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EFFECT OF OPERATIONAL AUTONOMY AND COMPUTERIZATION OF TAX COLLECTION ON REVENUE PERFORMANCE OF FEDERAL INLAND REVENUE SERVICE OF NIGERIA: ROLE OF STAFF QUALITY AND COST OF TAX ADMINISTRATION

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Abstract

The paper examines the effect of operational autonomy and computerization of tax collection on revenue performance of FIRS Nigeria through the mediating role of quality of staff and cost of tax administration. A cross-section survey research design was employed to collect data from the respondents using the purposive sampling technique. The data were analysed using a partial least square structural equation modeling approach with the aid of SmartPLS 3. Findings of the study revealed that operational autonomy, and computerization of the tax collection process influence revenue performance through the intervention of staff quality and cost of tax administration.It is therefore recommended that FIRS autonomy should be sustained. Also, FIRS should be fully computerized to ensure efficiency and simplicity in the core tasks of tax administration. Furthermore, the service should professionalise and incentivize staff for effective and efficient service performance, while keeping the cost of tax collection as low as possible.

Keywords: Tax Administration, Operational Autonomy, Computerisation of Tax Collection, Staff Quality, Cost of Tax Administration and Revenue Performance

1. Introduction

Taxation is regarded as the lifeblood of any stable government and by extension every prosperous and decent society. The critical role of taxation is best encapsulated by Justice Oliver Wendell Holmes who inscribed above the entrance of the United States (US) Internal Revenue Service building that "Taxes are what we pay for a civilized society" (Shah, 2006). In the contemporary world, taxation affects the allocation of resources, the distribution of income, and macroeconomic stability and growth. Taxation is seemingly the only practical means of creating, sustaining, and ensuring revenue to finance and fund government expenditure on goods and services.

If administered well, taxation remains the only reliable and pragmatic system for the government to generate revenue, formulate and execute economic policies, empower citizens, provide social services within the domestic environment and deal adequately with other actors of the economy. Taxation is the art of the possible; thus, tax policies no matter how well formulated are worthless if they cannot be implemented effectively. Tax policy must, therefore, take into consideration the administrative dimension of taxation.

Tax policy and tax administration interact at three distinct levels: (i) the formation of policy and drafting of legislation; (ii) the administrative procedures and the institutions needed to implement legislation; and (iii) the actual implementation of the tax system (Bird, 2004; Ifeanacho, et al., 2020). Several countries have been making and implementing reforms, policies, and strategies to lift up their revenue performance in order to achieve both Millennium Development Goals (MDGs) target and economic development. Regrettably, despite many efforts by developing countries, many are unable to raise sufficient revenues to finance budgets and to support developmental needs. Failure to optimize revenue collection could be linked to a poor tax administration

system, which is characterized by ineffective compliance and enforcement system, high collection costs, lack of automation, complex tax laws, lack of operational autonomy, poor quality of staff, and negative perception of taxpayers among others. Arguably, therefore,an attempt to increase tax revenue in a sustainable and equitable manner is often difficult to implement due to a lack of administrative capacity, institutional and/or political constraints.

Several components of tax administration are encapsulated in the activities of tax administration in the literature. Drawing from this and the strategic flanks that drive Nigeria's tax administration reforms the study, selected four components of tax administration as follows: operational autonomy, computerization of tax collection, staff quality and cost of tax administration.

2. Literature Review

In the last three decades from 1985, many emerging economies have restructured their tax administrations by merging former income tax and customs and excise departments within their Ministries of Finance and consolidating them into agencies that are commonly referred to as Semi-Autonomous Revenue Authorities (SARAs) to enhance their tax revenue collection performance.

Generally, the extent of powers given to the national revenue administration body depends on the system of government in place and the state of development of a country's public administration practices. Crandall (2010) opined that the problems of tax authority are largely associated with a lack of institutional autonomy. According to the author, where institutional autonomy is put in place, it will ensure higher salaries, staff would not need to seek alternate sources of income, and coupled with stricter discipline, corruption would reduce, morale, and productivity would increase as would revenue collections. This view is, however, disputed by other scholars, arguing that salary increases alone do notstop corrupt practices (Fjelstad 2013, Strauss and Hyun 2001). Though it has been argued that well managed Weberian organisations administered separately from the rest of public service and enjoying substantial independence to establish their own organizational routines have sometimes been very effective revenue gatherers, there is a contending view that often that there is the temptation to engage in rent seeking behavior to the detriment of their core mandate through the ever-present threat of corruption and extortion in the relationship between a tax collector and taxpayer.

Technology has continued to play a leading role in the way we conduct our affairs. It is therefore not surprising that technology has also affected how tax systems are designed and administered. In an environment that is characterized by globalization and continuous technological innovation and business change, tax administrations around the world have found succor in the use of information technology (IT) solutions to meet increasingly complex operational and strategic needs. As a result, of technology, many countries have shifted from manual to automated tax administration systems, shifting from rooms filled with clerks posting entries by hand in large ledger books to widespread use of computer to administer their tax systems (Bird & Zolt 2008). According to USAID (2013), modern technology solutions for tax administrations, comprise four main capabilities that include providing support to tax administration function, generation of information regarding taxpayers, helping to detect and deter-non tax compliance, as well as serving as management information system to support the collection, storage and dissemination of performance information to staff and management at large. Automation also facilitates voluntary compliance by opening multiple interactive and electronic channels with taxpayers. According to the World Bank (2018), paying taxes report, more than 90 countries have computerized their tax administration systems.

