Strategic public procurement regulatory compliance model with mediating effect of ethical behavior

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ABSTRACT

The paper proposes and validates the strategic public procurement regulatory compliance model with mediation effect of ethical behavior. It expands the socio-economic theory of regulatory compliance to explore the mediating effect of ethical behavior on the influence of professionalism, familiarity, enforcement, resistance to political pressure and compliance with public procurement regulation. A quantitative research design was deployed using 125 procurement officers as a sample group. The data from the sample was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results validated the hypotheses for the strategic public procurement regulatory compliance model with mediation effect of ethical behavior. The study not only confirmed the earlier findings on the direct effects of professionalism, familiarity, enforcement, resistance to political pressure and ethical behavior on compliance, but also established the mediating effect of ethical behavior on compliance on all the predictors except resistance to political pressure. The study implied that ethical behavior of public procurement officers should be a strategic point of concern by both policymakers and professional bodies. Theoretically, the study expands the socio-economic theory of regulatory compliance within the context of procurement literature through mediation effects of ethical behavior via structural analysis.

1. Introduction

Extant literature thoroughly investigates the determinants of compliance with public procurement regulations (Abere and Muturi, 2015; Chikwere et al., 2019; Hyacinth and Yibis, 2017; Omagbon, 2016; Sandada and Kambarami, 2016). However, such investigations were conducted through simplistic models and it is contended here that there is a need to go beyond simplistic models to more strategic models for a wider understanding of the key factors that extensively explain the public procurement regulatory compliance. Such an understanding would likely offer strategic policy insights to enable focus into more specific and important factors capable of improving procurement regulatory compliance. Strategic public procurement compliance here refers to the systemic structural analysis for understanding the most prime factor that could account for higher explanation on public procurement regulatory compliance. Analysis of earlier studies revealed relative consistencies across some variables on their influence on compliance. Starting from Abere and Muturi (2015), the results reported in their study revealed significant influence of training, ethical practices, and enforcement mechanisms on compliance with public procurement regulation in Kenya. Likewise, Chikwere et al. (2019) reported significant effects of familiarity, incompetence, political interference and poor monitoring on non-compliance with the public procurement legal framework in Ghana. Additionally, Omagbon (2016) reported that the reason for a low public procurement regulatory compliance among the local government council mainly results from a low level of professionalism, lack of media coverage and publicity of the public procurement issues as well as considerable interference by politicians in the procurement processes. Similarly, Sandada and Kambarami (2016) also found that familiarity with procurement regulations, enforcement of such regulations and political interference are the key factors significantly predicting compliance with procurement regulations. However, the study of Hyacinth and Yibis (2017) reported finding with some inconsistencies with the extant literature, specifically whereby it disclosed that familiarity and professionalism do not have significant influence on public procurement regulatory compliance in a polytechnic setting in Nigeria while institutional factors do.

While these earlier empirical evidences have utility values, they were constrained to offer important policy insights on the strategic factor in the compliance processes. The simplistic direct effects model examined
by earlier studies revealed relatively consistent results (Abere and Muturi, 2015; Chikwere et al., 2019; Hyacinth and Yibis, 2017; Omagbon, 2016; Sandada and Kambarani, 2016). Following this relative consistency in findings, it is important to refer to the recommendations for formulation of strategic regression models. In this, the seminal work of Baron and Kenny (1986) which extensively offers guidelines of using moderator and mediator variables has been a source of reference. The aim is to gain insights on the important analysis to perform so as to understand the strategic factor that will be a policy focus when institutions have a desire to achieve a high level of public procurement regulatory compliance. Referring to this, it can be summarized from the work of Baron and Kenny (1986) that when there is inconsistency in findings, the use of a moderator is recommended whereas the existence of consistency among the empirical studies suggests the use of a mediator variable.

Following these methodological insights, reference was made to procurement literature to understand the strategic factor frequently been emphasized by earlier researchers with respect to public procurement compliance. In this, ethical behavior has been the most important variable being emphasized within the context of public procurement. Saini (2010) considered ethics as a pre-requisite for reducing non-compliance. The implication of this assertion is that while other factors are desirable in achieving a high level of compliance, ethics is the pre-condition. It was also concluded by Ogol and Moronge (2017) that ethical behavior is an important factor that can improve procurement performance among organizations. Moreover, it was emphasized that ethical practices must be ensured during the procurement process to avoid consequences that may be dire (Mwangi and Kwasira, 2015). Following these important roles on the ethics and ethical behavior on procurement compliance, it can be contended that ethical behavior could be a potential mediator in the influence of public procurement regulatory compliance and its determinants. Put differently, ethical behavior could be a mechanism that can explain why such determinants have been consistently showcasing public procurement compliance across various settings. Establishing this mediation effect could offer a strategic policy focus on improving compliance with public procurement regulations. In fact, it will simplify the effort of public sector institutions in achieving a high procurement compliance. In addition, the strategic model proposed in this paper can also be supported with the theoretical literature within the field of public procurement. For instance, Tukumubawa (2012) conceptually proposed moral obligations as a potential mediator in the relationship between perceived rule legitimacy and procurement compliance. Similarly, Zitha and Mathebula (2015) identified ethical conduct as a centerpiece of procurement that can be used as a tool to reconstruct the government’s integrity. Suggestion was also made for the identification of the root causes of non-compliance to help policymakers direct their policies towards improving public procurement compliance.

The motivation of the study is threefold. The first is practical motivation that could impact on policymaking. While the existing procurement models are highly simplistic in presentations, they are complex in application. They present direct effects of many variables in relation to public procurement compliance providing a simple model, but complex in application. The fact is that mostly, no specific variable has been prioritized for policy concern. In this study, a strategic complex mediation model is proposed and validated. While it could be complex in design compared to earlier studies due to the integration of a mediating effect, it could be simple in application since it prioritized a specific factor on which policymakers should place emphasis. While literature falls short in addressing this challenge, the methodological guide from Partial Least Squares (PLS) Structural Equation Modelling (SEM) indicates that the examination of this complex model with mediating effect of ethical behavior is feasible and can be undertaken. Specifically, PLS-SEM enables the identification of the “key driver” construct (Hair et al., 2011). Therefore, the study identified ethical behavior based on the support from the literature (Zitha and Mathebula, 2015; Mwangi and Kwasira, 2015; Ogol and Moronge, 2017) as a mediator between public procurement regulatory compliance and its determinants. It is important to note that the identification of the key driver contract is critical and should be done to guide policy prioritization and simplify policy choices. It should also be desirable by professional bodies in devising training programs in moulding the behaviors of their members.

