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EFFECT OF CONVENTIONAL PROCUREMENT METHODS ON PROPERTY DEVELOPMENT PRACTICES IN SOUTHWEST NIGERIA

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Abstract

Persistent inefficiencies in construction project delivery, particularly in cost control, time performance and quality assurance, have continued to challenge property development practices in Southwest Nigeria. Despite the growing availability of alternative procurement systems, conventional procurement methods remain dominant, raising concerns about their suitability for addressing the complexities of modern property development. This study therefore examined the effect of conventional construction procurement methods on property development practices in Southwest Nigeria. The study employed survey research design which involves the use of structured questionnaire for data collection. The population comprised 4,410 professionals drawn from 89 registered property development firms across six

Keywords: Procurement, conventional procurement methods, property, property development, property development practices

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capital cities in Southwest Nigeria. Using the Krejcie and Morgan sampling approach, a sample size of 372 was determined. Simple random sampling was adopted to select respondents from each professional category in each location. A total of 258 completed copies of questionnaire were retrieved, representing a response rate of 69.4 percent. Data were analysed using Partial Least Squares Structural Equation Modelling. Findings revealed that certain conventional procurement methods significantly influence property development practices, particularly competitive negotiation (β = 0.274, t = 4.264), and target cost procurement (β =0.273, t = 4.855). The study concludes that conventional construction procurement methods have varying degrees of influence on property development practices. Certain conventional methods demonstrate meaningful positive effects on property development performance, while others do not significantly enhance outcomes. Thus, the study recommends that professional practice standards should be strengthened to improve transparency, competency and procedural clarity in negotiation processes.

Introduction

The construction industry is widely acknowledged for its major role in driving economic growth, serving as a key force behind infrastructure development and urbanization; it contributes significantly to GDP and employment creation particularly in developing countries (Cucos & Turcan, 2025). However, despite its relevance, the shortcomings in how construction projects are procured and executed remain a major concern for stakeholders, particularly in developing economies where projects often experience delays, cost overruns, and compromised quality (Israel, 2023). This menace is particularly noticeable in Southwest Nigeria, where property development has expanded rapidly due to population growth, urbanization, and rising demand for housing and commercial spaces (Afolabi et al., 2025; Equere, et al., 2021). Thus, increasing the need for more effective procurement strategies to improve project delivery and resource use.

Procurement involves sourcing, acquiring, and managing resources such as materials, equipment, subcontractors, and professional services (Kumar, 2025). Construction procurement methods refers to the system and processes through which clients obtain the services of professionals, contractors, subcontractors, and suppliers necessary for the successful completion of projects (Windapo et al., 2021). Globally, construction procurement are broadly classified into two; namely conventional procurement methods and non-conventional procurement methods. One significant concern is the widespread use of conventional procurement methods, despite their well-documented shortcomings.

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The DBB method, for instance, involves a sequential process where the design phase is completed before the tendering process for construction begins. While this method has been long established, it often results in fragmented communication, prolonged project timelines, cost overruns, disputes between the clients, contractors and consultants, and delays especially in complex and large-scale projects (Patrucco et al., 2023).

Conventional procurement methods are often marked by inefficiencies in the Southwest region, as they are increasingly being scrutinised for their inability to deliver on the demands of modern construction projects (Aje et al., 2018). These problems are indicative of a more profound issue and the inadequacy of conventional procurement methods to meet the evolving needs of the construction industry. By contrast, non-conventional methods, such as DB, offer the potential to streamline processes by integrating design and construction, thereby reducing delays and enhancing communication among stakeholders (Shen et al., 2017).

Against this backdrop, it becomes expedient to examine how conventional procurement methods influence not just the delivery of projects, but the broader property development landscape in Southwest Nigeria. This study provided insights into the strengths and limitations of conventional procurement methods, and informed stakeholders on the need for improved procurement strategies that can enhance efficiency, reduce project risks, and support sustainable development in the region.

Statement of the Problem

The persistent adoption of traditional procurement methods negatively impacts property developers, contractors, consultants, and even clients, who experience delays, increased costs, and poor-quality outcomes (Oladirin et al., 2013; Aliu et al., 2022). Developers in Southwest Nigeria struggle to meet the growing demand for housing and infrastructure, leading to a slowdown in economic development (Obianyo et al., 2021). If these procurement inefficiencies are not addressed, the construction sector will remain stunted, with further exacerbation of delays and cost overruns, ultimately hindering the broader socio-economic development goals of the region (Aputo, 2018; Patrucco et al., 2023).