Employees of any organization are its most valuable assets. Staff quality is key to the success of institutions. In tax administration institutions such as FIRS, the responsibility to drive the tax administration process rests with the employees. Consequently, the level of commitment of staff to the ideals of the organization ultimately determines its success or failure. The modern tax administration is responsible for collecting taxes in line with relevant laws/enactments in a manner that promotes compliance and ensures fairness while keeping corruption at bay. Strauss (2008) argues that the core functions of a tax

administration, i.e., the assessment and collection of tax dues, almost require a Weberian bureaucracy characterized by hierarchy, close oversight of work performance by supervisors, adherence to clear formal procedures, work discipline, long term career orientation, and meritocratic recruitment and promotion. Arguing further, Strauss said, that the core tasks are measurable, quantifiable, and divisible and therefore very amenable to a strongly programmed hierarchic pattern of a work organization. Effective human resources management is, therefore, a key requirement for tax administrations. According to Alink and Kommer (2016), in the last decade, managerial attention has shifted to staff quality due to increasing awareness that labour conditions and organizational circumstances an institution offers determine the success of the organization. Also, how organizations attract new and retain existing staff, how it effectively adapts new innovations and technology, how it effectively communicates and relates with its environment and how projects are managed ultimately define success or failure in the short, medium, and long run.

On the other hand, scholars have argued that the lack of sufficient, trained, and qualified staff constitutes a constraint to the core functions of tax administration. According to Ola (2001), an insufficient number of qualified and competent accountants among the staff of tax authorities affect tax revenue collection from individual and corporate bodies. McCloskey (2004) identified lack of human resource quality devoted to tax audit and other verification functions, as one of the major impediments to effective tax administration. Reinforcing the view, Ayodeji, Oyeyinka, and Efunboade (2014), established that untrained and unqualified tax personnel who lacked skills on how to get information or conduct technical procedures were unable to effectively assess and collect tax revenue.

Another major impediment to effective tax administration is corruption by TA staff. According to Pashev (2005), the main driver of corruption is complexity in tax laws which makes compliance very difficult and thus creates room for rent-seeking by tax officials to aid evasion through corrupt arrangements with taxpayers. Other factors are bureaucratic red tape, the complexity of procedures, poor quality of monitoring and supervision, poor pay, lack of ethics, and get rich quick ambition. As reported by Pashev (2005), tax officials not satisfied with their pay package or with the fairness of career development and financial incentive schemes are more inclined to engage in corrupt behavior. Tax officers' attitude to corruption is also conditioned by the severity of punishments and sanctions for corrupt practices and the likelihood of being punished when detected.

Total costs of administering a tax system can be broadly classified into two categories: Administration and compliance costs. Administration costs are the totality of costs incurred by a tax administration to register, provide services, assess, collect, and enforce compliance on taxpayers. Compliance costs, on the other hand, are costs incurred by the taxpayer to comply with tax laws and consist of both administrative costs (for filing tax returns and paying taxes) and financial costs (cost of tax planning and hiring consultants). A review of academic literature indicates no consensus among scholars regarding the cost of administering tax systems. Furthermore, the controversy regarding factors that determine the relative administrative cost of the tax is still not resolved. However, there is a seeming consensus that the primary goal of tax policy is to reduce the social cost of taxation by minimizing administrative and compliance costs and thus minimize the deadweight loss to the system (Yitzhaki, 1979).

Academic literature suggests that administrative cost is influenced by the level of complexity of the tax structure, arguing that the more complex the structure, the more costly it is in terms of compliance cost. According to Alm, Bahl and Muory (1990), the structure of a tax system provides incentives for tax compliance as well as tax evasion, stressing that it is important in considering tax reforms to consider how taxpayers will respond to changes in the tax structure.It is noteworthy that government administration and collection costs capture only a fraction of the administrative cost of the tax system (Slemrod and Yitzhaki 1996). Dennis and Emmanuel (2014), posit that a key feature of a good tax system is that the cost of administration must be relatively low compared to the benefits derived from its imposition. McCloskey (2004) opined that the cost of collection ratios (i.e. the ratio of administrative costs/tax revenue collections), which is

widely used internationally to draw conclusions on the relative efficiency and effectiveness of revenue bodies, vary substantially across countries, in part due to factors unrelated to efficiency and effectiveness.

