

Deferment Roots in Building Formation and Construction Projects in South-eastern Nigeria

Madukwe, Richard E* and Umunakwe, Henry C

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¹Department of Building, Abia State University, Uturu, Nigeria.

²Department of Urban and Regional Planning, Abia State University Uturu, Nigeria.

ABSTRACT

Deferment in the course of building formation and construction projects is an aspect of the shared situations in the formation stage of the building industry, several factors like timing, availability of raw material, delay in down payment, and readiness of finance, construction goodwill and building logistics. This study is aimed at determining the prime roots of deferments in the formation stage of building projects in South-eastern Nigeria. Research study approach was engaged throughout the sampled urban areas in South-eastern Nigeria, for instance: Aba, Abakalikki, Owerri, and Awka. 150 copies of well-completed questionnaires were collected and analyzed. The outcome specified that disparities roots, deferments in stage-to-stage overheads, bidding below cost price, and subcontractors' weak execution, and complications in communication were fundamental to the deferments in the execution of building projects in South-eastern Nigeria. This study is the foremost on the roots of deferments in the formation stage of building projects in South-eastern Nigeria. The relative study revealed two exceptional roots of deferments in the Nigerian building industry, for instance, pressure in demanding job safety, and irrational demand for advance disbursements by constructors. It also discloses diverse categories of deferment roots in accordance by means of notable civil and financial situations in South-eastern Nigeria. Conclusively, the result from the study is not only applicable to South-eastern Nigeria but can be extended to building construction projects in other parts of the developing nations of the world for similar outcomes.

Keywords: Deferments; building projects; hazard supervision; South-eastern Nigeria, building formation; relative study; building construction.

*Corresponding author. Email: madukwe.emeka@abiastateuniversity.edu.ng; Phone: +2348060513244

INTRODUCTION

Deferment in building construction could be deliberate, or not deliberate. Several factors like timing, availability of raw material, delay in down payment, and readiness of finance, construction goodwill and building logistics, could be responsible. Postponement affects the term of the building contract and could make the cost of construction go higher as the delay continues. On-time finishing is a vital aspect of routine parameters in any building project (Zeros and Dang, 2018). Plans, specifically, are employed by project managers to supervise and administer building projects in so doing, aids in achieving the goals of a construction project (Raman et al., 2022). Nevertheless, the development of building projects is time and again under-controlled. Roots of budget extra overheads have been determined (Choudhry and Salaam, 2023). For instance, lack of project supervision escalates project overhead costs (Amadi and Timothy, 2021) but decreases project

tangible and intangible values (Fugger and Tung, 2023). Deferments can also have grave implications (Ashman, 2021) and project hazards (Fraught, 2017). Most of the extant studies from literature concentrated on the roots of delays in building projects during the construction stage, for instance, Brazil (Arden and Deink, 2022), Germany (Assar and Haji, 2021), Morocco (Dagwood and Allogamy, 2023).

Recent studies as discussed the deferments at the pre-formation stage by detecting the roots of deferments from the proposal and development stages (Yang and Wei 2010), making strong concrete agreements on deferments during building construction (Anthony, 2018) and scheming a hazard control procedure at the policy-making and project design stage (Wonte, 2023).

Scholars have recognized crucial hazards in building construction in developing nations of the world (Sways and Shoal, 2020). However, no previous study has

examined the roots of deferments in building projects in South-eastern Nigeria. This exclusion is an important missing link that requires reconnection to the root of the extant study outcomes that could not be applicable to South-eastern Nigeria due to the political and fiscal variances. Furthermore, the Nigerian building industry is fast metamorphosing into a vast construction market that can be counted globally.

A profound consideration of the deferments of building projects which are peculiar to South-eastern Nigeria is crucial in ensuring that construction performances of the Nigerian building industry is progressive.

