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CLAIMS CULTURE AND CLIENT-CONTRACTORS' WILLINGNESS TO ENGAGE IN FUTURE PROJECTS: A MULTIVARIATE ANALYSIS

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Inter-parties' relationships in construction contracts are laden with relational problems. The lifecycle of a typical relationship in the traditional procurement framework model is one-off. Stakeholders' willingness to engage in the future based on past contract exchange characteristics such as contract claims also vary. Limited research, however, reports on the relationship between the exchanges characteristics in past projects and the parties' willingness to engage in the future. This study determined the influence of claims culture on client-contractors' willingness to engage in future projects. The objectives evaluated the prevalent claims, the relationship ties, and the correlation between claims and clients-contractors' relationships. Survey data from 200 architects, engineers, and quantity surveyors in Southeast, Nigeria was analysed using multivariate approaches. The results showed payments and measurements, variations, errors and omissions, direct changes, and fluctuation claims are frequent. Projects with high claims also developed less interaction, exchange, longevity, relationship atmosphere, mutual orientation, and dependence towards a future relationship. The implication suggests frequent claims weaken client-contractors relationship ties and the willingness to engage in future projects. Lowering claims culture in projects would therefore promote parties' willingness to recreate past relationships in the future. Contracting parties need to increase their level of adaptations to improve exchange satisfaction, and relationship ties to suppress adversarial behaviours by applying relational norms to claims management.

Keywords: adversarial behaviour, claims culture, clients, contractors, contractual relationship

INTRODUCTION

Construction projects connect several parties such as contractors, suppliers, and sub-contractors (Gadde and Dubois, 2012). The activities of these parties interlaced to generate inputs toward meeting the demand for projects directly or in conjunction with other sectors (Berk and Biçen, 2018). The networks of

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relationships tend to extend with time into the future, because of the growing interests to maximise the efficiencies of the contracting organisations. However, the extension of relationship ties to future projects seems not to benefit the relational status within the traditional contracting framework (Nikinosheri and Staxang, 2016; Oaikhena and Ekung, 2018). Nurturing contractual relationships between parties and their linkages in traditional project setups, therefore, follow bespoke practices defined by the prevailing contract norms and governance frameworks.

Over the years, researchers have verified that a healthy relationship between contracting parties influences firm success and project performance (Read, 2004; Ford et al., 2011; Lu et al., 2016). Ford et al. (2011), after a review of practices within the manufacturing sector, capped it is impossible for organisations to perform without their respective relationships. However, the strength of business relationships require continuous assessment, embedding within contractual provisions and incentives to reward performance (Jefferies et al., 2006). The relationship between contracting parties that benefits successful projects and organisational performance is rooted in cooperation, respect, and support over the project lifecycle (Read, 2004). These relationship elements however elude the traditional project systems, rather, the deviant to these norms exist. The prevalent relationship practice in traditional procurement setups is point-to-point, limits cooperative dealings (Isatto and Formoso, 2011), and adopts temporary relational exchange mechanics (Ekung and Lashinde, 2016). Contractual relationship within the traditional project framework, therefore, aligns with the models of economic transaction laden with opportunism and bounded rationality. This study operationalised the transactional contract attributes into construction contracts to situates claims behaviour within opportunism. The high affinity of construction contracts to dispute behaviours also instruct parties' dissatisfactions with project outcomes. Disputes, therefore, vitiate the relationship ingredients for continuous business performance by limiting the client's level of satisfaction in completed projects (Lee et al., 2014).

Claims are the outcome of the conditions created mainly in the planning phase of contracts for which buffers in resources are allocated (Read, 2004). It arises directly out of parties' actions and in-actions that lead to the additional expense of construction resources not originally planned by the contractor (Banwo, 2017). Construction claims result in disputes and disputes are unhealthy occurrence that affects relationship ties between parties (Manuel, 2015, Bakhary et al., 2016). Shapiro (2007) linked over 90% of the problems encountered in construction projects lifecycle to claims and the trend has continued to grow at an unsettling degree (Bakhary et al., 2016; Global Construction Disputes Survey, 2018). Even though claims behaviours have several other implications, Olarewaju and Anavhe (2014) distinguished the termination of the project relationship temporarily through litigation, arbitration, and suspension and permanently, through abandonment. Most project relationships between the contracting parties (clients and contractors) terminate with disputes arising from construction claims (Global Construction Disputes Survey, CIDR, 2018). The willingness of parties to engage in the

future is, therefore low due to past relationship performance. The study is imperative to decimating dispute occurrences in traditional project setups that develop from claims cases and their disparaging consequences on relationship performance. Despite the scope of a contract detailing permitted within the purview of the traditional procurement framework, it is evidence that claims are but common occurrences (CIDR, 2018). The contractual relationship in one project infrequently progresses into another project (one-off), and parties tend to disagree on the willingness to continue a future relationship (Lu et al., 2016). Lim and Loosemore (2017) showed that projects' internal occurrences could instruct relationship performance. Claims as internal project exchange features are, therefore, likely associated with relationship failure. The contractors use claims to outstrip the client by breaching implicit commitment for extra gains and expose the contractual relationship to vicious clashes (Ning, 2018; Zhang et al., 2018).