Unlike the costs incurred by taxpayers, administration costs are incurred and financed from tax revenue; they are socially more costly. An evaluation of social costs enables tax administration to have a sense of how these costs compare with tax revenue raised. The lower the cost of tax administration is kept the more likely it is to achieve the goal of tax policy. According to Okello (2014), the cost-effective systems in tax collections are those that encourage the majority of taxpayers to voluntarily meet their tax obligations and leave the tax officials to put more effort in dealing with those who do not comply. These would require a TA, which adopts a service-oriented attitude towards taxpayers, helps them understand the tax law requirements, and take tough actions concerning non-compliance (for e.g., through regular audit programs, consistent penalties, and transparency).

Looking on the side of taxpayers, Laffer, Winegarden, and Childs (2011) reported that costs incurred by taxpayers to comply with tax laws are actually higher than what government often collects. This was also affirmed by Ojochogwu and Ojeka (2012), who documented that businesses, large and small, hire teams of accountants, lawyers, and tax professionals to track, measure, and pay their taxes. This tax infrastructure is also used to optimize the tax liability of the business. Consequently, individuals and businesses change their behavior in response to tax policies by hiring tax experts to discover ways to minimize their tax liabilities. The efficiency costs from both legal tax avoidance and illegal tax evasion are difficult to quantify but could be the highest costs of all the aggregate costs. Many studies generally concluded that the minimization of cost of collection and reduction of inefficiencies associated with high costs attached to tax collection would increase considerably the growth in revenue and wealth (Laffer, Winegarden, & Childs, (2011) and Ojochogwu and Ojeka (2012).

3. Research Hypotheses and Model

The following hypotheses are developed to guide the study.

H_{01} = there is no significant relationship between autonomy of tax authority and staff quality of FIRS Nigeria.

H_{02} = Quality of staff has no significant effect on the revenue performance of FIRS in Nigeria.

H_{03} = there is no significant relationship between computerization of tax system and cost of taxadministration at FIRS in Nigeria.

H_{04}= Cost of tax administration does not influence the revenue generation of FIRS Nigeria.

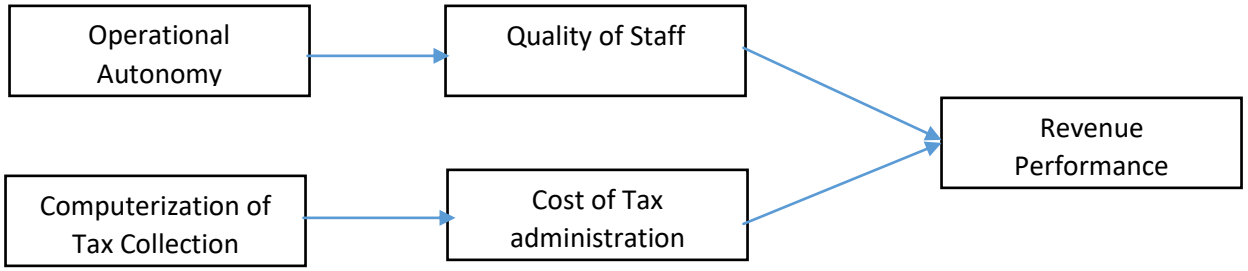

Figure 1. Research model.

3. Methodology

The study employed a survey (cross-sectional and correlation research) design. The survey was conducted in order to collect relevant data (using research instruments)

concerning the variables of the study, measure the variables, test the hypotheses, and infer questions about individual experiences and characteristics. The correlation design was utilized to establish the extent of the relationship existing between tax administration and revenue performance of FIRS in Nigeria. This design was chosen because of its effectiveness in assessing the relationships and effects of two variables: tax administration and revenue performance.

The population of the study consists of 3765 Staff of Federal Inland Revenue Service on grade level 10 and above, 833 Professionals in Taxation licensed by Chartered Institute of Taxation in Nigeria (CITN), and 246 Listed Companies on the Nigerian Stock Exchange (NSE).

The purposive quota sampling technique is adopted to ensure only staff that are conversant with tax administration were selected to fill in the research questionnaire. With respect to corporate taxpayers, only management staff handling tax matters was selected. While in the case of professionals in taxation, only members of CITN engaged in tax practice were sampled. Based on the population of 4,844, the appropriate sample size of 357 is determined. This figure was arrived at using the Krejcie and Morgan's (1970) table with a population of 5000. The choice of Krejcie and Morgan's (1970), sample size determination criterion was based on the fact that it takes into account both level of confidence and precision, thus, minimizing sampling error. A structured self-administered questionnaire consisting of the study's variables was employed for the survey.

4. Presentation and Discussion of Result

The first step in assessing the measurement model starts with the evaluation of individual item reliability through indicator loadings. The rule of thumb is that an indicator's loading above 0.7 indicates good reliability but in exploratory research like this study an indicator's loading of 0.6 is accepted to establish item reliability (Hair et al., 2017). From Table 1, it can be seen that the indicator's loading for the items in the research model is within the accepted benchmark of 0.6 and above.

The second step of establishing quality criteria for the measurement model is that of internal consistency reliability using composite reliability, the rule of thumb is that a higher value indicates a high level of reliability (Hair et al., 2019). However, reliability values between 0.6 to 0.7 are considered acceptable for exploratory research, and 0.7 and 0.9 indicate satisfactory good reliability (Hair et al., 2014). However, CR values of 0.95 is problematic as such indicates redundancy thereby reducing construct reliability (Diamantopolous, et al., 2012). It may also indicate undesirable responses such as straight-lining from the respondents (Hair et al., 2017). Table 1 and figure 2 show the construct reliability CR values.

