

Effect of Tax Administration Digitalization on Revenue Generation of Oyo State Internal Revenue Service (OYSIRS)

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ABSTRACT

This study examined the effect of tax administration digitalization on revenue generation in the Oyo State Internal Revenue Service (OYSIRS). The study was motivated by the importance of internally generated revenue to fiscal sustainability at the sub-national level in Nigeria and the persistent challenges associated with manual and paper-based tax administration processes. These challenges have often resulted in limited transparency, administrative inefficiencies, and revenue leakages. Although digital technologies have increasingly been introduced into tax administration, there remains limited empirical evidence on their effectiveness at the state level, particularly in Oyo State. The study therefore assessed digitalization through four major components: e-filing, e-payment, automated tax processes, and data analytics.

The study is anchored on Adam Smith's (1776) Classical Theory of Taxation which explains effective taxation through the four fundamental canons of equity, certainty, convenience, and administrative efficiency. Two models were specified to examine the effects of the four digitalization components on revenue generation and tax compliance, respectively. A survey research design was adopted, while structured questionnaires were administered to 360 respondents comprising OYSIRS staff and tax consultants in Oyo State. A total of 339 valid responses were obtained, representing a usable response rate of 94.2 per cent. The collected data were analysed using descriptive statistics and multiple Ordinary Least Squares regression, while Variance Inflation Factor diagnostics were employed to confirm that multicollinearity was not a major concern.

The findings revealed that tax administration digitalization had a positive and statistically significant effect on revenue generation, with the model explaining 41.3 per cent of the variation in revenue generation ($R^2 = 0.413$; $F = 58.653$; $p = 0.000$). Among the digitalization components, e-payment and e-filing emerged as the strongest individual contributors to revenue generation, while data analytics did not have a statistically significant independent effect. The study also found that digitalization had a positive and significant effect on tax compliance, with the model explaining 38.3 per cent of the variation in compliance ($R^2 = 0.383$; $F = 51.735$; $p = 0.000$). In contrast to the revenue-generation model, all four digitalization components, including data analytics, contributed significantly to tax compliance and exhibited broadly comparable effects.

Based on these findings, both null hypotheses were rejected at the 5 per cent level of significance. The study concludes that digitalization constitutes an important driver of fiscal performance in OYSIRS, although its individual components influence administrative outcomes through different pathways. In particular, e-payment and e-filing appear to provide the most direct contribution to revenue generation, while data analytics demonstrates greater relevance to improving tax compliance. The study therefore recommends that OYSIRS strengthen investment in e-payment and e-filing infrastructure to sustain revenue growth, while simultaneously improving its data analytics capabilities. Strengthening data analytics would enable the Service to better identify compliance patterns and potentially transform its significant compliance effect into a more direct contribution to revenue generation.

Keywords: Tax Administration Digitalization; Revenue Generation; Tax Compliance; E-Filing; E-Payment; Oyo State Internal Revenue Service

INTRODUCTION

Tax administration efficiency is central to a government's ability to collect revenue effectively, curb evasion, and fund public services. Countries such as the United States and the United Kingdom have transformed tax collection through digital platforms, including the IRS e-file system and the UK's Making Tax Digital initiative, which simplify filing for taxpayers while enabling authorities to monitor compliance in real time (Adefulu et al., 2024). These advancements illustrate a global shift toward technology-driven tax administration aimed at closing revenue gaps (Adedayo, 2021).

In Nigeria, tax administration has long been hindered by inefficiencies associated with manual processes, including difficulties in identifying taxpayers and inconsistent collection systems. Kupoluyi et al. (2022) note that persuading taxpayers to comply has never been straightforward regardless of jurisdiction, and the Chartered Institute of Taxation of Nigeria (2021) documents that electronic fiscal devices deployed elsewhere in Africa have encountered substantial implementation challenges, including weak ICT infrastructure and poor databases. To address these inefficiencies, Nigerian revenue authorities have launched initiatives aimed at automating tax collection and administration.