Several studies have explored the impact of Construction Procurement Methods on project performance. Research has shown that while traditional procurement methods like DBB can manage costs effectively, they often lead to project delays and poor adaptability to market changes (Ali et al., 2023). Inuwa et al. (2014) found that property developers in Nigeria often fail to embrace non-conventional procurement methods, resulting in suboptimal project outcomes. Patrucco et al. (2023) and Zhang and Gao (2023) examined procurement methods in other regions but did not fully address how local dynamics in Southwest Nigeria shape procurement decisions. Conventional procurement

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methods and its contribution to property development practices in Southwest Nigeria remain underexplored. Thus, this study examined the effect of conventional procurement methods on property development practices in Southwest Nigeria.

Objectives of the Study

The general objective of this study is to assess conventional procurement methods with a view to enhancing property development practices in Southwest Nigeria.

The specific objective of the study is to:

i. examine the effect of conventional procurement methods on property development practices in Southwest Nigeria.

Procurement of Construction Materials

By integrating concepts from both PMBOK and PRINCE2, the study delineates the following detailed sequence of steps involved in sustainable procurement:

i. Pre-procurement: The procurement process begins with pre-procurement decisions, where project leaders critically evaluate potential outsourcing scenarios. This initial phase involves a thorough examination of the risks and benefits associated with different scenarios. The decision-making board plays a crucial role in analyzing potential sellers against predefined criteria, ultimately selecting the most suitable outsourcing scenario (Cozzio, 2022). Once the scenario is chosen, the procurement team is entrusted with implementing the decision, ensuring that the process aligns with the project's strategic objectives.
ii. Plan procurement: In the planning phase of procurement, collaboration with stakeholders becomes essential. This step involves meticulously specifying and planning the details of the project purchase. The process aims to elucidate the scope of work required for the delivery of supplies, identifying the requirements and making necessary arrangements for procuring items from external sources. Additionally, this phase includes the preparation and submission of documents to potential sellers and the establishment of source selection criteria, which guide the subsequent evaluation and selection of suppliers (Mehkri, 2024).
iii. Conduct procurement: During the conduct procurement phase, the focus shifts to ensuring that all actions taken by involved parties align with predetermined specifications. Key activities in this phase include receiving proposals, declaring prices, and selecting the most suitable sellers. The supplier selection process, often referred to as source selection, involves a detailed assessment of the plans proposed by sellers, ultimately leading to the selection of the best-case scenario. This phase also includes negotiations and agreement on contract terms, culminating in the awarding of the contract to the chosen seller. The contract

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serves as a pivotal document, ensuring the supplier's adherence to all responsibilities related to on-target supply delivery (Ishak & Thiruchelvam, 2024).

iv. Control procurement: The control procurement phase involves a comprehensive evaluation of the work performed by the supplier. The procurement team actively manages interfaces with suppliers' representatives and initiates corrective actions as necessary. A critical function of the procurement team at this stage is to provide project leaders with timely information and status reports, enabling informed decision-making. This process includes supervising contract performance, incorporating amendments when needed, and exercising control to prevent deviations from the performance baseline. The administration of the procurement contract ensures that each party adheres to their contractual obligations, with any issues being addressed through negotiation and arbitration mechanisms (Mehkri, 2024).

v. Close procurement: The final step in the procurement process is the close procurement phase. This involves the approval of procured products or services, meticulous documentation, and the formal closure of the contract once all obligations have been satisfactorily fulfilled. The procurement team plays a crucial role in ensuring the finalization of claims and documenting lessons learned for future implementation. Once the supplies are delivered and project leaders express satisfaction with the output, final documentation is collated and archived for future reference (Mehkri, 2024).