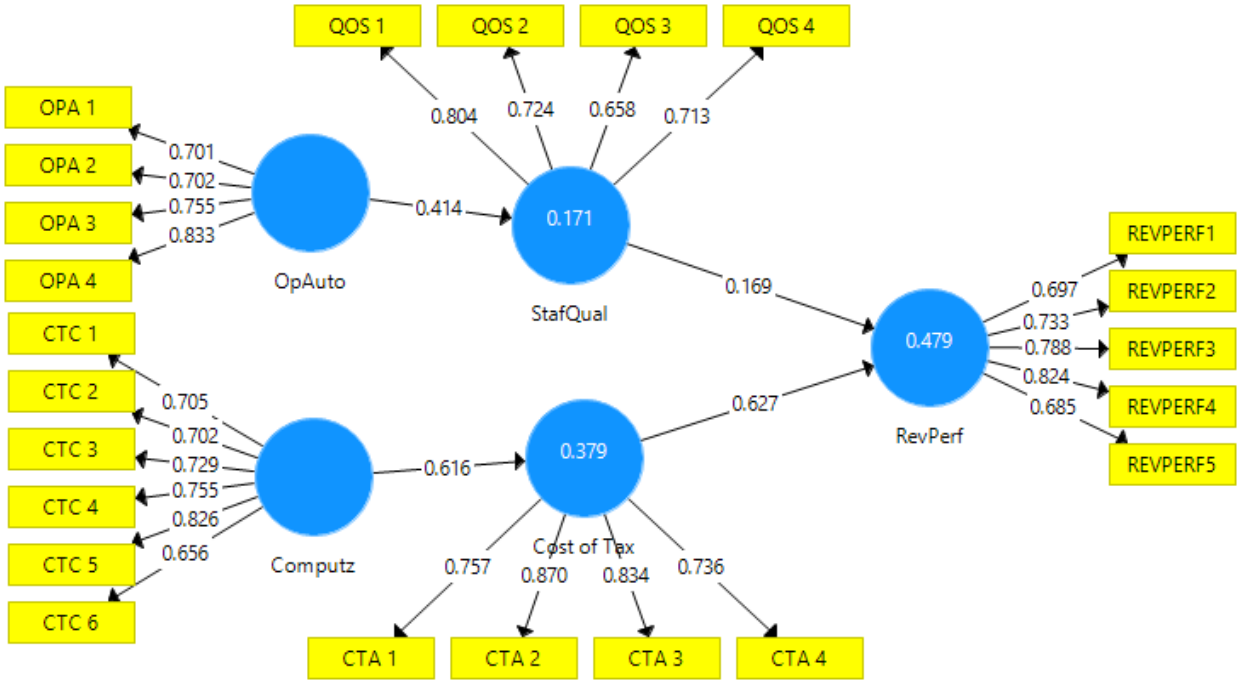

Figure 2. PLS Algorithm

Source: Generated by the author from the Survey Data

Table 1. Reliability using indicator loading and Internal consistency (CR)

	Items	CR	AVE
Computerization of Tax		0.872	0.534
CTA 1	0.757		
CTA 2	0.870		
CTA 3	0.834		
CTA 4	0.736		
Cost of Tax Collection		0.877	0.642
CTC 1	0.705		
CTC 2	0.702		
CTC 3	0.729		
CTC 4	0.755		
CTC 5	0.826		
CTC 6	0.656		
Operations Autonomy		0.836	0.562
OPA 1	0.701		
OPA 2	0.702		
OPA 3	0.755		
OPA 4	0.833		
Staff Quality		0.817	0.528
QOS 1	0.804		

QOS 2	0.724		
QOS 3	0.658		
QOS 4	0.713		
Revenue Performance		0.863	0.558
REVPERF1	0.697		
REVPERF2	0.733		
REVPERF3	0.788		
REVPERF4	0.824		
REVPERF5	0.685		

Source: Generated by the Author from the Survey Data

The third step in the assessment of the measurement model is convergent validity (CV) diagnosis. Convergent validity is the extent to which the construct converges in order to explain the variance of its items (Hair et al., 2012). Therefore, the criterion for measuring CV is the average variance extracted (AVE) for all the items for each construct (Hair et al., 2017). Under this, the minimum accepted AVE is 0.5 or higher (Hair et al., 2012). That is an AVE of 0.5 or higher indicates that the construct explains 50% or more of the variance of the items that make up the construct (Hair et al., 2017). As can be seen in Table 1 all the construct AVE is within the benchmark of 0.5 and above.

Next is the analysis of discriminant validity (DV). DV is the extent to which a construct is Geneempirically distinct from another construct in the structural model. Cross-loading is typically the first step in the assessment of discriminant validity of indicators (Hair et al., 2020). Under this, an indicator's outer loading in the associated construct should be greater than any of it cross loading on other constructs in the model. Therefore, DV is said to be established when the cross loading did not exceed indicator outer loading as seen in the Table 2. However, DV can be further examined using other methods.

