© JUN 2026 | IRE Journals | Volume 9 Issue 12 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I12-1719308

Assessment Of Factors Affecting Cost Management in Low-Cost Housing Project Delivery in Ebonyi State

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Abstract- ***This study assessed the factors affecting cost management and the challenges hindering effective cost control in low-cost housing project delivery in Ebonyi State, Nigeria. A descriptive survey research design was adopted, and data were collected from 278 construction professionals, including quantity surveyors, architects, builders, engineers, project managers, and contractors. Data were analyzed using mean score, standard deviation and ranking techniques. The findings revealed that fluctuations in construction materials prices, poor supervision and site management,ineffective communication among stakeholders, inflation, inaccurate cost estimation, and inadequate funding are the major factors affecting cost management in low-cost housing projects. The study further found that delayed release of project funds, inflation, inadequate cost monitoring systems, and frequent design changes are the major challenges hindering effective cost management. The study concludes that effective planning, proper financial management, continuous cost monitoring, and stakeholder collaboration are essential for improving cost performance and enhancing affordable housing delivery in Ebonyi State.***

Index Terms: Cost Management, Cost Control, Low-Cost Housing, Housing Project Delivery, Construction Industry, Ebonyi State

I. INTRODUCTION

Housing remains one of the fundamental needs of humanity and a critical indicator of socio-economic development. The provision of affordable and low-cost housing has become a major concern for governments, policymakers, and stakeholders in developing Countries due to rapid urbanization, population growth, and increasing housing deficits [[1].

The increasing demand for affordable housing in Nigeria has intensified the need for efficient cost management systems capable of ensuring the successful delivery of low-cost housing projects. Despite numerous government and private sector housing initiatives, many low-cost housing projects in Ebonyi State continue to experience cost overruns, delays, and quality deficiencies arising from ineffective cost management practices [2].

Housing is at the centre for many socio-economic activities and an element for measuring human development and urban growth. The need for continuous housing provision in any society is to ensure that adequate shelter is accessible to an ever-increasing population and enhance healthy and productive living amongst others. [3].

It is for this reason that many governments across the globe are unrelenting in their efforts to ensure adequate housing provision for the populace and particularly to those who without certain interventions cannot access adequate housing.

However, access to adequate housing is a current and growing problem across the country. In many cases, the cost of adequate housing is too expensive because incomes are relatively low and housing supply is limited. As a means to address the problem challenging adequate housing particularly for the low and middle-income groups, successive governments across the country have developed various strategies to meet housing needs.

Low-cost housing has evolved in Nigeria as one of the intervention strategies adopted by governments to address the issue of housing needs, particularly for low and middle-income earners [4]. However, the concept of income group classification has no

universal definition, as meanings may differ between countries reflecting differing national economies [5].

Low-cost housing in Ebonyi State is considered a non- profit driven venture but a social service for meeting the shelter needs of the low and middle-income population.

A body of documented literature [6] identifies various challenges affecting low-cost housing provision. Such problems include inadequate access to finance, unavailability and the high cost of land, lack of and inappropriate frameworks, poor project cost performances, ineffective policies and poor infrastructure to list a few.

Consequently, studies by [6,7] in India, Nigeria, and UAE respectively have highlighted poor project cost performances as a driving factor contributing to the high cost of low-cost housing. This high cost has further undermined the affordability of projected target beneficiaries. Some factors driving poor cost performances are identified in the literature.

These include: design changes, variation orders, unstable market trends, poor financial/cost forecasting, poor cost planning and estimating systems and poor contract/site management to mention a few [8,9].

However, several strategies associated with technology, procurement, management and policy approaches have been identified to help address the issue of poor cost performances, however, employing effective project cost management is proffered as a salient mitigating measure [10,11].

Project cost management is described as a process aimed to deliver effective cost performances through strategies and techniques that generate information to support early and effective decision making, stimulate cost reductions and provide value to the client [12].

Despite the growing importance of affordable housing provision, there is limited empirical evidence on the specific factors affecting cost management in low-cost housing project delivery in Ebonyi State.

Most existing studies have focused on housing projects at the national level or in other regions of Nigeria, creating a knowledge gap regarding the peculiar challenges encountered within the State's construction environment.

Consequently, there is a need to assess the factors affecting cost management in low-cost housing project delivery in Ebonyi State with a view to identifying critical challenges and recommending strategies for improving cost performance and enhancing affordable housing delivery.