Even though the use of past performance in contractors' selection demonstrates laggardness to engage non-performing firms, few studies examined whether claim related disputes in past projects contributed to the decision (Baiden et al., 2018). The prevalent assumptions in past studies tackled the relationship factors between the main contractor and the sub-contractor (Okunola, 2015; Tawalare and Reddy, 2018). Despite the volume of studies on contractual claims and relationships, the dearth of a prescriptive compass to evaluate the sources of tensions in client-main contractor relationships is seminal (Rahmani, 2016). Amidst the escalating dispute profile of the global construction industry (CIDR, 2018), limited studies examine how client and contractors organisations relate to post-disputes. This research, therefore, investigated whether claims management-related problems between the client and main contractor influence the party's willingness to develop future project relationships using multivariate analysis. The research explored the effects of problems created by opportunism and evasive behaviour in multiple exchanges. The knowledge of the implications of claims behaviour on contracting business continuity would drive proper management of construction claims to minimise disputes. The correlation between the frequency of claims and relationship ties also reveals the critical areas where refinements could improve relational problems in traditional project systems. The research further espoused the effect of dissatisfaction with project outcomes on future contractual relationships.

Claim culture and frequency of construction claims

Cartlidge (2012) described claim as a 'method of paying back the contractor for proven loss and expense that is not recovered in any other way'. Lu et al. (2019) expressed an understanding, which suggests, contractual claims arise where contractors request additional payments over and above initially agreed payment for work done under the general terms and conditions of the contract. However, the predominant consensus in the literature conceptualises claims, as the request for recompense for the loss of expense or time incurred by a contractor that was not part of the originally agreed contract by parties. The claim culture defines the attributes that characterise activities associated with claims planning and management (Rooke et al., 2003). Rooke et al. (2004)

identified two dimensions of claims culture: proactive (claims created during the tender stage) and reactive (claims during the project execution phase) using ethnographic research in the UK. Al Subaie (2012) and Bajere et al. (2017) developed types of claims into four categories: change, delays, extra works, and contractual claims, while Castri (2000) classified claims as technical, economic, and financial claims.

The studies on the frequency of claims adopted differing metrics. Hadikusumo and Tobgay (2015) determined the frequency of claims by calculating the number of times each type of claim occurred in a project. Ujene and Edike (2016) determined the frequency of claims using respondents' perception ranking and the actual cost of claims. Moura and Teixeira (2007) adopted the amount paid to determine the frequency of claims in their study. This study examined the frequency of claims using 13 events with a view to unravelling their contributions to relational problems between clients and contractors in the construction industry (Table 1).

Table 1: Variables for the frequency of claims

Code	Claims	1	2	3	4	5
VFC1	Termination of contracts	x				x
VFC2	Measurement and payment	x				
VFC3	Acceleration	x		X		x
VFC4	Suspension of works	x				
VFC5	Force majeure	x			x	
VFC6	Delays	x		x		x
VFC7	Errors and omissions	x			x	
VFC8	Direct changes	x				
VFC9	Variations claims				x	x
VFC10	Fluctuation and cost escalation claims		x			
VFC11	Claims for penalty		x			
VFC12	Disruption claims			x		x
VFC13	Inflation and the exchange rate			x		

1 = Moura and Teixeira (2007), 2 = Mbakwe et al. (2015), 3 = Castri (2000), 4 = Hadikusumo and Tobgay (2015), and 5 = Ujene and Edike (2016)

CLIENT-CONTRACTOR'S RELATIONSHIP

The prevalent contractual relationship in the construction industry revolves around the adversarial practice. The adversarial relationship is governed by the supremacy of distrust and the threat of a lawsuit (Rahmani, 2016). It develops towards an arms-length relationship that is conventional with construction industry practice (Jonsson, 2008). It refers to point-to-point relationships developed from priced-based selection mechanisms (Gadde and Dubois, 2012). Jonsson (2008) characterised the arms-length relationships based on the pattern of negotiation between parties. The focus is on the lowest price hence, the relationship is competitive, win-lose, and opportunistic. Baiden et al. (2018) attested to the fierce contractual relationship between contracting parties using data from the survey of stakeholders in the Ghanaian construction industry. Another study involving Canadian case studies, Blois et al. (2010) showed that temporary project management organisation experience fragile relationships and lacked the structured mechanisms to address

communication management problems. Maro and Mnyigumbi (2019) studied contractual relationships in joint ventures in Tanzania to reveal that the prevalent relationship was point-to-point. In sum, the relationships in the construction industry consist of a hierarchical governance model seen in the design and build; a market governance model exhibited in traditional procurement framework, and hybrid collaborative relationship practices in a relational contractual framework (Rahmani, 2016).

