TRANSACTION COSTS CHARACTERISTICS EFFECTS ON CONTRACTING BUSINESS IN NIGERIA

Mohammed Lawal Yahaya[1] and Olukayode Sunday Oyediran[2]
[1]Department of Physical Planning and Development, Unsmanu Danfodiyo University, Sokoto, Nigeria
[2]Department of Quantity Surveying, University of Lagos, Nigeria

Various literatures in construction and project management deduced that transaction costs characteristics have impact on contractor's bids evaluation process. Aim of this study is to assess the level of impacts of transaction costs characteristics on contractor's bids evaluation process. Simple random sampling techniques was used in selecting fifty two (52) contractors within some selected states of the North-West zone of Nigeria that are registered in the Bureau of Public Procurement database of contractors, whom are being considered to participate in any federal government tendering process as respondents of the study. The data collected was analyzed using multi-attribute techniques, Relative Importance Index RII and ANOVA. Results of the study indicate that transaction costs characteristics effects among the five categories of factors identified from literature, predictability of owners behavior rank first, followed by project management efficiency (RII=0.698), contractors predictability behavior (RII=0.684), while uncertainty in the transaction environment (RII=0.662) and magnitude of the transaction cost (RII=0.647) rank fourth and fifth with low impacts on contractors' bids evaluation process. No significant difference was found between the effects of TCs characteristics of four factors on contractors' bids evaluation process. While there is a significant different in Uncertainty in the transaction environment factor x^2_{tab} = 17.67 > x^2_{cal} =17.06. Conclusions are that owners' behavior, contractor's behavior, project management efficiency and magnitude of the transaction have an impact on contractor's bids evaluation process in determining a successful tender among the various contractors' bids for a project by the client. The study recommends that contractors should adopt good decision making by reducing the amount of time-spent on disputes/disagreement, unbalance bidding, collusion and cheating that cause uncertainty in the bidding environment. Contractors should adopt experience based type when bidding for construction projects with regards to finance, schedules, manpower, equipment and other documentary evidence in their bidding process.

Keywords: bids evaluation process, contractor, Nigeria, transaction costs characteristics

[1] mohammedlawalyahaya@gmail.com
[2] ooyediran@unilag.edu.ng

INTRODUCTION

In construction projects in Nigeria, clients undergo a procurement process to select a competent consultant and contractor to carry out the construction work using pre-determined selection criteria (Ogunsanmi, 2013; Peter, Love, Davis & Edwards, 2008; McWhirt, Ahn, Jenniffer & Kelly, 2011) or guidelines as stated by the public procurement Act 2007. The Act objectives are to provide the best value for money, economy, transparency, accountability and competition among bidders (PPA 2007).

To ensure aggregate procurement, there is need to obtain economies of scale and reduce procurement costs (PPA 2007). However, it must be quickly noted that the Act has not taken into account the transaction costs incurred with participation in the tender processes due to the varied activities undertaken by clients, consultants and contractors. It is a common fact that contractors devote considerable time and resources in determining the cost of construction and then assessing the price they will quote to the owner (Li, Arditi & Wang 2013). The Client is interested only in the price quoted by contractors.

This price is the rate at which exchange will take place. Price to the contractor becomes a cost to the owner (Hillebrandt & Hughes, 2000). However, the actual cost of a construction project is not the only production cost. The cost of preparing a bidding document, estimating, drawing up a contract condition, advertisements, administrative aspects and dealing with any deviations from construction (Arbitration or Dispute resolution) are also important. In construction these costs are incurred by clients, consultant or contractors as the case may be.

The costs are known as transaction costs in the study of economic organizations (Coase, 1937). In transaction cost economics a transaction occurs when a goods, works or services is transferred across a technologically separable interface (Williamson, 1987). Similarly, in construction using the PPA (2007) a services or goods are supplied to the client in return to a stated amount agreed by client.

However, it is not clear whether transaction costs characteristics were reduced by the use of the PPA since they are not defined systematically (Li et.al 2013). Also, it is not clear or understood whether transaction cost have positive or negative impact on the bidding process phases of a construction project. Various researchers have proven the existence of such cost in the construction industry and other areas of studies. This to include construction-related topics, project organization and governance (Piertoforte, 1997; Turner & Keegan, 2001; Winch, 2001; Muller & Turner, 2005; Jobin, 2008), Agriculture (Huo, 2015; Ferris 2005) and marketing and sub-contracting (Eccles, 1981; Gunarson & Levitt 1982; Reve & Levitt, 1984; Winch, 1989; Constantion, 2001).

Most of the aforementioned researchers on transaction costs indicated how stakeholders are face with challenges due to the costs incurred during transaction by both parties. These leads to higher cost of construction, less economic efficiency in the procurement chain system. For instance, in the United Kingdom UK about 0.57% of the total project value was identified to be spending as the bid costs by the contractors whether they win or lose in a bidding processes (Hughes, 2016).

This is against the fact that, such costs make a significant impact on the retained operating turnover for the construction firm or company.

Worthy of note in the construction transaction in Nigeria is that they offer various transaction costs characteristics (Lingard,Hughes & Chinyio, 1998; Costantino, Pellegrion & Pietroforte, 2011; Enshassi, Mohamed & El-Karriri, 2010; Thomassen, Vassbo, Solheim-Kile & Lohne, 2016; Li, Aridit, & Wang, 2012; Li et.al, 2013) in respects of their Asset specificity, Transaction environment uncertainties, Contractors' behavior, Owners' behavior and Project management efficiency that can have negative impact on bidding process in Nigeria. Objective of this study is to assess the level of impacts of transaction costs characteristics on contractors' bids evaluation process. Bids evaluation process/phases considered in this study are preliminary bids examination (Technical bid phase), detailed evaluation (Financial bid phase), bids comparison, post-qualification verification and bids evaluation report phases.