Principles of Successful Project Procurement Process

Several principles that contribute to the seamless operation of the project procurement process are outlined below:

i. Tailoring the project procurement procedure to the specific scale and nature of individual projects allows for flexibility in response to unique requirements and standards.

ii. Clear articulation of the roles and responsibilities within the procurement team enhances efficiency and accountability, ensuring that each member understands their contribution to the process.

iii. Advanced clarification of technical specifications and quality requirements from the outset helps to define expectations clearly, minimizing the risk of misunderstandings later in the project. Acknowledging risks and uncertainties in contract documents allows for contingencies to be planned, ensuring that the project can adapt to unexpected outcomes.

iv. Finally, maintaining strict controls to identify deviations and take timely corrective actions is critical for ensuring that the procurement process remains aligned with

project goals and objectives. This proactive approach helps to address any issues before they escalate into significant delays or deviations, ultimately contributing to the successful delivery of construction projects (Kous, 2023).

Property Development Practices

Property development practices play a crucial role in human life quality and significantly impacts both the environment and social aspects (Godfrey et al., 2019; Saliu & Akiomon, 2022). Viewed as a functional space providing shelter and facilitating domestic activities such as sleeping, leisure, and rest (Fadlalla, 2011), the importance of sustainable practices in housing development becomes evident. Sustainable housing development, when measured in terms of cost, quality, time, and client satisfaction, goes beyond meeting basic shelter needs; it addresses environmental and social performance, thereby enhancing the well-being of families (Obrenovic et al., 2020).

Considering the extensive environmental effects of construction phases, achieving sustainability in housing development requires a holistic approach throughout design, construction, and maintenance phases (John et al., 2023). Sustainable housing development aims at promoting efficient energy use, incorporating technologies and designs to deliver homes with lower or zero carbon emissions (O'Malley et al., 2020).

Various strategies contribute to achieving sustainable property development practices, including the adoption of green building practices by housing developers. This involves utilizing renewable energy sources, implementing water conservation measures, and advocating for mixed-use development that combines residential and commercial facilities (Adabre & Chan, 2019; Bibri et al., 2020). Increasing housing density is another strategy highlighted by Adabre and Chan (2019) and Rauterkus and Miller (2011) to reduce the amount of land required for development. Additionally, investing in green infrastructure, such as green roofs, and promoting eco-friendly building materials like recycled materials and low-VOC paints, aids in minimizing construction-related environmental impacts (Alemaw et al., 2020; Sharma & Jha, 2021).

Sustainable housing development comes with several features and holds significant importance for communities. It often integrates elements that enhance walkability, access to public transportation, green spaces, and other amenities (Rauterkus & Miller, 2011). This not only reduces the environmental impact of housing but also conserves resources and creates healthier living environments. Moreover, it contributes to energy cost reduction, improved air quality, and reduced water usage (Wan et al., 2019). Sustainable housing development can foster more resilient communities, mitigating the risk of displacement due to climate change (Ragheb et al., 2016). Finally, it promotes more equitable and affordable housing options for all (Adabre & Chan, 2019). The implementation of sustainable practices in property development practices when

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evaluated based on cost-effectiveness, quality assurance, timely delivery, and client satisfaction, holds the potential to revolutionize the construction industry in Southwest Nigeria.

Empirical Review

The study of Ghadamsi and Braimah (2016) investigated 'The impact of the DBB procurement method on project performance in Libya'. The paper presented an approach for selecting appropriate procurement methods to enhance overall project performance. The methodology combines an extensive review of relevant literature with a semi-structured questionnaire survey. Findings indicated that 11 out of 12 commonly used selection criteria significantly influence one or more key project performance indicators namely time, cost, and quality. The research highlighted the method's suitability for projects where design accuracy and compliance with regulatory standards are critical. The study concluded that DBB procurement method significantly influences project outcomes, particularly in terms of cost control and quality assurance. Therefore, project clients are advised to prioritise these criteria when choosing the design-bid-build procurement method. Furthermore, the understanding of which criteria positively impact project performance enables clients to identify and implement effective strategies both before and during construction, thereby improving the likelihood of successful project outcomes.