Gadde and Dubios (2010) discussed six ingredients for long-term relationships including longevity, adaptations, dependence, interactions, relationship atmosphere, and mutual orientation. Longevity arises from loyalty, trust, commitment, and social bond. Adaptation describes collective and integrated solutions to improve overall performance. Dependence ensures interdependency in settling complex technical issues. Interaction enhances visible interactions between parties that direct future and current states of affairs. Relationship atmosphere relates today with the future by smoothing conflicts caused by contradictive interests of parties, while mutual orientation is created by frequent interaction adaptation. In addition, Ford et al. (2011) emphasised that the strength and durability of firms' relationships are dependent on the level of adaptation. Adaptations are the degree of investment made by parties in the exchange relationship to sustain it, or the commitment to maintain the relationship (Tamminen and Saarinen, 2013). Three types of adaptations are distinguished (Tamminen and Saarinen, 2013): technical, administrative, and knowledge-based adaptations. Technical adaptation connects inputs flow into the exchange (product) to enhance the efficiency of operations. Construction projects are information-intensive ventures, therefore administrative adaptation seeks to advance the integration of the various relationship loops that improve diverse information exchange such as tender, notices/instruction, and financial statements (Lu et al., 2019). Knowledge-based adaptation is concerned with the development of implicit project experiences into long-term learning protocol that aids the relationship interface (Tan et al., 2017). The dimensions of relevant applicable information exchange mechanics and their influence on construction project interface management practice exists (Ekung and Lashinde, 2016; Ekung and Lashinde, 2018). Seven ingredients for building a beneficial relationship, which can obliterate adversarial tendencies underscore effective client and contractor continued relationship beyond a project (Table 2).

THEORETICAL FRAMEWORK

Client-contractors' interaction is a developing knowledge domain in the construction industry. Several theories support the analysis of inter-party/firm relationships in construction researches notably, transaction cost theory and industrial network approach. However, this study notes that inter-firm relationship in existing studies largely considered contractor-subcontractor relationship (Brahm and Tarzijan, 2014) and the relationship between contractors and suppliers networks (Bemelmans et al., 2012). However, Transaction Cost Economics (TCE) is more consistent in explaining the state of relationship and forecasts variations in the relationships under the influence

of extraneous conditions such as claims. More importantly, TCE accounts for why firms/parties and organisations elect to deal with one another in several models determined by market variables, hierarchical relationships, and or hybrid relationships in isolated project environments (Mokhlesian, 2014). TCE analysed the relationship between vertically integrated partners (client-contractors), to explain the coordination in the construction supply chain because most linkages that unite the firm are contractual (Yahaya and Oyediran, 2019).

Table 2: Indicators of Effective Contractual Relationship

S/N	Relationship Dimensions	High-involvement relationship	Sources
1	Longevity	Frequent and loyal business exchange in the long term	Gadde and Dubois (2010)
2	Dependence	Dependencies between organisations through settlements of technical complexities	Gadde and Dubois (2010)
3	Relationship atmosphere	Cooperative factors facilitating conflict caused by contradictive interests of the parties	Gadde and Dubois (2010)
4	Mutual orientation	Generated by frequent interaction and adaptation, enhance the interdependence relationship development	Gadde and Dubois (2010)
5	Interaction	How mutually oriented the intentions and interpretations of parties in the contract relationship is conveyed	Ford *et al.* (2011)
6	Exchange	The satisfaction with product (buildings), services, money, interpersonal relationship (sociality) and information	Tamminen and Saarinen (2013)
7	Adaptation	Level of commitment by parties to maintain relationships	Lynn *et al.* (1992)

Transaction cost theory becomes imperative in clients-contractors' discuss because of the governance problem in contractual relationships. Notable relationship problems are those developed from point-to-point and their associated impact on cooperative dealings. TCE posits that certain cost exists that are significant to firms' operation and survival in the market, reducing these costs portray vantage opportunity for continuity (Li et al., 2013). Since claims are contingent on the inability to predict certain events with specificity, inherent opportunism, therefore, necessitates transaction costs that create the adversarial relationship experienced by parties. TCE argues that the frequency of certain transactions is essential feature that govern relationship structure based on their overall transaction costs. The implication for practice is that contractual problems that increase the transaction costs will form the basis for rationality in future contracts. Therefore, the relational performance of one project is a precursor to future performance. Claims, therefore, exhibit the essential characteristics of transactions addressed in the transaction economics model. Claims are strongly uncertain, opportunistic, and lack mutual adjustment to overcome their effects on the project and their parties.