Thus, the primary research question of this study is:

1. What level of impact does transaction costs characteristics has on contracting business in Nigeria?

The study is important in that it provides the level of impacts of the various transaction costs characteristics in contractors' bids evaluation process for construction project in Nigeria. It also contributes to transaction costs theory literature in assessing the level of impacts of TCs characteristics on contractors' bids evaluation process. Furthermore, financial and technological systems will be improved in the construction industry by increasing the retained operating costs of the contracting firms and more chances of winning contracts by contracting firms in Nigeria.

LITERATURE REVIEW

Transaction costs theory (theoretical review)

Transaction cost economics theory has become a predominant theoretical framework (model) for explaining organizational boundary decision. Like most influential theories, transaction cost theory was not fully developed at the outset. It has been and continues to be retained and reformulated, corrected and expands in response to new theoretical and empirical development (Geyskens, Steenkamp & kumar, 2006).

Transaction cost theory has its origin from Coase (1937), in his article "The nature of the firm" in which he explained market and hierarchies as alternative governance structures. The market is viewed as the dominant model of the logic of economic organization both in manufacturing, construction and overall (Hakansson, Ford, Gadde, Snehato & Waluszewski, 2009). Classic economic theory views the market as an economic system that "work itself" with supply adjusted to demand and production adjusted to consumption (Coase, 1937). According to Coase (1937), firms exist because the cost associated with organizing a transaction within the firm are lower than those associated with organizing it by exchange on the open market. In other word, there are certain costs associated with operating the market and it is necessary to firm an organization to reduce these costs (Coase, 1937).

These associated costs are incurred during such transaction, which are not cost of production. In such situation or condition, they are being considered as the determining factors as to whether a firm manufactures product in-house or buys from the outside market. They arise from the transfer of ownership or property rights (Hughes, Hillebrandt, Greenwood & Kwawu, 2006). The only solution to it is to envisage a Robinson economy; where there are no other parties involved, no concept of ownership or property rights and no need or opportunity. Therefore, to make agreements in this case all cost is production costs.

Transaction costs exist whenever there is economic organization, which means that they are in practice universal. They include the cost of:

    a. The drawing up of agreements and contracts;
    b. The definition and inspection of goods involved in the transactions;
    c. The keeping of records
    d. The preparation of bidding documents;
    e. Enforcement of the agreements and contract etc.

In construction industry, item (a) and (b) above are very high because of the complexity of the process of producing a building or other works. The Client is purchasing a product which he cannot seen in advance, because it is custom-made and, when he agrees to purchase it, is not in existence. Finding the right contractor to produce the facility and agreeing a price is complex and requires binding contractual arrangement to enforce the agreement made (Hughes et.al, 2006).

Transaction costs characteristics
The majority of studies on transaction costs in construction projects have Lingard et.al (1998), costantino et.al (2011), Li et.al (2012, 2013) indicates various transaction costs characteristics that can have impact on contractors' bids evaluation process. These studies considered various TCs characteristics factors with different area of divergent. According to Lingard et.al (1998) human being inability to predict events, asset specificityand opportunism gives rise to TCs (Coase, 1988), and whereby their co-existence may lead to business failure in general (Ascher, 1987, cited by Lingard et.al, 1998). A study of Costantino et.al (2011) in the U.S analyses the relationship between asset specificity and specialization.

The asset specificity as part of TCs characteristics, which refers it based on Williamson (1991) definition as "the degree to which an asset can be redeployed to alternative use and by alternative users without sacrifices of productive value". He further explained that investments mode for a particular transaction has a higher value only for that transaction. It has little value for other types of transactions (McGuinness, 1994). According to Williamson (1991) cited by Costantino et.al (2011), that asset specificity are of four types, that is site or location specificity, physical specificity, human specificity and temporal asset specificity. Li et.al (2012, 2013) listed out different transaction costs characteristics on construction projects performance as, Uncertainty in the transaction environment, magnitude of the transaction costs, owner's role in the transaction and contractor's role in the transaction.

Furthermore, in their studies on factors affecting TCs in construction projects (Li et.al, 2013) include project management efficiency among transaction costs characteristics with various degree of significance in the design model for each construct. Thomassen et.al (2016) estimate the TCs from both private and public actors, highlight how cost are incurred at the various transaction stages or process such as tender complexity, size of the project, prequalification of bidders and invitation to participate in the tender etc combine to make the transaction prone to high transaction costs at the tender process. Eddy, Maryunani and Ghozalimazkie (2013) also opined that behaviour attributes are among the factor influence TCs in contractors bidding process in construction project.

Therefore, transaction costs characteristics identified from these previous studies are also related to client/owner's behaviour, contractor's behaviour, project management efficiency, transaction environment uncertainties and Asset specificity that are considered in this study. Some of these TCs characteristics factors are in ambit of what has been considered in previous studies and hence they are discussed as follows:

Client's/owner's behaviour
Many studies have listed different client's behaviour that can impact bidding process in construction project. Studies of Walker (1995), Chan and Kumaraswamy (1997), Songer and Moleneer (1997), Dissanayaka and Kumaraswamy (1999) as cited by Li et.al (2013) have pointed that owner's behaviour are characteristics as client type and experience, knowledge of construction team, owner's construction sophistication, well-define scope, owner's risk aversion, and client project management are in practice. However, Li et.al (2012) emphasized that owner's behaviour reduces uncertainty in the transaction environment and increases the efficiency of project management.

