

Effect of Payment delay on Time performance of Construction Projects in Edo State, Nigeria

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Abstract:

Background: The construction industry in recent times has been characterised by time overrun which are mostly caused as a result of payment delay. The research work assessed the effect of payment delay on time performance in the construction industry with focus on the relationship between payment delay and time overrun.

Materials and Methods: Data were source using case study data from 20 selected projects in Edo state with interview with key professionals on those projects. A total of 12 professionals were interviewed to identify the major causes of payment delay on the projects. Data were analysed using percentile and linear regression was used to show the relationship between payment delay and time overrun.

Results: . The research identified the major causes of payment delay as: slow coordination and seeking of approval from concerned authorities, late preparation of interim valuation and inflation. It further reveals that payment delay had significant effect on payment delay as it contributed to 43% variance which indicates that payment delay has a high significant effect on time performance of construction projects.

Conclusion:in order to improve time performance of construction projects, issues regarding payment needs to be taken seriously so It is therefore recommended that adequate planning and better feasibility studies should be carried out before commencement of the construction project as his will help reduce the occurrence of payment delay as the client is fully prepared for the project.

Key Word: Construction Projects; Payment Delay; performance; Time overrun and Time Performance

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I. Introduction

In order to maintain a consistent cash flow, contractors occasionally ask payment for work completed. Delays in honoring payment certificates have resulted in missed delivery milestones for construction projects, and in certain situations, they have led to contract determination delays (Fatoye, 2012). According to Anshah (2011), a significant cause for concern is the delay in paying clients for work completed on building projects. It causes contractors to experience severe cash flow issues, which can have a disastrous impact farther along the contractual payment chain. According to Fatoye (2012), the majority of construction projects are finished in accordance with the clients' specifications, but rarely within the anticipated completion period due to delays, which are typically brought on by payment issues. It is not uncommon to find a contractor or sub-contractor who has not been paid what is due to him threatening to suspend work under the contract until the balance due to him is paid in full.

In recent years, the construction industry has been widely acknowledged to be plagued with payment delays and losses (Ye and Rahman, 2010). Cash flow issues brought on by delayed payments are a major factor in construction delays and project termination (Fugar and Agyakwah-Baah, 2010; Ayodele and Alabi, 2011). Ye and Rahman (2010) found that when a business's cash flow is delayed, its net cash flow turns negative. When this occurs, the contractor would need urgent finance to make up the cash shortfall (Idowu et al. 2022).

Due to the fact that construction projects frequently require significant upfront investments and take a long time to complete, payment is regarded as the industry's lifeblood (Judi and Rasheed, 2010). Nigeria has highlighted the issue of contractors receiving interim payments late or not at all (Ayodele and Alabi, 2011). According to Fatoye (2012), late payments appear to be common in Nigeria because the majority of construction clients are public bodies and the projects are financed with poorly executed government budgets. Shebob, Dawood and Xu (2011) opined that payment delay of construction project has significant financial impact on all parties involved in the project thereby affecting the time performance of the Project. This paper looked at the impact of payment delay on time performance of construction project by drawing up a relationship between payment delay and time overrun using some selected projects.

Types of Payment in Construction Industry

Payment literally means the cash given to or to be given to a person in exchange for the goods sold or services provided. Payment is referred to as "a monetary consideration for the Contractor's performance or work done" in the construction industry. The value of any labor, supplies, or products included in the contract is what is referred to as payment. In other words, payment is the consideration, in monetary terms, for the work that a Contractor has completed in accordance with the contract plus the materials delivered to the site (Ansah, 2011). According to the contract, the money must be paid on time and in full unless there are specific justifications for doing otherwise.

There are two main payment types in construction contracts: interim payments and final payments, the latter of which is released following approval by the architect or contract administrator. The construction industry differs from other industries due to the intricate structure of contracting and subcontracting. The supply chain in the construction sector is pyramid shaped. Various project scenarios have shown that payment methods like open-book accounting, stage payments, incentive contracting, direct payment, trust accounts/funds, mobilization advance payment, and mechanic's lien are adaptable and useful.

Interim Payment: Interim payment denotes something that is momentary, temporary, or brief. Considering this, it can be said that "Interim Payments" are temporary or short-term payments made gradually to a Contractor at intervals of weekly, biweekly, or monthly based on the periodically estimated value of work that the Contractor has completed. Progress payment and stage payment are other names for interim payments (Ansah, 2011).

Final Payment: Final payment is the type of payment to the contractor that is made in response to the contract's practical or substantial completion milestone being met and/or the so-called "handing over" of the completed work to the employer (Ye and Rahman, 2013). Therefore, the contractor is not entitled to receive any payment at all until such stage is reached and approved by the contract administrator. By employing this strategy, the contractor effectively finances the work to a large extent, with costs that will eventually be added to the contract price. Additionally, the employer must be ready to take on this responsibility and be able to secure and implement payment of a sizable lump sum upon taking over the works.