Tax administration digitalization refers to the integration of digital technologies, such as electronic filing, e-invoicing, and real-time reporting, into tax administration processes, with the goal of streamlining operations, reducing compliance burdens, and detecting fraud more effectively (Amah & Ijeoma, 2023). Evidence on its effectiveness in Nigeria is mixed. Onyeka and Nworgu (2022) find that the Integrated Tax Administration System improved revenue performance through enhanced transparency and reduced leakages, while Amah and Ijeoma (2023) argue that reforms such as the Finance Act 2020 expanded revenue inflows but that limited taxpayer education and perceived corruption continue to undermine long-term compliance. Digital tax reforms also vary significantly across Nigerian states, with jurisdictions such as Lagos and Oyo further along in automation than others, an unevenness that Deshi et al. (2025) suggest offers comparative lessons for identifying best practice.

A recurring feature of this literature is that digitalization is typically assessed against a single administrative outcome at a time, which leaves open the question of whether its component tools, e-filing, e-payment, automated processes, and data analytics, affect different dimensions of tax administration differently. Revenue generation and tax compliance are related but conceptually distinct outcomes: revenue generation concerns the volume of funds collected, while tax compliance concerns the willingness and consistency with which taxpayers meet their obligations. A digitalization tool that reduces cash-handling leakage may register most strongly on revenue, while a tool that improves transparency and detection risk may register most strongly on compliance behaviour. This study examines both outcomes within a common sample, instrument, and period at the Oyo State Internal Revenue Service (OYSIRS).

The study is guided by the following research questions:

- i. To what extent does tax digitalization influence revenue generation of Oyo State Internal Revenue Service?
- ii. How do tax digital tools affect tax compliance of Oyo State Internal Revenue Service?

The main objective of the study is to examine the effect of tax administration digitalization on revenue generation of Oyo State Internal Revenue Service. The specific objectives are to:

- i. examine the influence of tax digitalization on revenue generation of Oyo State Internal Revenue Service; and
- ii. investigate the effects of digital tools on tax compliance of Oyo State Internal Revenue Service.

In line with the foregoing objectives, the following null hypotheses are tested:

H01: Tax digitalization does not have a significant effect on revenue generation in OYSIRS.

H02: Tax Digital tools do not have a significant effect on tax compliance in OYSIRS.

LITERATURE REVIEW

Tax Administration Digitalization

Tax administration digitalization is the integration of digital technologies into tax administration processes, transforming how governments collect, manage, and monitor tax revenues. The shift from manual, paper-based systems to automated digital platforms has been driven by the need for increased efficiency, transparency, and accountability (Amah & Ijeoma, 2023). Pillah and Djebah (2024) highlight the growing role of digitalization in tax collection, noting that many administrations now deploy e-filing and e-payment systems to improve efficiency, reduce leakages, and enhance taxpayer convenience, while OECD (2025) reports that the integration of technology has improved on-time payment rates and reduced administrative burdens across several jurisdictions.

For the purposes of this study, digitalization is disaggregated into four components rather than treated as a single undifferentiated construct: e-filing, the electronic submission of tax returns and related documents; e-payment, the digital settlement of tax liabilities through electronic channels; automated tax processes, the use of technology to carry out assessment, collection, and record-keeping with minimal human intervention; and data analytics, the use of digital tools to identify patterns, detect fraud, and support compliance decisions. Each is measured through active usage rather than mere availability, consistent with Ogunbode's (2024) observation, from a mixed-method study of OYSIRS itself, that digital tools such as e-tax filing and online payment platforms have been adopted with uneven consistency across departments.

Revenue Generation

Revenue generation refers to the process through which a government or agency raises income to finance its activities and obligations. In the Nigerian sub-national context, internally generated revenue has taken on particular importance given the volatility of oil-based federal allocations and the fiscal pressure this places on state governments (Adedayo, 2021; Ayodeji & Adewale, 2025). The performance logic connecting digitalization to revenue generation runs primarily through leakage reduction: transactions conducted through supervised electronic channels are harder to divert or under-record than transactions conducted in cash through manual channels, and this mechanism is most directly implicated by e-payment and e-filing among the four digitalization components considered here.