Therefore, negative attitudes of the owner's in his behaviour can lead to high impacts towards the bidding process. Owner's (Client's) of construction project dreadful behaviour in terms of relationships with contractor's, consultants, co-workers and colleagues affect contractor's bidding in terms of time, efficiency of the process and poor plans and specifications during and when project implementation. A smooth relationship among parties when bidding may enhance cooperation, reduce disagreements, allow for easy resolution of conflicts and creates stability in the owner's behaviour, hence reducing the uncertainties in the transaction environment.

Kululanga and McCaffer (2001) suggest that an effective organizational learning could be attained as a result of good lesson learned from existing harmony in the project execution. Hence, promoting stability in the owner's behaviour and reducing uncertainties in the transaction environment (i.e negative impact on the contractor's bidding). Walker and Wing (1999) in their studies to explore the relationship between construction project management theory and transaction costs economics argues that owner's behaviour as a human being is characterize by bounded rationality, which made him to act rationally due to the limited analytical and data processing capabilities. By likehood of not choosing the most appropriate organizational structure, procurement method or bidding strategy etc. this is likely to be the case for clients which build regularly (Walker & Wing, 1991).

Contractor's behaviour

The ability of contractors to predict well in relation to behaviour of his client and competitors, the less transaction costs to incurred (Li et.al, 2013). The suspicion of unbalanced bidding, cheating, and collusion may cause uncertainty in the bidding process, may cause the owner's overall project cost to get higher (negative impacts), but it is difficult to detect unbalancing (Arditi & Chotibhongs, 2009) and collusions, and may generate contentious change orders (Manzo, 1997), all contributing to negative impacts. As mention with owner's behaviour, contractors that maintain a good working relationship with sub-contractors may positively and strongly influence general contractors performance (Kale & Arditi, 2001 cited by Li et.al, 2013), and may lower transaction costs of bidding.

Bresnen and Marshall (2000) states that a good harmony between contractors and owners enhance cooporation, trust, and creates stability in the contractor's behaviour, hence lowering TCs. Li et.al (2013), Lingard et.al (1998) identifies some of the elements or variables defining contractor's behaviour as; bidding behaviour, qualifications of the contractor, relationships with sub-contractors, relationships with previous clients, experience in similar type projects, material substitution and frequency claims (Chan & Kumaraswamy, 1997; Dissanayaka & Kumaraswamy, 1999). Similarly, the contractor is affected by bounded rationality issues as a human being, whereby he cannot identify all possible contingencies due to contract incompleteness. Such characteristics may lead to time overrun or costs overrun, due to his refusal to rectify defects found in the bidding documents or project implementation, because he may ask for additional payment due to either of the above item mentions. This can have a negative impact to the project (Chang & Ive, 2007).

Project management efficiency

The ability to provide maximum output given a set of inputs or the ability to minimize input given a set of required output may depends on how efficient the project management team operates. Cooper (1993, 1994) cited by Li et.al (2012) consider quality of project management as a factor that has a large impact on project productivity, quality, and rework. A Study by Li et.al (2012) states that efficient project management lower transaction costs through a good leadership, speedy decision making, efficient communication, fair conflict management and high technical competency. Project managers must develop adequate leadership skills and use appropriate leadership styles during the course of a project. These can only be achieved through speedy decision making process to ensure the best decision is made in the light of existing limitations, to strategically analyze conflict of a competitive nature and understand negotiation as a means of resolving conflicts. Technical competency in terms of knowledge and qualification is a catalyst for speedy decisions, smooth operations, few rework and easy communication, all of which reduce transaction costs impact when bidding by contractors (Carey et.al, 2006). Effective and efficient communication as a variable or indicator of project management ensures that all team members are aware of decision s as soon as they are made, leaving no room for uncertainties in terms of individual responsibilities and goals, hence reducing transaction costs impact (Suva et.al, 2008). It has been revealed that the efforts, resources, focus, determinations

and time management within project team influence a bidder's strategy to contribute in future with similar project or not (Noumba & Dinghem, 2007). Hence, it reduces transaction costs impacts.

A successful project management requires sound team leadership and coordination, diligent project planning and effective oversight of the delivery process (Li et.al, 2012; Walker &Wing 1999; WBDG, 2010). Project management area offers professional guidance, training, collaboration and harmony for the entire team to successfully and effectively carry out a high performance building project, that reduce any negative impacts to the stakeholders. Both contractor's and clients get value for money in construction when project are delivered on time, on budget and to a level of quality that meets those determined criteria or specifications.

Asset specificity

Williamson (1998) mentioned that in "TCE asset specificity is the big locomotive to which transaction costs economics owes much of it predictive content". This declaration has received great support from many other researchers (David & Han, 2004; Shelanski & Klein, 1995). Asset specificity occurs when assets are personalized to a particular transaction and cannot be easily re-assigned to another relationship without a cost. In the construction project bidding contractors are engaged in such similar challenges whereby, those requirements solicit by client are mainly for that bidding, so they cannot be used in subsequent bidding such as; bid security, Court Affidavit, performance bond/Bank guarantee or pre-qualification results. These have a significant impact on contractor's transaction costs. Williamson (1981) opined that asset specificity is the most important element in describing transaction. It is largely an issue of specialization of assets such that buyers cannot easily turn to alternative supplies whereas suppliers on the other hand can easily sell goods to many other buyers. Asset specificity has been classified into three to four classes (Rao, 2003; Rawlence, 2010, Costantino et.al, 2011; Lingard, 1998). This includes location, physical, human and temporal assets specificity. Location specificity refers to the local availability of providers of a given technology, material or labour. Little availability creates a monopolistic situation with consequent "up hold" problem between providers and contractor including higher costs.

