A Study of Direct Cost Drivers in the Construction Industry in Nigeria

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Abstract

Reports of project cost failure have caused the public to lose confidence in the ability of cost advisers to effectively predict and manage construction costs. This study therefore aims at providing a basis for accurate anticipation, allocation and control of direct costs of buildings. The objectives of the study are to evaluate the perceptions of consultants and contractors concerning the factors that drive the escalation and disparities of the direct costs of building and evaluate the level of agreement in their perceptions of effect of the factors among the states in south-south, Nigeria. A pilot study was used to establish population frame, from which 335 consultants and 544 contractors were used for analyses. Data were obtained using structured questionnaire. The tools used for data analysis were descriptive statistics, mean score, Kruskal-Walis test and Mann-Whitney U test. The results show high agreement in contractors and consultants' perceptions of the relative effect of 80 selected factors among all the states. It is concluded that direct costs are most significantly affected by 13 factors, while the influence of the factors are similar across the states.The study recommends that construction stakeholders should be mindful of the influence of these internal and external factors which cause cost escalation, variation and disparities over places and time during cost anticipation. The factors should be incorporated during cost allocation and utilized during cost control. Adequate priority should be given to effective planning, site and macroeconomic related issues prior to and during construction.

Keywords: Building; Direct cost; Cost escalation, Factors; Cost allocation; Cost control

Introduction

The effective management of construction projects requires the coordination of a multitude of human, organizational, and technical resources. Quite often, the engineering and construction complexities of such projects are overshadowed by economic, societal, and political challenges. Within the Nigerian building industry and that of most developing countries, project cost escalation has attracted management, political, and stakeholders' attention at federal, state, regional, and local levels. Reports of project cost failure cause the public to lose confidence in the ability of cost advisers to effectively perform their responsibilities. Part of this problem is traceable to the escalation and disparities of costs over place and time due to numerous internal and external factors which affect the components of construction costs as observed by Amusan (2011).Similarly, Juodis and Stalioraitis (2006) observed that the difficulty in accurately anticipating, allocating and controlling construction cost is because the cost advisers do not know what the dynamics and value ofconstruction cost are in every stage of construction projects.The roots of construction cost escalation and disparities (cost dynamics) between projects and regions, can be unearth by focusing on the components of building costs namely: direct and indirect costs with the anticipation that the divergences of the unit costs (labour, material, and equipment) and overhead costs' are influenced by many factors(Warsame, 2006).The costs of construction projects being one of the most important criteria of projects success (Memon*et al.,* 2010), comprise some expenses usually categorized into 'Direct costs' and 'Indirect costs' for ease of cost planning and

control (Chitkara, 2006). The direct costs according to Willis and Willis (1980), Car (1989), Lock (2003) and Osei-Tutu and Adjei-Kumi (2008), are those cost which relate to a specific item or product and thus vary proportionally with output. Al-Shanti (2003) andChitkara (2006) similarly defined the direct costs as the costs readily identified as being related to putting the facility components in place,or identified with the execution of an item of work or activity, in other word; direct costs are costs that are not counted if the item of work or activity has not been performed. The persistent problem of cost overrun of the projects calls for a more simplified approach to cost anticipation, allocation and control, through an understanding of the nature and behavior of direct component of construction costs. According to Chitkara (2006) direct costs vary from about 65 percent to 93 percent of the total costs.Yigezu (2008) in support of this assertion opined that direct costs cover the largest portion of the total project cost and these costs can be budgeted, monitored and controlled far more effectively than the indirect costs. This enormous contribution of direct costs to the total construction costs calls for serious concern in the planning, allocation and management of construction cost. In furtherance to this, Chitkara (2006) inferred that direct cost control aims at improving productivity by eliminating the wastages of input resources, developing standards for costing future works and accounting all direct costs for contribution and budgetary control. The basic concept behind controlling direct costs is that each work package, for which the standard cost is established, is identifiable, measurable and its cost determined. A requirement for the control of direct costs is that the standards must be expressed in terms of the physical and monetary values of each item of resources needed for accomplishing the work package. This therefore calls for evaluation and understanding of factors that drive direct costs escalation and disparitiesin Nigeria, with particular emphasis on south-south geo-political zone.

The south-south geopolitical zone of Nigeria made up of six out of the nine states in the Niger Delta zone namely AkwaIbom, Bayelsa, Cross River, Delta, Edo, and Rivers, coincides approximately with the Niger-Delta area of the country (Omofonmwan and Odia, 2009). The zone which is identified with sandy deltaic coastal plain of the Guinea coast according to Ekpo (2004) lies in the southern-most part of Nigeria stretching from the Nigeria-Cameroun boundary in the east to the Ondo-Ogun states boundary in the west.

The zone is generally characterised by numerous problems which United Nations Development Programme-UNDP (2006) and Omofonmwa and Odia (2009) identified to include; environmental degradation, poor health facilities, inadequate housing, poor transport facilities, infertile soil as a result of oil exploration, insecurity, poor education facilities, poor power supply, lack of potable drinking water, unemployment and poverty in the face of increasing population, oil exploration and exploitation activities. UNDP (2006) further opined that despite the oil wealth of the area, very little impact has been made in upgrading building structures and materials in the region; hence the youth restiveness in the area is traceable to agitation for solution to the numerous problems.Most of the states in the zone have low-lying flat landscape predominated with coastal plain sediment which are marine, deltaic, estuarine, lagoon and Fluvial–lacustrine material (Ujene and Achuenu, 2006).Ophori (2008) also observed that zone is characterised by a large-scale ground water movement, while the topography of the area is essentially flat, sloping very slightly towards the sea. According to Jumbo-Ibeakuzie (2008) the annual rainfall in the zone ranges between 2000-3000mm, while about 75% of the zone is wet land and the soil type predisposes it to erosion. The types of erosion prevalent in the zone are water erosion – sheet, rill and gully and coastal erosion which have made many communities and towns inaccessible and collapsed many buildings and infrastructures

(Jumbo-Ibeakuzie, 2008). The temperature range for most places is from 27°C along the coastal fringe to about 28°C in the interior of the study area (Adejuwon, 2012). The factors of rainfall and temperatures have combined to influence high relative humidity, varying between 75% and 95% with highest and lowest values in July and January respectively (Chineke, Idinoba and Ajayi, 2011). The wind tends to be omni-directional in the dry season but is concentrated in the south, southwest and west directions in the rainy season (Ogunkoya and Efi, 2003).