Tax Compliance

Tax compliance refers to the extent to which taxpayers meet their liabilities voluntarily and accurately. Its performance logic differs from that of revenue generation in an important respect: compliance is a behavioural outcome, shaped by taxpayers' perception of the ease, transparency, and monitoring capacity of the tax system, rather than a direct accounting consequence of channel choice. Han et al. (2025) argue that digital tools improve compliance primarily by increasing transparency and detection risk, thereby discouraging evasion, while Hidayat and Defitri (2024) find in a systematic review that digital tools improve compliance through simplified procedures and enhanced administrative capacity taken together, rather than through any single dominant tool. This distinction motivates modelling revenue generation and tax compliance as two separate outcomes rather than collapsing them into a single measure of digitalization's effect.

Theoretical Framework

The study is anchored on Adam Smith's (1776) Classical Theory of Taxation, which explains effective taxation through the four fundamental canons of equity, certainty, convenience, and administrative efficiency. The theory holds that taxpayers are more likely to fulfil their tax obligations when the tax system is fair, tax obligations are clear and predictable, payment procedures are convenient, and the cost of tax administration is minimized. Applied to tax administration, Adam Smith's theory provides a single, coherent lens for both objectives of this study rather than separate theoretical grounds for each. For revenue generation, the theory predicts that digital tax systems such as e-filing, e-payment, automated processes, and data analytics can enhance administrative efficiency, reduce revenue leakages, minimize manual handling, and improve the accuracy and timeliness of tax

collection. The convenience and certainty provided by digital platforms can also facilitate smoother tax transactions and strengthen revenue capture (OECD, 2021; Sebola, 2020). For tax compliance, Adam Smith's theory predicts that taxpayers are more likely to comply when tax procedures are equitable, tax obligations are certain, payment processes are convenient, and the administrative burden associated with compliance is reduced. Digitalization can therefore promote compliance by making tax registration, filing, assessment, and payment more accessible, transparent, and predictable. Taken together, Adam Smith's four canons provide a unified theoretical basis for expecting digitalization to affect both revenue generation and tax compliance, with the two outcomes representing different manifestations of a more efficient, certain, convenient, and equitable tax administration system, which is the proposition this study's two-model design is built to test.

Empirical Review

Nigerian evidence on tax digitalization and revenue is broadly positive. Onyeka and Nworgu (2022) find that the Integrated Tax Administration System improved revenue performance through enhanced transparency and reduced leakages, and Fadipe et al. (2025) document a strong positive relationship between tax administration digitalization and revenue-related development outcomes in Nigeria. On compliance, Hidayat and Defitri (2024) and Han et al. (2025) both report that digital tools improve compliance behaviour, the latter emphasising transparency and detection risk as the operative mechanism. Working specifically within OYSIRS, Ogunbode (2024) reports that digital tools have improved elements of tax administration, though adoption remains uneven across the more foundational tools, such as e-filing and e-payment, and the more advanced tools, such as data analytics.

Two features of this body of work bear on the present design. First, studies that measure active usage rather than platform availability tend to report clearer effects, which supports the measurement choice adopted here. Second, most studies examine digitalization against a single outcome, so the question of whether its component tools affect revenue generation and tax compliance through different pathways has rarely been posed directly within a single sample.

Gaps in Literature

Two deficiencies emerge from the reviewed evidence. Digitalization has generally been examined as an undifferentiated construct against a single outcome, which forecloses the possibility that its component tools operate through different mechanisms on different dimensions of tax administration performance.

Nigerian evidence at the sub-national level remains comparatively limited relative to the volume of work on federal tax institutions, leaving the operational realities of state revenue agencies such as OYSIRS underexplored. This study addresses these gaps by disaggregating digitalization into four components and estimating their effects on revenue generation and tax compliance within a common survey of 339 respondents at OYSIRS.

METHODOLOGY

A survey research design was adopted within a quantitative framework, consistent with the study's aim of systematically gathering standardized responses from staff and tax consultants regarding the effect of tax administration digitalization on revenue generation and tax compliance.