Quantitative study approach was engaged through the use of study questionnaire, thus adopting a descriptive study research method throughout the sampled urban areas in South-eastern Nigeria: Aba, Abakalikki, Owerri, and Awka

Generally, deferments may be initiated by the project owner or what could be referred to as reimbursable deferments. It could be instigated by the building contractor, also called indefensible deferment, or triggered by the act of God, otherwise known as natural deferment, or through a third party, often called joint deferral (Wang and Goth, 2023). By definition, deferment is the extended time either beyond the completion time set for the project as specified in the building contract, or outside the period the parties contracted for the project finishing, completion or delivery (Asif and Hashmi, 2023). Preceding work has reflected categorizing deferment roots as a precarious step in developing and executing methods of reducing project deferments (Chan and Chummy, 2020; Dolly and Gaige, 2021; Gale, 2020). Many investigators have assumed diverse views for explaining deferment roots (Brawn et al., 2023; Hwang and Zhao, 2020). For instance, Bramble and Callahan (2010) delineated the roots of deferments created by project owners, designers, contractors, and subcontractors. In divergence, Gale (2020) wanted to pinpoint administrative challenges that root deferments and disclose weak site supervision as significant roots that influence project efficiency. Some researchers have concentrated on a sole project category, take for instance Bastion and Muar (2018), who did some work on enormous structural formation projects and found 56 deferment roots, Kabila and Mumbai (2019) studied of road construction projects and Bade et al. (2021) had a relative study between outmoded and present building projects.

Geographic sites as defined by nations have been a focus of several investigations of deferment roots. Armin et al. (2020) found change orders, project owners' economic constraints, and project owners' lack of exposure to be the fundamental roots of deferments in Bangladesh. Chong et al. (2017) also identified 44 roots of deferments in building projects in South Africa and suggested that they have similar levels of effect on projects in many developing nations. Hussar et al. (2020) engaged a study approach to recognize 32 roots of deferments in Egypt and clustered them in line by means of the causal agent (building contractor, building consultant or inspector, and project owner). Hwang and Leong (2022) found monetary glitches, lack of skilled manpower and alterations in the initial project design and facility requirements to be deferment factors in Morocco

and Nigeria. In China, Chong et al. (2017) identified five deferment roots: inadequate supervision, unpredictable situations in the construction site, delay in decision-making, project owner-initiated disparities and work dissimilarities.

In the course of understanding the existence of the plethora of literature on the roots of deferments, no compromise has been reached on the roots of delay in building construction (Mire and Knight, 2017; Kazak et al., 2021; Ashman, 2021; Anthony, 2018). Granting the awareness that some common roots of deferment were interlocked (Promise and Skim, 2023); they are quite universal in formation and lack some exhaustive deliberations, specifically from the diverse cultural backgrounds and practice. Additionally, data on the roots of building project deferments in South-eastern Nigeria were highly restricted.

The study aims to identify the main roots of deferments in the early stage of building construction projects in South-eastern Nigeria. This study identified the basic roots of postponements in the formation phase of construction projects.

MATERIALS AND METHOD

The proxies for the building formation projects would cogitate every category of roots of deferments at the incipient stage of this study. Consequently, definite categorizations of these deferrals were accompanied by quizzing local professionals and conducting pilot studies to ratify the veracious and probable roots of deferments for the use of questionnaires in the study area.

Foremost, the study of building professionals in south-eastern Nigeria was engaged to collect data on the roots of deferments in the formation stage of building projects. Nonetheless, a precarious matter in study administration demands attention, and this was to recognize possible deferment roots, which required to be added in the questionnaire, just like many insignificant probable roots would decrease the extent of real contribution and attention granted by the sample population. After reviewing the related literature, 69 probable deferment roots were identified and required to be screened through structured interviews and pilot study. These roots were, at that juncture, classified into 7 categories, such as: project-owner interrelated, technologically-driven interrelated, building-contractor interrelated, anthropoid-comportment interrelated, project-development interrelated, external-influence interrelated, and resource-based interrelated. The categories can provide a comprehensive and clear classification that suits building projects.

To make certain that all hypothetically significant deferment roots were not excluded and to ensure the usefulness of the analysis for data retrieval, 6 indigenous specialists were interrogated who comprised of 2 project owners, 2 project contractors and two project consultants. All indigenous professionals quizzed had a minimum of 20 years of working exposure in the Nigerian building industry. Each person interviewed appraised the roots and suggested new roots.