The contractor-client relationship in the traditional procurement framework suits the hierarchical governance model. The hierarchical relationship seeks to

safeguard specific assets (partners) using detailed complex contracts, opportunism, and hostage-taking (Mokhlesian, 2014). Relationship governance within the construction sector in this model develops on transactional terms mainly. Opportunities, however, exist for strategic long-term orientation even in the governance model relationship (Madhok, 2002). This view portrays that effectual relationship governance and improved relationship performance are possible within the transactional-traditional contract framework (Oaikhena and Ekung, 2018). TCE also clarifies that the redress and cost control mechanisms ex-ante in the classical (transactional) contract is incomplete thereby imposing the need for post-ante evaluation and monitoring of contractor's performance; this disposition supports the claim culture. TCE does not importantly address interrelatedness in multiple exchanges; rather it focuses on problems created by opportunism and evasive behaviour (such as claims). This means that TCE does not explain how firms relate or should relate but importantly address how the outcome of governance choices and their structures affect firms' specific attributes (Wever et al., 2010).

Contractual claims are a set of the most important triggers of relational problems based on strong affiliation to construction disputes (Manuel, 2015, Bakhary et al., 2015; Bakhary et al. 2016; CIDR, 2018). Disputes weaken the relationship ties prerequisite for continuous business performance by limiting the client's level of satisfaction in completed projects (Lee et al., 2014). Ninety percent of the problems encountered in construction project lifecycle are claims related (Shapiro, 2007). Claims also trigger cost, time overrun, and incidental disputes (Chaphalkar and Iyer, 2014). Fluctuation claims alone accounted for 97 percent of cost overrun in public building projects in South-South, Nigeria (Anjiba and Adu, 2018), while a causal relationship exists between construction risks and claims (Kumar et al., 2017). Claims induce stress on the vastly confrontational relationship between client and main contractor and demands-resources additional, to previously agreed contractual terms (Banwo, 2017). Claims-related disputes have both temporary and permanent effects in project implementation cycles, temporarily, disputes could lead to suspension of work, arbitration, litigation, and delays, while permanent effects are terminal abandonment of the project (Olarewaju and Anavhe, 2014).

RESEARCH METHODOLOGY

The study adopted a survey research design based on a questionnaire. The survey was conducted in five states of Southeast, Nigeria following precedence that adopted regional data (Nikinosheri and Staxang, 2016; Ujene and Edike, 2016; Bajere et al., 2017; Atuahene et al., 2017; Anjiba and Adu, 2018). The population of the study comprised 240-registered construction professionals (75 architect, 95 engineers, and 70 quantity surveyors) obtained from the directory of consultancy firms with vast experience in claims management through preliminary inquiries. Elmarsafi (2008) in a study of change strategies to reduce construction disputes, likewise drew the population of study from various stakeholders engineers, construction company owners, building materials suppliers, project supervisors, developers, and architects. The questionnaire was administered to a random sample of 200 targets using

mainly face-to-face administration and emailing. This sample comprised the minimum sample size of 166 obtained using the Kish equation and 34 additional targets included to eliminating non-response bias.

The data need in the study is characterised as quantitative. It comprised data collected in numerical terms and analysed using statistical tools to explore and explain relationships, effects, and interdependency (Borden and Abbott, 2011). The design of the questionnaire adopted close questions with multiple choices. Section A has seven questions related to the background information and adopted the nominal scale. Section B had three questions relating to the frequency of claims, indicators of effective client-contractors' relationships, and the effect of claims on the relationship interface between client and contractors. Questionnaire piloting involved selected experts and feedbacks from face-to-face interaction with ten quantity surveyors directed the review of the final questionnaire used for the field survey. Newman (2014) revealed 'a small number of pretest participants' is appropriate and related studies aligned to the use of a single case in project piloting (Kähkönen and Keinänen, 2014) and up to ten participants in questionnaire piloting (Tang et al., 2006; Bekr, 2014). The interaction during piloting enhanced the assessment of time used by each respondent as a pertinent factor in the design of the questionnaire (Borden and Abbott, 2011).

Cronbach' Alpha value underpinned the reliability test in the study. The Cronbach's coefficient ranged from zero to one but values close to one represent greater reliability. Since the benchmark for Cronbach alpha varies with authors and the level of accuracy expected (Bhattacherjee, 2012), the cut-off value of 0.70 (Pallant, 2016) was adopted to determine concept/variables reliability. The variables in the research instrument however showed strong internal coherency and consistency with the score > 0.80. Construct validity was performed to evaluate the measurement constructs applied to a concept and fitness of scale applied in measuring theoretical constructs (Bhattacherjee, 2012). The first test of construct validity was constructs' capability to generate expected results (that is, valid output values, Hoxley, 2008). The validity test focused on the strength of the relationship between variables (e.g. the Canonical Correlation Analysis), the results showed the adopted constructs were appropriate (see results section)

The study further developed a database management system using SPSS to aid data analysis. Table 3 summarises the research objective, hypothesis (where applicable), type of tools, and applied statistical tools.