According to Youdeowei and Nwankwoala (2010) the coastal zone which comprises the beach ridges and mangrove swamps is underlain by alternating sequence of sand and clay with a high frequency of occurrence of clay within 10m below the ground surface. Because of the nearness of the compressible clays to the surface, the influence of imposed loads results to consolidation settlement. The impact of the imposed loads is exacerbated by the thickness and consistency of the compressible layer. This in addition to other intrinsic factors contributes to the failure of engineering structures in the area (Youdeowei and Nwankwoala, 2010).These characteristics of the zone in addition to other factors contribute to construction costs uncertainties in the area, and hence call for an understanding of their influences on direct costs differential over places and time.Several essential factors have been reported to affect construction costs comprising direct andindirect costs, these include; 29 by Al-Khaldi(1990), 31 by Elinwa andBuba (1993), 13 by Hanafi (1995), and 42 essential factors by Al-juwaira (1997). Omion (2001) andAmerican Institute of Architects (2007) also identified some factors which affect the cost of building.Memon*et al.* (2010) in a study of factors affecting construction costs in Mara large constructionproject identified 24 factors, whileAmusan (2011) in a study of factors affecting construction costperformance in Nigerian construction sites also identified 23 factors called cost overrun determinants. A survey of previous studies whichserved as sources for the variables used for this study, showsthat emphasis have beenon the influence of these factors on total construction cost differential over place andtime with limited study specifically on direct costs component in the study area.The author has made some attempts in this regard but has not carried out a comparative analysis of the situation among states of the zone, hence necessitating this study.

Purpose of the Study

The study aims at providing the knowledge and basis for accurate anticipation, allocation and control of direct costs of buildings by establishing the effects of factors responsible for escalation and disparities in direct costs among states in south- south zone of Nigeria.
To achieve the above aim, the objectives of the study are as follows:

a) to evaluate the perceptions of consultants concerning the effect of factors that drive the escalation and disparity of the direct costs of buildings in south-south, Nigeria,
b) to evaluate the perceptions of contractors concerning the relative effect of factors that drive the escalation and disparity of the direct costs of building and,
c) to evaluate the agreement level in the consultants and contractors perceptions, concerning factors driving the escalation and disparity of direct costs of buildings in the study area.

Hypotheses of the Study

Two hypotheses were postulated for this study. The first states that the factors driving the escalation and disparities of direct costs do not significantly vary among consultants as well as among contractors in south-south states. The results of this will assist team members in establishing the yardstick for prioritising factor during forecasting, allocation, control and monitoring of direct costs.

The second hypothesis states that there is no significant difference between the perceptions of the consultants and contractors of the effect of the factors on direct costs. The results of the second hypothesis will assist the team members in harmonising their opinion and instill confidence during forecasting, allocation, control and monitoring of direct costs.

Methodology

This study being investigative and analytical in nature uses the exploratory and causal survey design approaches. The exploratory survey was designed to generate basic knowledge, clarify relevant issues and uncover variables associated with the identified research problem (Babbie and Mouton, 2001). The causal survey approach was designed to provide information on potential cause-and-effect, especially the associations or impact of one variable on another (Freedman, 2004). The study employed the use of structured questionnaire administered to the population comprising consultants and contractors in the south-south zone of Nigeria.

The population frame was determined by considering the numbers of contractors/consultants involved in the execution of public building projects in the six states of south-south, Nigeria. This was obtained from a pilot survey, by visiting Ministry of Housing and Urban Development, Niger Delta Development Commission, State Primary Education Board, State Universal Basic Education Board, tertiary institutions, judiciary, some construction sites and professional bodies where the consultants are registered within the states of the zone. A pilot study was conducted to establish the population frame of the contractors due to the difficulty in obtaining a reliable data of all the contractors in active business. According to Kehinde and Mosaku (2006) the difficulty is due to a phenomenon described as the high mortality rate amongst contracting firms especially in the micro category and the poor patronage by clients which make a sizeable number of these firms dormant for several years. The consultants though are registered with various professional bodies, yet records from some of the regulatory bodies like the Council for the Regulation of Engineering in Nigeria (COREN) and the Council of Registered Builders of Nigeria show that some of those practicing have not updated their registration through payment of practicing fees for many years. This has led some of the bodies to be issuing annual licence for practice and sometimes publish names of those who are eligible to practice every year. The resultant population frame is presented in Table 1.

Table 1: Distribution of population frame from pilot study

States	Public projects Consultants	Public projects Contractors
AkwaIbom	75	162
Bayelsa	60	145
Cross Rivers	52	119
Delta	81	108
Edo	93	102
Rivers	71	156
Total	452	792

Source: Researcher's field survey (2011)

The study could not cover the entire population frame within the period available, hence from the populations frame (N), of the contractors and the consultants the formula in Equation 1 was used to establish the minimum sample size acceptable for generalization in each state considered as a stratum as adapted from Udofia (2011).

$$n = \frac{N}{1+N(e)^2} \quad \text{..... Equation (1)}$$

Where, n = Sample size, N = Finite Population

e = Level of significance (0.05)

1 = Unity

The sample sizes for each state are shown in Table 2

Table 2: Distribution sample sizes from population frame

States	Public projects Consultants	Public projects Contractors
AkwaIbom	63	115
Bayelsa	52	106
Cross Rivers	46	91
Delta	67	85
Edo	75	81
Rivers	60	112
Total	363	590

The research data were obtained on ordinal scale with the aid of structured questionnaire. The valid questionnaires were obtained from the above samples after screening and discarding those not properly filled. This yielded the qualitative data in the study which are mainly effect of factors that drive the differentials of direct costs of buildings.To allow for measurement, the effects of the factors were scored on a five point Linkert scale as adapted from Nkado and Mbachu (2002). The scale value assigned to

levels of influence is as follows: 1 = for "No effect" (NE), 2 = for "Low effect" (LE), 3 = for "Moderate effect" (ME), 4= for "High effect" (HE) and 5= for " Very High effect" (VHE). From this the effect was determine through the Mean Scores computed for all the factors using Equation 2.

$$MS = \sum_{i=1}(R_{Pi}R_i)/n \ ,(1\leq II \leq 5) \quad \text{.....Equation (2).}$$

(Where MS= Mean Score, R_{Pi}= Rating point i(range from 1-5),

R_i= response to rating point, i and n = total responses = summation of Ri from1-5

In order to validate the instruments used to ascertain their understanding, ease of use and acceptability to the research community, portions of the questionnaire were administered to ten construction managers and educationists who have full knowledge about the research objectives and outstanding years of experience in the construction industry. Each respondent was requested to evaluate the validity content for each item based on the index rating of content validity (CVI).