Kariuki et al. (2025) explored the 'Effect of contract procurement methods on the performance of public construction projects in Kenya: A case of Kiambu County'. The study adopted a quantitative research approach based on a survey design. Data were gathered through questionnaire administered across 158 projects, targeting professionals such as procurement officers, architects, quantity surveyors, and civil engineers. The collected data were analysed using descriptive statistics and correlation analysis. The findings showed that the Traditional Design-Bid-Build (DBB) method is the most widely used procurement approach, accounting for 88.6% of usage. Among the performance indicators, value for money ranked highest at 75.8%, while project timeliness recorded the lowest performance at 53.4%. Correlation analysis identified ten statistically significant relationships between procurement methods and project performance, comprising six positive and four negative correlations. Specifically, DBB exhibited negative relationships with timeliness ($\rho = -0.423$) and quality ($\rho = -0.280$), whereas the Design and Build method showed a positive correlation with timeliness ($\rho = 0.296$). The study concluded that Traditional DBB method which remain dominant has adverse effects on project timeliness and quality in the study area. Public sector projects in Kiambu County tend to achieve satisfactory value for money but face challenges in meeting delivery timelines. The study therefore recommended the adoption of hybrid procurement approaches, the

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implementation of e-procurement systems, and the strengthening of contractor prequalification procedures to enhance overall project performance.

Similarly, Kariuki and Wanyona (2023) conducted a study on an 'Evaluation of the effectiveness of contract procurement methods on the performance of construction projects'. The study sought to develop a procedure for selecting effective procurement methods based on the past performance of contracts. A survey approach was used, as the research aimed to collect insights and experiences from a natural, non-interactive setting. Copies of questionnaire were administered to architects, quantity surveyors, project managers, engineers and procurement officers who are the main decision makers in the industry during the conception of a project. The procurement methods examined included design and build, the traditional method, management procurement, and collaborative approaches. Findings revealed that traditional procurement method is heavily employed, followed by construction management, public private partnership and directly managed respectively. Turnkey, design and build and hybrid systems are least used in the industry. This could be due to the risk factor to the client. Key factors influencing the choice of procurement method were identified as fixed contract price, design flexibility, and the level of risk allocation. Analysis of performance indicators showed that quality of workmanship ranked highest, followed by timely delivery and completion within the agreed contract cost. The study also identified several barriers to adopting alternative procurement methods, such as practitioners' resistance to change, lack of standardization, limited contractor capacity, and insufficient resources. The study found that that providing contractors with a clear yet flexible framework increases the likelihood of project success. The study concluded that, traditional procurement method is prevalent, adopted by majority of the consultants and clients as the main procurement method despite of its criticism of lengthy durations and cost overruns coupled with adversarial relationships among parties. The research highlighted the absence of an objective system for evaluating how different procurement methods impact project performance. Hence, the study recommended the development of a more objective, transparent, and project-specific approach to procurement. It emphasizes the need to move beyond traditional methods by adopting a more effective framework that ensures efficient acquisition and successful delivery of construction projects. Also, clients should adopt well-defined strategies when selecting procurement methods.

Ojo et al. (2006) carried out a study on 'The performance of traditional contract procurement on housing projects in Nigeria'. Specifically, the study examined the time and cost performance of the traditional contract procurement of housing projects covering different cost ranges in Nigeria. The study was conducted on 57 government-initiated housing projects in Nigeria between 1993 and 1999, covering different cost ranges. The findings revealed that projects valued between one and five million naira

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(with an exchange rate of US$1 to ₦92 in 1999) experienced the lowest time overrun at 18.98%, whereas projects in the five to ten million naira range recorded the highest time overrun at 99.64%. In terms of cost performance, projects exceeding ten million naira had the lowest cost overrun at 9.13%, while those below one million naira experienced the highest cost overrun at 34.55%. Additionally, a weak relationship between time and cost overruns was observed in the one to five million naira category, whereas a strong correlation was found in projects costing five million naira and above. The study concluded that project in one to five million naira cost category is particularly well-suited to the use of traditional contract procurement for housing projects in Nigeria than the other higher cost categories. The study recommended that every effort should be made to minimize time delays in housing projects within this cost range in order to reduce cost overruns, through the strict enforcement of contractual procedures and agreements.