The population comprised the staff and tax consultants/agents of the Oyo State Internal Revenue Service. OYSIRS records approximately 2,203 staff as at December 2025 (OYSIRS, 2025), alongside its wider base of staff in the state. Given the large population size, a sample size of 339 was determined using Taro Yamane's (1967) formula at a 5 per cent significance level. A total of 360 copies of a structured, close-ended questionnaire, designed on a 5-point Likert scale, were administered; 348 were retrieved and 339 were valid and usable for analysis, a 96.7 per cent response rate and a 94.2 per cent usable response rate.

Content and face validity of the questionnaire were established through review of relevant literature on digital tax systems and expert review by academics and professionals in taxation, accounting, and research methodology

(Saunders et al., 2019). Reliability was assessed through a pilot study of 20 respondents using Cronbach's Alpha, which yielded coefficients above the 0.70 threshold for all constructs (e-filing, e-payment, automated tax processes, data analytics, revenue generation, and tax compliance), with an overall reliability coefficient of 0.792, confirming internal consistency.

Data collected were coded and analysed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, frequencies, percentages, means, and standard deviations, were used to characterise respondent demographics and construct scores. Inferential analysis proceeded through multiple Ordinary Least Squares regression, with Variance Inflation Factor diagnostics conducted ahead of estimation to screen for multicollinearity.

Two models were specified to correspond with the study objectives:

Model 1 (Objective i):

$$RG = \beta_0 + \beta_1 EF + \beta_2 EP + \beta_3 ATP + \beta_4 DA + \varepsilon$$

Model 2 (Objective ii):

$$TC = \beta_0 + \beta_1 EF + \beta_2 EP + \beta_3 ATP + \beta_4 DA + \varepsilon$$

where RG denotes revenue generation, TC denotes tax compliance, EF denotes e-filing, EP denotes e-payment, ATP denotes automated tax processes, DA denotes data analytics, β_0 is the intercept, β_1 through β_4 are slope coefficients, and ε is the stochastic error term. Each objective was modelled separately in order to preserve the possibility that the four digitalization components affect revenue generation and tax compliance to different degrees. A priori, all coefficients were expected to be positive in both equations, consistent with the predictions of Adam Smith's classical theory of taxation.

Hypotheses were tested at the 5 per cent level of significance using the t-statistics of individual coefficients, with model adequacy assessed through the coefficient of determination, the adjusted R^2 , and the F-statistic.

RESULTS AND DISCUSSION

Response Rate and Respondent Profile

Of the 360 questionnaires administered, 348 were retrieved and 339 were valid and usable for analysis, a 94.2 per cent usable response rate, well above the minimum typically recommended for survey-based social science research (Saunders et al., 2019). Among the 339 respondents, 52.5 per cent were male and 47.5 per cent female; the largest age band, 38.6 per cent, fell between 31 and 40 years; 47.5 per cent held an HND or B.Sc. as their highest qualification and a further 28.0 per cent held an M.Sc. or MBA; and the sample was drawn in comparable proportions from OYSIRS staff (Admin and supplies) 40.7 per cent and OYSIRS staff (Audit and Account) 40.4 per cent, with tax consultants and agents making up the remainder, giving a reasonable balance between the supply and demand sides of tax administration.

Descriptive Statistics

Each construct was measured on a 5-point Likert scale, with composite scores computed as the mean of constituent items. A mean below 2.50 is interpreted as low, between 2.50 and 3.49 as moderate, and 3.50 and above as high agreement (Ogunbode, 2024).

Table 1: Descriptive Statistics of Study Constructs

Construct	N	Mean	Std. Deviation
E-Filing (EF)	339	3.60	0.83

E-Payment (EP)	339	3.50	0.79
Automated Tax Processes (ATP)	339	3.33	0.84
Data Analytics (DA)	339	3.31	0.84
Revenue Generation (RG)	339	3.45	0.84
Tax Compliance (TC)	339	3.37	0.90

Source: Field Survey, 2026 (SPSS Output).

