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FACTOR ANALYSIS OF TAX COMPLIANCE VALUE CHAIN AMONG LAGOS STATE TAXPAYERS

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Abstract

The study employed exploratory factor analysis to assess the tax compliance value chain among taxpayers in Lagos Metropolis. The study adopted a quantitative survey design, convenience sampling technique, and questionnaire as a data collection instrument from 500 taxpayers out of 4,602,899 that registered with tax office of Lagos State Internal Revenue Service as of 2019. The analysis was done using Kaiser-Meyer-Olkin (KMO) and Bartlett's test. Purification was done with Total Variance Explained (TVE) before the Principal Component Analysis (PCA). The indices of determination of tax compliance were value chain points namely returns filing; information disclosure; tax computation and tax payment. The results of the Analysis of total variance explained gave 78.376 as Rotation Sums of Squared Loadings with an Eigen value of 1. Principal Component Analysis (PCA) gave the result of the Rotated Component Matrix with four components of value chain points and factor loadings range between 0.708 and 0.911. The study concluded that tax compliance is a bundle value that should be broken down and analyzed in its parts while tax compliance is unbundled into value creation stages. The study suggested that tax authorities should monitor each of these value chain stages when aiming at achieving compliance among taxpayers.

Keywords: Returns filing, Income reporting, value chain, Tax computation, Tax payment

JEL Classification: H260, C910

1 Introduction

Persuading taxpayers to comply with the requirements of a tax system has been a difficult task in every system. Tax compliance seems to be increasingly difficult, especially, in Nigeria due to frequent and significant aspects of tax policy that often change as most of the previous problems remain and new concerns are evolving such as self-assessment, the advent of the worldwide economy, and automated transactions. These features have policy implications on the way the tax system is administered. In

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particular, one risk with self-assessment is the temptation to rely on a stricter enforcement regime. It has been alleged from time to time, that the internal revenue service in the USA, especially, has sometimes relied on over-zealous enforcement or excessively disciplinary methods of obtaining compliance with their self-assessed income tax system (Pyrne, 2013). However, there seems to have been signs of essential change in the approach of some tax agencies concerning taxpayers. For example, in the United States, the Internal Revenue Service, known for its very strict approach to taxpayers, has been considering a rather different approach. There was a move in the US to advise the Internal Revenue Service to treat taxpayers as customers because; the primary objective of taxation is to benefit and not to punish citizens.

The understanding of the concept of tax compliance and its consequential effects remain worrisome to stakeholders. Montesquieu (1948) succinctly asserts that the unreasonable severity of the laws hinders execution. No doubt sanctions have to be put in place to support tax administration, but there should be a caution as to the extent to implement the sanctions and the eagerness to which they are obligatory. There are many positive methods to adopt to promote tax compliance that is in line with the role of public spending as a net public benefit. Tax is essential for the sustainable development of a nation through revenue generation and economic growth (OECD, 2013). Chude and Chude (2015) opine that a good policy on tax compliance is necessary for a well-functioning tax system. Tax compliance has been specious from the inception of taxation and continued to be an interesting area of taxation (Ramona-Anco & Larissa-Magreta 2013). It is worthy of note that the consequence of non-compliance, if not curbed on time, could lead to revenue loss and poor economic growth (Beale & Wyatt, 2017).

The objective of this study is to examine the four subjects' matter of tax compliance in the light of a dynamic economy for tax administration in Lagos State, Nigeria. The first subjects the returns filing which are statutory obligations of every taxpayer and a sort of information gathering, preparation, and submission of statement of income and expenditure of a taxpayer for a year of assessment to the tax authority. Secondly, income reporting that refers to the disclosure of relevant information about the taxpayers' income for a year of assessment. The income tax acts provide that information be supplied in respect of a taxpayer include sources of income received in the year of assessment, amount of income from each source, information relating to expenditure, reliefs, allowances, deductions, capital allowances. The third subject is the computation of tax liability which entails the determination of the amount payable by a taxpayer for a year of assessment as provided for by the relevant tax statutes. It includes the determination of the total amount of income and expenditure statutorily chargeable and allowable, as well as handling of objections, appeals, and disputes that may arise in the process. The fourth subject is the payment of tax due that involves actual collection, recovery, and repayment. Once an assessment becomes final and conclusive, the full amount of such tax due must be paid within the stipulated time.