Also, Okereke et al. (2022) investigated the 'Impact of traditional procurement system on construction project delivery'. The study assessed the influence of the traditional procurement system on construction project parameters and identified the factors responsible for the poor bottom lines of traditionally procure construction projects. The study employed questionnaire survey method. Questionnaire was administered to 118 construction experts such as engineers, builders, architects and quantity surveyors using a purposive sampling technique. The data collected achieved a reliability index exceeding 0.800, which were analysed using descriptive statistics. The findings revealed that projects executed through the traditional procurement system have the most significant impact on project time performance, followed by cost and quality. Furthermore, poor performance in time, cost, and quality was attributed to key factors such as rework, inadequate initial planning and unrealistic scheduling, ineffective communication among project participants, shortage of skilled personnel, insufficient training of available staff, and issues related to design and documentation. The study concluded that unless a shift is made toward modern and more advanced procurement systems for delivering construction assets, project performance in the sector will continue to deteriorate. The study therefore recommended that project clients and consultants exercise due diligence in selecting procurement methods to ensure optimal value delivery and the achievement of project objectives. Additionally, a transition away from the traditional system toward the adoption of modern, digital, and smart technologies is recommended.

Moreover, RE and Osita (2021) conducted an 'Evaluation of procurement systems for project success in real estate construction in Onitsha Anambra State, Nigeria'. The study assessed procurement systems in relation to project success in real estate developments, with a focus on identifying the most commonly used systems in Onitsha metropolis and examining their connection to project outcomes. A total of 140 key stakeholders, including clients, consultants, and contractors, participated in the survey, and the data

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were analysed using a descriptive approach. The study also identified factors influencing the selection of procurement systems in real estate project delivery. The findings revealed that the traditional procurement system remains the most familiar and widely adopted in Onitsha metropolis, followed by the design-and-build approach. Among the factors guiding the choice of procurement method, cost optimization ranked highest, with project objectives coming next. The results further showed a clear relationship between procurement systems and project success. The study concluded that most consultants and contractors are familiar with the traditional procurement system as it is still the best known and applied in the real estate construction sector within Onitsha metropolis. Thus, the study recommended that consultants should provide clients with adequate guidance on available procurement options, and that the roles and responsibilities of all project participants should be clearly defined to enhance project performance.

Furthermore, Salami (2024) investigated 'The impact of the traditional method of procurement on the estimated cost and time efficiency in building construction projects in Federal Capital Territory (FCT), Abuja, Nigeria'. The study examined how contractor selection procedures affect project outcomes. Data were gathered through a quantitative approach using questionnaire, 158 copies were distributed, while 118 copies were returned, yielding a 75% response rate. Analysis was conducted using mean item scores and t-tests. Findings indicated that all factors influencing the adoption of traditional procurement methods were moderately significant, with mean scores above 3.00. Among the perceived benefits, the presence of checks and balances ranked highest, with a mean score of 3.28. The effects of traditional procurement methods varied, ranging from improved performance metrics particularly in cost and time (mean = 3.45), which ranked highest to issues such as budget overruns and cost slippage (mean = 3.05), which ranked lowest. Using a benchmark mean score of 3.00, all identified impacts were considered significant. The study concluded that to enhance the effectiveness of traditional procurement methods in terms of cost estimation and time efficiency, contractors, consultants, and other stakeholders need to implement comprehensive strategies that incorporate the identified improvement measures. Hence, the study recommended embracing modern, digital, and intelligent procurement methods. Additionally, it also emphasized the need for effective monitoring and control mechanisms, the use of suitable construction techniques, and strong collaboration among stakeholders to minimize the adverse impacts of traditional procurement practices on cost escalation and project delays.

Methodology

This study adopted a survey research design which involves the use of structured questionnaire for data collection. The population comprised 4,410 professionals drawn

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from 89 registered property development firms across six capital cities in Southwest Nigeria. Using the Krejcie and Morgan sampling approach, a sample size of 372 was determined. Simple random sampling was adopted to select respondents from each professional category in each location. The questionnaire was designed in two sections. Section 1 assessed conventional procurement methods using lump sum, measurement contract, cost reimbursement, two-stage tendering, target cost, and competitive negotiation, while section 2 assessed property development practices using economic performance, quality, environmental performance, safety of work environment, and innovation. The indicators for each of the construct employed a 5-point Likert scale ranging from strongly agree to strongly disagree, where 5 = strongly agree, 4 = agree, 3 = moderately agree, 2 = disagree, 1 = strongly disagree. The data collected were analysed using Partial Least Squares Structural Equation Modelling. The structural equation model is represented below:

Model 1 shows the effect of Conventional Procurement Methods on Property development practices in Southwest Nigeria.