Advance Payment: Ansah (2011) defines advance payment as the sum of money that the employer pays the contractor before the relevant work is completed. The contract contains language allowing for contractor advance payment (Ramus et. al., 2008). The basic idea is that the contractor would receive a lump sum payment on the day specified in the contract's specifics. Typically, this procedure is used in public works contracts. The primary goal of putting this plan into place is to help the contractor get started and finance the contract without turning to unnecessary and expensive external borrowing.

Claim: which in construction includes "extensions of time," is an assertion of a right to money, property, or a remedy. These claims can be categorized as coming from the contract itself, a breach of the contract or a common law duty (as in tort), or a quasi-contractual claim for quantum meruit (deserved) compensation or an ex-gratia settlement. As a result, some legitimate claims specified in the contract are required to account for potential changed conditions; these claims can be easily settled. Others might be contested if they're thought to be irrational in principle or in terms of quantity.

Retention: For a number of reasons, the employer may refuse to pay the principal contractor or subcontractor. These include seriously flawed construction work, disputed work, failure to adhere to any important contract requirements, third party claims made or reasonable indication that a claim will be made, and failure to pay project resources on schedule (Reeves, 2003). These factors could lead to the employer refusing to pay, which would cause payments to be delayed. Retention is a kind of payment retained by the client for some period of time until the work has certified and certificate of practical completion issued.

II. Material And Method

This paper seeks to assess the effect of payment delay on time performance of construction projects in Edo state. To achieve the aim of the research, the research employed the use of case study research design with a follow up with interview. Twenty (20) projects were selected after thorough preliminary investigations where archival information were readily available. Archival information about completed projects maintained by the institution's physical planning division and the project consultants were used to source data. The interview section was designed to identify the causes of payment delay in construction projects while case study was used to x-ray the relationship between payment delay and time overrun in construction projects. Six (12) professionals were selected for interview because of their wealth of experience in the institution and on the projects. The results were presented and analysed using percentile and linear regression.

III. Result

Table 1: Characteristics of Respondents for Interview

Category	Classification	Frequency	Percentage
Current Position of Respondents	Director	2	16.67
	Chief Quantity Surveyor	2	16.67
	Senior Quantity Surveyor	2	16.67
	Project Architect	2	16.67
	Chief Engineer	2	16.67
	Project Manager	2	16.67
	TOTAL	12	100
Years of Experience	11 - 15 years	4	33.33
	16 - 20 years	2	16.67
	Above 20 years	6	50.00
	TOTAL	12	100
Highest	HND	2	16.67
Academic Qualification	B.Sc/ B.Tech/ PGD	8	66.66
	Msc/M.Tech	2	16.67
	TOTAL	12	100
Professional Membership	Corporate	10	83.33
	Fellow	2	16.67
	Total	12	100
Number of Projects handled With payment Delay	11 – 15 projects	4	33.33
	16 - 20 projects	4	33.33
	Above 20 projects	4	33.33
	TOTAL	6	100

Table 1 above showed the background information of respondents for the interview. The professionals contacted for interview were holding managerial positions in various organizations (Director, Chief Quantity Surveyor, Senior Quantity Surveyor, Project Architect, Chief Engineer and Project Manager). All of them have above 10 years' experience in the industry and are also professionals in the field which indicates that they are knowledgeable on the subject matter. They have all been involved in projects with occurrence of payment delay which make their information on the subject matter valid.

Causes of Payment Delay in Construction Projects

The factors responsible for payment delay as identified by the respondents in the interview were ranked based on their response. At least, 4 factors were listed by each respondent and later collated. Poor project brief, interference of management in payment matters, inadequate information on the project and bureaucracy were more significant factors affecting payment delay in project as it is common in most of the interviewee while inadequate design, poor site management, inadequately prepared BOQ, poor estimating and lack of cost control measures were ranking least. It was observed that management boycotts the advice of consultants regarding payment issues which in most cases result to overpayment or underpayment for work done.

Measures of Reducing Occurrence of Payment Delay

They were also asked to identify measures that can be used to reduce the occurrence of payment delay on construction projects. The response gotten shows that adequate planning and carrying out proper feasibility on a project before commencement can help reduce occurrence of payment delay on the project. Since some of these issues of payment delay results from improper planning and poor project brief, it is believed that adequate

planning of project can help reduce payment delay occurrence in construction projects. Other measures identified include penalty imposition on defaulters and strict adherence to condition of contracts by parties involved in the projects, proper site management was also considered effective while non-interference of management on payment issues was considered effective as this will make contractors to do the right thing on the project.