Table 2. Discriminants validity using cross loadings

	Cost of Tax	Computz	OpAuto	StafQual	RevPerf
CTA 1	**0.757**	0.455	0.247	0.166	0.530
CTA 2	**0.870**	0.523	0.266	0.270	0.573
CTA 3	**0.834**	0.545	0.236	0.235	0.541
CTA 4	**0.736**	0.443	0.295	0.189	0.511
CTC 1	0.387	**0.705**	0.367	0.249	0.396
CTC 2	0.396	**0.702**	0.385	0.264	0.513
CTC 3	0.501	**0.729**	0.382	0.160	0.505
CTC 4	0.456	**0.755**	0.360	0.338	0.465
CTC 5	0.503	**0.826**	0.327	0.302	0.559
CTC 6	0.434	**0.656**	0.179	0.208	0.422
OPA 1	0.231	0.379	**0.701**	0.295	0.289
OPA 2	0.250	0.298	**0.702**	0.225	0.275
OPA 3	0.247	0.320	**0.755**	0.280	0.315
OPA 4	0.254	0.363	**0.833**	0.400	0.355
QOS 1	0.256	0.341	0.292	**0.804**	0.325
QOS 2	0.233	0.268	0.206	**0.724**	0.281

QOS 3	0.102	0.144	0.316	**0.658**	0.172
QOS 4	0.187	0.236	0.376	**0.713**	0.201
REVPERF1	0.377	0.441	0.206	0.212	**0.697**
REVPERF2	0.343	0.347	0.281	0.118	**0.733**
REVPERF3	0.467	0.488	0.310	0.315	**0.788**
REVPERF4	0.539	0.524	0.327	0.276	**0.824**
REVPERF5	0.653	0.562	0.370	0.280	**0.685**

Source: Generated by the Author from Survey Data

Fornell and Lacker (1981) also proposed the use of traditional matric of measuring DV and suggest that each construct AVE should be compared to the squared correlation of the same construct and all other reflectively measured construct in the structural model. That is, the shared variance of all other models construct should not be larger than their AVE (Hair et al., 2017). The result of discriminant validity assessment using Fornell and Lacker criteria is presented in Table 3.

Table 3. Discriminants validity Using Fornell and Lacker

	PerTaxPyers	RevPerf	TaxAdmin	RevPerf	StafQual
PerTaxPyers	0.**789**				
RevPerf	0.549	0.**753**			
TaxAdmin	0.355	0.516	0.**757**		
RevPerf	0.655	0.673	0.415	0.**747**	
StafQual	0.345	0.271	0.414	0.339	0.**727**

Although Fornell and Lacker (1981), criteria has been used to establish DV but recently, Henseler et al. (2015) discovered that Fornell and Lacker criterion did not perform well in establishing DV particularly when the indicator loading on a construct differs only slightly. As a result, they develop the HetrotraitMonotrait (HTMT) ratio of the correlation for assessment of DV. The advantage of HTMT against the two proceeding methods (cross loadings and Fornell and Lacker criteria) is that, it takes the serial mean of the item correlation against the construct correlation (geometric mean) as cited (Hair et al. 2017). The threshold values of establishing HTMT should be less than or equal to 0.85 (Henseler et al., 2015) and 0.90 as suggested by Franke and Sartedt, (2019). From Table 4 and figure 3, the DV is established as the serial mean of all the construct is below the lower benchmark of 0.85.

Table 4. Discriminants validity Using HTMT

	Computz	Cost of Tax	OpAuto	RevPerf	StafQual
Computz					
Cost of Tax	0.747				
OpAuto	0.58	0.423			
RevPerf	0.766	0.783	0.507		
StafQual	0.451	0.353	0.548	0.423	