Physical asset specificity refers to specialized machinery that can be used for a single purpose. In construction projects typical examples are the boring and lining machines in hard rock tunneling, the paving equipment in road building and the specialized cranes for the steel erection of a high rise building. Human asset specificity refers to the specialized human skill arising in learning by doing. It encompasses the knowledge and experience of personnel that are specific to a firm's line of business and also to long term cooporatives links between general contractor's and subcontractor's. While temporal relates technology with time specific (Costantino et.al, 2011). Lingard et.al (1998) argues that asset specificity has no significant before a contract being let because, except for specialized civil engineering or building services work can simply switch between alternative contractor is high (Winch,1989). Similarly, contractors bidding for a particular

project can change or withdraw before the opening of the document (PPA 2007), but rather have incurred some transaction costs due to printing, traveling, feeding, professional services and other related charges attached to it. This has negative impacts on the contractor's operating or retained costs.

Transaction environment uncertainty

Projects uncertainties in an environment may be both external and internal factors that affect the project execution (Walker & Pryke, 2009; Rawlence, 2010; Jin & Zhang, 2011; Li et.al 2013). These are changes that are normally caused either by nature or by the actions and inactions of other economic actors. Those caused by natural events are called primary uncertainties whereas those caused by other economic actors are referred to as secondary uncertainties. Both of these being unintentional are environmental uncertainties (Williamson, 1985; Rawlence, 2010). Conversely when these factors happen to be strategies and calculated attempts by other actors it is termed behavioral uncertainties (Stucliffe & Zaheer, 1998; Rawlence, 2010).

Li et.al (2013) mention about nine elements related to uncertainty in the transaction environments as project complexity, project uncertainty, completeness of design, early contractor involvement, competition between bidders, integration of design and construction, bonding requirements, incentive/disincentives clauses and fair risk allocation. Project complexity increases uncertainty in the transaction environment, hence increasing the cost of bidding or procurement as a whole (Farajian, 2010). When the scope of a project also is not well defined, initial drawings and specifications are likely to change, promoting many claims and valuations orders that in turn increase transaction costs (negative impact). Bonding requirements may discourage opportunistic behaviour on the part of the contractor (Mysen et.al, 2011) and consequently may reduce transaction costs of the client but increases that of contractors. Similarly, a fair allocation of risks between the parties may reduce transaction costs. An empirical studies by Li et.al (2013) revealed that uncertainty in the transaction environment have a negative impacts and can be minimize by preparing a less complex projects, ensuring that design is complete, secure the contractor's early involvement in the project, encourage healthy competition between bidders and integrate design and construction.

RESEARCH METHOD

Literature review was undertaken to identify transaction costs characteristics as owner's behaviour, contractor's behaviour, asset specificity, project management efficiency, and transaction environment uncertainties on contractor's bidding process. A questionnaire was used to collect factual and perceptive responses and measure impacts or effects regarding the TCs characteristics that affect bid evaluation process in Nigeria. Thus, it has being argued that questionnaire is a widely used approach for descriptive and analytical surveys to find out the facts, opinions and views of respondents (Fellow & Liu, 1997; Naoum, 1998). Two populations were targeted in this research. The first population comprised of contractors that are within some selected states of the North-West geographical zone of Nigeria (i.e Sokoto, Kebbi and Kaduna) who are registered with the Bureau of Public Procurement database of contractors under the civil or building

categorization/classification indicating their IRR (Interim Registration Report) number or ID, (110 Companies).. The objective of this study was to assess the level of transaction costs characteristics impact on contractors bidding process. This was to obtain from the arrangements of the questionnaire structure. To determine the sample size for each population of contract's and client's, the Kish (1995) equation was used. Assaf (1999, 2001) and Abdul-Hadi (1999), Enshassi (2010) among others used this equation:

$$n = \frac{n'}{\left[1+\left(\frac{n'}{N}\right)\right]} \text{-- (1)}$$

Where:

n' is the sample size from infinite population, which can be calculated from this formula: $[n' = \frac{S2}{v2}]$.

n= sample size from finite population

N= total population (110 contractors)

V2= Standard error of sample population equal to 0.05 for confidence level 95%, t= 1.96

S2= standard error variance of population elements S2= P(1-P), P=0.5

Sample size for the contractors and client population are as follows:

n' = (0.5)2/(0.05)2 = 100

n contractors $= \frac{100}{\left[1+\left(\frac{100}{110}\right)\right]}$ = 52 Companies

The calculated sample size was 52. The response rate was 45(73%) for contractors. The respondents were asked to give their experiences based regarding the transaction costs characteristics impact on contractors bidding process using a five point scale (from "1" strongly disagree to "5" strongly agree). The relative importance index (RII) was calculated using the following equation (Naoum, 1998; Assaf, 1999, 2001; Abdul-Hadi, 1999; Wanous, 2003; Enshassi, 2010).

$$\text{RII} = \sum\frac{w}{AN} = \frac{5n5+4n4+3n3+2n2+1n1}{5N} \text{--------------------------- (2)}$$

The level of impact of the TCs characteristics was determined based on the RII computation. The scale was divided into five categories from 0-.2= Very low, 0.21-0.4= Low impact, 0.41-0.6= Small impact, 0.61-0.8 = High impact, and 0.81-1.0= Very high impact.