Previous studies such as Chude and Chude, (2015) and Eiya, Ilaboya and Okoye, (2016) have established that no matter the perspective or approach adopted by any study to examine tax compliance, a good understanding of tax compliance as a concept is very essential. But the determinants of tax compliance as a concept remains a contending issue and unresolved (Devos, 2014; Kira, 2017). This study, therefore, attempts to examine tax compliance as behavioural process of value creation activity that can be broken into component stages. It is thus assumed that a good understanding of the process involved in tax compliance, as well as the component stages, would allow a better understanding and a clear appreciation of the tax compliance process for reliable, effective, and efficient policy decision making. Hence, the study made a factor analysis of tax compliance as a concept adopting the tax compliance value chain analysis model comprising returns filing; income reporting; computation of tax liability, and payment of tax due.

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2 Literature review

2.1 Conceptual review

There are several early studies on tax compliance and its determinant. The adoption of modern economic tools to study tax compliance is however credited to Allingham and Sandmo (1972) with extension to Becker (1968). Agbetunde (2019) Tax compliance is a situation whereby a taxpayer has dully registered with the relevant tax authority, filed his tax return on time, properly disclosed all sources of income, claimed entitled reliefs, and allowances correctly computed his tax liability, and paid his tax liability to the appropriate authorities within the specified time. In line with this definition, tax compliance is recognised as a procedure that has four distinct phases of achieving tax compliance namely filing returns, income reporting, computation of tax liability, and payment of tax due (Agbetunde, 2019; Agbetunde, Anyahara & Akinrinola, 2020).

Tax compliance has been extensively discussed by various scholars in the field of social and management sciences, professionals, and government agencies. In clear administrative language, tax compliance begins with registration for tax or provision of relevant information to the tax authorities about one's tax status, submission of tax returns every year (if required), computation and payment of tax due within the time frame (Ming *et al*., 2005). Alm (1992) describes tax compliance as a voluntary act of reporting all incomes and paying all taxes by following the provisions of tax laws. Singh (2003) added that tax compliance is a process of filing income tax forms, declaring all taxable income, and paying all tax liabilities promptly without waiting for follow-up actions from the tax authority.

The profound belief is the central aim of an effective tax administration system that inspires voluntary tax compliance, in another word, income tax non-compliance compresses failure to submit tax returns when officially obliged to do so, understatement of income tax returns, overstatement of deductions on tax returns, and failure to pay assessed taxes at the stipulated date (Abdallah, 2006).

2.2 Theoretical Framework

The study was anchored on the Theory of Planned Behaviour (TPB) and Theory of Compliance.

The Theory of Planned Behaviour is a behavioural theory developed by Ajzen (1991) as an extension to the Theory of Reasoned Action (TRA). The Theory of Planned Behaviour (TPB) believes that the behaviour of an individual is a function of consciousness of an individual's action, significant others' approval for acting, and capability of acting. Relating the theory of planned behaviour to tax compliance, the major factors influencing behaviour is the approach towards tax compliance, prejudiced norms, and seeming behavioural control (Devos, 2014). Armitage and Conner, (2001) opined that the theory of planned behaviour is adopted to assess the pro-environmental behaviour and submitted that it has been applied in more than one hundred and fifty different situations.

Compliance theory is described as obedience to tax processes that is based on anticipation of a reward and an effort to escape possible sanctions. Rahayu *et.al*, (2009), and Manurung (2013) opined that faithfulness in sociological literature is explained from two major perspectives, namely instrumental perspective, and normative perspective. The instrumental perspective posited that individuals as a whole are driven by personal gains, rewards, and sanctions related to conducts. The normative perspective holds the belief that individual behaviour is influenced by what people observe as moral as against personal interests. Taxpayers' compliance is described as motivating individuals, groups, or organizations to act or not act in line with the established rules. A person's obedient behaviour is the interaction of individuals', groups, and organizations' behaviour. The compliance theory however affirms that the taxpayers should be motivated to a level where such will perceive returns filling, income reporting, tax computation, and tax payment as a moral obligation contrary to the personal interest of wilful default of civic obligation. The theory believes that individuals, groups, and organisation can be encouraged to act in line with tax laws and regulations of the state.