The second motivation is methodological cum theoretical. The application of PLS-SEM in validating Socio-economic Theory of Regulatory Compliance (Sutinen and Kuperan, 1999) is not availed by the extant public procurement literature. This is doable as PLS-SEM have been used in several studies for validation of structural theories such as Theory of Planned Behavior (TPB) of Ajzen (1991). It is expected that the outcome of this validation should have methodical and theoretical significance in both the validation of the theory as well as its application within the context of public procurement. Lastly, beyond the validation of the theory that serves as the second motivation, Socio-economic Theory of Regulatory Compliance has not been extended through mediation analysis. This also motivates the study for the fact that such expansion will widen the understanding of the theory beyond which is already known in the literature. The expectation is that this could open windows for future researchers to propose and validate moderation and mediation models within the continuum of public procurement literature, which is currently lacking. Following these motivations, the objective of the study is proposed in validating a strategic model for the examination of structural mediating effects of ethical behavior on the influence of professionalism, familiarity, enforcement and resistance to political pressure on public procurement regulatory compliance.

This paper is organized into five sections; this section being the introduction in which the background, motivation and objective of the research are discussed. The second section is the literature review in which theoretical frameworks are presented and hypotheses developed. The third section is the methodology applied in conducting the study. The fourth section is the presentation of research findings. The last part contains discussions, conclusion and implications.

2. Literature review

2.1. Theoretical framework

The strategic public procurement regulatory compliance model with mediating effect of ethical behavior is proposed through the theoretical support of Socio-Economic Theory of Regulatory Compliance developed by Sutinen and Kuperan (1999). The theory integrates economic deterrence theory with legitimacy, psychological and sociological theories to account for moral obligation and social influence as determinants to individual decisions towards compliance (Hyacinth and Yibis, 2017). The theory is chosen to underpin the model proposed in this study for three reasons. First, the dependent variable in the theory is regulatory compliance, which equally stands as the dependent variable in the study. The theory argued that beyond the earlier notion that compliance is explained by deterrence measures, it could be further explained by psychological and sociological factors. Second, it is highly robust in explaining the proposed relationships in the model suggested in this study as it provides explanations on the linkage of the regulatory compliance and its determinants. Lastly, the theory gives emphasis on moral obligation (here conceptualized as ethical behavior) being an important factor affecting compliance decisions.

Beginning with professionalism, Sutinen and Kuperan (1999) hypothesized that compliance with rules and regulations is related to the internal capacity of individual through cognitive development. Considering professionalism is achieved through trainings and professional development which serves as mechanisms for achieving adherence to professional and ethical standards (Hunja, 2005; Sandada and Kambarani, 2016), it is arguable that when individuals undergo processes of cognitive development, they can have improvements in internal capacity that leads to a high sense of professionalism, then, moral obligation (ethically behavior) and ultimately, comply with public procurement regulations.
For the second determinant of compliance – familiarity, this can be achieved either through on-the-job experience via interactions with experienced colleagues at the workplace or through trainings on and reading of procurement regulations. In the case of familiarity through on-the-job learning, it can be deduced from the theory based on the Sutinen and Kuperan’s (1999) hypothesis that compliance with rules and regulations is related to the influences of the environment through socialization which is the linkage between an individual and the society. Here, the workplace is considered as the society. They further discussed that the influence of the environment is an important factor that could influence individuals’ decisions towards compliance. One of key variables explaining compliance according to the theory is individual encounters (Sutinen and Kuperan, 1999). Linking this assertion to the familiarity implies that public procurement officers could be familiar with public procurement processes and procedures through their interactions with peers and encounters with colleagues who have better knowledge and understanding of such processes and procedures to be more aware of the regulations and ensure on-the-job learning for proper implementation of public procurement regulation. The fact is that familiarity with procurement regulations in achieved through both training and awareness which could be ensured through the interaction with other people. It is argued that when individuals engage with peers who are familiar with procurement regulations, they would likely influence his/her opinion to also be familiar with such regulations. In the case of familiarity through personal learning, the theory also highlights the relevance of cognitive learning in the compliance decisions through various stages of development (Sutinen and Kuperan, 1999).

Enforcement is the third determinant proposed in the strategic public procurement regulatory compliance mentioned in this research. Sutinen and Kuperan (1999) concluded that the application of coercive enforcement mechanism remains an essential ingredient in regulatory compliance regime, even in the presence of a high degree moral obligation and social influence. Thus, in line with this theoretical postulation, it can be proposed here that the enforcement of public procurement regulations will make public procurement officers behave ethically and consequently comply with public procurement regulations. Specifically, Sutinen and Kuperan (1999) stressed that individuals’ intrinsic obligations (ethical behavior) could be achieved through the dictation of public authorities such as the police, bosses in the workplace, and general authorities based on one’s loyalty when such dictates are contrary to individual interest. This, it is implied that enforcement would likely lead to this kind of intrinsic motivation and eventually enhance regulatory compliance.

The fourth determinant is resistance to political pressure. In this, the theory highlights that the dictates of the followers to be loyal to authority in compliance decisions depends on “legitimacy” (Sutinen and Kuperan, 1999). Drawing from the fact that political office holders mostly induce public procurement officers to behave unethically in an attempt to award contract to their cronies (Owara, 2016), to behave ethically means public procurement officers need to resist political pressures. This implied that even when the political office holders, chief executives and other powerful forces within an organization instruct the violation of the regulations or create pressures towards violating them, procurement officers should evaluate the legitimacy of such instructions and resist any pressure towards violation. Eventually, this will lead to morality acts which would enhance compliance with the regulations. Sutinen and Kuperan (1999) further states that perception of procedural legitimacy is linked to the individuals’ view of procedural fairness, such that individuals who viewed the procedure employed by political authorities as unfair or illegitimate, it is argued that public procurement officers would resist political pressures when they perceive the procedures employed by the political authorities as unfair or illegitimate. When this persists, such officers would be said to behave ethically, and eventually ensure compliance with prescribed public procurement regulations.