The mean is the sum for the group of items divided by the total number of items in that group. Section B of the questionnaire adopted an ordinal scale of measurement and ordinal data suggests infiltration of bias and fussiness. The study performed data transformation to eliminate fussiness and to provide concrete data for canonical correlation analysis using Terrell Transformation Index (TTI) (Toh et al., 2012). TTI was applied at two levels firstly, to determine the hierarchy of the data set and secondly, to prepare related data for canonical correlation analysis. TTI ranged from zero – 100, however, indices above 65

percent are valid thresholds for this study (Toh et al., 2012). TTI is given as (Toh et al., 2012):

[ARS – LPRS/PRSR] X 100 (equation 1)

Where ARS is the average raw score (mean), LPRS is the least possible score (least scale point) while PRSR is the possible raw score range (5 - 1 = 4). Canonical Correlation Analysis (CCA) determined the hypothesis in Table 1. CCA compliments Pearson Product Moments correlation analysis by determining the relationship between a group of independent and a group of dependent variables. The tool works by generating variates (two new variables) for each subject (dependent and independent variables). The decision rule was governed by a p-value (0.05).

Table 3: Summary of Statistical Tools

Objectives	Hypothesis	Tests	Statistical Tools
Identify the prevalent claims in the research environment		Hierarchy/financ al implication	Mean item score
Assess the level of the importance of relationship ties to client-contractor's relationship		Hierarchy/level of significance	Mean item score and Terrell Transformation Index
Evaluate the correlational effect of claims on the relationship between client and main contractor in construction project interface	The frequency of contractors' claims have no correlationa effects on clients' willingness to engage the contractor in future projects	Hierarchy and correlational effects	Canonical Correlation Analysis

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The financial implications of claims were evaluated based on the scale developed by Ujene et al. (2011). The scale has five categories (1) 1-10 percent, (2) 11-20 percent, (3) 21-30 percent, (4) 31-40 percent and (5) 41-50, each cost range was determined from equation one. Categories one to five depended on equation two and the mean scores of the frequency of claims.

$Xp = Lb + 10 (P)$ (equation 2)

Where Xp is the average percentage value of the claim, Lb is the lower limit of percentage range conforming to the integer of Mean score and P is the decimal value of the mean score.

RESULTS

Questionnaire response rate and respondents' characteristics

The study retrieved 130 valid questionnaires and the response rate of the study was 65percent. The level of education of the participants is adequate; over 98percent have the equivalent of the first degree and above. The sample likewise has more quantity surveyors than engineers and architects. The result indicates the sample has the requisite professionals with relevant expertise in contract management, claim analysis, and valuation. The years of experience of over 81percent of the sample is above ten. The cognate experience portrays the respondents could advance useful knowledge in the research subject. The data were mainly from building projects (85percent) and civil engineering projects (15percent).

Frequency of construction claims

The data in Table 4 reveals payments and measurements are the most frequent claim. Other claims in the top five most frequent claims events are variations (2nd), errors and omissions (3rd), direct changes (4th), and fluctuation and cost escalations claims (5th). Claims related to acceleration (13th), force majeure (12th), termination of contracts (11th), suspension of works claims (10th), and delays (9th) are infrequent. However, ten out of thirteen claims cases evaluated obtained mean scores greater than 3.0 or 60 percent. Ten claims: payments and measurements, variations, errors and omissions, direct changes, fluctuation, cost escalations suspension of works, delays, disruption, inflation and exchange rate, and penalty are important claims cases, which frequency could govern relationship structure due to their costs. The ten most frequent claims cases obtained an averaged mean score of 3.60 and the overall spread of their frequency cuts across 72 percent of the population.

Following the understanding that claims prominently results in adjustment of the project resources, the data in Table 4 also depicts the cost implications of each claim. The cost range of all claim cases lay between 10.50 and 35.70 percent. The additional cost associated with payment and measurement, errors and omissions, direct changes, and variation claims is above 30 percent. The cost effect of the second category of claims is above 20 percent. The claims in the second category are the suspension of works, delays, fluctuation and cost escalation, penalty and damages, disruption and inflation, and exchange rate claims. The third category, comprising termination, acceleration, and force

majeure has cost implications above 10 percent. The costs of claims and their frequencies showed the transaction costs of all claims are high. The average additional cost of claims to cost overrun or estimated project cost is 25 percent.