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2.3 Previous studies

Efebera, Hayes, Hunton, and O'Neil (2015) examined the tax compliance intentions of low-income earners in the US-based on the theory of planned behaviour. Findings from the study suggested a positive and significant relationship between intention to comply and: (1) equity perceptions of the tax system; (2) normative expectations of compliance; and (3) penalty magnitude. Further findings suggested the existence of two-way interactions between penalty magnitude and exchange equity, and penalty magnitude and normative expectations.

Falanni (2015) assessed factors that determine corporate taxpayers' compliance behaviour in the Netherlands. The corporate taxpayers' behaviour was stratified into business characteristics and tax attitudinal behaviour. The data were extracted from the Duren Sawit STO and analyzed using logistic and multiple regressions. The results of the study showed that the previous tax income returns from the taxpayers and the corruption perception significantly influenced the tax compliance. It was concluded that all tax compliance factors such as returns filing, income reporting, tax computation, and payment of tax due must be brought together as a consideration to reduce non-compliance behaviour.

Nguyen, Pham, Le, Truong, and Tran (2020) focused their study on group discussions among ten chief accountants and tax officers. They also supported the group discussion with interviews of 200 chartered accountants firms involving chief accountants and financial directors in Vietnam. Responses were analysed using *Cronbach's* test for reliability, exploratory factor analysis, confirmatory factor analysis, and structural equation model. The results of the study showed that voluntary tax compliance was directly affected by audit probability, corporate reputation, and business ownership, with audit and severity of sanctions resulting in the strongest effect on tax compliance. The study confirmed that enforced tax compliance was directly affected by the three factors of audit probability, sanction severity, and social norms.

Hoa, Lien, and Tuan (2019) investigated determinants of tax compliance of enterprises in Vietnam. The study randomly selected 450 managers dealing with tax compliance enterprises in Vietnam. Out of 450 copies of a questionnaire administered only 416 copies were properly filled, returned, and analyzed. The research study adopted three phases: applied the expert methodology; tested a reliability scale with *Cronbach's Alpha* coefficient; and performed CFA and model testing with Structural Equation Modelling (SEM). The results of the study found that tax inspection, Penalty, and tax knowledge determine the tax compliance of enterprises in Vietnam.

Widanaputra, Ratnadi, and Putra (2019) investigated internal and external factors that made taxpayers obedient in meeting up their tax obligations in Indonesia. The study used a survey on a sample of 350 Indonesian taxpayers. The results of the factor analysis suggested that taxpayer knowledge of returns filing, income reporting, and accounting information systems coupled with payment of tax due are variables that form internal factors and external factors are formed by tax sanctions. Regression results indicated that knowledge of taxation and accounting information systems coupled with sanctions for disobedient behaviour has a positive effect on tax compliance.

Syafriel, (2018) adopted Second-Order Confirmatory Factor Analysis on responses from a survey of 350 registered Indonesian taxpayers. The results confirmed that all the attributes of the constructs involving personal taxpayer's compliance including return filing, income reporting, tax computation, and payment of tax due coupled with penalties for failure to comply manifested positively on personal taxpayer's compliance in Indonesia.

Mbilla, Gatsi, Arhin, and Ayimpoya (2018) surveyed 361 self-employed Ghanaians to determine the extent to which institutional factors, economic factors, individual factors, and social factors influence tax compliance. Structural Equation Modelling was adopted for analysis. The study found a positive and significant influence of economic, individual, and social drivers on tax compliance behaviour. While no significant influence was found from institutional drivers on tax compliance.

Nuran Bayram, Aydemir, Yıldırım, and Tansöker (2017) examined the reliability and structural validity of tax compliance factors with a sample of 320 Turkish taxpayers. The results of the confirmatory

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factor analysis revealed a structural validity and value of the *Cronbach Alpha* reliability coefficient which suggested a tax compliance intention, general fairness, procedural fairness, and social norms scale to be adequate and reliable to measure tax compliance in Turkey.