RESULTS AND DISCUSSIONS

Table 1 Descriptive result of impact of owner's behaviour characteristics on contractor's bid evaluation

Predictability of Owner's Behavior	Relative Importance Index (RII)	Level of Impact (LV)
Relationship with other parties	0.702	High impact
Experience in similar type projects	0.600	Small impact
Payment on time	0.644	High impact
Organizational efficiency	0.627	High impact
Change orders	0.547	Small impact

Table 2 Descriptive result of impact of contractor's behaviour characteristics on contractor's bid evaluation

Predictability of the Contractor's Behaviour	Relative Importance Index (RII)	Level of Impact (LV)
Bidding behaviour	0.684	High impact
Qualifications of the Contractor	0.658	High impact
Relationship with subcontractor	0.578	Small impact
Relationships with previous clients	0.596	Small impact
Experience in similar type projects	0.636	High impact
Material substitution	0.671	High impact
Frequency of claims	0.649	High impact
Location of bidding	0.680	High impact

Table 3 Descriptive result of impact of transaction environment characteristics on contractor's bid evaluation

Uncertainty in the transaction environment	Relative Importance Index (RII)	Level of Impact (LV)
Project complexity	0.662	High impact
Project Uncertainty	0.569	Small impact
Completeness of design	0.636	High impact
Early contractor involvement	0.560	Small impact
Competition between bidders	0.613	High impact
Integration of design and construction	0.582	Small impact
	0.658	High impact
Bonding requirement	0.600	Small impact
Incentives/disincentives	0.662	High impact
Fair risk allocation		

Table 4 Descriptive result of impact of project management efficiency characteristics on contractor's bid evaluation

Project Management Efficiency	Relative Importance Index (RII)	Level of Impact (LV)
Leadership	0.640	High impact
Quality of decision making	0.618	High impact
Quality of Communication	0.618	High impact
Conflict Management	0.662	High impact
Technical competency	0.698	High impact

Table 5 Descriptive result of impact of magnitude of transaction costs characteristics on contractor's bid evaluation

Magnitude of the Transaction costs	Relative Importance Index (RII)	Level of Impact (LV)
Market research	0.649	High impact
Exploring financing opportunism	0.622	High impact
Conducting feasibility study	0.564	Small impact
Dispute resolution	0.640	High impact
Contract Administration	0.636	High impact
Negotiation	0.636	High impact

Table 6 Descriptive result of impacts of transaction costs among characteristics on contractor's bid evaluation

TCs Characteristics	Relative Importance Index (RII)	Level of Impact (LI	Rank
Predictability of Owner's Behaviour		HI	1
Predictability of the Contractor's Behaviour	0.702	HI	3
Uncertainty in the transaction environment		HI	4
Magnitude of the Transaction costs	0.684	HI	5
Project Management Efficiency		HI	2
	0.662		
	0.649		
	0.698		

Table 7 Inferential result of difference in impact between the transaction costs characteristics on contractor's bids evaluation process

TCs Characteristics	X2Cal	Dif	X2Tab	P-Value	Sig.	Decision
Predictability of Owner's Behaviour	16.85	16	26.29	0.00	S*	Accept Ho
Predictability of the Contractor's Behaviour	23.52	28	41.34	0.00	S*	Accept Ho
	17.67	32	17.06	0.61	NS	Accept H1
Uncertainty in the transaction environment	14.26	20	31.41	0.00	S*	Accept Ho
	12.74	16	26.30	0.00	S*	Accept Ho
Magnitude of the Transaction costs						
Project Management Efficiency						

Table 8 ANOVA result of difference in impact between the transaction costs characteristics on contractor's bids evaluation process

Source of Variation	Sum of Square SS	D.F	MS	F-Ratio	Critical Value F	Sig.	P-value	Decision
Between Groups	15130.8	4	3782.7	25.4727	2.78	S*	0.00	Accept H1
Within Groups	3564	24	148.5					
Total	18694.8	28						

Table 1 shows that of the five owners behavior that show some impacts on contractors bidding relationship with other parties rank first (RII=0.702, HI), payment on time (RII=0.644, HI), and organizational efficiency (RII= 0.627, HI) while experience in similar type projects and change order (RII=0.600, 0.547) with small impacts on contractors bidding. These results also reveal that relationships with other parties payment on time and organization efficiency has the highest impacts on contractors bidding while change order and experience on similar projects show some small level of impacts on contractors bidding. Li et.al (2013) findings agrees with these result, which shows that owners should have a good relationship with other parties (such as contractors, designers, suppliers and government agencies) pay the contractors on time and make an effort to improve organizational efficiency. His further emphasis that owner's good character reduces transaction costs effect indirectly through less uncertainty in the transaction environment and project management efficiency (Li et.al 2013).

Table 2 shows that of the eight transaction costs characteristics analyze under the contractors behavior six factors has high impacts while only two indicate small impacts or less effects. Bidding behavior, qualification of contractors, experience, material substitution, frequency of claims and bidding locations has (RII= 0.684, 0.658, 0.636, 0.671, 0.649 and 0.680) while relationship with subcontractors and previous clients has (RII=0.578 and 0.596) which shows small impact on contractors bidding. According to Li et.al (2012) findings reveals that contractor experience, contractor's relationship with client and subcontractor, material substitution,

frequency of claims and qualification of contractors has small effects on contractors.

Table 3 Uncertainty in the transaction environment indicates five factors that has high impacts with project complexity and fair risk allocation first rank (RII=0.662, HI), bonding requirement (RII=0.658, HI), completeness of design (RII=0.636,HI) and competition between bidders (RII=0.613, HI) , while incentive/disincentive (RII=0.600, SI), integration of design and construction (RII=0.582, SI), project uncertainty (RII=0.569, SI), early contractor involvement (RII=0.560, SI) has small impacts on contractors bidding. Li et.al (2012) indicated that uncertainty in the transaction environment has high impact due to factors such as project complexity, complete design, early contractors' involvement, healthy competition between bidders, integrates design and constructions, and fair allocation of risk.