Lastly, the role of ethical behavior in influencing compliance was also highlighted in the socio-economic theory of regulatory compliance. The theory highlights the influence of intrinsic motivation and morality on compliance (Sutinen and Kuperan, 1999). Relating to this reference was made to the game theory, in which fishermen were asked the reason behind their decisions to comply despite illegal gains being much bigger than the expected punishment. Sutinen and Kuperan (1999) stated that under this scenario, fishermen prefer doing the right thing despite ample opportunity to cheat. In the context of public procurement, officers may have ample opportunities to cheat through unethical practices possibly due to their knowledge of the procedures to the extent that they manipulate them without others being aware, or that they may get support from politicians to connive and cheat, or even offerings from contractors. Conflictingly, even in such cases, officers may decide to behave ethically by complying with the extant rules and regulations. With this in mind, officers may act in a fair, transparent and accountable manner to ensure good procurement practices.

Though the socio-economic theory of regulatory compliance does not highlight the mediating effect of ethical behavior, such could be logically established through the scope of methodological literature on the moderator-mediator variable, especially the golden work of Baron and Kenny (1986). Starting with professionalism, it has been clear from the work of Tunja (2003) and Sandada and Kambarami (2016) that individuals can achieve it through training and professional development. Therefore, the expectation could be that such professional development can improve their ethical behavior, and eventually comply with procurement regulations. Additionally, the influence of familiarity on compliance can be mediated by ethical behavior. It is logical to argue that familiarity with processes and procedures would likely reduce unintended errors. The fact is that unethical practices happen due to the lack of knowledge and awareness resulting from weaker familiarity with processes and procedures. When procurement officers obtain adequate knowledge and awareness, such unintended unethical practices can be avoided, and eventually, higher compliance could be achieved. Similarly, the existence of powerful enforcement mechanisms could make it possible for procurement officers to behave ethically due to fear of punishment and could ultimately result in high compliance. Moreover, resistance to political pressure could improve ethical behavior and consequentially bring to high compliance with procurement regulation. Beyond this logical argument and building on the recommendation of Baron and Kenny’s (1986), it is inarguable that a mediating variable such as ethical behavior could fit in the proposed model for two reasons. Firstly, there have been relatively consistent findings on the influence of professionalism, familiarity, enforcement, and political interference on compliance (Abere and Muturi, 2015; Chikwere et al., 2019; Omagbon, 2016; Sandada and Kambarami, 2016). Hence, there is the need for inclusion of a mediator variable in line with Baron and Kenny’s (1986) suggestion. Secondly, it is interesting that ethics has been seen as a key variable in public procurement compliance literature (Mwangi and Kwasira, 2015; Ogol and Moronge, 2017; Saini, 2010). Thus, it is considered as a potential mediator here in the strategic public procurement regulatory compliance model. The model is presented in Figure 1.

It is important at this point to differentiate between ethical behavior and regulatory compliance. Though compliance in itself can be seen as ethical behavior, the operational measurement of “ethical behavior” and public procurement compliance is not the same. Ethical behavior here is more to the “personal ethical traits” of the officers while public procurement compliance is about the “procedure implementation of the public procurement regulation” which are clearly distinct in concept. This means personal ethical traits (ethical behavior) could lead to organizational action (implementation/compliance). Ethics is about morality; it explains and differentiates what is morally right or morally wrong. Consistently, procurement ethics is considered as a moral behavior within the procurement as a profession and practice (Abere and Muturi, 2015). In this study, ethics is considered on an individual level (procurement officers’ ethical behavior) while compliance is regarded on an
organizational level (actions in the form of proper implementations of the regulation). When extant literature investigated the effects of ethics on the compliance level of procurement in Zimbabwe, the findings showed significant effects (Sandada and Kambarami, 2016). It was suggested that overarching on moral values and ethical principles that have a sustainable impact on the creation of public value and outcome of procurement processes in the military should be considered (Fourie, 2017). This would highlight the importance of ethics in the public sector procurement. Therefore, in the strategic model for public procurement compliance proposed in this study, ethical behavior is identified as a key mediating variable to explain the consistent relationship between public procurement compliance and its determinants across various studies.

3. Hypotheses development

It is important to note that the hypotheses here focused only on the mediation effect. The fact is that the direct effects of professionalism, familiarity, enforcement, political pressure and ethical behavior has been extensively examined in the literature. The concern is to provide empirical evidence on the strategic mediating effect of ethical behavior on these direct relationships.

3.1. Professionalism, Ethical Behavior and Compliance with public procurement regulations

Professionalism in public procurement can be described as a situation in which educated, experienced and responsible procurement officers make informed decisions regarding procurement operations (Hyacinth and Yibis, 2017). It was also considered as a display of professional approach in conducting procurement practices (Omagbon, 2016). It was opined that professionalism is critical in compliance to public procurement regulations (Sandada and Kambarami, 2016).

Several empirical evidences explored the effects of professionalism on public procurement regulations. Gelderman et al. (2006) maintained that professionalism plays an integral role in ensuring compliance within public procurement. Likewise, Sandada and Kambarami (2016) found a significant relationship between professionalism and compliance with public procurement in Kaduna Polytechnic, Nigeria. It was also reported by Omagbon (2016) that professionalism in public procurement leads to compliance with public procurement law. The study of Jaafar et al. (2016) also found the strong influence of professionalism and compliance with public procurements in Malaysia. This is also consistent with the findings of Mrope (2017) among Tanzanian public institutions, as well as Kenya (Jones et al., 2015) and Uganda (Mwelu et al., 2018). However, an earlier study of Eyaa and Oluka (2011) reported insignificant effects of professionalism on compliance with public procurement.