Analysis of Projects (Case Study)

Table 2: Case Study Project Information

Project	Project Financier	Initial Contract Sum (N Millions)	Final Contract Sum (N Millions)	Initial Duration (Months)	Final Duration (Months)
A	TETFUND	42	42	9	24
B	TETFUND	58	58	9	18
C	TETFUND	32	32	8	12
D	TETFUND	54	54	12	16
E	TETFUND	65	65	12	18
F	TETFUND	23	23	10	15
G	TETFUND	38	38	6	11
H	TETFUND	26	26	8	14
I	TETFUND	42	42	12	26
J	TETFUND	18	18	7	12
K	IGR	45	45	6	12
L	IGR	34	34	10	18
M	IGR	25	29	12	36
N	IGR	12	12	6	10
O	IGR	6	6	4	8
P	BANK	38	38	8	10
Q	PRIVATE	41	41	6	12
R	PRIVATE	7	7	3	6
S	PRIVATE	10	14	8	20
T	PRIVATE	20	20	12	24

Twenty projects were selected in Edo state for the case study. Out of the twenty projects, 10 were financed by TETFUND, 5 were financed by the Internal Generated Revenue (IGR) while 5 were donated by private sector. The project financier contributes to issue of payment delay as the delay in payment can be influenced by the financier of the project. The TETFund projects do not give room for fluctuation and variation in the contract so variations are re-packaged as a separate contract and this takes longer period to approve. This takes a lot of time and in turn causes the projects to shoot beyond initial time thereby leading to time overrun.

Most IGR projects usually face issues of time overrun and in some rear cases abandonment. Most payment delays experienced in IGR were due to non-availability of funds to finance the project, change in power and improper planning among others. The privately financed project comprises of bank assisted projects and private individual projects and they experience time overrun due to payment delay. They rarely experience cost overrun because the projects are well packaged and the payment delay experienced are due to bureaucracy and logistics involved in approval, late valuation of variation, late preparation of valuation by the consultants. The result corroborated the result of the survey which identified slow coordination and seeking approval from concerned authorities and late preparation of interim valuation as major causes of payment delay in construction projects.

Table 3: Relationship between payment delay and time overrun

Predictor	Coefficients	Std. Error	T	Sig
Constant	-0.296	2.355	-0.126	0.901
Time overrun	1.553	0.421	3.691	0.002

R= 0.656; R²=0.431; F value =13.624, P value = 0.002

Time overrun = -0.296 + 13.624(Period of Payment delay) [R=0.656, R²=0.431].....1

Analysing the relationship between payment delay and time overrun using linear regression, equation 1 show that delay in payment account for 43.1% of variance of time overrun and it is a positive significant predictors of time overrun (R²=0.656; p<0.05). This implies that payment delay account for 43% of the variance of Payment delay, while the remaining 57% can be adduce to the effect of extraneous variables and this implies that there is high effect of payment delay on time overrun.

IV. Discussion

The construction industry due to its nature is prevalent to issues of payment delay and if not addressed properly will have effect on project performance. From the interview conducted, the causes of payment delay were identified in construction ranging from Poor project brief, interference of management in payment matters, inadequate information on the project and bureaucracy were more significant factors affecting payment delay in project as it is common in most of the interviewee while inadequate design, poor site management, inadequately prepared BOQ, poor estimating and lack of cost control measures were ranking least. It was observed that management boycotts the advice of consultants regarding payment issues which in most cases result to overpayment or underpayment for work done. The result corroborates Donkor (2011) and Fatoye (2012) where bureaucracy, lack of proper feasibility studies and variation/change in scope are significant factors that causes payment delay. In the research carried out by Okeyo, Rambo and Odundo (2015), Participants attributed delayed payments to late disbursement of funds by the financier and the employer's inefficient financial management system. The result of this study is consistent with earlier studies in Nigeria, such as Aibinu and Jagboro (2006) which identified planning problems, project owners' cash flow problems as some of the causes of payment delay. Measures of reducing payment delay were identified as adequate planning, carrying out proper feasibility on a project before commencement, penalty imposition on defaulters and strict adherence to condition of contracts by parties involved in the projects. It is believed that non adherence of consultants and contractors to contract rules have led to most issues of payment delay. Also, it was observed from the analysis that the type of financier on a project contributes significantly to the time performance of construction projects. Payment delay accounts to about 43% variance of time overrun which indicates that it has significant effect on time performance of project. When issues of payment delays are addressed, it boost the time performance of the project.

V. Conclusion

Payment delay is rampant in virtually all construction projects as all projects examined have issues of payment delay. This can be attributed to poor feasibility planning of the projects and non-adherence to condition of contract by parties involved in the contract. Payment delay is more rampant in public (government) projects compared to private client due to logistics and bureaucracy involved in payment matters. The major causes of payment delay in construction projects identified include slow coordination and seeking of approval from concerned authorities, late preparation of interim valuation and inflation while lack of communication, personality clash between contractor agent and resident engineer are ranking least. It is therefore recommended that:

- i. Adequate planning and better feasibility studies should be carried out before commencement of the construction project as his will help reduce the occurrence of payment delay as the client is fully prepared for the project.
- ii. Imposing penalty of interest on late payers can help reduce payment delay on construction projects.

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