$$PD = \beta_0 + \beta_1 CPM + e \quad (1)$$

$$PD = \beta_0 + \beta_2 EF + \beta_3 CR + \beta_4 CI + \beta_5 TM + \beta_6 Q + \beta_7 F + \beta_8 C + \beta_9 R + \beta_{10} P + e \quad (2)$$

Where;

PD is Property development practices, β_0 = constant term, $\beta_{1...} \beta_{10}$ is Parameter coefficient, e is error term, CPM Conventional Procurement Method, EF is External Factors, CR is Client Resources, CI is Cost Issues, and TM is Timing, Q is Quality level, F is Flexibility of changes, C is Complexity, R is Risk Avoidance, and P is Project Functionality.

Response Rate

A total of three hundred and seventy-two copies of questionnaire were administered to relevant construction and property development stakeholders within Southwest Nigeria. As presented in Table 1, two hundred and fifty-eight copies of questionnaire representing a response rate of 69.4 percent were successfully retrieved and found to be suitably completed for analysis.

Table 1: Response Rate

Item	Frequency	Percentage (%)
Copies of distributed questionnaire	372	100.0
Copies of returned questionnaire and used	258	69.4

Source: Researcher's Field Report (2026)

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Measurement Model for Conventional Construction Procurement Methods and Property Development Practices

This sub-section reports the reflective measurement model assessment for the specific objective of the study, which is to assess the effect of conventional construction procurement methods on property development practices in Southwest Nigeria. Following the confirmation of measurement quality, the model is deemed suitable for subsequent structural analysis.

In this model, the conventional construction procurement methods are operationalised through six reflective constructs drawn from the relevant section of the questionnaire: Lump Sum (bLS), Measurement Contract (bMC), Cost Reimbursement (bCR), Two-Stage Tendering (bTST), Target Cost (bTC), and Competitive Negotiation (bCN). The property development practices are measured reflectively using five constructs captured in the questionnaire under Section F: fEP, fEvP, fINN, fQU, and fSWE (as labelled in the output). The reflective measurement model is visually presented in Figure 1, while the supporting statistics are reported in Tables 1–4.

Consistent with established PLS-SEM procedures for reflective models, the assessment is presented under three key components: internal consistency reliability, convergent validity, and discriminant validity.

Internal consistency reliability and convergent validity

Table 2 presents the construct reliability and validity statistics for all constructs included in the measurement model. Two measures of internal consistency are reported which are Cronbach's alpha and composite reliability (rho_a and rho_c). For reflective measurement models, values of 0.70 and above are generally considered satisfactory, indicating that the indicators of each construct consistently measure the same underlying concept.

Across the model, the results demonstrate very strong internal consistency. Cronbach's alpha ranges from 0.864 (bLS) to 0.973 (fINN), while composite reliability (rho_c) ranges from 0.908 (bLS) to 0.980 (fINN). Importantly, *all constructs exceed the recommended threshold*, indicating that the indicators are reliable and exhibit strong coherence. In practical terms, this suggests that the items used to measure each procurement method and each dimension of property development practice work together consistently and are dependable for explaining the intended latent construct.

Table 2: Construct Reliability and Validity for Conventional Construction Procurement Method and Property Development Practices

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
bCN	0.919	0.920	0.943	0.806
bCR	0.887	0.888	0.923	0.750
bLS	0.864	0.867	0.908	0.713

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	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
bMC	0.897	0.898	0.928	0.764
bTC	0.909	0.909	0.937	0.787
bTST	0.931	0.933	0.951	0.828
fEP	0.949	0.951	0.963	0.867
fEvP	0.967	0.967	0.976	0.910
fINN	0.973	0.973	0.980	0.925
fQU	0.954	0.956	0.966	0.878
fSWE	0.967	0.968	0.976	0.910

Source: Researcher's Data Analysis (2026)

Convergent validity is assessed using the Average Variance Extracted (AVE), with the conventional threshold of 0.50 implying that a construct explains at least half of the variance in its indicators. In Table 2, AVE values range from 0.713 (bLS) to 0.925 (fINN). Since *all AVE values are well above 0.50*, the constructs demonstrate strong convergent validity. This means that the indicators for each construct share substantial common variance and adequately represent the underlying latent variable, both for procurement-method constructs and for property development practice constructs.