The review above revealed consistent relationship between professionalism and compliance with public procurement regulations (Gelderman et al., 2006; Jaafar et al., 2016; Jones et al., 2015; Mrope, 2017; Mwelu et al., 2018; Omagbon, 2016; Sandada and Kambarami, 2016). As such, the literature established that whena consistent relationship has been identified between variables, there is a need to understand the mechanism that underpins such a consistent relationship. The emphasis given to ethical behavior in the public procurement literature (Fourie, 2017; Saini, 2010) implied that it is a key variable in the procurement processes. Thus, it is considered as a potential mediator in the influence of professionalism on public procurement compliance. In fact, ethical codes have been highlighted as possible mediators in the family business literature (Cuadrado-Ballesteros et al., 2017). That being so, it can be logically argued here that when procurement officers attained a certain level of professionalism, this could lead to ethical practices and consequentially enhance compliance. In line with this argument, the following hypothesis is developed.

H1: Ethical Behavior mediates the relationship between professionalism and compliance with public procurement regulations.

3.2. Familiarity, ethical behavior and Compliance with public procurement regulations

It has been opined that lack of procurement knowledge remains a major weakness to the achievement of procurement efficiency (Sandada and Kambarami, 2016). For instance, in Nigeria, public procurement is guided by the Procurement Act, 2007. Thus, a deep understanding of this law as well as its provision will enable better compliance. Eyaa and Oluka (2011) noted a limited understanding of roles by many corporate members in state-owned enterprises in Africa such that their behavior and decisions tend to be discretionary. The management and other stakeholders tend to manipulate those responsible for procurement due to the weaker knowledge of procurement regulations by the latter. For this reason, it was argued that the awareness of procurement regulation in state-owned enterprises is low (Sandada and Kambarami, 2016). Through a conceptual model, Zadawa et al. (2015) highlighted the possible influence of familiarity with procurement guidelines on compliance with public procurement regulations.

Empirically, studies confirmed the influence of familiarity on compliance with public procurement laws and regulations (Eyaa and Oluka, 2011; Gelderman et al., 2006; Sandada and Kambarami, 2016; Mwelu et al., 2018). However, Jaafar et al. (2016) and Hyacinth and Yibis (2017) found insignificant direct effects of familiarity on public procurement regulations.

Ergo, it is evident here that the influence of familiarity on compliance with public procurement regulations displayed relatively consistent results in most instances and has been extensively examined in the literature (Eyaa and Oluka, 2011; Gelderman et al., 2006; Sandada and Kambarami, 2016; Mwelu et al., 2018). The only insignificant results are from Jaafar et al. (2016) and Hyacinth and Yibis (2017) which are still in a similar direction of a positive relationship with compliance. It implied the need to understand the mechanism that underpins such consistent results. Interestingly, the recommendation of Baron and Kenny (1986) on using a mediator variable in such instances indicate the need to explore a potential mediator. Consequently, the relevance of ethical behaviors indicates its possible mediating role in this regard and eventually it is
proposed to mediate the influence of familiarity and compliance with public procurement regulations. This possible mediation has been highlighted in the family business literature (Cuadrado-Ballesteros et al., 2017) although it has not been validated in the context of public procurement. Within the boundaries of this study, it implied that when public procurement officers become familiar with procurement practices and procedures, it could reduce unintended ethical violations, which could happen due to lack of knowledge, experience and awareness. When this is achieved, the eventual result will be high compliance. Thus, the following hypothesis is developed.

H2: Ethical Behavior mediates the relationship between familiarity and compliance with public procurement regulations.

3.3. Enforcement, Ethical Behavior and Compliance with Public Procurement Regulations

Enforcement has been defined as actions taken by regulators to ensure compliance (Zubcic and Sims, 2011). For procurement compliance to be highly effective it must be supervised by external agencies. Kiama (2014) summarized the views of earlier researchers on the impact of enforcement on compliance; he reported that some scholars doubt on the direct effect on enforcement on compliance, suggesting that strong enforcement may make the violators more sophisticated in devising means to conceal detection, while others still maintain the view that enforcement prevents non-compliance.

Empirically, the literature revealed that enforcement has a strong effect on compliance with procurement regulations (Cunningham and Kagan, 2005; Imperato, 2005; Kiama, 2014; Zubcic and Sims, 2007; Sandada and Kambarami, 2016). Similar findings were made by Sandada and Kambarami (2016). Drawing from these empirical evidence, it is clear that enforcement still maintain a positive influence on compliance.

Based on the above review, it can be seen that empirical procurement literature also documents consistent findings on the influence of enforcement on compliance (Cunningham and Kagan, 2005; Imperato, 2005; Kiama, 2014; Zubcic and Sims, 2007; Sandada and Kambarami, 2016) despite the argument that has been made on the possibility of non-compliant devising sophisticated means for continuous non-compliance due to excessive enforcement (Kiama, 2014). The methodological guidelines on the moderation and mediation analysis offered by Baron and Kenny (1986) recommended the use of a mediator variable when a relationship has been consistent among variables. Thus, the relevance of ethical behavior in procurement literature led to its identification as a potential mediator in the relationship between enforcement and compliance with public procurement regulations. The possible mediating effect has been highlighted in the family business literature in which it was considered as a mediator between family business and their social performance (Cuadrado-Ballesteros et al., 2017). Specifically, in this study, it can be logically established that when there is presence of enforcement, fear of being punished may force public procurement officers to behave ethically, and ultimately comply with public procurement regulations. Consistent with this argument, the following hypothesis is developed.

H3: Ethical Behavior mediates the relationship between enforcement and compliance with public procurement regulations.

3.4. Resistance to Political Pressure and Compliance with Public Procurement Regulations

The literature documented that public procurement is considered an inherently politically sensitive activity (Omagbon, 2016). Several studies reported the influence of political interference on compliance with procurement regulations. For instance, Hui et al. (2011) reported that interference from the local politicians, businesspersons, members of parliament and very influential top management individuals has negatively affected the procurement processes and reduced transparency. Likewise, Covello and Gagliarducci (2017) also revealed that politicians influence public procurement through non-compliant acts such as collusion.