The respondents were requested to rate each item based on relevance on the four-point rating scale. The point scale adopted by Al-Moghany (2006) as: "1 = not relevant; 2 = item need some revision; 3 = relevant but need minor revision; 4 = very relevant". Based on comments of the respondents some minor changes, modifications and addition were introduced to the questions, while some irrelevant questions were deleted. Reliability test was carried out on the data from the consultants and contractors in the states. The value of the reliability coefficient sometimes referred to as the Cronbach α coefficient is in high level when Cronbach α is more than 0.7 thus can be highly acceptable. Normally the value of alpha is desirable with the range higher than 0.5 to 0.6 (Gliem and Gliem, 2003). The values of Cronbach α are presented in Table 3.

Table 3: Values of Cronbach's Alpha on consultants' and contractors' responses

south-south states	N of Items	Cronbach's Alpha consultants' response	Cronbach's Alpha contractors' response
Akwa Ibom	80	.727	.769
Bayelsa	80	.736	.733
CrossRivers	80	.726	.718
Delta	80	.745	.702
Edo	80	.803	.711
Rivers	80	.708	.855

Source: Researcher's Field Survey (2011)

The Cronbach's Alpha values for the reliability test on the data from the consultants' responses ranged between 0.726 and 0.803 in the various states. This indicates that the data collected from the consultants are highly reliable and thus suggests

a good inner consistency. Similarly, values of Cronbach's Alpha for the reliability test on the data from the contractors' responses ranged between 0.702 and 0.855 in the various states. This also indicates that the data collected from the contractors are highly reliable and thus suggests a good inner consistency. The comparison of the perceptions among the states was done using KruskalWallis test, while the comparison of perception between the contractors and consultants was done using Man-Whitney test.

Results and Discussion

Characteristics of the Consultants

The features of the consultants used for the study were investigated as a background to the discussion of the results of the study. For this purpose, five characteristics namely: sex, age, professional affiliation, highest educational qualification and years of experience were used to investigate the characteristics of the consultants. The results are presented on Table 4.

Table 4: Consultants Characteristics/Features

Character-istics	Sub Chara-cteristics	AkwaIbom		Bayelsa		Cross-River		Delta		Edo		Rivers		Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
	Male	51	87.9	42	87.5	36	85.7	54	85.7	59	85.5	47	85.5	289	86.27
Sex	Female	7	12.1	6	12.5	6	14.3	9	14.3	10	14.6	8	14.5	46	13.73
	Total	58	100	48	100	42	100	63	100	69	100	55	100	335	100
	1-17yrs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Age	18-60yrs	45	77.6	41	85.4	34	81.0	51	81	58	84.1	47	85.5	276	82.39
	>60yrs	13	22.4	7	14.6	8	19.0	12	19.0	11	15.9	8	14.5	59	17.61
	Total	58	100	48	100	42	100	63	100	69	100	55	100	335	100
Profession	Architects	19	32.7	14	29.2	14	33.3	19	30.1	20	29.0	16	29.1	102	30.45
Affiliation	Builders	8	13.9	6	10.4	5	11.9	9	14.3	10	14.5	7	12.7	45	13.43
	Engineers	22	37.9	20	41.7	16	38.1	24	38.1	25	36.2	20	36.4	127	37.91
	Surveyors	9	15.5	8	16.7	7	16.7	11	17.5	14	20.3	12	21.8	61	18.21
	Total	58	100	48	100	42	100	63	100	69	100	55	100	335	100
	OND/HND	11	18.9	12	25.0	11	26.2	16	25.4	14	20.3	8	14.5	72	21.49
Qualification	B.Sc	18	31.0	18	37.5	15	35.7	24	38.1	27	39.1	25	45.5	127	37.91
	M.Sc	26	44.8	17	35.4	16	38.1	21	33.3	22	31.9	18	32.7	120	35.82
	P.hD	3	5.3	1	2.1	0	0	2	2.2	6	8.7	4	7.3	16	4.78
	Total	58	100	48	100	42	100	63	100	69	100	55	100	335	100
	1-5yrs	14	24.1	7	14.6	9	21.4	9	14.3	12	17.4	12	21.8	63	18.81
Experience	6-10yrs	17	29.3	12	25.0	7	16.6	14	22.2	15	21.7	15	27.4	80	23.88
	11-15yrs	9	15.5	8	16.6	7	16.6	11	17.5	11	15.9	9	16.3	55	16.42
	16-20yrs	11	19.0	13	27.2	10	24	15	23.8	14	20.3	9	16.3	72	21.49
	>20yrs	7	12.1	8	16.6	9	21.4	14	22.2	17	24.6	10	18.2	65	19.40
	Total	58	100	48	100	42	100	63	100	69	100	55	100	335	100

Table 4 shows that the proportion of male respondents used for the study range between 85.5% and 87.9%, while that of female respondents range between 12.5% and 14.6%. The result indicates that majority of the respondents used for the study were males. This result agrees with the observation by Kehinde and Okoli (2004) that male professionals have dominated the construction industry all over the world. The ages of all the consultants are more than 17 years. The percentage of consultants that are 18-60 years old in the six states range from 77.6 to 85.5, while the proportion of consultants that are above 60 years old in the six states range between 14.5% and 19.0%. The result indicates

that the majority of the consultants used for the study were working adults, while juveniles are not consultants in the study area. The results also show that the percentage of Architects sampled range from 29.0 to 33.3%. The Builders range between 11.9% and 14.5%, the Engineers range between 36.2 and 41.7%, while the Quantity Surveyors range between 15.5% and 21.8%. The result indicates that Engineers are the most represented in the sample followed by Architects, while Quantity Surveyors and Builders are the least represented.

Table 4 shows that the proportion of the consultants who possess OND/HND certificate in the six states range between 14.5% and 26.2%, while the proportion of consultants who possess B.Sc range between 31.0% and 45.5%. The proportion of consultants who possess M.Sc in the six states ranged between 31.9% and 44.8%, while the proportion of consultants with PhD ranges between 0% and 8.7%. These results indicate that majority of the respondents used for this study possess Bachelor of Science and Master of Science degrees.

The result also shows that the proportion of consultants with 1-5 years experience ranges between 14.3% and 24.1%, the proportion of consultants with 6-10 years experience ranges between 16.6% and 29.3%, while the proportion of consultants with 11-15 years experience ranges between 15.5% and 17.5%, the proportion of consultants with 16-20 years experience ranges between 16.3% and 27.2%, while the proportion of consultants with above 20 years experience ranges between 12.1% and 24.6%. The result shows that consultants with short and long experience in construction are represented in the study.