Overall, the evidence from Table 2 confirms that the constructs in the model are both reliable and convergently valid, thereby supporting progression to discriminant validity checks.

Discriminant validity

Discriminant validity examines whether constructs that are conceptually different are also empirically distinct. In this study, discriminant validity was assessed using three complementary approaches: cross-loadings (Table 3), the Fornell–Larcker criterion (Table 4), and the Heterotrait–Monotrait ratio (HTMT) (Table 5).

The cross-loadings reported in Table 3 indicate the extent to which each indicator correlates with its own construct relative to other constructs. For reflective measurement models, the expectation is that each indicator should load highest on its intended construct. The table shows that this condition is achieved across the model. For example, the indicators of competitive negotiation (bCN1–bCN4) load strongly on bCN (0.859–0.940), and each of these values is clearly higher than the corresponding cross-loadings on the other procurement-method constructs and on property development practice constructs. Similarly, the indicators of two-stage tendering (bTST1–bTST4) load strongly on bTST (0.878–0.933), and the indicators of the property development constructs also demonstrate the expected pattern: for instance, fINN indicators load most strongly on fINN (0.924–0.975), while fSWE indicators load most strongly on fSWE (0.951–0.960).

Although some constructs (especially among the property development practice dimensions) show moderately high cross-loadings, reflecting their conceptual relatedness, the dominant pattern remains that each item loads most strongly on its own construct, supporting discriminant validity at the indicator level.

The Fornell–Larcker criterion compares the square root of AVE for each construct (shown on the diagonal in Table 4) with its correlations with other constructs (off-diagonal entries). The criterion is satisfied when each construct's diagonal value exceeds all correlations with other constructs in the same row/column. From Table 4, the diagonal values are robust: for example, bCN = 0.898, bTST = 0.910, fEP = 0.931, fEvP = 0.954, fINN = 0.962, fQU = 0.937, and fSWE = 0.954. These diagonal values exceed the corresponding inter-construct correlations reported in the matrix. Even where correlations are relatively strong among the property development practice constructs (e.g., correlations such as fEP–fEvP = 0.853 and fINN–fSWE = 0.861), the diagonal values remain larger, indicating that each construct shares more variance with its indicators than with other constructs. This supports discriminant validity at the construct level.

To further confirm discriminant validity, the HTMT criterion is reported in Table 5. A common rule of thumb is that HTMT values should be below 0.90 (and sometimes below 0.85 for a more stringent standard). Values approaching 1.0 would indicate that two constructs may not be empirically distinct.

In Table 5, the HTMT values are generally below the 0.90 threshold. Some construct pairs are relatively high particularly among the property development practice constructs such as fEP–fEvP = 0.889 and fINN–fSWE = 0.887, which indicates strong conceptual association. However, these values still remain below 0.90, suggesting that although the constructs are related (as expected in real organisational and project environments), they are not redundant and still retain acceptable discrimination.

Therefore, the results from cross-loadings (Table 3), Fornell–Larcker (Table 4), and HTMT (Table 5) provide converging evidence that the constructs in the model demonstrate adequate discriminant validity.

Table 3: Cross loadings for Conventional Construction Procurement Method and Property Development Practices

	bCN	bCR	bLS	bMC	bTC	bTST	fEP	fEvP	fINN	fQU	fSWE
bCN1	0.859	0.698	0.583	0.653	0.691	0.728	0.581	0.581	0.612	0.652	0.599
bCN2	0.907	0.612	0.568	0.601	0.678	0.643	0.626	0.612	0.588	0.616	0.601
bCN3	0.940	0.658	0.540	0.629	0.666	0.660	0.627	0.621	0.587	0.641	0.607
bCN4	0.883	0.642	0.544	0.653	0.680	0.679	0.637	0.641	0.634	0.644	0.629
bCR1	0.615	0.875	0.557	0.625	0.615	0.597	0.519	0.565	0.574	0.588	0.549
bCR2	0.661	0.917	0.601	0.656	0.637	0.665	0.564	0.599	0.601	0.602	0.547
bCR3	0.646	0.894	0.531	0.646	0.638	0.651	0.524	0.555	0.576	0.581	0.556