Source: Generated by the Author from the Survey Data

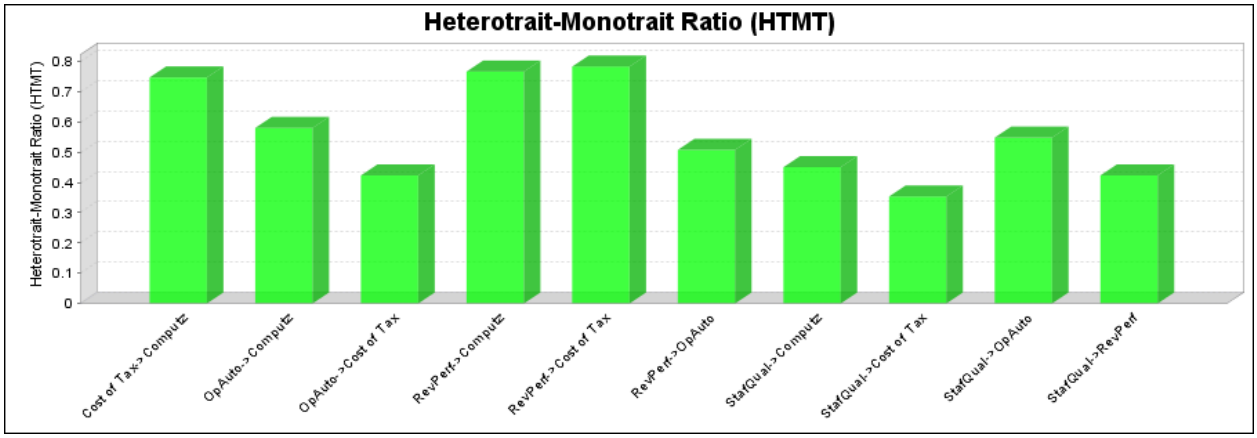

Figure 3. Discriminants validity using HTMT

Source: Generated by the Author from the Survey Data

The criteria for assessing the significance of the structural model in PLS-SEM include determiningGenerated by the Author the size and strength of the path coefficients, the coefficient of determination (R^2), effect size (f^2) of omitting a construct on the model and establishing the predictive relevance (Q^2) of the model (Hair et al., 2019). The PLS predict the Importance Performance Map Analysis (IPMA) as well. The model examined the direct and indirect relationships between the study variables. The significance of the path coefficient was assessed through PLS-SEM bootstrapping process using 5000 samples with the original number of the sample data to assess the significance of the path coefficients (Sarstedt et al., 2019). The study estimated the structural model by focusing on the meditating effect of staff quality, cost of tax administration in the relationship between operational autonomy, computerization of tax and the revenue performance (H1-H4).

Table 5, presents the path coefficients, t-statistics, P-values, and decision. Starting with the first Hypothesis (H1).Recently Hair et al. (2019), Hair, Howard and Nitzl (2020), introduce an up to date criteria for the assessment of structural model with emphasis on the latest methodological improvement such as PLSpredict and the Importance Performance Map Analysis (IPMA). Therefore, the first step to evaluate structural model construct is to start with structural model collinearity diagnosis to make sure that it does not bias the structural model result. Under this the variance inflation factor (VIF) is used to assess the collinearity among the constructs. VIF above 5 are considered to be a problem as it indicates collinearity (Hair et al., 2017). Based on the results of this study, collinearity is not an issue as the VIF values for all the construct ranged from 2.13 to 3.45 respectively.

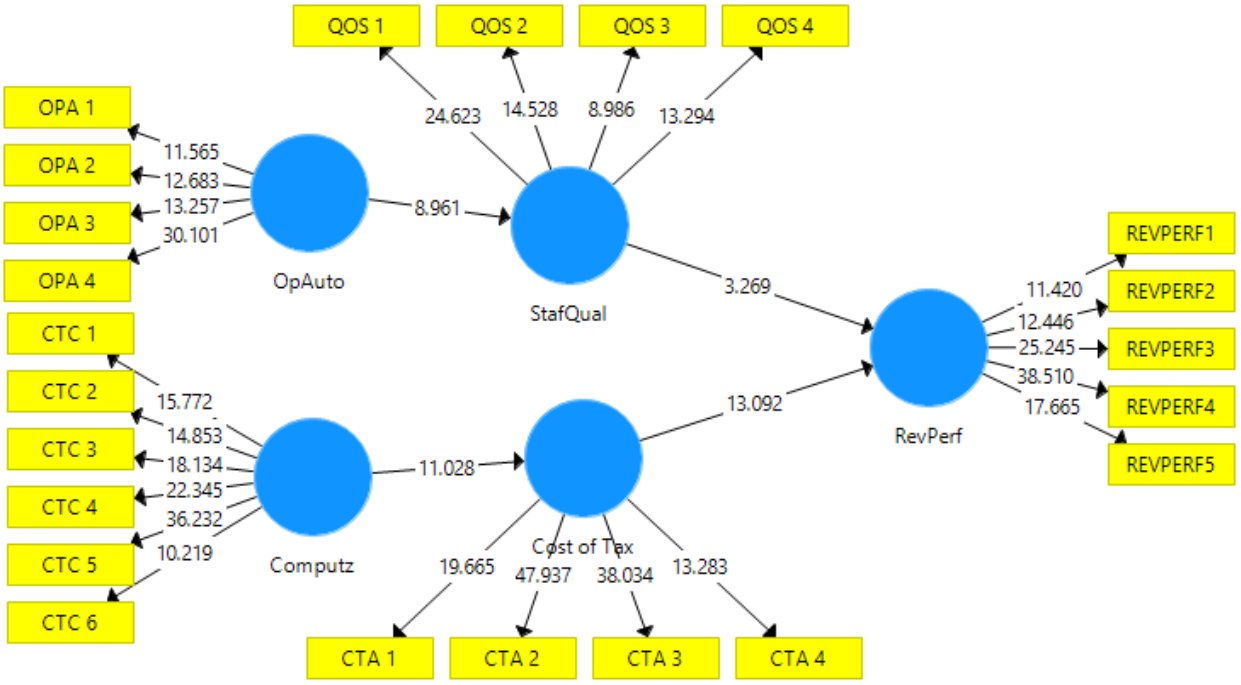

Figure 4. PLS Algorithm

Source: PLS result generated by the Author from the Survey Data

Table 5. Size and significance of the path coefficients

PHypotheses	Beta	STDEV	T Statistics	P Values	0.025	0.975
H1-OpAuto ->StafQual	0.414	0.046	8.961	0.000	0.306	0.491
H2-StafQual ->RevPerf	0.169	0.052	3.269	0.001	0.063	0.264
H3-Computz -> Cost of Tax	0.616	0.056	11.028	0.000	0.492	0.708
H-4Cost of Tax ->RevPerf	0.627	0.048	13.092	0.000	0.522	0.716