Most of the empirical evidence in relation to the influence of political interference on compliance reported a negative relationship (Sandada and Kambarami, 2016; Omagbon, 2016). Equal with these findings, Jones et al. (2015) deployed an alternative approach in which political interference was examined on non-compliance whereby the results revealed a positive relationship, implying that higher political interference leads to higher non-compliance. In fact, Chikwere et al. (2019) found that political interference was the most significant variable influencing non-compliance with public procurement regulations. The implication of this is a reversal of compliance to non-compliance which results in a positive relationship. It reflects the strategic model of public procurement compliance proposed here; the political interference was reversed to resistance to political pressure, and thus, it is expected to have a positive relationship with compliance. The earlier studies that examined the relationship between political interference and compliance reported a negative relationship (Sandada and Kambarami, 2016; Omagbon, 2016), and the reversal of measurement of compliance to non-compliance revealed a positive relationship with political interference (Jones et al., 2015; Chikwere et al., 2019). In this study, instead of reversing the measure of compliance to predict a positive relationship, the measurement of political interference was reversed and expected to reveal a positive relationship with compliance. Regardless of the approach followed, the relationship between political interference and compliance has been consistent, either in a negative relationship between political interference and compliance or a positive relationship between political interference and non-compliance. This implied the need to integrate mediating variables in line with the suggestion of Baron and Kenny (1986). Naturally, ethical behavior has been considered due to its relevance in public procurement processes. In fact, ethics has been considered as a mediator in the link between family firms and their social performance (Cuadrado-Ballesteros et al., 2017). The argument is that when public procurement officers resist political pressure, this could lead to ethical behavior, followed by compliance. Thus, supporting this argument, the following hypothesis is postulated.

H4: Ethical Behavior mediates the relationship between resistance to political pressure and compliance with public procurement regulations.

Therefore, testing these four hypotheses will enable the validation of the strategic public procurement regulatory compliance model through the mediation effect of ethical behavior. This is expected to offer persimmonous policy insights on improving public procurement compliance.

4. Methodology of the research

4.1. Population and sample

The study was conducted in Nigeria’s Jigawa state using public sector institutions. It was estimated that the states have about 150 public sector institutions. This served as the population of the study. In each of the institutions, procurement officers and more specifically, head of the procurement unit or their deputies, in cases where the heads are absent, answered the research questionnaires. In estimating the sample size, the sample size selection table proposed by Krejcie and Morgan (1970) was used. The table revealed 108 as the estimated sample size based on 150 cases. However, to reduce the possibility of a low response rate, questionnaires were distributed to procurement officers in each of the institutions that served as the population, or in their absence, their deputies and assistants. Following three committed months of data collection, the sums of 125 usable questionnaires were obtained. This implied that a response rate of 83.33% was obtained which is considered enough in line with the suggestion of earlier studies (Fincham, 2008; Nulty, 2008).
4.2. Instrumentation and data collection procedures

Data was collected using a research instrument designed for the purpose. The design of the instrument was based on the questions adapted from the previous studies. Questions for measuring compliance were 16 and adapted from Omagbon (2016) and Osei-Tutu et al. (2011). Ethical behavior was measured using five items adapted and modified from the work of Cardy and Selvarajan (2006). Professionalism was measured using three items adapted and modified from four items used by Omagbon (2016). Familiarity was measured by four items, enforcement also by four items, while resistance political pressure was measured using five items in which these items are adapted and modified from the study of Abere and Muturi (2015).

These items are not newly developed but considering the fact that they were adapted from either a different context or setting, it was subjected to assessment of validity and reliability assessments. In terms of validity, the items were subjected to content and face validities. Following the first draft, the questionnaire was sent to three academicians not below the rank of a senior lecturer within the field of public procurement for the assessment of the content of the questions. While all the items for measuring other latent constructs were assented, the experts suggested the removal of 5 items out of the measures of ethical behavior. Initially, 10 items developed by Cardy and Selvarajan (2006) for measuring the ethical behavior of salespeople were adapted where experts suggested that five items are irrelevant to this study. These items were related to the travel expenses and openness in discussion with the customers by the salespersons on the positive and negative aspects of their marketable product. In addition to the academicians, the questionnaire was also sent to three practitioners within Government Ministries, Department and Agencies (MDAs). In this, the practitioners suggested the change of some wordings to reflect the context of the study such as changing the word “clients” to “contractors”. It is after these adjustments of corrections and comments that the final questionnaire was administered to the few samples (30) for assessing the internal consistency reliability of the items using the Cronbach Alpha (pilot testing of instrument), the result of which is depicted in Table 1 below.

It is evident that the items met the internal consistency reliability requirement as the Cronbach Alpha of each of the six latent constructs exceeded the minimum recommended threshold of 0.70 (Nunnally, 1994). The alpha of the constructs ranged from 0.725 to 0.906, indicating adequate internal consistency of the measures. Following these validities and reliability analyses, the final questionnaire (contained in the Appendix) was drafted and administered to the study’s sample.

4.3. Data analysis

The data of the study was analyzed through Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS. The deployment of this analytical procedure was justified by four main reasons. First is the relative complexity of the model as well as the relative sample size. These justifications could be supported by the extant literature with the methodological applications and recommendations of using PLS-SEM (Hair et al., 2011: 144). The strategic public procurement regulatory compliance model proposed in this study could be regarded as a complex model considering its integration of a mediating role of ethical behavior, which was considered as a critical variable within the procurement literature (Saini, 2010). It is important to note that when software such as Statistical Package for Social Science (SPSS) is deployed, the analyses cannot be run at once. It needs to first establish the influence of the independent variable on the mediator and thereafter, the influence of the mediator on the dependent variables and subsequently, to apply online tools such as Sobel mediation test to establish the mediation effect. This could be not only time consuming but also defeat one of the aims of this study which is the structural application of the socio-economic theory of regulatory compliance with the mediation effect of ethical behavior. Second, the sample size is relatively small (Hair et al., 2011:144). It is only comprised of 125 respondents which if based on the relative size of the population that is about 150 government agencies. Third, the goal of this study is not theory confirmation or comparison of alternative theories for which Covariance-based SEM can be used; its goal is extending the existing theory through the mediation effect of ethical behavior (Hair et al., 2011:144). Lastly, the research is also aimed at identifying the key driver construct to the procurement compliance which is the ethical behavior and thus, justifying the use of PLS-SEM (Hair et al., 2011:144).