E-filing (mean = 3.60) and e-payment (mean = 3.50) recorded the highest levels of agreement among the digitalization components, indicating that these are the most visibly adopted dimensions of digitalization at OYSIRS, consistent with Pillah and Djebah's (2024) observation that electronic filing and payment platforms are typically the entry point of tax digitalization reforms before more advanced tools follow. Automated tax processes (mean = 3.33) and data analytics (mean = 3.31) recorded comparatively lower, though still moderate, scores. On the outcome variables, revenue generation (mean = 3.45) and tax compliance (mean = 3.37) both fall within the moderate-to-high range, suggesting that respondents perceive digitalization as contributing positively to both outcomes, with room for further improvement.

Multicollinearity Diagnostics

Variance Inflation Factor (VIF) values were computed for the four digitalization components shared by both models. A VIF below the conventional threshold of 10 indicates the absence of problematic multicollinearity (Hair et al., 2019).

Table 2: Variance Inflation Factor (VIF) Results

Predictor	VIF
E-Filing (EF)	2.138
E-Payment (EP)	2.209
Automated Tax Processes (ATP)	2.059
Data Analytics (DA)	1.988

Source: Field Survey, 2026 (Python/statsmodels Output).

All VIF values range from 1.988 to 2.209, well below the threshold of 10, indicating that multicollinearity among the four digitalization components is not a concern and that the coefficient estimates in both models can be interpreted independently.

Test of Hypotheses

Hypothesis One

H01: Tax Digitalization does not have a significant effect on revenue generation in OYSIRS.

To test this hypothesis, Model 1 was estimated, regressing revenue generation (RG) on e-filing, e-payment, automated tax processes, and data analytics.

Table 3: Model 1 Summary and Coefficients — Effect of Tax Digitalization on Revenue Generation

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	0.795	0.178	—	4.474	0.000
E-Filing (EF)	0.265	0.062	0.263	4.293	0.000
E-Payment (EP)	0.316	0.066	0.298	4.776	0.000
Automated Tax Processes (ATP)	0.139	0.060	0.138	2.296	0.022
Data Analytics (DA)	0.040	0.059	0.040	0.669	0.504

Source: Field Survey, 2026. $R = 0.642$, $R^2 = 0.413$, Adjusted $R^2 = 0.406$, $F(4,334) = 58.653$, $p = 0.000$. Dependent variable: RG.

The model explains 41.3 per cent of the variation in revenue generation and is statistically significant overall ($F = 58.653$, $p = 0.000$). E-payment recorded the largest standardised effect ($\beta = 0.298$, $p = 0.000$), followed by e-filing ($\beta = 0.263$, $p = 0.000$) and automated tax processes ($\beta = 0.138$, $p = 0.022$), all significant at the 5 per cent level and carrying the expected positive sign. Data analytics, while positively signed, was not statistically significant ($\beta = 0.040$, $p = 0.504$), suggesting that although OYSIRS has begun adopting data-driven approaches, this component is not yet sufficiently embedded to exert an independent, detectable effect on revenue outcomes.

Decision: Since the overall model is significant and e-payment and e-filing exert independently significant positive effects, the null hypothesis (H_{01}) is rejected. Tax Digitalization has a statistically significant and positive effect on revenue generation in OYSIRS, consistent with the apriori expectation and with Onyeka and Nworgu (2022) and Fadipe et al. (2025).

Hypothesis Two

H_{02} : Tax Digital tools do not have a significant effect on tax compliance in OYSIRS.

To test this hypothesis, Model 2 was estimated, regressing tax compliance (TC) on the same four digitalization components.

Table 4: Model 2 Summary and Coefficients — Effect of Tax Digital Tools on Tax Compliance

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	0.616	0.196	—	3.139	0.002
E-Filing (EF)	0.202	0.068	0.186	2.965	0.003
E-Payment (EP)	0.223	0.073	0.195	3.046	0.003
Automated Tax Processes (ATP)	0.184	0.067	0.170	2.759	0.006
Data Analytics (DA)	0.193	0.065	0.179	2.950	0.003

Source: Field Survey, 2026. $R = 0.619$, $R^2 = 0.383$, Adjusted $R^2 = 0.375$, $F(4,334) = 51.735$, $p = 0.000$. Dependent variable: TC.