Characteristics of the Contractors

The features of the respondents (contractors) used for the study were also investigated as a background to the discussion of the results of the study. For this purpose, the characteristics of the contractors used were; contractor type, size, managerial capability and the years of experience. The results are presented in Table 5.

Table 5: Contractors Characteristics/Features

Character-istics	Sub Chara-cteristics	A-Ibom		Bayelsa		Cross-River		Delta		Edo		Rivers		Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Contractor Type	Indigenous	102	96.2	93	96.9	83	97.6	74	94.9	70	93.3	96	92.3	518	95.2
	Expatriate	4	3.8	3	3.1	2	2.4	4	5.1	5	6.7	8	7.7	26	4.8
	Total	106	100	96	100	85	100	78	100	75	100	104	100	544	100
Size	Small	87	82.1	82	85.4	74	87.1	65	83.3	63	84.0	86	82.7	457	84.0
	Medium	15	14.2	12	12.5	9	10.6	10	12.8	9	12.0	14	13.5	69	12.7
	Large	4	3.8	2	2.1	2	2.4	3	3.8	3	4.0	4	3.8	18	3.3
	Total	106	100	96	100	85	100	78	100	75	100	104	100	544	100
Managerial Capability	Inadequate	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
	Fairly Adequate	7	6.6	4	4.2	4	4.7	5	6.8	4	5.3	5	4.8	29	5.33
	Adequate	75	70.8	70	72.9	60	70.6	52	66.7	51	68	67	64.4	375	68.93
	Highly Adequate	21	19.8	19	19.8	17	20.0	18	23.1	17	22.7	28	26.9	120	22.06
	Very Highly Adequate	3	2.8	3	3.1	4	4.7	3	3.4	3	4	4	3.9	20	3.68
	Total	106	100	96	100	85	100	78	100	75	100	104	100	544	100

Experience	1-5yrs	38	35.8	41	42.7	29	34.1	31	39.7	28	37.3	36	34.6	203	37.32
	6-10yrs	35	33.0	29	30.2	26	30.6	21	26.9	22	29.3	30	28.8	163	29.96
	11-15yrs	16	15.1	12	12.5	15	17.6	13	17.7	10	13.3	21	20.2	87	15.99
	16-20yrs	13	12.3	11	11.5	12	14.1	9	11.6	12	16.0	12	11.5	69	12.68
	>20yrs	4	3.8	3	3.1	3	3.6	4	5.2	3	4.0	5	4.8	22	4.04
	Total	106	100	96	100	85	100	78	100	75	100	104	100	544	100

The results on Table 5 shows that the rates of contractors who are indigenous in the six states range between 92.3% and 97.6%, while the rates of the contractors who are expatriates in the six states range between 3.1% and 7.7%. The result indicates that majority of the contractors used as respondents in the study were indigenous contractors. The proportion of contractors in the small category ranged between 82.1% and 87.1%. Those in the medium category ranged between 10.6% and 14.2%, while those in the large category are between 2.1% and 4.0%. The result indicates that majority of the contractors who were sampled in this study are the small and medium size firms.

The result also shows that there is no contractor whose managerial capability is considered inadequate. The proportions of contractors whose managerial capability is considered fairly adequate range between 4.2% and 6.8%, while those whose managerial capability is considered adequate in the states ranges between 64.4% and 72.9%. Those with highly adequate managerial capability range between 19.8% and 26.9%, while those with very highly adequate managerial capability in the states range between 2.8% and 4.7%. The result indicates that the majority of the contractors sampled have adequate managerial capability for successful execution of the projects.

Table 5 shows that the proportions of the contractors with 1-5 years of experience in the states range between 34.1% and 42.7%, while those with 6-10 years of experience range between 26.9% and 33.0%. Contractors with 11-15 years of experience ranged between 12.5% and 20.2%. The percentage distribution with 16-20 years of experience ranges between 11.5% and 16.0%, while contractors with experience above 20 years range between 3.1% and 4.8%. The result indicates that majority of the contractors sampled in this study had experience between 1 year and 15 years in the construction industry.

Evaluation of consultants' perceptions of the relative effect of factors that drive the dynamics of the direct costs

Table 6: Consultants' perception of factors influencing direct costs dynamics in the zone

Factors responsible for cost dynamics	Aks MS	Rnk	Bas MS	Rnk	Crs MS	Rnk	Dts MS	Rnk	Eds MS	Rnk	Rvs MS	Rnk
Construction planning	4.79	1	4.69	2	4.79	1	4.81	1	4.62	3	4.84	1
Interest Rates	4.60	4	4.81	1	4.26	14	4.48	8	4.36	13	4.84	1
Construction methods	4.67	2	4.67	3	4.67	2	4.67	3	4.67	1	4.71	3
Site condition	4.59	7	4.60	4	4.57	4	4.62	4	4.64	2	4.67	4
Duration of Contract period	4.60	4	4.60	4	4.60	3	4.60	5	4.59	4	4.64	5
Exchange Rates	4.60	4	4.60	4	4.19	16	4.60	5	4.59	4	4.64	5
Poor financial control on site	4.53	8	4.54	7	4.55	5	4.52	7	4.41	10	4.56	7
Additional work/ variation order	4.47	10	4.48	8	4.48	6	4.46	10	4.45	8	4.55	8
Import duties and tariffs	4.52	9	3.42	38	3.19	51	4.40	13	4.58	6	4.53	9
Inflation	4.67	2	4.46	10	4.48	6	4.81	1	4.45	8	4.49	10