3 Materials and methods

The study adopted a quantitative survey design, convenience sampling technique, and questionnaire as a data collection instrument from 500 taxpayers out of 4,602,899 registered with Lagos State Internal Revenue Service as of 2019. The Joint Tax Board in 2019 asserted that 10,006,304 taxpayers registered for tax in Nigeria in 2019 out of which 4,602,899 representing almost 46% taxpayers registered with Lagos State Internal Revenue Service. A sample size of 500 respondents surveyed was determined through Yaro Yamane (1967), as well as online tools like Survey Monkey, and calculator.net. A pilot test was carried out on residents of Ogun State, Nigeria using 100 copies of the developed instrument out of which 80 copies were retrieved, representing 80% return rate. Therefore, the sample size was determined as follows:

$$= \frac{P}{1+P\,(e)^2}$$

Where

'P' is the population = 4,602,899

'e' is desired margin of error which is 5%

$$= \frac{4,602,899}{1 + 4,602,899(0.05)^2}$$

$$= \frac{4,602,899}{11,508.2475}$$

$$=399.965 \text{ or } 400$$

However, Cochran (1977) suggested that where a researcher does not have a captive audience, over sampling should be done to obtain a required response rate. In this study, based on the prior knowledge of pilot study conducted, the sample size of 400 would possibly not be attained and response rate may typically well below 100%. In this situation, Salkind (1997) recommended over sapling when he stated that if you are mailing out survey or questionnaire, you have to increase your sample size by between 40 to 50% to account for uncooperative respondents or lost questionnaire. Among the four methods suggested by Salkind (1997) and Fink (1995) to arrive at oversampling size is the use of pilot study return rate. The return rate for the pilot study undertaken in this study was 80% and the following calculation was done to determine the drawn sample size required to produce the minimum sample size. Where n_2 = adjusted sample size for response rate and minimum sample size is 400, hence 400/0.8 = 500 as the sample size.

4 Measurements

In this study, four different structures were assessed with specific scales namely, filling of returns; income reporting; computation of tax liability, and payment of tax due. Tax Compliance was measured using the Value Chain analysis approach developed in Agbetunde (2019). Four indicators were used to measure each of the four value-chain points *Viz*: Returns Filing; I register on time for tax purpose, I register with appropriate tax authority (Agbetunde, 2019; Agbetunde, Anyahara & Akinrinola, 2020). I obtained my Taxpayer Identification Number (TIN) and I honesty registered with the tax authority. At the Income Reporting point are; I do honestly disclose ALL my sources of income, I ensure that my

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residential address is correctly disclosed, I honestly report the TOTAL amount of my income and I ensure that my income is reported under the correct sources. The third point of Computation of Tax Liability had I do NOT claim any allowance not entitled to, I claim all personal reliefs entitled to, I pay my taxes at the required rate and I am honest in the calculation of the amount paid as tax. The last point, Payment of Tax Due, was measured with; I pay my taxes as at when due, I pay my taxes to appropriate tax authorities; I ensure that an appropriate amount is paid as tax and I do not seek opportunities to reduce my tax liability. These were measured on five points Likert scale weighed as: "Totally True" with 5 points, "Somewhat True",4 points, "Not Sure", 3 points, "Somewhat not True", 3 points, and "Not At all True",1 point.

The questionnaire was administered to the respondents in their domain by the research team. The team consisted of the five research assistants, from the academics, that had already been tutored. To enhance the success of data gathering, the cooperation of the market heads and executives of the cooperative societies were sought. The cooperation of this group of individuals made the respondents free and relaxed to provide sincere opinions.

Ethical consideration was uppermost and confidentiality of information provided was categorically assured on the covering letter of the questionnaire. It was unequivocally written on the cover letter that the responses were solely meant for academic purposes and confidentiality of information provided was assured. Respondents were treated with due respect and autonomy by members of the research team.

The factor analyses were made through exploratory factor analysis to test for structural detection of the 16 items in the dataset. These were tested using KMO and Bartlett's test. Thereafter, purification was carried out using Total Variance Explained before the Principal Component Analysis was made.

5 RESULTS AND FINDINGS

A total of 500 copies of the questionnaire were distributed to the respondents out of 409 copies, representing 81.8%, were properly filled, returned, and analyzed. The percentage returned was considered sufficient to achieve the study objective.

Reliability and validity tests

Table 1: Reliability Tests

Items	Number of Items	Cronbach's Alpha
All Variable Items	16	0.925
Returns Filing	4	0.948
Disclosure of Information	4	0.852
Computation of Tax	4	0.873
Payment of Income	4	0.918

Source: Authors' computation (2020)

The results of the reliability test presented in table 1 showed that each measure of the variables on the instrument was very reliable (*Cronbach alpha* values were 0.82 to 0.948). The *Cronbach alpha* value for all the variables combined was 0.925. This suggested a reliable instrument for the study. Out of the four variables measured, returns filing showed the highest degree of reliability with a value of 0.948.