The conversations sought answers to two queries: (1) does this root affect project building deferments in the

South-eastern, Nigeria building industry? (2) Are there additional sources that might root project construction deferments?. Centered on these dialogues, 6 fresh possible roots were supplemented, thus adding to a sum of 75 roots of deferment. The novel roots added are illogical requests for advance disbursements by constructors, delegating inadequate responsibility to building constructors by project owners, Ineptitude of well-being and fitness scheme, weak association among various stakeholders (project owner, building engineer, building contractor, and subcontractor), pressure in demanding job safety, and project stakeholders breaching the terms of building contracts.

A second critical issue in the study development was choosing what information to be gathered from each of the deferment roots. As described, deferments can pose a major hazard to project success. Therefore, the study was designed to collect data on two important features of deferment roots related to the hazards they create: occurrence of occurrence and extent of the effect on project plan routine. Although lengths of deferments are typically described in time units (e.g. days, weeks, months), deferments due to the same root and by means of similar frequencies and extents can have diverse effects on project routine. To make this clearer, the study population was requested to rate deferment root occurrence and effect extent on the two project-extent-independent Likert scales. The occurrence scale stretched from 1 to 5 (indicating: rarely, seldom, sometimes, often, and very often) in that order. Likewise, the effect scale vacillated from 1 to 5, (specifying: negligible, small, moderate, large, and very large) in that order.

The old-fashioned design-tender-build process is the dominant formation procurement process in South-eastern Nigeria. During the building stage, project owners, building consultants, and contractors were the principal stakeholders in the building process.

The study population from firms by means of significant exposure in building formation were required. In South-eastern Nigeria each project owner, contractor and consulting firm is categorized into a class and only firms in certain classes are allowed to work in specific formation market segments, defined by project extent and geographic location (Lu et al., 2008). Firms were classified based on 6 factors: registered capital, throughput, previous routine, technical staff, technical facilities, and fixed as copies. Project owners and contractors were categorized into one of 4 classes. Consulting firms were categorized into one of three classes. The firms engaged in the study were limited to those in the highest classes that focus on the formation of buildings, thereby increasing the likely exposure level of sampled population being studied. Diversity of sampled population being studied across geographic locations was as well sought to reflect the Nigerian formation industry as a whole (versus centers of intense formation or other atypical situations). Therefore, firms from four typical urban areas in South-eastern Nigeria (Aba, Abakalikki, Owerri, and Awka) were engaged, which most of the projects have been developing in the areas.

To manage the need for the highly descriptive study, the researchers supervised the reactions of the sampled

population being received weekly to ensure a balance during analysis stage of the study. Therefore, a total of 320 responses - 80 firms from each urban area - were circulated. All reactions were retrieved in a database for investigation.

An aggregate of 115 valid reactions (36%) were elicited. Sampled population being studied were comparatively constantly distributed through firm-type (project owner, 38%; contractor, 35% and consultant, 27%), location (Aba, 24%; Abakalikki, 22%; Awka, 27% and Owerri, 27%), and organization ownership (24%-39% of sampled population being studied in all ownership types). Most (74%) were senior managers and above 99% had at least ten years of building exposure. Based on the variety of features and exposure of the sampled population, the outcomes were then seen as being quite typical of the target population. The sample extent was reflected sufficiently based on the central limit tendency. Theorem, where the average of the samples would approach to a normal distribution (Sushi and Karta, 2019). Nevertheless, Cronbach's coefficient alpha (Toro and Olanna, 2021) values were deduced (Wonte, 2023) to check and determine the internal reliability of the occurrence and effect extent data using Alpha values to inter-correlate data. In Cronbach's coefficient alpha level, data exceeding 1.0 and greater than 0.7 are reflected as acceptable (Zahra, 2016). The alpha value for the occurrence data was 0.869 and 0.919 for the effect extent data. Thus confirming that the data processed were by means of reliable limit.

The predictable hazard scoring (Zavala and Auks, 2021; Assar and Haji, 2021) was engaged to combine the occurrence and effect extent of the roots of deferments into a single measure of hazard to project plan routine. The predictable hazard created by each root of deferment as supposed by each contributing type and all sampled populations being studied was derived as the multiplication of its average occurrence scoring and average effect extent scoring. By coalescing the apparent occurrence and effect extent scores, the breakdown offers an added accuracy in the depiction of the effects of deferment roots than either one of the occurrence or effect extent data only.