Quality requirement	4.47	10	4.48	8	4.45	8	4.48	8	4.46	7	4.49	10
Contractual procedure	3.98	23	4.40	11	4.38	9	4.41	11	4.39	11	4.42	12
Contractors Type/Size	4.40	12	4.40	11	4.36	11	2.81	70	3.75	28	4.42	12
Fluctuation of prices	4.33	13	4.27	15	4.31	12	4.35	14	4.26	14	4.40	14
Poor production of raw materials by the country	4.28	15	4.27	15	4.31	12	4.16	18	3.86	25	4.35	15
Specification/design error	4.28	15	4.23	18	3.86	26	4.24	16	4.00	23	4.35	15
Fraudulent practices and kickbacks	4.26	17	4.27	15	4.02	22	3.56	34	3.70	31	4.33	17
Poor supervision	4.14	21	4.15	20	4.17	17	4.11	20	4.13	18	4.25	18
Number of floors	4.19	18	4.21	19	4.17	17	4.22	17	4.19	16	4.20	19
High transportation cost	4.16	19	4.04	21	4.17	17	4.10	22	4.03	21	4.16	20
Previous experience of contractor	2.10	77	4.04	21	4.05	21	4.11	20	4.14	17	4.11	21
Productivity requirement	4.00	22	4.00	23	3.98	23	4.02	23	4.06	20	4.00	22
Floor area	3.74	28	4.29	14	4.38	9	4.41	11	4.39	11	3.93	23
Rework/ construction error	3.55	34	3.13	56	3.55	36	3.68	32	3.62	37	3.93	23
Traditional method	3.88	24	3.85	24	3.88	24	3.86	24	4.03	21	3.93	23
Problems of machinery maintenance	3.28	46	3.42	38	3.83	27	3.78	28	3.64	36	3.91	26
Economic Stability	3.79	25	3.81	25	3.79	28	3.81	27	3.90	24	3.78	27
Health and safety requirement	3.79	25	3.81	25	3.76	29	3.83	26	3.80	26	3.78	27
location of Site	4.31	14	4.38	13	4.26	14	4.27	15	4.20	15	3.76	29
Reliability of Cost Estimate	3.16	52	3.13	56	3.52	37	3.56	34	3.26	50	3.76	29
Government finance	3.50	36	3.35	42	3.33	44	3.71	30	3.36	47	3.75	31
Wage Rates	3.67	30	3.67	31	3.67	32	3.67	33	3.67	32	3.71	32
No of construction on going	3.66	31	3.69	29	3.64	33	3.56	34	3.67	32	3.69	33
Influence of foreign construction firms	3.72	29	3.77	28	4.12	20	4.14	19	4.12	19	3.65	34
Absence of Construction-cost data	3.52	35	3.56	33	3.69	31	3.76	29	3.71	30	3.64	35
Bureaucracy in tendering method	3.59	33	3.60	32	3.60	34	3.40	43	3.74	29	3.62	36
Client type	3.64	32	3.69	29	3.60	34	3.71	30	3.65	35	3.62	36
Average Storey Height	3.78	27	3.81	25	3.74	30	3.84	25	3.78	27	3.55	38
Formal private sector financed	3.47	38	3.50	34	3.45	40	3.48	38	3.46	43	3.49	39
type of services	3.34	42	3.31	44	3.33	44	3.33	49	3.35	48	3.47	40
National disposable income	3.48	37	3.29	46	2.52	73	3.43	40	3.54	39	3.47	40
Access to basic infrastructure	4.16	19	3.46	37	3.50	38	3.41	42	3.67	32	3.45	42
level of Waste generation on site	3.43	39	3.50	34	3.40	42	3.51	37	3.43	45	3.45	42
Effect of weather	3.34	42	3.48	36	3.48	39	3.46	39	3.48	42	3.44	44
Government policies (law and regulations)	3.41	40	3.40	41	3.43	41	3.38	44	3.41	46	3.44	44
Construction management	3.38	41	3.42	38	3.36	43	3.43	40	3.62	37	3.29	46
Poor coordination between designers & contractors	3.26	47	3.27	48	3.26	48	3.27	54	3.26	50	3.27	47
Youth and community activity in the area	3.29	45	3.35	42	3.26	48	3.38	44	3.52	40	3.25	48
Users requirement	3.24	49	3.29	46	3.21	50	3.30	52	3.46	43	3.25	48
Level of competition	3.33	44	3.31	44	3.29	46	3.38	44	3.35	48	3.24	50
Effect of oil exploration	3.24	49	3.27	48	3.19	51	3.32	50	3.26	50	3.20	51
Labour unions activities	3.26	47	3.27	48	3.29	46	3.25	55	3.51	41	3.16	52
Supplier manipulation	2.81	64	3.19	52	3.19	51	3.21	56	3.19	54	3.15	53
Contract sum requirement	3.24	49	3.27	48	3.88	24	3.32	50	3.26	50	3.15	53
Insurance cost	2.86	61	3.06	58	3.07	55	3.06	60	3.06	60	3.13	55
Time lag between design and tendering	2.93	58	3.00	59	3.19	51	2.97	62	3.04	61	3.05	56
Project management method	3.10	53	3.15	53	3.07	55	3.17	57	3.12	55	3.05	56
Public – private financed	3.10	53	3.15	53	3.07	55	3.17	57	3.12	55	3.00	58
Management contracting	3.10	53	3.15	53	3.07	55	3.17	57	3.12	55	3.00	58
Building type	3.00	56	2.77	69	3.05	59	2.83	68	3.12	55	2.96	60
Level of IT utilisation	2.55	71	2.85	66	2.90	62	2.51	76	2.78	70	2.96	60
Direct labour method	2.91	60	2.94	62	2.88	65	2.97	62	2.93	66	2.91	62
Money supply	2.83	63	2.92	63	2.93	61	2.73	72	2.96	64	2.89	63
Social and cultural impacts	2.93	58	2.92	63	2.90	62	2.95	64	2.94	65	2.87	64
Finance by Informal private sector	2.98	57	3.00	59	2.95	60	3.03	61	3.00	63	2.87	64
Relationship between management and labour	2.84	62	2.88	65	2.83	66	2.89	66	2.86	68	2.78	66
Developers/Contractors financed	2.78	67	2.81	67	2.74	68	2.84	67	2.78	70	2.76	67
Labour only method	2.79	65	2.79	68	2.76	67	2.83	68	2.81	69	2.67	68
National Output: GDP	2.79	65	2.98	61	2.90	62	2.90	65	3.01	62	2.65	69

Availability of materials	2.63	69	2.69	71	2.60	70	2.71	73	3.10	59	2.62	70
Availability of machinery	2.69	68	2.75	70	2.64	69	2.79	71	2.71	72	2.62	70
Design and build	2.59	70	2.60	73	2.55	71	2.63	74	2.59	73	2.56	72
Plan shape	2.40	73	2.63	72	2.43	76	2.38	77	2.88	67	2.42	73
Availability of labour	2.50	72	2.54	75	2.45	75	2.59	75	2.52	74	2.42	73
Disputes on site	2.24	75	2.56	74	2.36	77	2.32	78	2.35	75	2.31	75
circulation space	2.33	74	2.33	76	2.48	74	3.38	44	2.33	76	2.29	76
Natural Disaster	2.21	76	2.19	77	2.55	71	2.19	79	2.22	78	2.16	77
Unemployment	1.81	79	1.79	79	2.05	79	1.78	80	2.17	79	1.80	78
Consultants type	1.83	78	2.02	78	1.79	80	3.38	44	1.78	80	1.76	79
Lack of productivity standard in the area	1.78	80	1.73	80	2.36	77	3.30	52	2.32	77	1.62	80

Note: Aks- AkwaIbom State, Bas- Bayelsa State, Crs- Cross River State, Dts- Delta State, Eds- Edo State, Rvs-Rivers state, Rnk- Rank, MS- Mean Score
Researcher's field survey (2011).