Table 4: Frequency of Claims

Codes	Claims	Des. Stat.		Financial Implications		
		MIS	Rank	L_b	10(P)	L_b + 10(P)
VFC1	Termination of contracts	2.49	11th	11	4.9	15.9
VFC2	Measurement and payment	4.47	1st	31	4.7	35.7
VFC3	Acceleration	1.95	13th	1	9.5	10.5
VFC4	Suspension of works	2.92	10th	11	9.2	20.2
VFC5	Force majeure	2.43	12th	11	4.3	15.3
VFC6	Delays	3.28	9th	21	2.8	23.8
VFC7	Errors and omissions	4.33	3rd	31	3.3	34.3
VFC8	Direct changes	3.97	4th	21	9.7	30.7
VFC9	Variations claims	4.38	2nd	31	3.8	34.8
VFC10	Fluctuation and cost escalation claims	3.86	5th	21	8.6	29.6
VFC11	Claims for penalty	3.28	8th	21	2.8	23.8
VFC12	Disruption claims	3.38	6th	21	3.8	24.8
VFC13	Inflation and exchange rate	3.36	7th	21	3.6	24.6

N = Number of respondents, Tot = Total score, MS = Mean score, Lb = Lower limit of mean score,
P = decimal of the mean score, Fin Imp = Financial Implication.

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Significance of client-contractors' relationship ties

The level of importance of seven relationship ties is analysed using mean item score and Terrell Transformation Index (TTI). The effect of claims on relationship ties is significant with TTI greater than 65 percent (Toh et al., 2012). The results in Table 5 shows that claims affect the seven dimensions of relationship ties evaluated by the study (TTI scores, 73-94 > 65 percent benchmark). The average effect of claims on relationship ties is 84percent > 65percent.

Claims, therefore, decrease parties' willingness to develop these dimensions of relationship ties. The results further suggest that projects with enormous claims have to develop strategies to decimate tensions on relationship ties: longevity, dependence, interaction, relationship atmosphere, mutual orientation, exchange, and adaptations.

Table 5: Effect of Claims on Relationship Ties

Relationship Dimensions	High-involvement relationship ingredients	Cronbach Alpha	ARS	LPRS	PPRS	TS	TTI (%)	Decision
Longevity	Frequent and loyal business exchange in long term	0.873	4.33	1.00	4.00	0.83	83	Critical
Dependence	Dependencies between organisations through settlements of technical complexities	0.92	4.22	1.00	4.00	0.81	81	Critical
Interactions	Vivid interactions between the parties which directs the current and future states	0.88	4.36	1.00	4.00	0.84	84	Critical
Relationship atmosphere	Cooperative factors facilitating conflict caused by contradictive interests of the parties	0.87	4.17	1.00	4.00	0.79	79	Critical
Mutual orientation	Generated by frequent interaction and adaptation, enhance the interdependence relationship development	0.78	4.35	1.00	4.00	0.84	84	Critical
Exchange	The satisfaction with product (buildings), services, money, interpersonal relationship (sociality) and information	0.92	4.66	1.00	4.00	0.92	92	Critical
Adaptation	Level of commitment by parties to maintain relationships	0.96	4.76	1.00	4.00	0.94	94	Critical

The reliability test of the relationship ties was also adequate (Cronbach Alpha; 0.78 - 0.96 > 0.70 – Pallant, 2016). Longevity, dependence, interaction, relationship atmosphere, mutual orientation, exchange, and adaptations are therefore coherent and consistent in assessing client contractor's relationships under claims.

Effects of construction claims on client-contractors' relationship

The hypothesis for this objective states that the frequency of claims has no correlational effects on clients' willingness to engage main contractors in future projects. The test statistics involved Canonical Correlation Analysis (CCA) and the significance of the test depends on the p-value (0.05). The results in Table 6 reveals that the frequency of claims has a varying degree of correlational

effects on relationship ties. Three groups of correlation co-efficient exist: very high (0.97; longevity), above average (0.599, 0.535; dependence and interactions) and weak relationship atmosphere (0.375), mutual orientation (0.284), exchange (0.207) and adaptation (0.194). The inference is that the correlational effect between the frequency of claims and longevity is very high. The effect on dependence and interactions is above average, while the effect on relationship atmosphere, mutual orientation, exchange, and adaptation are low.

Table 6: Canonical Relationship between Frequency of Claims and Relationship Ties

Roots	Correlation Coefficient	Eigenvalue	Wilks Statistic	F	Sig.	Decision
Longevity	0.97	15.978	0.020	19.964	0.000	Reject Ho
Dependence	0.599	0.561	0.332	5.631	0.000	Reject Ho
Interactions	0.536	0.403	0.519	4.267	0.000	Reject Ho
Relationship atmosphere	0.375	0.164	0.728	2.764	0.000	Reject Ho
Mutual orientation	0.284	0.087	0.847	2.115	0.001	Reject Ho
Exchange	0.207	0.045	0.921	1.756	0.033	Reject Ho
Adaptation	0.194	0.039	0.962	1.879	0.072	Accept Ho