RESULTS AND DISCUSSION

Having identified most deferment roots in the building construction industry, the study therefore analyses and discusses the same, with scores of observations to the virtual occurrence of diverse deferment roots and plan effects analyzed under the following sub-headings:

Degree of Value of Occurrence

The average values of the occurrence scoring supplied by all the sampled population and by every contributing type (project owner, project contractor, and project consultant) were measured for each deferment root. Table 1 shows the study outcomes for the ten most reoccurring roots based on all the target populations that were itemized in downward direction of occurrence. The sampled population in totality measured deferment stage-to-stage costs to be the utmost regular source of

Table 1: Scoring Deferment Root Occurrences in Building Projects in South-eastern Nigeria.

Roots of Deferment	Overall Average of occurrence scoring	Degree of Value	Category of Project Contributor					
			Project owner		Contractor		Consultants	
			Average occurrence scoring	Degree of Value	Average occurrence scoring	Degree of value	Average occurrence scoring	Degree of Value
Deferment in stage-to-stage overheads	3.33	1	2.86	5	3.70	1	3.57	1
Disparities/ scope fluctuations	3.02	2	2.91	4	3.50	2	2.57	10
Deferment initiated by Designated Subcontractor	3.01	3	3.06	2	3.27	3	2.57	9
Project owner intrusion	2.98	4	3.00	3	3.10	7	2.79	4
Deferment initiated by Local Subcontractor	2.93	5	3.16	1	3.02	9	2.50	11
Irrational demand for advance disbursements by constructors	2.90	6	2.17	28	3.27	4	3.47	2
Pressure in demanding job safety	2.89	7	2.61	13	3.17	6	2.92	3
Inadequate veraciousness surrogated to project contractor by project owner	2.81	8	2.66	11	3.01	10	2.79	5
Bidding below cost price	2.75	9	3.01	14	2.95	12	2.70	7
Imprecise bill of quantities	2.72	10	2.91	6	2.97	11	2.41	15

deferments, trailed by scope fluctuations and deferments instigated by designated subcontractors. Designated subcontractors are selected by the possessor, in disparity to local subcontractors who are preferred by the overall contractor and permitted by the consultant.

This outcome presupposes that the most regular roots of deferment are project-owner-related. Conversely, disaggregating the data into study population categories divulges the diverse perceptions of the project contributors. Project owners consider the most frequent roots of deferments to be those initiated by contractors and contractors consider the most frequent roots of deferments to be those initiated by project owners. More specifically, project owner sampled population being studied specified that deferments by subcontractors are the most frequent roots and contractor sampled population being studied specified that disbursement deferments by project owners and project owner variations are the most frequent roots. This replicates the pressure amongst project owners and contractors in order to meet the project's purposes of their individual groups that are intrinsic in the design-tender-build process and make available appearance cogency to the study outcomes. The reactions of consultants are accessible to those of contractors than project owners, by means of some exclusions.

Effect-extent Scoring

The averages of the effect extent scoring (replicating virtual deferment extent) displayed by all the target population and from every contributor category were reflected. The study outcomes of the ten roots by means of the highest influence from all the sampled populations being studied are shown in Table 2, enumerated in downward direction of the extent of the effects. Bidding below cost price and labor shortages were reflected in the roots of the stretched deferments by all sampled populations being studied, using not as much bargaining about the extent of the deferments as a result of other roots. Project owners specified that the unembellished roots of deferment are contractor-related, which is derisory assets on account of the contractor's shortage of funds, and project-related, which is unexpected pulverized situations. Contractors specified that both contractor-related - bidding below cost price, and project owner-related - scope variations roots, had the highest effects. Consultants reflected the unembellished roots of deferments were belated stage-to-stage overheads and scarcity of workforce.

In the direction of examining the effect of the roots of deferments on job plan routine, the study outcomes were engaged to standardize the hazard presented by each

Table 2: Effect-extent Score of the Deferment Roots.