Using PLS-SEM, Henseler et al. (2009) recommended the application of a two-step process – the assessments of measurement and structural models. The measurement model assessment is conducted to evaluate the reliability and validity. The idea is that only when the measures are reliable and valid, they can be used to test hypotheses. Four basic criteria were followed in analyzing the PLS-SEM measurement model as recommended (Hair et al., 2011, 2013; Fornell and Larcker, 1981). The first criterion is the assessment of indicator reliability. This is evaluated using its loading. It is required to be > 0.40. The second criterion is the assessment of internal consistency reliability. This is performed using a composite reliability of > 0.70. The third criterion is the assessment of convergent validity. It is performed using the average Variance Extracted (AVE) of > 0.50. The last criterion is the assessment of discriminant validity. It is performed through the assessment of the square-root of AVE of all the variables within the research model. It is required that the square-root of AVE of each latent variable should be greater than its squared correlation with every other variable within the research model. The most commonly approach used in conducting this assessment is Fornell-Larcker Criterion.

Following the fulfillment of the measurement model requirements, the analyses of the structural model was performed in line with the recommendation of Henseler et al. (2009), Hair et al. (2011); Hair et al. (2013, 2016) whereby five basic criteria were followed in the evaluation of the structural model. The first criterion is the assessment of the significance of path coefficients using 5000 bootstrapped samples with 125 cases. While running bootstrapping with 5000 samples is a PLS-SEM conventional requirement, the 125 cases are the usable responses obtained during data collection. Thus, they are used in the analyses. The purpose of this criterion is to test the hypotheses of the study. The second criterion is the assessment of coefficient of determination (R-squared) of the overall effects of the exogenous variables on the endogenous variables. The results of the coefficient of determination were assessed using the values of 0.25, 0.50 and 0.75, recommended by Hair et al. (2011) as small, moderate and substantial, respectively. The third criterion is the evaluation of the effect size of each exogenous variable on the endogenous variables separately. The specific effects of the exogenous variables on the endogenous latent constructs were evaluated using the recommended values offered by Cohen (1988) of 0.02, 0.15 and 0.35, classified as small, medium and large, respectively. The fourth criterion is the evaluation of predictive relevance of the model. This was conducted in line with Geisser (1974) and Stone (1974) who suggested that any model with $Q^2$ above zero has predictive relevance. The last criterion is the assessment of the strength of mediating effects in line with the suggestion of Hair et al. (2013, 2016). Hair et al. (2013, 2016) recommended the evaluation of the strength of the mediation effects through VAF. In this, three classifications were offered. First, even when the mediation effect is

| S/N | Latent Constructs                                      | No. of Items | Cronbach Alpha (α) |
|-----|--------------------------------------------------------|--------------|--------------------|
| 1   | Public Procurement Regulatory Compliance               | 16           | 0.906              |
| 2   | Ethical Behavior                                       | 5            | 0.725              |
| 3   | Professionalism                                        | 3            | 0.848              |
| 4   | Familiarity                                            | 4            | 0.906              |
| 5   | Enforcement                                            | 4            | 0.905              |
| 6   | Resistance to Political Pressure                       | 5            | 0.836              |
significant but the VAF is <20%, it can be concluded that there is no mediation. Second, when the VAF ≥20% to ≤80%, it could be said that there is partial mediation. Finally, when the VAF is >80%, it could be said that there is full mediation.

5. Findings

5.1. Demographic findings

The demographic characteristics profile of the 125 respondents who are the procurement officers of their respective organizations revealed that 100% are male with no female procurement officer found within the sample. It also revealed those aged less than 30 years are 14.4%, 31–40 years are 57.6% and those above 40 years are 28%. The qualifications of most of the procurement officers is HND/B.Sc. which accounted for 52%, while those with ND/NCE as well as those with MBA/M.Sc. are 10.4% and 37.6% respectively. It also discovered that those with less than 5 years’ experience are 45.6%, those with 6–10 years of working experience are 39.2%, while the rest which accounted for 15.2% have worked for more than 10 years in the procurement sector.

5.1.1. Analysis and results of PLS-SEM measurement model

As mentioned in the methodology, four basic criteria were followed in analyzing the PLS-SEM measurement model; (i) assessment of indicator reliability using its loading of ≥ .40, (ii) assessment of internal consistency reliability through composite reliability of ≥ .70, (iii) assessment of convergent validity using Average Variance Extracted (AVE) of ≥ .50, and lastly, (iv) assessment of discriminant validity using Fornell-Larcker Criterion. Table 2 presents the results of the analyses of the first three criteria.

It is quite evident from Table 2 that the analyses of the first three criteria revealed acceptable result. The indicator reliability has been achieved through indicator loadings of ≥ .40, except for two items in measuring compliance and one item in measuring resistance to political pressure whose loading is less than the recommended threshold and therefore, deleted as required in the PLS-SEM analysis. The items are CP2, CP4 and RPP 1. Likewise, the evaluation of the second criterion produced interesting results. All the variables achieved the cut-off values of ≥ .70 for composite reliability. It is also clear that the requirement of convergent validity was also achieved as all the variables revealed an AVE of ≥ .50. Table 3 presents the result of discriminant validity which was evaluated using Fornell and Larcker’s criterion.

It can be recalled that Fornell and Larcker criterion recommended that to achieve the discriminant validity, the square-root of AVE of each and every variable within the research model should be higher than its squared correlation with any other variable within same model. The idea is to ensure no co-linearity exist among the research variables and each variable is fully independent and not performing a similar function with any other variable within same model. Following this analysis as reported in Table 3, this requirement has been achieved. It can be concluded here that all the requirements of the measurement model have been fulfilled, implying the reliability and validity of the data for structural analyses.

5.1.2. Analysis and results of PLS-SEM structural model

It can be recalled from the methodology that five criteria were proposed in the evaluation assessing the PLS-SEM structural model; (i) evaluation of the significance of path coefficients for testing the research hypotheses, (ii) evaluation of the coefficient of determination (R-squared), (iii) effect size of each exogenous variable on the endogenous variables, (iv) evaluation of predictive relevance of the model, and lastly (v) evaluation of the strength of mediating effects. The results of these analyses are presented in Tables 4, 5, 6, 7, and 8.