Factors related to project management efficiency table 4 shows that of all the factors analyze has indicated high impacts on contractors bidding with technical competency rank first (RII=0.698, HI), conflict management (RII=0.668, HI), leadership (RII=0.640), Quality of decision making and communication (RII=0.618).

The table 6 shows a comparison of the transaction costs characteristics impacts among the five categories of factors that affect contractor's bidding in the construction industry. Predictability of owners behavior rank first with (RII=0.702), project management efficiency (RII=0.695), predictability of the contractor's behavior (RII=0.684), uncertainty in the transaction environment (RII=0.662), and magnitude of the transaction costs (RII=0.649). As stated by previous researches, that owner's behavior has major effects because the owner is he who regulates all the factors mentioned in the bidding process (Li et.al 2012, 2013). The results also agree with Walker (1995) who considered the contribution of owner and owner's representative as a thermometer or instrument on construction performance.

Table 7 also shows that predictability of owner's behavior, contractor's behaviors, uncertainty in the transaction environment, magnitude of the transaction costs and project management efficiency characteristics have their calculated chi-square values (X2 cal = 16.85, 23.52, 17.67, 14.26 and 12.74) lower than the tabulated values (X2 tab = 26.29, 41.26, 31.41 and 26.30) while X2 tab = 17.06 is higher than the tabulated values. Hence the results is significant for four characteristics and non-significant for only one characteristics (uncertainty in the transaction environment). This implies accepting the null hypothesis. This indicates that owner's behavior, contractors' behavior, magnitude of transaction costs and project management efficiency has impacts on contractors bidding. Similarly, uncertainty in the transaction environment has its calculated chi-square values (X2cal = 17.67) higher than the tabulated value (X2 tab = 17.06) hence the result is not significant. These also accept the alternative hypothesis. This infers that uncertainty in the transaction environment have no impact on contractors bidding. These results disagree with the descriptive result or findings of Li et.al (2012, 2013), Enshassi et.al (2010). In their findings they indicates that uncertainty in the transaction environment increases transaction cost positively as a result of various factors that may emanate, (Diekmann & Girard, 1995; Farajian, 2010; Vrjhoef & Ridder, 2007; Broome & Periy 2002) which will lead to high impacts on the contractors bidding due to more cost to be incurred during the bidding process.

CONCLUSION

In view of the findings of this study the following conclusions are deduced from the study: There are various transaction costs characteristics affecting contractor's bids evaluation process emanating from Predictability of owner's behaviour, Predictability of contractors' behaviour, Uncertainty in the transaction environment, Magnitude of the transaction costs and Project management efficiency. Relationship with other parties, bidding behaviour, project complexity, fair risk allocation, technical competency, market research and contract administration related factors have demonstrated high impacts on contractors' bid and have also influenced the process of bidding evaluation for construction projects. The way a contractors' bid is evaluated for can affect its winning chances. Several stages of evaluation allowing competent contractors', selecting from existing performing vendors and approaches allowing contractors to compete with each other have resulted in successful construction projects. Relationships with other parties (such as contractors', consultants, suppliers and clients) have high impact on bids evaluation process in various ways. It has caused high transaction costs due to less cooperation, increase disagreements, complex dispute resolution and unstable business environment, hence increasing the uncertainty in the transaction environment. Bidding behaviour in the research has indicated high impact on the contractor's bid due to suspicion of unbalanced bidding, cheating and collusion. It may cause uncertainty in the bidding environment, may cause the owner's overall project cost to get higher, but it is hard to detect unbalancing and collusion and they may generate contentious change orders all contributing to higher transaction costs. Unfair risk allocation among parties has demonstrates high impact on contractors' bid during the evaluation process. It leads to increase in their transaction costs and poor performance during execution of the project due to such fair. Recommendations include that clients, stakeholders, practitioners as well as consultants on projects should give careful consideration to the evaluation stages as stated in the PPA 2007 to be adopted when evaluating contractors' bids. Transaction costs should be kept low; by minimizing the uncertainty in the transaction environment also enhances contractor behaviour, indirectly contributing to lower transaction cost; and the party who can reduce the uncertainty in the transaction environment is the construction owner (Client) who can take some or all of the actions described above. Furthermore, contractors should adopt experience based type when bidding for construction projects with regards to finance, schedules (time), manpower, equipment and other documentary evidence so as to lower the transaction costs in their bidding process and have a great chance of winning contracts. Policy makers in government, clients, and contractors into construction projects should give adequate attention on transaction costs characteristics and evaluating process of tenders for better management of future contracting business in Nigeria and other developing countries. These findings were based on perceptions measure, not absolute. Therefore, feature study should consider an absolute type of study in the same area.

REFERENCES

Abdul-Hadi, N.H. (1999), Factors Affecting Bidding and Markup Decisions in Saudi Arabia, unpublished MSc thesis, King Fahd University of Petroleum and Minerals, Dhahran.

Arditi, D., and Chotibhongs, R. (2009). "Detection and prevention of unbalanced bids." Construction Management Economic., l27(8), 721–732.

Assaf, S. & Al-Hejji, S. (2006) 'Causes of Delay in Large Construction Projects'. International Journal of Project Management, 24 (4)**,** 349-357.

Assaf, S.A., Bubshait, A.A., Atiyah, S. and Al-Shahri, M. (1999), "Project overhead costs in Saudi Arabia", Cost Engineering, Vol. 41 No. 4, pp. 33-8.