The results of the analysis in Table 5, revealed that the predicted a positive relationship between operational autonomy and staff quality (β= 0.414; t=8.961; p < 0.00). Thus, the study rejected the first hypothesis. The results of the second hypothesis (H2) show that cost of tax administration positively affect revenue performance through staff quality (β=0.169; t= 3.269; p < 0.01). This provided a basis for rejecting the hypothesized relationship. Similarly, the result of the third hypothesis (H3) predicted a positive relationship between computerization of tax administration and reduction in the cost of tax administration (β=0.616; t=11.028; p<0.00). Hence, H3 is rejected. The result of the fourth hypothesis revealed a significant positive relationship between cost of tax administration and revenue performance (β= 0.627; t=0.13.092; p<0.00). Thus, providing evidence to reject the hypothesis (H4). Overall, the study provides evidence to support the mediating role of staff quality and cost of tax administration in the relationships between operational autonomy, computerization of tax administration and revenue performance of FIRS Nigeria.

To verify whether the relationships between constructs are truly significant or not, we examine the confidence interval by using both the lower and upper bound values and if the lower bound shows a sign of negativity (0) it simply indicates that the relationship is not truly significant

despite the presence of p-value and t-statistics. This analysis is also presented in Table 5.

The R-square (R^2) value assessment is one of the most commonly used criteria for assessing a structural model of the endogenous construct (Hair et al., 2020). The coefficient of determination (R^2) represents the proportion of variation in the dependent variable that is explained by one or more predictor variable (s). The R^2 value range between 0 and 1. The closer the R^2 is to 1 the more the relationship explained. Based on the Cohen (1988) categorization, R^2 value of .02, .13, .26 and .60 are classified as weak, small, moderate, and substantial respectively. It can be seen that the model produced a small R^2 value for staff quality (.17), and substantial R^2 value for cost of tax administration (.38), and revenue performance (.48) of FIRS Nigeria. The model thus confirms the research theorized assumptions of optimal revenue performance through different kinds of tax reforms initiatives.

Table 6. Coefficient of Determination (*R^2*)

Construct	R Square
Cost of Tax	0.379
RevPerf	0.479
StafQual	0.171

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Table 7. Effect Size (f^2)

Construct	Cost of Tax	Effect Size (f2)	RevPerf	Effect Size (f2)	Staff Qual.	Effect Size (f2)
Computz	0.611	Large	N/A	N/A	N/A	N/A
Cost of Tax	N/A	N/A	0.699	Large	N/A	N/A
OpAuto	N/A	N/A	N/A	N/A	0.206	Medium
GeStafQual	N/A	N/A	0.051	Small	N/A	N/A

As can be seen Table 7, the result of effect size (f2) were found to be small (.051), medium (.206), and large (.611; 699), on their respective target constructs. This confirmed the assumption that the link between components of effective tax administration and revenue performance is curvilinear in nature.

The guideline for assessing predictive relevance of the model says that value should be larger than zero (0) to suggest predictive accuracy of the model. As a rule of thumb, values higher than 0, 0.25, and 0.50 indicates small, medium, and large predictive relevance of the PLS model (Hair et al., 2020). The result is presented in Table 8. The result returns a medium predictive relevance (0.23, 21, 07) of the model (Hair et al., 2019). This confirmed assumptions that the effectiveness of tax administration on revenue performance largely depends on the intervention of other constructs.

Table 8. Predictive relevance (Q^2)

	SSO	SSE	Q^2 (=1-SSE/SSO)
Computz	2142	2142	
Cost of Tax	1428	1104.713	0.226
OpAuto	1428	1428	
RevPerf	1785	1396.946	0.217
StafQual	1428	1328.54	0.070

Generated by the Author, from survey data 2022

As regards to overall model fitness, this study employed the Standardized Root Mean square Residual (SRMR), which was used to measure model fitness (Henseler*et al.*, 2015) Under this, a value of zero indicates perfect fit, and anything (value) less than 0.085 is generally considered/accepted as a good fit (Hu &Bentler, 1998). The result of analysis returned an SRMR value of 0.083 which is also within the accepted threshold value of .08 and < 1, indicating a very good fit.

Table 9. Model fit using Standardized Root Mean square Residual (SRMR)

	Saturated Model	Estimated Model
SRMR	0.083	0.100
d_ULS	1.890	2.754
d_G	0.635	0.681
Chi-Square	1227.366	1274.186
NFI	0.674	0.661

Generated by the Author from survey data

The study applied the PLS-predict of Shmueli, Ray & Estrada (2016), a procedure used to assess the measurement invariance and predictive accuracy of the model using out-of-sample predictions of models for the key target constructs. As can be seen in Table 10, all indicators have positive *Q* predict value.