The model explains 38.3 per cent of the variation in tax compliance and is statistically significant overall ($F = 51.735$, $p = 0.000$). Unlike Model 1, all four digitalization components are statistically significant here: e-payment ($\beta = 0.195$, $p = 0.003$), e-filing ($\beta = 0.186$, $p = 0.003$), data analytics ($\beta = 0.179$, $p = 0.003$), and

automated tax processes ($\beta = 0.170$, $p = 0.006$). Notably, data analytics, which did not reach significance in the revenue model, contributes significantly to compliance, suggesting it operates primarily through improving the detection of non-compliance profiling rather than through direct revenue capture. The relatively balanced magnitude of the four coefficients, ranging narrowly from 0.170 to 0.195, indicates that compliance behaviour is shaped fairly evenly across the full suite of tax digital tools rather than by any single dominant one.

Decision: Since the overall model is significant and all four predictors are individually significant, the null hypothesis (H02) is rejected. Tax Digital tools have a statistically significant and positive effect on tax compliance in OYSIRS, corroborating the apriori expectation and aligning with Adam Smith's emphasis on convenience, certainty, equity, and administrative efficiency as drivers of voluntary tax compliance (Smith, 1776).

Table 5: Summary of Hypothesis Testing

Hypothesis	Model	R ²	F (df)	Sig.	Decision ($\alpha = 0.05$)
H01: Digitalization → Revenue Generation	1	0.413	58.653 (4,334)	0.000	Reject H01
H02: Digital Tools → Tax Compliance	2	0.383	51.735 (4,334)	0.000	Reject H02

Source: Field Survey, 2026.

Both null hypotheses are rejected at the 5 per cent level. Digitalization significantly affects revenue generation, and tax digital tools significantly affect tax compliance.

DISCUSSION OF FINDINGS

The finding that digitalization significantly and positively affects revenue generation lends empirical support to Adam Smith's classical theory of taxation (Smith, 1776): where e-payment, e-filing, and automated processes make tax transactions more convenient, more certain, and cheaper to administer, the cost of collection falls and the accuracy and timeliness of assessment improve, and it is this gain in administrative efficiency, rather than mere platform availability, that reduces the friction and leakage historically associated with manual tax collection. The result is consistent with Onyeka and Nworgu (2022), who found that the Integrated Tax Administration System improved revenue performance through enhanced transparency and reduced leakages, and with Fadipe et al. (2025), who documented a strong positive relationship between tax administration digitalization and revenue-related outcomes in Nigeria. That e-payment and e-filing dominate this effect, while data analytics does not reach significance, is consistent with these two tools being the most mature and consistently used within OYSIRS, as reflected in their higher descriptive means and, by the logic of Smith's canons, their correspondingly greater contribution to convenience and administrative efficiency in the collection process, and reinforces OECD (2025) evidence that electronic payment integration is among the most direct channels through which digitalization translates into fiscal gains.

The finding that digital tools significantly and positively affect tax compliance is likewise consistent with Adam Smith's classical theory, which holds that convenience, certainty, and equity in tax administration are central determinants of taxpayers' willingness to discharge their obligations. The result aligns with Han et al. (2025) and Hidayat and Defitri (2024), who found that digital tools improve compliance primarily through increased transparency and reduced detection risk to taxpayers. That all four components, including data analytics, contribute significantly and at broadly comparable magnitudes suggests that compliance behaviour is a more diffuse outcome, shaped cumulatively by the entire digital ecosystem, whereas revenue generation is driven more narrowly by the transaction-level channels of e-payment and e-filing. Read together with the revenue findings, the two models illustrate the same Smithian mechanism producing different outcome patterns: gains in convenience and administrative efficiency concentrated in e-payment and e-filing drive revenue most directly, while the broader, more evenly distributed improvements in certainty, convenience, and equity across all four tools drive compliance.