It is important to note that the results support all the direct paths tested in the earlier studies. Professionalism, familiarity, resistance to political pressure and ethical behavior portrays a significant and positive influence on compliance with public procurement regulation, except for enforcement which was found to be an insignificant predictor of compliance and could be justified with the assertion that non-compliance can devise highly sophisticated means of non-compliance due to excessive enforcement (Kiama, 2014).

For the new paths, it can be recalled that hypothesis one proposed ethical behavior to mediate the relationship between professionalism and compliance with public procurement regulations. The result supports this postulation (β = 0.161, t = 2.010, p = 0.047). It implied that ethical behavior is the strategic mechanism through which professionalism can influence compliance with public procurement of regulation. In Table 8, ethical behavior accounts for 24.5% of the influence of professionalism
effort and compliance with public procurement regulations (\(\beta = 0.187, t = 3.078, p = 0.003\)). It implied that ethical behavior is the strategic mechanism through which familiarly influences compliance with public procurement regulations. This can be confirmed from Table 8, which revealed that ethical behavior accounts for 62.5% of the influence of familiarly on compliance. Consistent with hypothesis three, the result also supports the postulation that ethical behavior mediates the relationship between enforcement and compliance with public procurement regulations (\(\beta = 0.283, t = 4.461, p = 0.000\)). The result confirmed the proposition that ethical behavior is the strategic mechanism through which enforcement influences compliance with public procurement regulations. This could be confirmed from Table 8 in which ethical behavior accounts for 74.9% of the influence of enforcement on public procurement regulation. Contrarily, the result does not support the postulation of hypothesis four which proposed that ethical behavior mediates the relationship between resistance to political pressure and compliance with public procurement regulations (\(\beta = 0.053, t = 0.670, p = 0.504\). The result implied that ethical behavior does not serve as a strategic mechanism through which resistance to political pressure could influence compliance. This could be possible as politicians could exercise powerful means against public procurement officers to get their ends met. Consequently, the variance accounted by the resistance to political pressure should not be computed, in line with recommendation of Hair et al. (2013, 2016). Having presented the results of the significance of the path coefficients, the results of the coefficient of determination is presented in Table 5.

It can be deduced from Table 5 that the variables composed in the strategic model of public procurement compliance (professionalism, familiarity, enforcement, resistance to political pressure and ethical behavior) through both direct and mediating effects accounts for 66% of the changes in the compliance with public procurement regulations. It is also revealed that professionalism, familiarity, enforcement, and resistance to political pressure accounts for 60.4% of the changes in ethical behavior. Generally, the R-squared values of the two constructs are higher than the moderate value of 50% based on the classification of Hair et al. (2011). To further understand the specific effects of the exogenous on the endogenous variables, the effect sizes have been analyzed in Table 6.

It is evident from Table 5 that the effects of enforcement, familiarity, professionalism, resistance to political pressure and ethical behavior on compliance with public procurement regulation are 0.009, 0.021, 0.323, 0.015 and 0.047, which can be classified as very small, small, medium, very small and small, respectively. Likewise, the effects of enforcement, familiarity, professionalism and resistance to political pressure on ethical behavior are 0.232, 0.114, 0.061, and 0.015 which can be classified as medium, small, small and very small, respectively. Following the presentation of the effect sizes is the result of predictive relevance of the strategic model as contained in Table 7.

The result of model predictive relevance presented in Table 7 confirmed that the strategic public procurement compliance model presented here has predictive relevance. To evaluate the extent to which ethical behavior mediates all the hypothesized relationships, the assessment of the strength of the mediation effect through Variance Accounted For (VAF) was computed in Table 8. It can be seen from Table 8 that ethical behavior is a partial mediator on the influence of professionalism, familiarity, and enforcement on compliance with public procurement regulation as it accounted for 24.5%, 62.5%, and 74.9% accordingly on the influence of these variables on public procurement regulatory compliance.
6. Discussions and conclusions

This paper proposes and validates the strategic public procurement regulatory compliance model with mediation effect of ethical behavior. It is important noting that the methodology deployed for measurement of variables and data collection as well as the size of the sample has been consistent with the previous research (Abere and Muturi, 2015; Omagbon, 2016; Osei-Tutu et al., 2011). In terms of analyses, different from the earlier studies, PLS-SEM was deployed as a method of data analysis mainly due to the strategic and complex nature of te model which integrates mediating effects. Using alternative analytical software used in the previous studies would require running of the analyses in three stages: first, the direct influence of the independent variables on the mediator; second, the direct effect of the mediator on the dependent variable and lastly, the computation of the mediation effect. However, PLS-SEM enables the computation of all these paths concurrently. It is important to also note that the reliability and validity of the measures were also ensured through the measurement model evaluation before testing the hypotheses. Establishing these reliable and valid measurements is a pre-condition for the structural model analyses and measurement model evaluation is a pre-requisite to structural model evaluation (Hair et al., 2011, 2013, 2016).

In terms of the structural model, the hypotheses were tested using 5000 bootstrapped samples with 125 cases as required for PLS-SEM analyses (Hair et al., 2011, 2013, 2016). It is also critical to report that the paths tested in the previous studies were also confirmed here. Consistent with earlier studies, the influence of professionalism on compliance was supported (Gelderman et al., 2006; Jaafar et al., 2016; Jones et al., 2015; Mrope, 2017; Mwelu et al., 2018; Omagbon, 2016; Sandada and Kambari, 2016), as well as the influence of familiarity (Eyaa and Oluka, 2011; Gelderman et al., 2006; Sandada and Kambari, 2016; Mwelu et al., 2018). However, the influence of enforcement on compliance contradicts earlier studies such as Gunningham and Kagan (2005), Imperato (2005), Zubcic and Sims (2011) as well as Sandada and Kambari (2016), though it cannot be surprising based on the assertion of Kiama (2014) who compiled that excessive enforcement make non-compliant devise sophisticated means to avoid compliance with regulations. Resistance to political pressure was also found to have a significant positive influence on compliance. It is consistent with earlier studies which found political interference to have a positive influence on non-compliance with public procurement regulations (Jones et al., 2015; Chikwere et al., 2019). Finally, the direct influence of ethical behavior also conforms to extant literature whereby it was found to have a significant and positive influence on compliance (Sandada and Kambari, 2016).