The findings of this study are expected to provide valuable insights for government agencies, housing developers, quantity surveyors, project managers, and other construction stakeholders involved in housing development. It will also contribute to the body of knowledge on construction cost management and support policy formulation aimed at improving the efficiency and sustainability of low-cost housing projects in Ebonyi State and Nigeria as whole.

II.LITERATURE REVIEW

Major Factors Affecting Cost Management in Low-Cost Housing Project Delivery in Ebonyi State Cost management is a critical component of successful low cost housing project delivery because it ensures that projects are completed within budget while maintaining the required quality standards.

Literature indicates that several factors several factors significantly influence cost management performance in housing projects, particularly in developing Countries such as Nigeria. One of the most significant factors is inaccurate cost estimation and budgeting, poor estimation during the planning stage often results in budget overruns and financial difficulties during project execution [1].

Another major factor is fluctuation in the prices of construction materials. The continuous rise in the cost of cement, steel reinforcement, roofing materials, and other building inputs significantly affects housing project budgets. Since materials account for a substantial proportion of total construction costs, sudden market price changes often lead to cost escalation and project delays [13].

Poor project planning and scheduling also contribute to ineffective cost management. Inadequate planning often results in inefficient resource allocation, rework, delays, and wastage, all of which increase project costs. [13] emphasized that proper planning and integration of project activities are essential for achieving cost efficiency in construction projects.

Other includes material waste and rework, project team competence and managerial capacity, economic instability and inflation, short duration of the contract period, lack of communication between parties and poor on-site management...

Challenges Hindering Effective Cost Control in Low-Cost Housing Projects

Cost control refers to the continuous monitoring and regulation of project expenditures to ensure that actual costs remain within approved budgets. Despite its importance, several challenges hinder effective cost control in low-cost housing projects.

A major challenge is scope changes and design modifications during construction. Frequent alterations to project specifications often result in additional work, material requirements, and labour costs. Such changes disrupt original budgets and make effective cost control difficult [14] Another significant challenge is poor financial management and inadequate funding.

Delayed release of project funds often causes work interruptions, contractor claims, and project delays, which eventually increase overall project costs. Cashflow problems are particularly common in public sector housing projects [14].

Inadequate cost monitoring and reporting systems also hinder effective cost control. Many construction organisations still rely on traditional cost tracking methods, which may not provide real time information for decision making. Consequently, cost deviations are often detected too late to implement corrective measures [13] A further challenge is poor coordination among project stakeholder, including clients, consultants, contractors, and suppliers.

Ineffective communication can lead to misunderstandings, delays in approvals, procurement inefficiencies, and duplication of work, all of which contribute to cost overruns [15].

Others are inflation and market uncertainty, technological limitations and resistance to innovation, material wastage, theft, and inefficient resource utilization, and poor coordination among project stakeholders

III. MATERIALS AND METHODS

This study adopted a quantitative research approach using a descriptive survey research design. The survey design was considered appropriate because it enabled the collection of data from construction professionals involved in low-cost housing project delivery in Ebonyi State regarding the factors affecting cost management and the challenges hindering effective cost control.

The design facilitated the gathering of opinions from a large number of respondents and provided a basis for statistical analysis and generalization of findings.

The study was conducted in Ebonyi State, Nigeria. Ebonyi State is located in the South-East geopolitical zone of Nigeria and has witnessed increasing housing development activities by both public and private sector organizations. The State was selected because of the growing demand for affordable housing and the need to ensure effective cost management in low-cost housing project delivery.

The target population comprised construction professionals directly involved in low-cost housing project delivery in Ebonyi State. These included Quantity Surveyors, Architects, Builders, Engineers, Project Managers, and Contractors working in government ministries, housing agencies, consutancy firms, and construction companies.

The total population for the study was 911 professionals obtained from relevant professional bodies and construction organizations operating within the State. The sample size for the study was determined using the Yamane (1967) formula; therefore, a sample size of 278 respondents was adopted for the study.

A stratified random sampling technique was employed to ensure adequate representation of the various categories of construction professionals involved in housing project delivery. The study utilized primary data obtained through the administration of structured questionnaires.

The questionnaire was designed based on variables identified from previous literature on cost management and cost control in construction projects. The primary instrument for data collection was a structured questionnaire divided into three sections: section A based on demographic characteristics of respondents, section B based on factors affecting cost management in low-cost housing projects and section C based on challenges hindering effective cost management in low-cost housing projects. Responses were measured using a five-point Likert scale from 5 to 1.