Table 6 suggests that there is no appreciable variation in perceptions among the consultants in the states. The result indicates that the consultants in majority of the states perceive that construction planning is the most significant factor driving the escalation and disparity of direct costs. This is followed by site conditions, construction methods, interest rate, duration of contract, exchange rate and inflation. The other factors that were perceived by consultants to have very significant effect on direct costs are poor financial control on site, additional work/ variation order, fluctuation of prices, quality requirement, location of site and floor area. This study also shows that consultants perceived that some factors have negligible effect on direct costs escalation and disparity, the factors are; disputes on site, circulation space, natural disaster, type of consultants, unemployment, lack of productivity standard in the area.

Evaluation ofcontractors' perceptions of the relative effect of factors that drive the dynamics of the direct costs

Table 7: Contractors' perception of factors influencingdirect costs dynamics in the zone

Factors responsible for cost dynamics	Aks MS	Rnk	Bas MS	Rnk	Crs MS	Rnk	Dts MS	Rnk	Eds MS	Rnk	Rvs MS	Rnk
Construction planning	4.25	10	4.74	1	4.78	1	4.78	1	4.80	2	4.52	1
Labour unions activities	3.40	45	3.23	52	3.16	49	3.21	54	3.19	53	4.48	2
Inflation	4.20	13	4.60	5	4.52	8	4.49	7	4.51	8	4.48	2
Contractual procedure	3.07	62	2.67	68	2.49	70	2.85	67	2.68	69	4.47	4
Additional work/ variation order	4.42	5	4.42	10	4.48	10	4.45	10	3.96	23	4.47	4
Fluctuation of prices	4.50	3	4.28	15	4.38	14	4.37	15	4.39	13	4.46	6
High transportation cost	4.16	14	4.14	18	4.22	18	3.86	25	4.07	21	4.44	7
Rework/ construction error	3.85	25	3.75	27	3.72	26	4.63	4	3.65	32	4.43	8
Youth and community activity in the area	3.30	48	3.30	49	3.14	51	3.42	42	3.32	46	4.42	9
Site condition	4.62	1	4.71	2	4.75	2	4.45	10	4.47	10	4.39	10
location of Site	4.21	12	4.55	6	4.31	17	4.31	16	3.55	36	4.38	11
Poor financial control on site	4.31	8	4.46	9	4.52	8	4.47	8	4.81	1	4.38	11
Interest Rates	4.40	6	4.67	3	4.65	4	4.77	2	4.52	7	4.34	13
Exchange Rates	4.49	4	4.51	8	4.59	6	4.53	6	4.65	4	4.34	13
Construction management	3.30	48	3.33	47	3.19	48	3.49	40	3.37	45	4.27	15
Design and build	2.75	72	2.54	71	2.51	69	2.76	71	2.64	70	4.25	16
Import duties and tariffs	3.81	26	3.57	37	4.60	5	3.68	33	4.12	19	4.15	17
Specification/design error	4.06	17	4.29	13	4.35	15	4.27	17	4.24	16	4.09	18

Fraudulent practices and kickbacks	2.99	63	4.23	17	3.51	37	4.00	22	4.28	14	4.08	19
Floor area	4.13	15	4.32	11	4.41	11	4.40	13	3.83	25	4.08	19
Construction methods	4.39	7	4.64	4	4.69	3	4.68	3	4.69	3	4.06	21
Duration of Contract period	4.58	2	4.53	7	4.59	6	4.63	4	4.63	5	4.06	21
Unemployment	2.20	79	1.88	79	1.87	78	2.09	80	1.77	79	4.06	21
Productivity requirement	3.87	23	3.93	23	3.96	25	4.01	21	4.04	22	3.96	24
Availability of materials	3.68	30	4.27	16	4.41	11	4.44	12	4.45	11	3.88	25
Quality requirement	4.26	9	4.32	11	4.41	11	4.46	9	4.48	9	3.88	25
Poor production of raw materials by the country	4.08	16	4.29	13	4.35	15	4.21	18	4.27	15	3.87	27
Contractors Type/Size	3.78	28	3.59	35	3.71	28	4.38	14	4.44	12	3.83	28
Poor supervision	3.97	20	4.13	19	4.21	19	4.00	22	4.61	6	3.82	29
Economic Stability	3.71	29	3.80	26	3.72	26	3.77	28	3.79	28	3.80	30
Poor coordination between designers & contractors	3.23	53	3.32	48	3.27	47	3.22	53	3.25	51	3.78	31
Number of floors	4.02	18	4.13	19	4.13	20	4.19	19	4.23	17	3.72	32
Influence of foreign construction firms	4.00	19	4.07	21	4.06	22	2.96	64	4.12	19	3.68	33
Traditional method	3.80	27	3.83	25	3.98	23	3.83	26	3.91	24	3.64	34
Relationship between management and labour	3.20	55	2.85	64	2.74	64	2.90	66	2.84	63	3.62	35
Access to basic infrastructure	3.46	41	3.43	40	3.49	39	3.42	42	3.45	39	3.59	36
Absence of Construction-cost data	3.87	23	3.60	34	3.53	35	3.74	30	3.71	29	3.58	37
Problems of machinery maintenance	3.59	34	3.86	24	3.98	23	3.72	32	3.81	27	3.54	38
Effect of weather	3.26	50	3.35	46	3.34	43	3.47	41	3.40	43	3.53	39
No of construction on going	3.51	40	3.65	31	3.56	33	3.73	31	3.63	33	3.51	40
level of Waste generation on site	3.58	35	3.45	39	3.28	46	3.56	35	3.45	39	3.51	40
Government finance	3.97	20	3.39	43	3.51	37	3.53	38	3.56	35	3.50	42
Government policies (law and regulations)	3.53	38	3.39	43	3.46	41	3.32	49	3.41	42	3.49	43
Reliability of Cost Estimate	3.43	43	3.64	32	3.55	34	3.56	35	3.52	37	3.48	44
Average Storey Height	3.61	32	3.74	28	3.67	31	3.90	24	3.83	25	3.46	45
Direct labour method	2.99	63	2.99	60	2.88	62	3.01	62	2.96	61	3.45	46
Previous experience of contractor	4.25	10	3.98	22	4.12	21	4.08	20	4.13	18	3.40	47
Health and safety requirement	3.92	22	3.73	29	3.68	30	3.82	27	3.48	38	3.39	48
Management contracting	3.10	60	3.02	58	2.91	60	3.24	51	3.12	56	3.37	49
Users requirement	3.17	57	3.25	51	3.12	53	3.37	46	3.27	50	3.37	49
National disposable income	3.64	31	3.50	38	3.53	35	3.35	48	3.31	47	3.34	51
Money supply	2.55	76	2.61	70	2.68	65	2.78	70	2.73	66	3.33	52
Wage Rates	3.57	36	3.64	32	3.69	29	3.68	33	3.69	30	3.31	53
Level of competition	3.42	44	3.41	42	3.33	44	3.40	45	3.40	43	3.30	54
Contract sum requirement	3.38	46	3.20	53	3.08	56	3.41	44	3.29	49	3.30	54
Disputes on site	2.78	71	2.35	76	2.32	75	2.59	76	2.31	75	3.27	56
Project management method	3.24	51	3.10	55	2.98	58	3.21	54	3.13	55	3.26	57
Client type	3.61	32	3.67	30	3.49	39	3.76	29	3.68	31	3.25	58
Effect of oil exploration	3.33	47	3.28	50	3.15	50	3.37	46	3.31	47	3.23	59
Supplier manipulation	3.09	61	3.20	53	3.12	53	3.21	54	3.19	53	3.22	60
Social and cultural impacts	3.17	57	2.99	60	2.95	59	3.03	61	2.99	60	3.21	61
Formal private sector financed	3.53	38	3.43	40	3.31	45	3.53	38	3.45	39	3.21	61
Plan shape	2.69	75	2.47	74	2.48	72	2.58	77	2.36	74	3.20	63
Availability of machinery	2.84	69	2.72	67	2.52	68	2.97	63	2.73	66	3.20	63
Consultants type	2.28	78	1.89	78	1.74	79	2.72	73	1.75	80	3.15	65
Bureaucracy in tendering method	3.57	36	3.59	35	3.61	32	3.54	37	3.59	34	3.12	66
Time lag between design and tendering	3.17	57	3.05	56	3.11	55	3.17	57	2.95	62	3.09	67
Availability of labour	2.75	72	2.52	73	2.35	74	2.81	69	2.55	72	3.09	67
Building type	2.85	67	2.88	63	3.01	57	2.83	68	2.63	71	3.08	69
Labour only method	2.91	66	2.75	65	2.68	65	3.05	60	2.81	65	3.07	70
Level of IT utilisation	2.92	65	2.54	71	2.49	70	2.64	74	2.49	73	3.05	71
Financeby Informal private sector	3.24	51	2.95	62	2.85	63	3.08	58	3.00	59	3.04	72
type of services	3.45	42	3.38	45	3.46	41	3.28	50	3.23	52	3.03	73
Public – private financed	3.21	54	3.02	58	2.91	60	3.24	51	3.12	56	2.99	74
Developers/Contractors financed	2.85	67	2.74	66	2.67	67	2.91	65	2.83	64	2.97	75
Natural Disaster	2.52	77	2.29	77	2.25	77	2.33	79	2.19	77	2.96	76
Insurance cost	3.18	56	3.03	57	3.14	51	3.06	59	3.09	58	2.88	77