For the new paths hypothesized and tested in these study, all were found to be significant, except that ethical behavior failed to mediate the influence of resistance to political pressure on compliance. Specifically, the results revealed that ethical behavior is the strategic mechanism through which professionalism, familiarity and enforcement influence public procurement regulatory compliance as it accounts for 24.5%, 62.6% and 74.9% of the influence of these variables respectively on compliance. This interesting discovery and validation of the framework could be achieved through professional development, development of professionals through effective training using professional code of ethics and can be used as a tool to reconstruct the government’s integrity in public procurement. The identification of ethical behavior as a key policy variable is also in congruence to Chikwere et al. (2019) who suggested the need to understand the root cause of non-compliance so as to help policymakers direct policies towards addressing non-compliance in public procurement issues in developing countries.

This policy contribution is in line with the assertion of previous studies such as Tukamuhawwa (2012), who conceptualized moral obligations which may include ethical behavior as a potential mediator between perceived rule legitimacy and public procurement regulatory compliance. It is also consistent with the view of Zitha and Mathubula (2015) who stressed that ethical conduct is the centerpiece of procurement and can be used as a tool to reconstruct the government’s integrity in public procurement. The identification of ethical behavior as a key policy variable is also in congruence to Chikwere et al. (2019) who suggested the need to understand the root cause of non-compliance so as to help policymakers direct policies towards addressing non-compliance in public procurement issues in developing countries.

It widens the understanding of Socio-economic Theory of Regulatory Compliance in two ways. First, the study validates the theory through

suggested cutoff values of 0.02, 0.15 and 0.35 recommended by Cohen (1988), except for enforcement and resistance to political pressure which present slightly lower effect sizes. However, following Hair et al. (2013), that does not mean there are no effects since there are values attached to it, only that it is slightly lower than the recommended value. The predictive relevance of the model which was assessed using the recommendation of Geisser (1974) and Stone (1974) confirmed that the model has predictive relevance as the $Q^2$ is above zero. It implied that the model could be able to predict compliance with public procurement regulation through the mediating effect of ethical behavior. The strength of mediation effect which was assessed using the recommended valued of: VAF is <20%; VAF ≥20% to <80%, and >80%, confirmed the partial mediation of ethical behavior in three out of four hypothesized mediation relationships. The only exception was resistance to political pressure which ethical behavior was very weak in mediating its relationship with public procurement regulatory compliance. This could be due to a weak direct effect of resistance to political pressure on public procurement regulatory compliance reported in the first part of Table 4. This implied that procurement officers find it harder to ensure strong resistance to political pressure leading to weaker ethical conduct and inability to strongly enforce compliance.

The strategic public procurement regulatory compliance model have both policy, theoretical and future research implications. In terms of policy, the model clearly implied that the development of ethical behavior among public procurement officers, practitioners and professionals through effective training using professional code of ethics should be the strategic issue of concern by both policymakers and professional bodies. This will result in moulding their behavior towards moral reasoning. When this is achieved, the compliance with public procurement regulation would ultimately be high. The study also have implications to theory. One basic question to ask is the extent to which ethical behavior brings more “strategic” value to the original model. It is important to note that adding the mediator “ethical behavior” brings “strategic value” to the policymakers and public procurement professional bodies to simply understand that despite several factors influencing public procurement regulatory compliance, ethical behavior is identified here as the key variable through rigorous mediation analyses using partial least squares. In fact, the key players in the application of this analytical technique suggest that its application leads to identifying the “key driver construct” (Hair et al., 2011:144). This means identification of ethical behavior as a mediator gives a clear “policy direction” which signifies that policymakers need to focus on enhancing the “personal ethical traits of the procurement officers” to easily achieve the goal of regulatory compliance. It shows that “good personal ethical traits” is the key mechanism and the reason why variables such as professionalism, familiarity, enforcement and resistance to political pressure influences public procurement regulatory compliance. Therefore, the development of moral values among public procurement officers should be given priority by the policymakers and practitioners. This could be achieved through professional development, development of code of ethics to guide their conduct, enforcement and on the job training.

This policy contribution is in line with the assertion of previous studies such as Tukamuhawwa (2012), who conceptualized moral obligations which may include ethical behavior as a potential mediator between perceived rule legitimacy and public procurement regulatory compliance. It is also consistent with the view of Zitha and Mathubula (2015) who stressed that ethical conduct is the centerpiece of procurement and can be used as a tool to reconstruct the government’s integrity in public procurement. The identification of ethical behavior as a key policy variable is also in congruence to Chikwere et al. (2019) who suggested the need to understand the root cause of non-compliance so as to help policymakers direct policies towards addressing non-compliance in public procurement issues in developing countries.
structural analysis using PLS-SEM, and secondly, it expand the scope of theory through the integration of mediation effect ethical behavior. This research brings about the importance of “intrinsc value” which was ignored by the literature as a mediator and thereby, elaborates the ‘strategic value’ of this new model. As such, future research could explore the use of other mediators apart from ethical behavior in understanding the strategic mechanism that explains why the direct effects of professionalism, familiarity, enforcement and political interference have been relatively consistent across settings. The fact is that this study only establishes partial mediation effects and not full mediation of ethical behavior in those relationships. Additionally, confirming the mediation effect of ethical behaviors indicates that public procurement literature could explore additional moderators and mediator variables based on the methodological guides of Baron and Kenny (1986) depending on the existence of consistent or inconsistent results among the existing empirical studies. This means that the integration of this intervening variables could be made in other compliance theories which can be applied in public procurement regulator compliance such as the Theory of Planned Behavior (TPB) of Ajzen (1991), Motivation Crowding Theory (MCT) of Prey (1997) as well as Motivational Posturing Theory (MPT) of Braithwaite et al. (2007) among other relevant theories.

Declarations

Author contribution statement
Dauda Ibrahim Sarawa: Conceived and designed the experiments; Performed the experiments; Wrote the paper.
Abdusalam Mas’ud: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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