Assaf, S.A., Bubshait, A.A., Atiyah, S. and Al-Shahri, M. (2001), "The management of construction company overhead costs", International Journal of Project Management, Vol. 19, pp. 295-303.

Bresnen, M. & Marshall, N. (2000b) 'Motivation, Commitment and the Use of Incentives in Partnerships and Alliances'. Construction Management and Economics, 18 (5)**,** 587598.

Brozowaki, E. (2001). Reducing the cost of capital project procurement. http://www.docstoc.com/docs/45115312/Reducing-the-cost-of-capital projectprocurement.

Bureau of Public Procurement. (2007). Public Procurement Act (2007).

Chan, D.W.M. and Kumaraswamy, M.M. (1997) A comparative study of the causes of time and cost overruns in Hong Kong construction projects. International Journal of Project Management, 15(1), 55–63.

Chang, C.Y. and Ive, G. (2007) Reversal of bargaining power in construction projects: meaning, existence and implications. Construction Management and Economics, 25 (8), 845–55.

Cheng, E., Li, H. & Love, P. (2000) 'Establishment of Critical Success Factors for Construction Partnering'. Journal of Management in Engineering, 16 (2)**,** 84-92.

Coase R.H. (1937) The nature of the firm, Economica, **4**, 386-405.

Costantino, N., Pellegrino, R., and Pietroforte, R., (2011) Asset Specificity and Specialization in the U.S. Construction Industry: A Transaction Cost Theory Interpretation, International Journal of Construction Management, 11:4, 13-30, DOI: 10.1080/15623599.2011.10773176

Dalrmple, J., Lionel, B. & Warren S. (2006). Cost of Tendering: Adding Cost without Value? Victoria, Australia: Centre for Management Quality Research/CRC Construction Innovation, Royal Melbourne Institute of Technology

Diekmann, J.E. and Girard, M.J. (1995) Are contract dis- putes predictable? Journal of Construction Engineering and Management, 121(4), 355–63.

Dissanayaka, S.M. and Kumaraswamy, M.M. (1999) Evaluation of factors affecting time and cost performance in Hong Kong building projects. Engineering Construction and Architectural Management, 6(3), 287–98.

Dissanayaka, S.M. and Kumaraswamy, M.M. (1999) Evaluation of factors affecting time and cost performance in Hong Kong building projects. Engineering Construction and Architectural Management, 6(3), 287–98.

Dissanayaka, S.M. and Kumaraswamy, M.M. (1999), "Comparing contributors to time and cost performance in building projects", Building and Environment, Vol.34, pp.31-42.

Eddy. P., Maryunani, G.M., Khusaini, M., (2014). Effects Of Asymmetric Information, Transaction Cost To Corporate Governance, And Public Organization Performance (Study In Local Water Company In Malang Regency). IOSR Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X, p-ISSN: 2319 7668. Volume 15, Issue 6 (Jan. 2014), PP 14-27.

Ekwekwuo, C. C. (2016). A case study of the Nigerian procurement monitoring program and its portal and observatory. Wyith Limited and Wyith Institute, 1–5. Retrieved from http://www.commentary.com/procurement_monitoring.htm

Enshassi S., A., El Karriri, A., M., (2010),"Factors affecting the bid/no bid decision in the Palestinian construction industry", Journal of Financial Management of Property and Construction, Vol. 15 Iss 2 pp. 118 – 142.

Eriksson, P. E. (2007) Efficient Governance of Construction Projects through Cooperative Procurement Procedures. Business Administration and Management. Luleå, Luleå University of Technology.

Eriksson. E.P., and Westerberg, M., (2010), Effects of Procurement on Construction Project Project Performance: Division of entrepreneurship and industrial organization, Lulea University of Technology.

Farajian, M.,(2010),Transaction Cost Estimation Model for US Infrastructure Public Private Partnerships, unpublished MSc thesis, University of Maryland, College Park, UK

Fayomi,I.O.(2013) Public procurement and due process policy in Nigeria: thrust, prospects and challenges, Peak Journal of Social Sciences and Humanities **1**(4) 39-45.

Fellows, R. and Liu, A. (1997), Research Methods for Construction, 3rd ed., Blackwell Science, Oxford.

Hu, L. and Bentler, P.M. (1998) Fit indices in covariance structure modeling: sensitivity to under-parameterized model mis specification. Psychological Methods, 3(4), 424–53.

Hughes, W., Hillebrandt, P., Greenwood, D., and Kwawu, W. (2006). Procurement in the construction industry: The impact and cost of alternative market and supply processes, Taylor and Francis, New York.

Hughes, W., Hillebrandt, P.M., Lingard, H. and Greenwood, D.G. (2001) The impact of market and supply configurations on the costs of tendering in the construction industry. In: CIB World Building Congress 2001: Performance in Product and Practice, 2-6 April 2001, Wellington New Zealand. Available at http://centaur.reading.ac.uk/4305/

Iyer, K. & Jha, K. (2005) 'Factors Affecting Cost Performance: Evidence from Indian Construction Projects'. International Journal of Project Management, 23 (4) **,** 283295.

Jackson, D.L. (2003) Sample size and number of parameter estimates in maximum likelihood confirmatory factor analysis: a Monte Carlo investigation. Structural Equation Modeling: A Multidisciplinary Journal, 8(2), 205–23.

Jacob, O. A. (2010). Procurement law in Nigeria: Challenge for attainment of its objectives. University of Botswana law Journal

Kish, L. (1965), Survey Sampling, Wiley, New York, NY.