Exploratory Factor Analysis: Tests of Structural Detection

Results of the KMO and Bartlett's test from the Exploratory Factor Analysis conducted for suitability of dataset using the sixteen items to measure tax compliance (at each of the tax compliance value chain points) were presented in table 2.

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Table 2: Test of Suitability of the Dataset- KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.845
Bartlett's Test of Sphericity	Approx. Chi-Square	5982.596
	df	120
	Sig.	.000

Source: Authors' computation (2020)

Sampling adequacy

This was measured with the Kaiser-Meyer-Olkin (KMO) to assess the sufficiency of the sample size to perform principal component analysis. The result showed a KMO value of 0.845. This is considered to be good value showing that the sample was sufficient enough for factor analysis to be successfully carried out (Byrne, 2010; Civelek, 2018; IBM, 2018). This result suggested that factor analysis could be successfully carried out on the data set.

Suitability of the dataset

Bartlett's test of sphericity was used to test the suitability of the dataset. It was used to test the hypothesis that the correlation matrix of the dataset was an identity matrix. Therefore, the small value of 0.000 is considered significant (p < 0.05) and therefore suitable for principal component analysis (Civelek, 2018; IBM, 2018).

Analysis of Variance Explained

Table 3: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %	Total	% of Var.	Cum. %
1	7.558	47.237	47.237	7.558	47.237	47.237	3.569	22.307	22.307
2	2.102	13.139	60.376	2.102	13.139	60.376	3.238	20.237	42.544
3	1.584	9.900	70.276	1.584	9.900	70.276	2.976	18.603	61.147
4	1.296	8.100	78.376	1.296	8.100	78.376	2.757	17.229	78.376
5	.898	5.611	83.988						
6	.672	4.202	88.189						
7	.351	2.192	90.381						
8	.308	1.923	92.304						
9	.245	1.532	93.836						
10	.236	1.475	95.311						
11	.189	1.180	96.491						
12	.169	1.053	97.545						
13	.136	.852	98.397						
14	.121	.753	99.150						
16	.042	.261	100.000						
15	.094	.589	99.739						

Extraction Method: Principal Component Analysis.
Source: Authors' computation (2020)

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Total Variance Explained

Table 3 presented the Total Variance Explained (TVE) by the dataset. This was used for the reduction of the data. The table showed the variance explained by each of the 16 items analyzed as components. The results were in three sections on the table. The first section presented the initial Eigenvalues for all the 16 variables examined. The first column (Total) showed the amount of variance explained by each of the components as follows; the first component derived gave an Eigenvalue of 7.588, followed by 2.102 for component 2 and 1.584 for component 3 while component 4 gave 1.296. Next is component 5, which gave 0.898 which was below 1.00 requested.

The second column in the first section of the TVE table showed the % of variance accounted for by each component to the total variance in all the variables. The result suggested that Component 1 contributed 47.237, Component 2 had 13.139, Component 3 contributed 9.900, and Component 4 gave 6.100. This went on down the column to Component 16 contributing the lowest percentage variance of 0.261. The cumulative value for each component and its previous components were in column 3. These showed that Component 2 had 60.376 (being 47.237 + 13.139) as the addition of the values contributed by 1st and 2nd components. At Component 3, the cumulative values improved to 70.276, after the value for Component 3 was added. When the value for Component 4 was added the cumulative % improved to 78.376. This went on to Component 16 when the cumulative % became 100%.

With the extraction limit given as 1.00 Eigenvalue, the Extracted Components were only four, as presented in the second section of table 3 (Extraction sums of Squared Loading). This showed that with a cumulative % variance of 78.376, the variability in the original 16 variables used, 78.376 of the variability was explained by these four components extracted here (Components 1, 2, 3, and 4). The implication was that one could reduce the complexity of this data set by using only components 1, 2, 3, and 4 with only 21.62% loss of information.

The last section of the TVE table presents the rotating components. The components were rotated to spread the variation more evenly over the components, but still maintaining the cumulative % of the variance (78.376). This made the interpretation of the individual contribution easier. The results of this improvement showed that Component 1 contributed 22.307% as the variation, Component 2 gave 20.237, Component 3 contributed 18.603% variation, and 17.228% was contributed by Component 1, and the cumulative % still standing at 78.376.

