <sup>b</sup>
	Residual	208324.155	5	41664.831		
	Total	2144130.922	9			

<sup>a</sup>Dependent Variable: Indirect Tax; <sup>b</sup>Predictors: (Constant), Mobile, ATM, Web, POS.

**Table 6.** Coefficients<sup>a</sup>.

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. error	Beta		
1	(Constant)	511.063	213.678		2.392	0.062
	ATM	0.224	0.087	1.012	2.580	0.049
	POS	-0.593	0.668	-1.352	-0.887	0.416
	Web	0.666	1.290	.300	.516	0.628
	Mobile	0.358	0.261	1.147	1.369	0.229

<sup>a</sup>Dependent variable: Indirect tax.

system theory of financial inclusion that shows that financial inclusion has a positive benefit on all the sub-systems. The result further shows that ATM and Mobile pay are inversely related to the level of direct tax revenue in Nigeria (Ajide and Bankefa, 2017; Mpofu, 2022).

On the other hand, the result of hypothesis two reveals that financial inclusion has a strong (adjusted R square = 0.903) influence on the level of indirect tax revenue in Nigeria. The result also shows that POS has an indirect effect on the level of indirect tax revenue in Nigeria. Overall, the result shows that financial inclusion has a significant (computed p-value = 0.003, 0.01) effect on the level of both direct and indirect tax revenue. This position is similar to the opinion of Audu (2020) who posited that pattern of spending has a positive significant effect on the tax revenue. Therefore, individuals who transact and use financial solution mediums always influences the level of tax revenue in Nigeria. The position of this study is similar to that of (Ajide and Bankefa, 2017; Oz-Yalaman, 2019; Raouf, 2022) all of who have posited a significant effect of financial inclusion on tax revenue.

## Conclusion

The study was designed to examine the effect of financial inclusion on tax revenue in Nigeria. The result shows that financial inclusion has a strong positive effect on the level of direct and indirect taxes in Nigeria. It can be concluded from this study that financial inclusion has a significant effect on the level of tax revenue in Nigeria.

## Recommendation

Based on the result of this study, the following recommendations are given:

1. The Federal Inland Revenue Service in Nigeria in driving its tax revenue generation should carefully ensure that it monitors POS and Web pay transactions that are carried out by business entities in order to capture more entities into the tax net and vis-à-vis, increase the tax revenue.
2. There is a need for the Federal Inland Revenue Service to check POS transactions done by agents as POS transactions are usually done on transactions that are consumption in nature and as such should have a linear relationship with indirect tax. Hence, the negative result show signs of sharp practices and the need to carefully review such transactions.

## CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

## REFERENCES

- Ajide, F. M., & Bankefa, O. I. (2017). Does financial system influence tax revenue? The case of Nigeria. *African Journal of Economic Review*, 5(3), 15-33.
- Al-Own, B., & Bani-Khalid, T. (2021). Financial inclusion and tax revenue: Evidence from Europe. *International Journal of Financial Research*, 12(2), 27-42.
- Audu, S. I. (2020). Pattern of spending and the level of tax revenue in Nigeria. *International Journal of Research and Innovation in Social Science*, 4(9), 561-567.
- Audu, S. I., & Ishola, K. (2021). Digital economy and tax administration in Nigeria. *Global Scientific Journal*, 9(9), 1251-1262.
- Babajide, A. A., Adegboye, F. B., & Omankhanlen, A. E. (2015). Financial inclusion and economic growth in Nigeria. *International Journal of Economics and Financial issues*, 5(3), 629-637.
- Beck, T., & De la Torre, A. (2004). Broadening access to financial services: Risks and costs. *The World Bank, Seminar*, 17.
- Chibba, M. (2009). Financial inclusion, poverty reduction and the millenium development goals. *The European Journal of Development Research*, 21(2), 213-230.
- Cull, R., Demircuc-Kunt, A., & Lyman, T. (2012). Financial inclusion and stability: What does research show? *The World Bank No 9443*.
- Ekong, U. M., & Ekong, C. N. (2022). Digital currency and financial inclusion in Nigeria: Lessons for development. *Journal of Internet and Digital Economics*, 2(1), 46-67.
- Hannig, A., & Jansen, S. (2010). Financial inclusion and financial stability: Current policy issues. *ADB Working Paper No 259*.
- Kim, J. H. (2016). A study on the effect of financial inclusion on the relationship between income inequality and economic growth. *Emerging Market Finance Trade*, 52(2), 498-512.
- Mehrotra, A. N., & Yetman, J. (2015). Financial inclusion issues for central banks. *BIS Quarterly Review*. Pp. 83-96.
- Morgan, P., & Pontines, V. (2014). Financial stability and financial inclusion. *ADB Working Paper 488*.
- Mpofu, F. Y. (2022). Industry 4.0 in financial services: Mobile money taxes, revenue mobilisation, financial inclusion, and the realisation of Sustainable Development Goals (SDGs) in Africa. *Sustainability*, 14(14), 8667.
- Nguyen, T. T. (2021). Measuring financial inclusion a composite FI index for the developing countries. *Journal of Economics and Development*, 23(1), 77-99.
- Okonkwo, J. J., & Nwanna, I. O. (2021). Financial inclusion and economic growth in Nigeria: An empirical study. *International Journal of Research and Innovation in Social Science*, 5(1), 323-330.
- Omojolaibi, J. A. (2017). Financial inclusion, governance and economic progress in Nigeria: What happens to the welfare of the poor? *Arabian Journal of Business and Management Review*, 6(7), 72-85.
- Ozili, P. K. (2020). Theories of financial inclusion. In: *Uncertainty and challenges in contemporary economic behaviour*. Emerald Publishing Limited. Pp. 89-114.
- Oz-Yalaman, G. (2019). Financial inclusion and tax revenue. *Central Bank Review*, 19(3), 107-113.
- Park, C., & Mercado, R. V. (2015). Financial inclusion, poverty and income inequality in developing Asia. *Asian Development Bank, Manila*.
- Raouf, E. (2022). Impact of financial inclusion on tax revenue in

EMEA countries: A threshold regression approach. *Borsa Istanbul Review* (In Press).  
Wakdok, S. S. (2018). Impact of financial inclusion on economic

growth in Nigeria: an econometric analysis. *International Journal of Innovation and Research in Educational Sciences*, 5(2), 237-245.