Kululanga, G.K. and McCaffer, R. (2001) Measuring knowledge management for construction organizations. Engineering, Construction and Architectural Management, 8 (5/6), 346–54.

Kululanga, G.K., Kuotcha, W. and McCaffer, R. (2001), "Construction contractors' claim process framework", Journal of Construction Engineering and Management, July/August, pp. 309-14.

Kumaraswamy, M. & Anvuur, A. (2008) 'Selecting Sustainable Teams for PP Projects'. Building and Environment, 43 (6), 999-1009.

Li, H., Arditi, D., and Wang, Z., (2012): Transaction-related issues and construction project performance, Construction Management and Economics, 30:2, 151-164 http://dx.doi.org/10.1080/01446193.2012.655254

Li, H., Arditi, D., and Wang, Z., (2013): Factors That Affect Transaction Costs in Construction Projects, Journal of Construction Engineering and Management 139:60-68. http://dx. DOI:10.1061/(ASCE)CO.1943-7862.0000573

Lingard, H., Hughes, W. and Chinyio, E. (1998) The impact of contractor selection method on transaction costs: a review. Journal of Construction Procurement, 4 (2). pp. 89-102. ISSN 1358-9180 Available at http://centaur.reading.ac.uk/4289/

Love, P., Irani, Z. & Edwards, D. (2004) 'A Rework Reduction Model for Construction

Love, P., Skitmore, M. & Earl, G. (1998) 'Selecting a Suitable Procurement Method for a Building Project'. Construction Management and Economics, 16 (2)**,** 221-233.

Manzo, F.A. (1997), The impact of an unbalanced bid on the change order process. Construction for News, 7(1),1–8.

Marsh, H.W., Balla, J.R. and McDonald, R.P. (1988) Goodness-of-fit indexes in confirmatory factor analysis: the effect of sample size. Psychological Bulletin, 103(3), 391–410.

Mysen, T., Svensson, G. and Payan, J.M. (2011) The key role of opportunism in business relationships. Marketing Intelligence and Planning, 29(4), 436–49.

Naoum, S.G. (1998), Dissertation Research and Writing for Construction Student, Reed Educational and Professional, Oxford.

Noumba, P. and Dinghem, S. (2007), Private Participation in Infrastructure Projects in the Republic of Korea, World Bank Policy Research working paper, September 2005, available at: www.econ.worldbank.org (accessed December 2007).

Ogbonna, A. C., & Kalu, I. U (2010) Public procurement reform in developing countries: A critique of the real estate content in the Nigerian case international Journal of Management Sciences and business research 1(8) 65-77.

Ogunsami, O.E. (2103) Effects of procurement related factors on construction project performance in Nigeria. Ethiopian Journal of Environmental Studies and Management 6(2) 215-222.

Onyema,M.E.(2011) Challenges and prospects of public procurement practice in Nigeria: an analysis. Nigeria world feature article (online) available at http://www.nigeriaworldfeaturearticle.com (accessed on 02, July 2016).

Oyegoke., A.S., Dickinson., M., Khalfan., M.M.A., McDermott., P., and Rowlinson, S., (2009),"Construction project procurement routes: an in-depth critique", International Journal of Managing Projects in Business, Vol. 2 Iss 3 pp. 338 – 354

Peter E.D. Love P. R. Davis D. J. and Edwards D. B., (2008),"Uncertainty avoidance: public sector clients and procurement selection", International Journal of Public Sector Management, Vol. 21 Iss 7 pp. 753 - 776

Pietroforte, R. (1997) 'Communication and Governance in the Building Process'. Construction Management and Economics, 15 (1)**,** 71-82.

Projects'. IEEE Transactions on Engineering Management, 51 (4)**,** 426-440.

Rahman, M. & Kumaraswamy, M. (2002) 'Joint Risk Management through Transactionally Efficient Relational Contracting'. Construction Management and Economics, 20 (1)**,** 45-54.

Rajdeep, G., Raj, M. and Frank, R. K. (2000), "The role of the social-identity function of attitudes in consumer innovativeness and opinion leadership", Journal of Economic Psychology, 233- 252.

Shwarka, S.M.& Anigbogu, N.A.(2012) Impact of the public procurement reform on public building projects delivery in Nigeria. In: smith, S.D (ed) proceeding 28th Annual ARCOM conference 3-5 September 2012, Edinburgh, UK Association of researchers in construction management, 969-977.

Songer, A.D. and Molenaar, K.R. (1997) Project characteristics for successful public-sector design-build. Journal of Construction Engineering and Management, 123(1), 34–40.

Tomassen, S., (2004), The Effects of Transaction Costs on the Performance of Foreign Direct Investments, unpublished Ph.D dissertation, Norwegian School of Management Sandvika.

Vrijhoef, R. and Ridder, H. (2007), "Supply chain systems engineering in construction", Working Paper, Delft University of Technology.

Walker, A., PhPh. DD K.C., (1999),"The relationship between construction project management theory and transaction cost economics", Engineering, Construction and Architectural Management, Vol. 6 Iss 2 pp. 166 – 176 Permanent link to this document: http://dx.doi.org/10.1108/eb021109

Walker, D.H.T. (1995) The influence of client and project team relationships upon construction time performance. Journal of Construction Procurement, 1(1), 4–20.

Walker, F., and Pryke, S. (2009). "Role definition and dimensions of incomplete construction contract documents." Proc., RICS COBRA Research Conf., Int. Council for Research and Innovation in Building and Construction, Rotterdam, the Netherlands, 1258–1275.

Zielczynski, P. (2008), Requirements Management Using IBM Rational RequisitePro, IBM Press, Pearson plc, Upper Saddle River, NJ.