Purification of the Dataset: Principal Component Analysis (PCA)

To purify the data set and maximize the relationship between the variables in the group, a PCA was conducted to assign the items in the data set into sub-variable groups. A total of 16 items expressed on the Likert scale for tax compliance with each variable having 4 items were subjected to PFA. The result of the Rotated Component Matrix is presented in table 4.

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Table 4: Rotated Component Matrix

Rotated Components	Components			
	1	2	3	4
RET1	.911			
RET2	.882			
RET3	.873			
RET4	.862			
DISCL1			.843	
DISCL2			.671	
DISCL3			.810	
DISCL4			.689	
COMP1				.846
COMP2				.682
COMP3				.857
COMP4				.708
PYMT1		.787		
PYMT2		.823		
PYMT3		.854		
PYMT4		.850		

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Source: Authors' computation (2020)

The results in table 4 revealed four components identified as tax compliance with four items each.

Factors for Compliance at Point of Filing Returns

Results of the 4 items for returns filing indicate that all the 4factors had loadings between 0.862 and 0.911. Loading for all the factors was far above the 0.5 threshold limit for acceptability (Hair, Tatham, Anderson & Black, 2006). This implied that all the four factors fell within the acceptable region and therefore useful for analysis to measure tax compliance.

Factors for Compliance at Point of Information Disclosure

The results indicated that all four factors fell within the component with acceptable values of 0.671, 0.689, 0. 81 and 0.843. All of these were greater than 0.5, therefore found acceptable (Hair, Tatham, Anderson & Black, 2012). This implied that the four factors fell within the acceptable limit and therefore useful for analysis of tax compliance.

Factors for Compliance at Point of Computing Tax Liability

The results indicated that the four factors to measure tax compliance at the computation stage showed factor loading values of 0.682, 0.708, 0.846, and 0.857. All of these were also greater than 0.5, therefore found acceptable (Hair, Tatham, Anderson & Black, 2012). This implied that the four factors fell within the acceptable limit and therefore useful for analysis of tax compliance at the computation stage.

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Factors for Compliance at Point of Payment of Tax Due

The results at the last point on the tax compliance value chain showed that the four factors to measure tax compliance at the computation stage showed factor loading values of 0.787, 0.823, 0.850, and 0.854. All of these were also greater than 0.5, therefore found acceptable (Hair, Tatham, Anderson & Black, 2006). This implied that the 4 factors fell within the acceptable limit and therefore useful for analysis of tax compliance at the payment stage.

6 DISCUSSION OF FINDINGS

The summary of the results of the study showed that each measure of the variables on the instrument was very reliable (*Cronbach alpha* values were 0.82 to 0.948). The *Cronbach alpha* value for all the variables combined was 0.925. These suggest that the instrument was reliable. Out of the four variables measured, returns filing showed the highest degree of reliability (94.8%). The result of the sample adequate test (KMO=0.845) showed that the sample used for the study was sufficient enough to be used for analyses. The data set was also found to be suitable for the analysis ($P<0.05$). The results of the study were in line with the studies of Falanni (2015); Hoa, Lien, and Tuan (2019), and Widanaputra, Ratnadi, and Putra (2019). For example, Falanni (2015) suggested that the previous tax income returns from the taxpayers and the corruption perception were significantly influenced the tax compliance. It was concluded that all compliance factors such as returns filing, income reporting, and computation of tax liability payment of tax due must be brought together as a consideration to reduce non-compliance behaviour.

Also, the study found from the dataset four components that gave a cumulative value of 78.376%. This testifies that the four components identified contributed more than 78% to the variation in measuring tax compliance. The percentages of variation for each of the four components were respectively 22.307%, 20.237%, 18.603%, and 17.229% for components 1, 2, 3, and 4. All given a total of 78.376%. The highest variation to measure tax compliance was found at the point of filing returns. These results were also in line with the findings of Widanaputra, Ratnadi, and Putra (2019). Widanaputra, Ratnadi, and Putra's (2019) findings' indicated that knowledge of returns filing, income reporting, and accounting information systems including payment of tax due coupled with tax penalties have a positive effect on tax compliance. The results of the factor analysis suggested that taxpayer knowledge and accounting information systems are variables that form internal factors and external factors are formed by tax sanctions

Furthermore, purification of the dataset using PCA assisted in maximizing the relationship between the variables in the group. The finding indicated that; compliance at the point of returns filing formed Component 1 on the related component matrix, compliance at the point of payment formed Component 2, while Component 3 was compliance at the information disclosure point, and compliance at computation formed component 4. All 4 items used to measure each variable was able to fall into the relevant component.