The questionnaire was subjected to face and content validity by experts in Quantity Surveying, Construction Management, and research Methodology. Their comments and suggestions were incorporated to improve the clarity, relevance, and adequacy of the instrument.

The reliability of the instrument was assessed using Cronbach's Alpha coefficient, the reliability coefficients exceeded the minimum acceptable threshold of 0.70, ranging from 0.862 to 0.879, indicating that the instrument was reliable for data collection. Copies of the questionnaire were administered directly to the selected respondents with the assistance of trained research assistants.

Out of the 278 questionnaires distributed, 203 questionnaires were retrieved and found suitable for analysis, representing a response rate of 73%. Data collected were coded and analysed using the Statistical Package for Social Sciences (SPSS) Version 26. The following statistical tools were employed; Frequency counts and percentages for demographic data and mean item score and standard deviation for answering the research objectives and ranking analysis to determine the relative importance of identified factors and challenges.

IV. RESULTS AND DISCUSSION

Table 1 offers a comprehensive demographic of 203 respondents engaged in low-cost housing project development across many Local Government Areas (LGAs) in Ebonyi State, Nigeria. The results on the years of establishment of firms show that 20 (9.9%) have been in operation for 1-5 years, 53 (26.1%) for 6-10 years, 74 (36.5%) for 11-15 years, 45 (22.2%) for 16-20 years, and 11 (5.4%) for more than 20 years.

The findings indicate that the majority of the firms (58.7%) have been operating for 11-20 years, suggesting that most respondents are from well-established organizations with substantial industry experience. The results indicate that of the 203 respondents surveyed, 70 (34.5) were engineers, 59 (29.1%) were quantity surveyors, 48 (23.6%) were developers, 18 (8.9%) were builders, while estate officers and architects accounted for 4 respondents (2.0%) each).

Table 1 show that out of the 203 respondents, 65 (32.0%) possessed qualifications at the graduate level, while 138 (68.0%) possessed post graduate qualifications. Table 1 reveals that out of the 203 respondents surveyed, 151 (74.4) indicated that they are knowledgeable about cost management practices in low-cost housing projects, while 52(25.6%) reported that they are not knowledgeable. The findings indicate that a substantial majority of the respondents possess knowledge of cost management practices in low-cost housing delivery.

Table 1: Background Information of Respondents

Variable	Category	Frequency	Percentage
Years of establishment of firms:			9.9
	1-5	20	
	6-10	53	26.1
	11-15	74	36.5
	16-20	45	22.2
	Above 20	11	5.4
	Total	203	100.0
Discipline	Estate Officer	4	2.0
	Quantity	59	29.1

	surveyor		
	Builder	18	8.9
	Engineer	70	34.5
	Architect	4	2.0
	Developer	48	23.6
	Total	203	100.0
Highest academic qualification	Graduate level	65	32.0
	Post Graduate level	138	68.0
	Total	203	100.0
Knowledge of cost management practice in Low-cost housing	Knowledgeable	151	74.4
	Not Knowledgeable	52	25.6
	Total	203	100.0

Major Factors Affecting Cost Management in Low-Cost Housing Project Delivery in Ebonyi State

The results in Table 2 indicates that all the identified factors significantly affect cost management in low-cost housing project delivery in Ebonyi State, with mean scores ranging from 3.98 to 4.62. Fluctuation in construction material prices ranked first with a mean item score of 4.62, followed by supervision and site management with a mean item score of 4.55, while material wastage and rework ranked tenth with a mean item score of 3.98.

The average mean of 4.31 shows strong agreement among respondents that these factors substantially influence cost management performance in low-cost housing projects. The findings support the work of [13] who identified cost estimation, project planning, and budgeting as critical factors influencing cost management in housing projects.

Their study emphasized that effective planning and cost reporting systems are essential for maintaining project costs within approved budgets. The result is also consistent with [14] who found that material price volatility, inflation, and financial constraints are among the leading causes of cost overruns in construction projects globally.

Their systematic review revealed that economic uncertainties significantly affect project cost performance, particularly in developing economies. Furthermore, the finding concerning material wastage and rework agrees with [15] who reported that waste related factors contribute substantially to construction cost overruns.

According to the authors, poor workmanship, excessive material usage, and construction errors increase project expenditure and reduce cost efficiency. Generally, the findings suggest that improving cost estimation techniques, strengthening financial planning, stabilizing material procurement strategies, and enhancing project planning processes are critical for improving cost management performance in low-cost housing projects in Ebonyi State.