Table 10. Predictive accuracy using Q predict

		PLS Model		Linear Model	
	Q^2_predict	RMSE	MAE	RMSE	MAE
REVPERF1	0.167	**0.603**	0.466	**0.627**	0.512
REVPERF2	0.125	**0.569**	0.463	**0.574**	0.476
REVPERF3	0.213	**0.567**	0.441	**0.569**	0.448
REVPERF4	0.243	**0.548**	0.427	**0.556**	0.459
REVPERF5	0.245	**0.556**	0.402	**0.578**	0.405

Generated by the Author from survey data

** When comparing the PLS-SEM results against the linear model benchmark, the numbers in bold indicate where the prediction error is smaller.*

Out of the five indicators for measuring the target constructs; the PLS-SEM results shows all the five indicators for the revenue performance have smaller prediction errors than the linear model benchmarks. One out of the remaining two items; have identical prediction errors (REVPERF1; 0. 652 MRSE) with the linear model. The study thus concludes that the model has a medium to high predictive power (Shmueli et *al.*, 2016; Shmueli, Sarstedt, Hair, Cheah, Ting … &Ringle, 2019), as seen in Table 10.

The use of Importance Performance Map Analysis (IMPA) extends the results presentation of the standard PLS-SEM estimation method which enabled the researcher to draw some managerial /practical recommendations from the statistical outputs (Hair et al., 2020).

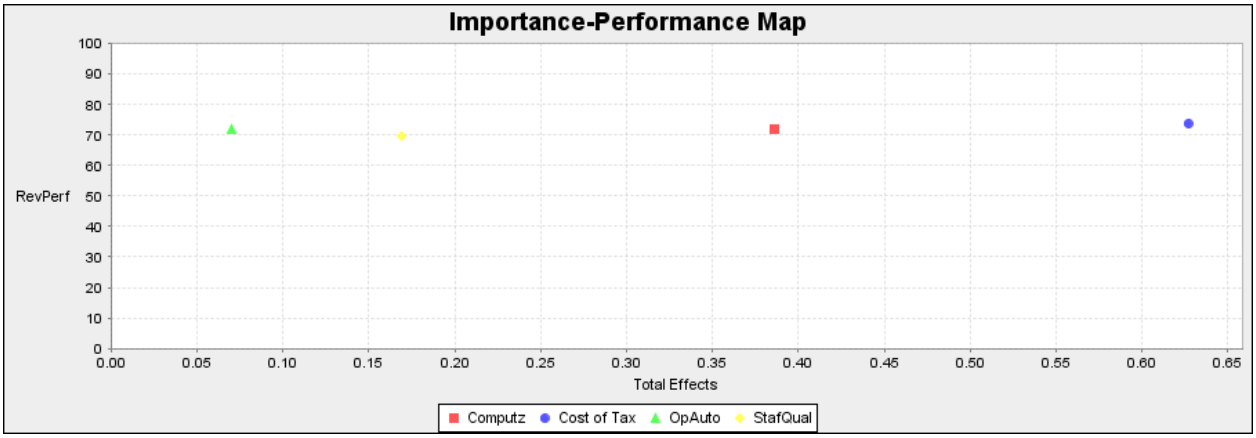

Figure 4. IMPA Analysis

Generated by the Author

From the figure 4. the IMPA analysis indicate that staff quality and operational autonomy have a fair significance on revenue performance compared to cost of tax administration and computerization of tax collection but low importance was attached to them by the research respondents. It is important to pay attention to these construct to improve revenue performance of FIRS.

The result obtained from Table 5 had depicted a positive relationship between the components of effective tax administration (operational autonomy, computerization) and revenue performance through the mediating role of staff quality and cost of tax administration. This is a clear indication that, there is significant positive relationship between effective tax administration and revenue performance. These findings are in line with the result of previous studies of Das-Gupta et al (2016), Vernom (2012), Abiola and Asiweh (2012) and Gebre-Egzieber (2010). In contrast to this finding, the study of Goron-Dutse (2012) reported an insignificant relationship between effective tax administration and revenue performance.

5. Conclusion and Recommendations

This study examines whether operational autonomy and computerization of the tax administration system play a significant role in determining revenue performance of FIRS in Nigeria through the intervention effect of staff quality and cost of tax administration. The study concludes that there is a significant positive relationship between the operational autonomy, computerization, staff quality and cost of tax administration to revenue performance. It is therefore recommended that FIRS should be given full autonomy to operate with minimal bottleneck. The operations of the institution should also be fully computerized to ensure efficiency and simplicity in the core tasks of tax administration. In tandem with the findings of the study, the mediating variables (staff quality and cost) influence revenue performance. It is thus recommended that the Service should professionalise and incentivize staff to perform, while keeping the cost of tax collection as low as possible both to the FIRS and the taxpayers.

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