Lack of productivity standard in the area	2.18	80	1.67	80	1.65	80	2.60	75	1.93	78	2.78	78
National Output: GDP	2.84	69	2.66	69	2.48	72	2.73	72	2.71	68	2.69	79
circulation space	2.72	74	2.36	75	2.31	76	2.37	78	2.31	75	2.50	80

Note: Aks- AkwaIbom State, Bas- Bayelsa State, Crs- Cross River State, Dts- Delta State, Eds- Edo State, Rvs-Rivers state, Rnk- Rank, MS- Mean Score

The result in Table 7 also suggests that there is no appreciable variation in perceptions among the contractors in the states. The result shows that the majority of the contractors in the states perceive that construction planning is the most significant factor driving the escalation and disparity of direct costs. This is followed by site condition, interest rates, exchange rates, construction methods, duration of contract, poor financial control on site and inflation.

The other significant factors as perceived by contractors to are fluctuation of prices, additional work/ variation order, quality requirement, location of site and design and specification error. The result also shows that contractors perceived that some factors have negligible effect on direct costs, the factors are; disputes on site, natural disaster,circulation space, unemployment ,type of consultants and lack of productivity standard.

Level of Agreement in the Perceptions among Consultants/Contractors in the States

In order to evaluate the level of agreements in perceptions among contractors' as well as among consultants concerning the factors driving escalation and disparity of direct costs, the first hypothesis was postulated. For this purpose the mean scores of the consultants and contractors' perceptions in the six states were obtained and analysed using Kruskal Wallis test. The rule for the rejection of the hypothesis is that when the p-value is >0.05, the test fails to reject the hypothesis but when the p-value is ≤.05, the test rejects the hypothesis. The result is presented in Table 8.

Table 8: Agreement in the Perceptions of Consultants/Contractors among the States

Kruskal-Wallis Test	South-south states, N=80									
Items compared among Professionals	Aks Mean Rank	Bas Mean Rank	Crs Mean Rank	Dts Mean Rank	Eds Mean Rank	Rvs Mean Rank	Chi-Square	p-value	sig. level	Decision
Effect of factors on direct cost dynamics among consultants	242.2	245.63	248.33	236.44	238.24	232.16	0.754	0.980	0.05	Accept
Effect of factors on direct cost dynamics among contractors	261.31	325.65	245.31	229.68	234.23	236.83	2.700	0.746	0.05	Accept

Aks- AkwaIbom, Bas- Bayelsa, Crs- Cross River, Dts- Delta State, Eds- Edo State, and Rvs-Rivers state.

The result in Table 8 shows that the p-value (assymp. sig.) of 0.980 and 0.746for consultants and contractors respectively which is greater than 0.05 implies accepting the hypothesis that there is no significant variation in perceptions among states. These indicated a strong agreement in the perceptions among the consultants as well as among

the contractors in the six states concerning the effect of the factors responsible for escalation and disparity of direct cost of buildings in the south-south zone of Nigeria.

Level of Agreement between the Perceptions of Consultants and Contractors in South-South Zone

For the purpose of determining the agreement between consultants' and contractors' perception of the relative effect of factors on the escalation and disparity of direct costs of building elements in south-south, Nigeria the second hypothesis was postulated as earlier stated. The Mean Scoresof the consultants and contractors' perceptions in the six states were obtained and analysed using Mann-Whitney U test. The rule for the rejection of the hypothesis is that when the p-value is >0.05, the test fails to reject the hypothesis but when the p-value is ≤.05, the test rejects the hypothesis. The result of the Mann-Whitney U test is presented in Table 9.