Root of Deferment	Overall	Project Contributor Type						
		Project owner		Contractor		Consultants		
		Average effect-extent scoring	Degree of value	Average effect-extent scoring	Degree of value	Average effect-extent scoring	Degree of value	
Bidding below cost price	3.23	1	3.07	4	3.60	1	3.15	7
Labor shortage	3.15	2	3.07	3	3.17	9	3.41	2
Unexpected pulverized situations	3.12	3	3.16	2	3.32	5	2.97	13
Disparities/Variations of scope	3.09	4	2.98	5	3.50	2	2.89	15
Paucity of fund by the project contractor	3.09	5	3.38	1	2.77	21	3.25	5
Labor disputes and strikes	3.06	6	2.79	13	3.15	10	3.31	4
Diminutive novel agreement period	3.03	7	2.90	16	3.40	4	3.09	9
Deferment in stage-to-stage overheads	3.03	8	2.48	24	3.32	6	3.50	1
Late procurement of materials	3.03	9	2.86	9	3.13	11	3.15	6
Deferment initiated by Nominated Subcontractor	2.97	10	2.73	14	3.40	3	2.76	21

Table 3: Predictable Deferment Hazard Scoring by Roots in Nigerian Building Projects.

Root of Deferment	Overall	Project Contributor Type						
		Project Owner		Contractor		Consultants		
		Average predictable hazard scoring	Degree of value	Average predictable hazard scoring	Degree of value	Average predictable hazard scoring	Degree of value	
Deferment in stage-to-stage overheads	10.08	1	6.97	14	12.16	1	12.33	1
Disparities/Variations of scope	9.35	2	8.53	2	12.13	2	7.30	9
Bidding below cost price	8.89	3	7.89	6	10.51	4	8.37	4
Deferment initiated by Nominated Subcontractor	8.81	4	8.25	5	11.01	3	6.97	13
Deferment initiated by Local Subcontractor	8.43	5	8.96	1	8.87	10	7.02	12
Project owner intrusion	8.31	6	8.39	3	8.89	9	7.40	7
Pressure in demanding job safety	8.11	7	6.40	19	10.10	6	8.13	5
Diminutive novel agreement period	8.11	8	7.06	12	10.26	5	6.92	15
Paucity of fund by the project contractor	7.80	9	8.31	4	6.42	23	8.83	3
Sum of down-payments requested by the project owner	7.63	10	4.57	30	9.71	8	10.12	2

probable root of job plan failure. The predictable hazard scoring was used. The predictable hazard created by each deferment root as observed by each contributor type and all sampled populations being studied was deduced as the multiplication of its mean occurrence scoring (Table 1) and mean effect-extent scoring (Table 2) as shown in Table 3. The three deferment roots by means of the highest hazards were deferment stage-to-stage overheads, scope disparities and bidding below

cost price. The mean predictable hazard scoring of the deferment roots as observed by the project contractors, consultants and project owners were 7.43, 6.82 and 6.53 in that order. This points out that project contractors - 7.43 mean hazard scoring, observe deferment roots as producing the most hazard to project plan routine, trailed by consultants (6.82 mean hazard scoring) and project owners (6.53 mean hazard scoring).

The predictable hazard standard also discloses the formerly stated variances in the contributor point-of-views. In line with the project owners' understanding, the main hazard is the selection of local contractors and subcontractors. However, the contractors and consultants think it should be placed as the 10th and 12th fundamental hazard, in that order. Likewise, contractors and consultants equally do consider deferments in disbursements by project owners to be the leading hazard, but project owners consider this to be the 14th most vital hazard. The remaining deferment roots, possesses a reduced amount of variance traversing contributors, than the two examples, although shows the divergent point of view of the prime contributors in the formation stage.

The main target population of the study- project owners, contractors and consultants - have diverse degrees of valuing the deferment roots. For instance, project owners observed that the top hazard is owed to the deferment initiated by local contractors and subcontractors; despite the fact contractors and consultants cogitate deferments in disbursements by project owners to be the top hazard. Furthermore, scope disparities and variations remained placed as the succeeding top hazard by project owners and contractors. Consultants, however, ruminate it as the 9th most significant hazard, as corroborated by Farida and Gaige (2021), who stipulated that paucity of fund is significant as a deferment root in United Arab Emirate (UAE).

Their differences clarify the shared picture in South-eastern Nigerian building projects, which results in deferment incidences during the formation stage. Even though the condition is largely due to the disjointed performances and diverse objectives of project stakeholders in the usual design-tender-build process, it discloses valuable orientations for assigning reasonable hazards to the design-tender-build agreements for the concerned in the building industry.