Sig. = significance of Wilk's test

The Wilks values of the correlation (Wilk's coefficient) indicate the canonical correlation is significant for six relationship ties or roots (adaptation, dependence, interactions, relationship atmosphere, mutual orientation, and exchange; 0.332, 0.519, 0.728, 0.847, 0.921, and 0.962), except longevity (0.020). The p-values are likewise less than 0.05 for roots one to six (dependence, interactions, relationship atmosphere, mutual orientation, and exchange), except adaptation (0.072). The study rejected the null hypothesis for the significant canonical roots. The frequency of claims, therefore, reduces dependence, interaction, relationship atmosphere, mutual orientation, and exchange governing client-contractors' relationship ties. However, the null hypothesis for root seven (adaptation) was accepted p(0.072 > 0.05). The inference suggests the frequency of claims does not inhibit client-contractors' commitment to maintaining their relationship ties. Thus, despite the prevailing adversarial relationship in the traditional procurement setups, parties are committed and make the investment to extend their relationship ties beyond a project. However, since the correlational effects were significant for six roots and their null hypotheses rejected, there are significant positive correlational effects (r, 0.207 to 0.97) between the frequency of claims and client-contractors relationships. The strength of the correlation between the frequency of claims and client-contractors' relationships is also significant for longevity only (Eigenvalue, 15.978 > 1.000). Therefore, the amount of variance in longevity is equal to the quantity of variance explained by the other seven

dimensions of relationship ties. The significance of Eigen statistics support the fitness of the models, while the F-values were likewise greater than one and significant.

DISCUSSION

The result of the first objective revealed the prevalent claims. Payments and measurements, variations, errors and omissions, direct changes, fluctuation, cost escalations suspension of works, delays, disruption, and inflation and exchange rate have varying cost implications. The varying cost implications averaged 25percent. The financial implications represent a high transaction cost, significant to govern the relationship between the client and contractors, in agreement with the theory of transaction cost economics (TCE). TCE advanced this position in stating that the frequency of certain transactions is critical attribute that govern relationship structure. Documentation (measurement) and payment-related concerns should be managed properly to reduce their transaction costs with a view to reducing their influence on relationship governance. The best practices toward claims governance must focus on improving contract documentation, payment, variations, and fluctuations triggers in the contract. The results imply that construction stakeholders must prioritise contracts without errors, reduce variations, and properly forecast of macro-economic factors. These dimensions are imperative strategies for reducing claims-related transaction costs in construction contracts.

The results agree with past studies (Ujene and Edike, 2016; Anjiba and Anjiba, 2018) in terms of the principal claims and their costs. The estimate of these costs is nevertheless a coherent evaluation of the contribution of claims to the overall cost of projects in Nigeria. Ujene and Edike (2016) found that construction change order was one of the principal claims, with an estimated cost averaging 6.90 to 30.70percent of the winning bid price. Fluctuation claims likewise accounted for 97% of cost overrun in public building projects in South-South, Nigeria (Anjiba and Adu, 2018). Claims, therefore contribute to costs increases, necessitating proper management to benefit contractual relationships (Chaphalkar and Iyer, 2014; Kumar et al., 2017). The study also reinforces variation as one of the most important claims triggers in building construction projects in agreement with past studies (Moura and Taixeira, 2007; Mbakwe et al., 2015). Mbakwe et al. (2015) showed that 53.84percent of claims is variation driven based on data obtained from a state in the Southeast zone of Nigeria. Moura and Taixeira (2007) linked 64percent of total claims to the varying degrees of direct and indirect changes. The results of the study, besides establishing congruence with past studies, also suggests a lack of improvement in claim management.

The influence of claims on relationship ties produced the strongest correlation with longevity. Longevity refers to parties' readiness to commit, nurture and extend contractual relationships from one project to another (TTI, 94 > 65 percent). Claims also reduce clients' satisfaction with exchange products (buildings) and sociality elements (interpersonal connection) with the

contractor (TTI, 92 > 65 percent). Claims have the same degree of impact on interactions and mutual orientation to show that it reduces the level of visible interaction between parties and decreases frequent interaction and interdependency prerequisite to foster future engagement. The effects on dependencies and relationship atmosphere were likewise important to explain that claims weaken the dependency distance between contracting organisations. The higher the degree of dependence, the higher the affinity to share technical problem-solving expertise and cooperation. In addition, decreased cooperation heightens the disposition towards contradictions, conflicts and subsequently, triggers disputes. The frequency of claims also weakens the mutuality perception distance of how contractual parties conceive/receive the intentions and interpretations of one another in the contract (TTI score, 73 percent > 65 percent). Although the effect of claims on the level of interaction between parties is significant, it is, however the least affected relationship ties amongst the seven variables evaluated in the study. This result further shows that the intentions of parties in the contract would not vary except modified by the escalating frequency of claims and their transaction costs, because, the terms of traditional contracts are documented and rigid. The frequencies of contractors' claims and transaction costs induce conflicts that reduce (1) loyalty (longevity), (2) dependence (shared technical problem solving), (3) interaction (interpersonal relationship distance), (4) relationship atmosphere (zero contradictions and conflicts) and (5) mutual orientation (reduces interdependencies), (6) exchange (satisfaction with the product and societal time) and (7) adaptations (investment towards relationship building).