These suggested that tax compliance was measurable at each of these four stages namely return filing, income reporting, tax computation, and payment of tax due. Coincidentally, all the four items used to measure at each of the points also entered into the relevant components revealing that each of them adequately measured tax compliance at their relative points.

The implication of these is that taking tax compliance is examined as a stage by stage value creation process. These suggested that there are significant points in sequence on the value chain line when tax compliance is unbundled into value creation stages. Stakeholders can therefore monitor each of these stages when they want to ensure compliance among taxpayers. Of most importance is the returns filing stage when taxpayers are bought into the tax net.

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Conclusion and Recommendations

The paper argued that tax compliance can be unbundled as a multi-stages value creation process, which can be achieved in a chain of actions. This compliance process starts from the point of filing returns through information disclosure point to the point of computation and ends with compliance at the point of payment of tax due to the relevant tax authority. This suggested that there were significant points on the value chain line when tax compliance was unbundled into value creation stages. Stakeholders can therefore monitor each of these stages when they want to ensure compliance among taxpayers. It is recommended government and tax authorities should emphasize returns filing, income reporting, tax computation, and payment of tax due to achieve reasonable tax compliance in Lagos metropolis. The tax administration should be very flexible to ensure the proper formulation, implementation, and monitoring of policies targeting each of these nodal points.

Limitation and suggestions for further studies

This study was undertaken in Lagos State metropolis, using primary data collected from taxpayers that registered with Lagos State Internal Revenue Service as at 2019, to determine tax compliance value chain among Lagos state taxpayers which is a limitation to the study. As a result, further studies are suggested to be undertaken to adopt or adapt the instrument (structured questionnaire) developed in this study in a similar study focusing on other territories for comparative analysis. In other word, future researchers should undertake studies that spread out geographically in order to enhance the issue of representativeness. Finally, future researchers should investigate possible factors that influence income tax compliance in Nigeria.

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Tax Compliance Indicators Questionnaire {TCIQ}

Section A: Respondents' Bio-Data

1. **Gender**: Male { } Female { }
2. **Age (in years):** 18-30 { } 31-45 { } 46-60 { } Above 60 { }
3. **Ethnicity:** Hausa { } Igbo { } Yoruba{ } Others{ }
4. **Religion:** Christianity { } Islam{ } Traditional Religion{ } None{ }

Socio-Economic Factors

5. **Total Monthly Income:** Less than ₦50,000 { } ₦50,001-₦200,000 { }
   ₦200,001 - ₦350,000 { } ₦350,001- ₦500,000 { } Above ₦500,000 { }
6. **Type of Business** …….
7. **State of Residence:** ……

Section B: Kindly tick (√) your objective responses to the items using the following hint;

TT = Totally True **(5)** **ST =** Somewhat True **(4)** **NS =** Not Sure **(3)**

SNT = Somewhat not True **(2)** **NAT** = Not At all True **(1)**

I	**Sentiment Norms And Values**	5	4	3	2	1
V	**Tax Compliance**	5	4	3	2	1
	Returns Filing					
RET1	I register in time for tax purpose					
RET2	I register with appropriate tax authority					
RET3	I obtained my Taxpayer Identification Number (TIN)					
RET4	I honesty registered with tax authority					
	Income Reporting					
DSC1	I do honestly disclose ALL my sources of income					
DSC2	I ensure that my residential address is correctly disclosed					
DSC3	I honestly report TOTAL amount of my income					
DSC4	I ensure that my income are reported under the correct sources					
	Computation of Tax Liability					
CMP1	I do NOT claiming allowances I am not entitled					
CMP2	I claim all personal reliefs I am entitled to					
CMP3	I pay my taxes at required rate					
CMP4	I am honest in the calculation of the amount I pay as tax					
	Payment of Tax Due					
PM1	I am paying my taxes as at when due					
PM2	I am paying my taxes to appropriate tax authorities					
PM3	I ensure that I pay the appropriate amount as tax					
PM4	I do not seek opportunities to reduce total tax payable					

Thank you, sir/ma, for the time and efforts spent in responding to the questionnaire