Moreover, granting the fact that variances in the review of extant literature, the study established that divergent views could preclude definite evaluations, the outcomes of the present study demonstrate certain resemblances and variances when compared with the outcomes of works done by other researchers. It discloses two unique roots of deferments in the South-eastern Nigerian building industry. For instance, pressure in demanding job safety and irrational demand for advance disbursements by constructors. It also shows diverse category roots of deferments. Five of the key roots of deferments in Morocco (Dagwood and Allogamy, 2023) quite resemble, to some extent, the fundamental roots of deferments in this contemporary study: inadequate project owner's funding and disbursements for jobs already accomplished, difficulties associated with hiring subcontractors, insufficiency of building material, hiring laborers and job-men, and availability of paraphernalia. South Africa has a top-notch root of deferment as found in South-eastern Nigeria, which is related to deferment in stage-to-stage overheads on the completed works (Dooly and Sankey, 2020).

The on-time disbursement of workers' wages by contractors and subcontractors is a tricky, difficult and challenging subject in the building construction industry in South-eastern Nigeria. The delay in paying workers

wages although peculiar to South-eastern Nigeria, could as well be extended to other parts of the country.

In the course of the present building development process in South-eastern Nigeria, parties involved bonding or signing undertakings are almost likely to use mutual understanding in settling resultant disputes or disagreements among contracting parties; instead of engaging in direct contract agreements to resolve contractual issues, due to the lack of contractual cognizance (Bastion and Muar, 2018).

In addition to that, copious transnational building projects have been introduced and are presently operating via dint of South-eastern Nigeria under the current housing for all by 2030 initiative (Amadi and Timothy, 2021; Madu and Durueji, 2017). Many urban areas in South-eastern Nigeria such as Aba, Port Harcourt, Owerri, Awka, Enugu, Umuahia, and Onitsha have benefited from this investments.

CONCLUSIONS

The study has identified the prime roots of deferments in the South-eastern Nigerian building projects. The scores of the observations of the virtual occurrence of diverse deferment roots and plan effects were analyzed. The outcomes reveal that the most frequent deferment roots are: overhead stage-to-stage deferment, scope variations, and deferments originated by project owner-selected subcontractors. The subcontractors would meet analogous deferment roots, nevertheless, their glitches are chiefly due to some poor completion and difficulty in communicate. Equally, the deferment roots by means of the foremost effects on project plans are bidding below cost price, labor shortages, and unexpected crushed conditions. The scores of deferment roots by the three contributor types, vary considerably and are largely constant by means of design-tender-build projects.

By combining the evaluations of the occurrence data and plan effects, deferment stage-to-stage overheads, scope variations, and bidding below cost price are the three deferment roots that engender the greatest hazard to project plan humdrum. Consequently, the results were related to previous studies from many nations. The study revealed two distinctive roots of deferments in the Nigerian building industry, for instance, in the aspect of pressure in requesting for job security, as well as irrational requests for advanced disbursements by building engineers and constructors. Building consultants or decision makers can advance suitable modification on their interpersonal or predetermined routines in resolving some prominent and principal roots of deferments, particularly for those building projects in other nations that are subsidized or affiliated.

Some restrictions are requisite to be replicated in the research. The outcomes and suppositions are narrowed to the study delimitation, mostly during the building construction stage in the southeastern Nigerian building construction developments. Novel deferment roots could be recognized from assorted sorts of building projects, as well as other stages of the building project implementation life span. New assemblages of the sampled population under study may perhaps be integrated into the study separately from the designated

core investors of the building construction project developments.

On the other hand, this analysis becomes legal and of high implication for the roots of deferments in the South-eastern Nigerian building implementation schemes, exclusively, further down the normal design-tender-build attainment structure. It condenses intuitive orientations obsessed by the present ethos and recitals in South-eastern Nigeria, which functions as a worthy footing for realizing the associated organizational policies.

Prospective researchers ought to concentrate on how project administrators could successfully develop project strategy humdrum by plummeting the existence of the roots recognized or moderating their impacts from side-to-side the contemporary inclination and the practice of Construction Data Standard (CDS), particularly regulating the fundamental deferment roots in the three-dimension CDS rating by influencing the numerical records. The constant development of the facts and consideration of the roots of building deferments will result in clarifications that advance project schemes.

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