Table 2: Major Factors Affecting Cost Management in Low-Cost Housing Project Delivery in Ebonyi State

S/N	Identified Factors	Mean Score	Std. Dev.	Rank	Decision
1	Fluctuation in construction material prices	4.62	0.58	1st	Significant
2	Poor supervision and site management	4.55	0.61	2nd	Significant
3	Ineffective communication among stakeholders	4.49	0.64	3rd	Significant
4	Inflation and economic instability	4.42	0.69	4th	Significant
5	Inaccurate	4.36	0.7	5th	Significa

	cost estimation and budgeting		1		nt
6	Inadequate funding and delayed payments	4.28	0.75	6th	Significant
7	Shortage of skilled construction personnel	4.21	0.78	7th	Significant
8	Poor project planning and scheduling	4.15	0.81	8th	Significant
9	Design changes during project execution	4.07	0.83	9th	Significant
10	Material wastage and rework	3.98	0.86	10th	Significant
	Average Mean	4.31			

Challenges Hindering Effective Cost Control in Low-Cost Housing Projects InEbonyi State

The findings presented in Table 3 reveal that all the identified challenges significantly hinder effective cost control in low-cost housing projects in Ebonyi State. Delayed release of project funds ranked highest with a mean item score of 4.58, followed by inflation and market uncertainty with a mean item score of 4.51, while limited adoption of cost management technologies ranked lowest with a mean item score of 3.96.

The average mean of 4.27 indicates a strong consensus among respondents that these challenges adversely affect cost control efforts in housing project delivery. The findings align with [16] who observed that inadequate cost monitoring systems remain a major challenge in construction projects.

It emphasized that organizations that fail to implement effective cost control mechanisms are more likely to experience budget overruns and poor project performance. The result concerning design changes supports the findings of [14] who identified scope changes as one of the most frequent causes of construction cost overruns worldwide. Design modifications often require additional resources and time, thereby increasing project costs.

The findings on poor stakeholder coordination is consistent with [13], who argued that successful cost management depends largely on effective integration and communication among project participants, poor collaboration often results in misunderstandings, delays, and inefficient resource utilization.

Table 3: Challenges Hindering Effective Cost Control in Low-Cost Housing Projects InEbonyi State

S/N	Identified Challenges	Mean Score	Std. Dev.	Rank	Decision
1	Delayed release of project funds	4.58	0.60	1st	Significant
2	Inflation and market uncertainty	4.51	0.64	2nd	Significant
3	Inadequate cost monitoring and reporting systems	4.44	0.68	3rd	Significant
4	Frequent design modifications and scope changes	4.38	0.71	4th	Significant
5	Poor coordination among project stakeholders	4.29	0.74	5th	Significant
6	Material wastage, theft and	4.24	0.76	6th	Significant

	pilferage				
7	Weak procurement management practices	4.18	0.80	7th	Significant
8	Poor record keeping and documentation	4.10	0.83	8th	Significant
9	Inadequate risk management practices	4.05	0.85	9th	Significant
10	Limited adoption of cost management technologies	3.96	0.89	10th	Significant
	Average Mean	4.27			

V. CONCLUSION

Based on the findings, the study concludes that both the factors affecting cost management and the challenges hindering cost control are interrelated and collectively influence the successful delivery of low-cost housing projects in Ebonyi State.

Economic factors such as inflation and material price fluctuations, together with managerial issues such as poor planning, inadequate funding, weak monitoring systems, and stakeholder coordination problems, constitute the major impediments to efficient project cost performance.

Therefore, a comprehensive approach involving effective planning, robust financial management, continuous cost monitoring, stakeholder collaboration, and the adoption of innovative cost management practices is necessary to improve the affordability, sustainability, and successful delivery of low-cost housing projects in Ebonyi State.

Implication of the Findings

The findings from objectives one and two collectively demonstrate that both internal project management factors and external economic conditions significantly affect cost management and cost control in low-cost housing project delivery in Ebonyi State.

While factors such as inaccurate estimation, inadequate funding, poor planning directly influence project costs, challenges such as weak monitoring systems, inflation, stakeholder conflicts, and design changes further hinder effective cost control.

Therefore, improving project planning, strengthening financial management technologies, and implementing robust cost monitoring systems are essential for achieving successful and affordable low-cost housing project delivery in Ebonyi State.

ACKNOWLEDGEMENTS

The authors are grateful to colleagues and professionals who offered intellectual support and helpful feedback throughout the research process.

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