The strong tie between claims and longevity implies a failure to recognise that the transactional disputes arising from the settlement of claims are vitiating long-term relationships. Longevity within project management organisations drive long-term relationship; the result is, therefore not a surprise. Traditional project management structures in Canada adopted longevity to enrich internal coordination structure among construction project stakeholders (Blois et al., 2010). Projects with high claims frequency, therefore, develop less interaction, exchange, longevity, relationship atmosphere, mutual orientation, and dependence. The frequency of claims reduces dependence, interactions, relationship atmosphere, mutual orientation, and exchange between the client and main contractors. This understanding has implied consequences that are, limiting the willingness to engage in the future. Focal literature review on the effects of claims on client-contractors' relationship supports the result that claims diminish the level of satisfaction of parties with exchange mechanisms (the construction project and sociality tie) (Chaphalkar and Iyer, 2014; Lee et al., 2014). Lee et al. (2014) affirmed that claims-related disputes denigrate the relationship ties for continuous business performance by reducing the client's level of satisfaction in completed projects – the exchange. The result of the study is suitable to provide empirical grounding for the compromise strategy, whereby contractors waved their contractual rights to sustain relationships in Malaysia (Bakhary et al., 2016). However, this study embeds theoretical implications of waving of contractual rights constitute adaptation mechanism

instituted to reduce the transaction costs of claims that could influence the relationship ties.

The measurement of construction project performance based on clients' satisfaction with the exchange characteristics during project execution is not new (e.g. Rahman and Alzubi, 2015). The use of contractors' attributes in this perspective, therefore, provides a beneficial standpoint to the study of relationships between project organisations. Rahman and Alzubi (2015) showed that information exchange (communication) is the second most important performance criterion that contractors in Jordan must improve to enhance client satisfaction. Communication (exchange) and commitment (adaptation) were likewise among the top five factors affecting client-contractors relationships in Ghana (Atuahene et al., 2017). A plethora of clients uses prior relationship performance criteria in the selection of sub-contractors in Nigeria (Fagbenle et al., 2011). The results call for an increase in the current level of adaptations to the contractual relationships to improve relationship ties in order to lower claims culture using mutually oriented claims management practices.

CONCLUSION

Construction contracts interfaced with several parties, clients, contractors, suppliers, and sub-contractors. Nurturing the contractual relationship during the project lifecycle for continuity in the future is contingent on the exchange characteristics. Claims are products of the exchange interface known to trigger relational problems if not properly managed. Contractual parties, therefore, increasingly apply prior relationships to decide current and futures contracts in order to reduce exchange problems. Limited empirical evidence exists to show that past exchange attributes influence future contractual engagement between parties.

This paper reports the findings of the study that investigated the influence of claims culture on client-contractors' willingness to engage in the future. The study showed that projects with high claims developed less interaction, exchange, longevity, relationship atmosphere, mutual orientation, and dependence towards future relationships. The frequencies of claims, therefore, weaken client-contractors relationship ties and their willingness to engage in future projects. The results suggest that lowering claims during projects would likewise limit adversarial behaviours, frequency of claims, and transaction costs to benefit future contractual exchange. Theoretically, the study revealed the source of tension arising from claims, is importantly their transaction costs. The high prevalence of construction claims as revealed by the study showed an imminent gap in ex-ante contract practices of the stakeholders. The traditional procurement despite the ample time available for documentations, the frequencies of claims in the study revealed incomplete contracts are prevalent (bounded rationality). Effective contract management through proper documentation of the contract would reduce opportunistic behaviours towards claims for a flowing future business relationship. Construction stakeholders likewise have to increase their adaptations to the contractual relationships

within the traditional contracts to improve exchange, interaction, mutual orientation, relationship atmosphere towards lowering claim culture.

The results of the study concede to possible variations along with regional contexts in future studies. Even though the spread in the uses of traditional procurement is universal, the perceptions and prevalence of claims may respond to regional contexts, thereby instigating contextual variations. The conclusion of the study could be strengthened further using large-scale data and research approach different from the quantitative settings adopted in this study. Future studies should consider expanding the scope of the study to other regions and triangulating with interpretivist approach. The developing research frontiers would pave way for the development of a framework for embedding relational contracting in the region. Relational contracting is the precursor of claims reduction and other transactional costs tendencies arising from incomplete contracts and opportunisms.

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