Table 9: Mann-Whitney U test for comparing consultants' and contractors' perceptions of factors driving dynamics of direct costs

Parameter compared	States	N	r-value (Z/√N)	U-value	Z-value	P-value	Decision
Perceptions of contractors and consultants	AKS	160	-0.0351	3070.0	-0.444	0.657	Accept
	BAS	160	-0.0005	3198.0	-0.007	0.995	Accept
	CRS	160	-0.0055	3179.5	-0.070	0.944	Accept
	DTS	160	-0.0227	3136.0	-0.218	0.827	Accept
	EDS	160	-0.0207	3123.0	-0.263	0.793	Accept
	RVS	160	-0.094	2851.0	-1.191	0.234	Accept
	South-South	960	-0.0140	113329.5	-0.435	0.663	Accept

Aks- AkwaIbom, Bas- Bayelsa, Crs- Cross River, Dts- Delta State, Eds- Edo State, and Rvs-Rivers state

The result of the Mann Whitney U test presented in Table 9 shows that the p-values for all the states ranged between 0.234 and 0.995. These values are observed to be greater than 0.05 significant level set for the tests. This implies that there is no significant difference in the perceptions of consultants and contractors concerning the factors responsible for cost dynamics in each of the six states investigated. Although the result showed that there is agreement in contractors' and consultants' perception in all the states, it is observed that the level of agreement is not the same in the states; highest in Bayelsa and lowest in Rivers.

Discussion of Results

This study shows that there is no significant difference in the perceptions of contractors and consultants concerning the factors responsible for escalation and disparity of direct costs of building in the area. The implication of this is that the team member involved in cost management have common view on causes of cost escalation and disparity, hence the strength of advice is likely to be same. This finding agrees with the observation made by Eshofonie (2008) that the perceptions' of contractors and consultants do not differ on cost issues in all the states, the similarity in perception apart from the peculiarity of the states in the zone, may be due to their common concern and involvement in cost management as majority of the respondents in addition to their primary profession are trained project or construction managers. By harmonizing the views it was observed that 13 factors have the most significant influence on dynamics of direct costs, with construction planning ranking first. This result agrees with the finding of the study conducted by Amusan (2011) that ranked inadequate planning first, while Eshofonie (2008) rated it second behind cost of material, but slightly differ from that by Memon, Rahman, Abdullah and Abdu Azis (2010) that ranked level of planning fifth most important factor affecting construction costs. The importance attached to this factor may not be unconnected to the varying degree of capability and awareness of production planning by project team members. The second most significant factor is site conditions. This study somehow agrees with Memon, Rahman, Abdullah and Abdu Azis (2010), it identified unforeseen ground condition as important though did not rate it among the highest. The importance of this factor may be attributable to the varying characteristics of sites and ground conditions all over the zone, most importantly the fact that literature has established that a considerable percentage of the land mass have ground water, erosion and accessibility problems. The third most important factor is construction method; this study supports the finding by Ganiyu and Zubairu (2010) that identified the level of construction complexity and level of construction sophistication as important determinant of costs. The effect of this factor may be connected to the low technological development, occasioned by poor capital base of contractors in Nigeria as observed in Ujene (2012).

The fourth factor is interest rate; the importance of this macro-economic factor in this study lends credence to the study by Eshofonie (2008) that observed the effect of high interest rates charged by banks. This is also related to cash flow and financial difficulties faced by contractors which ranked first in Memon, Rahman, Abdullah and Abdu Azis (2010). The significant effect of interest rate in the construction industry as observed in the study area may be due to the high dependence of majority of the small and medium size contractors on banks for finance, which often attract high interest rates of varying degrees as noted in Osei-Tutu and Adjei-Kumi (2002). Duration of contract also ranked the fifth most important factor, which is seen by Eshofonie (2008), Ganiyu and Zubairu (2010), Memon, Rahman, Abdullah and Abdu-Azis (2010) as an important factor that affect cost. Joudis and Stalioraitis (2006) in recognition of the relationship of this factor with cost used it as one of the key variable in modelling construction cost. The study thus agrees with the findings by Amusan (2011) that ranked shortening of contract period as the sixth most important factor affecting costs. The result shows that delivery of projects ahead of schedule leads to increase in construction costs at varying degrees which usually leads to extra and overtime task work and increased cost of motivation to meet up with the short project period. Another significant factor is exchange rate. This factor was considered important by Eshofonie (2008), Memon*et al.* (2010), while Windapo and Iyagba (2007) utilised the relationship between this factor and construction costs to use it

as a variable in modelling construction costs. This study also share the view of Osei-Tutu and Adjei-Kumi (2002), that exchange rate relates directly to material, labour and total construction costs.

The next important factor is inflation which was also noted by Osei-Tutu and Adjei-Kumi (2002) as influencing construction costs. This study also agree with the observation by Osei-Tutu and Adjei-Kumi (2002) that the factor sometimes have indirect relationship with cost due to general uncertainties and drop in domestic savings associated with staggered rates of inflations. This result supports the finding that inflation has a negative and significant impact on investment in Nigeria as noted by Somoye and Ilo (2009). The other factors having very significant effect on dynamics of direct costs are; poor financial control on site, additional work/ variation order, fluctuation of prices, quality requirement, location of site and floor area. This study also shows that some factors have negligible effect on direct costs dynamics, the factors are; disputes on site, circulation space, natural disaster, type of consultants, unemployment, lack of productivity standard in the area.

Conclusion and Recommendation

In line with the finding of the study it is establishes that direct costs actually respond to internal and external factor of a building project. The study establishes that there is no significant difference between the perceptions of contractors and consultants (the team members), concerning the factors responsible for escalation and disparity of direct costs of building elements in the study area, it also establishes that the most significant factors affecting cost differential in all the states are namely; construction planning, site conditions, construction methods, interest rate, duration of contract, exchange rate and inflation. Some other very significant factors are poor financial control on site, additional work/ variation order, fluctuation of prices, quality requirement, location of site and floor area. The factors that have negligible effect on cost dynamics are; circulation space, natural disaster, type of consultants, unemployment and lack of productivity standard in the area.

The study recommends construction stakeholders should be mindful of the influence of these internal and external factors which cause cost escalation, variation and disparities over places and time during cost anticipation. The factors should be incorporated during cost allocation and utilized during cost control. It is also recommended that stakeholders should give adequate priority to effective planning, which should cover issues concerning site conditions, method of construction, duration of project, macroeconomic indices and cost control mechanism prior to commencement of construction.

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