A feature of the results worth emphasising is the divergent role of data analytics across the two outcomes: insignificant for revenue generation but significant for tax compliance. This is not a contradiction but a substantive finding, consistent with Ogunbode's (2024) observation, from an earlier study of OYSIRS itself, that digital tools have been adopted with uneven consistency across departments. Data analytics at OYSIRS currently appears to function as a monitoring and detection tool that shapes taxpayer behaviour rather than as a channel that itself captures revenue, a distinction with practical implications for how the agency invests in this component going forward.

Explanatory power of 41.3 and 38.3 per cent is respectable for survey-based models of tax administration outcomes, but it also indicates that most of the variation in both revenue generation and tax compliance lies elsewhere, in organisational factors, taxpayer education, and broader economic conditions. Digitalization and its component tools operate alongside these determinants rather than in place of them, and the coefficients reported here should be read as measures of a contribution rather than a controlling influence.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

This study examined the effect of tax administration digitalization on revenue generation of the Oyo State Internal Revenue Service. Adopting a survey research design, a structured questionnaire was administered to 360 respondents comprising OYSIRS staff, tax consultants, yielding 339 valid responses. Digitalization was disaggregated into four components, e-filing, e-payment, automated tax processes, and data analytics, and each was regressed separately against revenue generation and tax compliance.

Digitalization exerted a positive and significant effect on revenue generation ($R^2 = 0.413$, $F = 58.653$, $p = 0.000$), with e-payment and e-filing as the strongest individual drivers and data analytics not reaching independent significance. Digital tools exerted a positive and significant effect on tax compliance ($R^2 = 0.383$, $F = 51.735$, $p = 0.000$), with all four components, including data analytics, contributing significantly and at broadly comparable magnitudes. Both null hypotheses were rejected at the 5 per cent level.

Conclusion

Tax administration digitalization is a measurable determinant of both revenue generation and tax compliance at OYSIRS, but its component tools do not contribute uniformly across the two outcomes. E-payment and e-filing are the primary drivers of revenue growth, most plausibly because they directly reduce cash-handling leakage, while tax compliance is shaped more evenly by the full suite of digital tools, including data analytics, which appears to function through improved transparency and detection risk rather than through direct revenue capture.

These conclusions carry qualifications. The models explain a minority of the variation in both outcomes, so digitalization operates alongside organisational and taxpayer-side factors rather than dominating them. And because data analytics registers on compliance but not on revenue, its contribution should not be read as absent, but as operating through a different mechanism than the other three tools.

Recommendations

- i. OYSIRS management should prioritise continued investment in expanding and securing e-payment and e-filing platforms, since these emerged as the strongest drivers of revenue generation across the sample.
- ii. OYSIRS should invest more deliberately in building in-house data analytics capability, including staff training in data-driven risk profiling, so that this component can be leveraged to support revenue outcomes directly rather than only compliance monitoring.
- iii. Because tax compliance is influenced fairly evenly by all four digitalization components, OYSIRS should pursue a balanced digitalization strategy across e-filing, e-payment, automation, and analytics, rather than concentrating resources on any single tool.

iv. The Oyo State Government and OYSIRS should pair continued tax digital investment with taxpayer education and sensitisation programmes, given evidence that compliance responds to the transparency and ease-of-use that tax digital tools provide rather than to platform availability alone.

Contribution to Knowledge

This study contributes sub-national empirical evidence on tax administration digitalization from a state revenue agency, addressing a gap in a literature that has predominantly focused on federal-level institutions. Methodologically, it disaggregates digitalization into four distinct components and models their effects separately against two conceptually distinct outcomes, revenue generation and tax compliance, within a single sample, instrument, and period, revealing that data analytics operates differently across the two, a pattern that a single-outcome design would not have surfaced. Empirically, it supplies primary survey-based evidence from OYSIRS confirming that digitalization improves revenue generation primarily through e-payment and e-filing, and improves tax compliance more evenly across all four component tools.

Suggestions for Further Studies

Future research could extend this design by incorporating tax administrative cost as a third outcome, examining whether the digitalization components that drive revenue and compliance also translate into measurable cost savings, and by triangulating the self-reported perceptions relied upon here with objective, audited revenue and cost figures where such data can be obtained.

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