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	bCN	bCR	bLS	bMC	bTC	bTST	fEP	fEvP	fINN	fQU	fSWE
bCR4	0.594	0.771	0.518	0.613	0.614	0.608	0.476	0.581	0.598	0.520	0.591
bLS1	0.473	0.483	0.761	0.504	0.481	0.519	0.479	0.417	0.491	0.459	0.462
bLS2	0.506	0.555	0.894	0.574	0.536	0.595	0.513	0.465	0.492	0.461	0.490
bLS3	0.534	0.533	0.882	0.605	0.478	0.516	0.518	0.467	0.450	0.444	0.459
bLS4	0.579	0.577	0.835	0.647	0.546	0.575	0.545	0.526	0.494	0.532	0.523
bMC1	0.636	0.688	0.685	0.843	0.619	0.626	0.588	0.617	0.562	0.579	0.591
bMC2	0.567	0.627	0.605	0.881	0.575	0.606	0.534	0.527	0.546	0.516	0.517
bMC3	0.648	0.632	0.597	0.894	0.590	0.635	0.506	0.496	0.495	0.517	0.527
bMC4	0.616	0.612	0.525	0.878	0.585	0.587	0.517	0.532	0.547	0.507	0.551
bTC1	0.704	0.722	0.589	0.631	0.856	0.756	0.594	0.619	0.653	0.651	0.650
bTC2	0.665	0.627	0.525	0.601	0.933	0.702	0.586	0.594	0.602	0.612	0.616
bTC3	0.677	0.622	0.546	0.585	0.924	0.681	0.581	0.581	0.602	0.589	0.617
bTC4	0.632	0.587	0.486	0.589	0.833	0.592	0.598	0.596	0.623	0.583	0.566
bTST1	0.631	0.681	0.630	0.634	0.689	0.878	0.524	0.553	0.574	0.545	0.578
bTST2	0.702	0.640	0.627	0.663	0.699	0.933	0.573	0.588	0.569	0.592	0.599
bTST3	0.727	0.693	0.592	0.647	0.719	0.929	0.609	0.653	0.617	0.629	0.615
bTST4	0.684	0.639	0.537	0.614	0.703	0.899	0.554	0.589	0.568	0.576	0.553
fEP1	0.669	0.624	0.586	0.638	0.657	0.642	0.905	0.812	0.784	0.791	0.778
fEP2	0.670	0.584	0.585	0.569	0.626	0.582	0.957	0.807	0.744	0.779	0.725
fEP3	0.585	0.493	0.519	0.524	0.574	0.497	0.935	0.761	0.674	0.735	0.672
fEP4	0.634	0.534	0.576	0.557	0.614	0.584	0.926	0.791	0.715	0.777	0.729
fEvP1	0.684	0.655	0.517	0.591	0.656	0.628	0.842	0.927	0.797	0.818	0.770
fEvP2	0.647	0.615	0.523	0.599	0.652	0.630	0.826	0.965	0.782	0.810	0.792
fEvP3	0.659	0.642	0.542	0.604	0.640	0.640	0.786	0.965	0.782	0.792	0.795
fEvP4	0.620	0.624	0.546	0.590	0.625	0.603	0.798	0.959	0.783	0.781	0.776
fINN1	0.697	0.663	0.592	0.623	0.713	0.623	0.757	0.791	0.924	0.816	0.830
fINN2	0.637	0.652	0.535	0.604	0.672	0.627	0.771	0.793	0.973	0.835	0.821
fINN3	0.637	0.649	0.534	0.584	0.660	0.621	0.742	0.796	0.975	0.822	0.832
fINN4	0.618	0.644	0.534	0.558	0.643	0.589	0.749	0.786	0.974	0.803	0.827
fQU1	0.718	0.630	0.592	0.610	0.684	0.655	0.788	0.766	0.773	0.930	0.781
fQU2	0.687	0.634	0.561	0.564	0.648	0.624	0.769	0.772	0.812	0.947	0.763
fQU3	0.608	0.595	0.459	0.534	0.603	0.545	0.762	0.805	0.801	0.936	0.775
fQU4	0.645	0.622	0.490	0.568	0.637	0.583	0.788	0.807	0.810	0.935	0.796
fSWE1	0.689	0.646	0.544	0.625	0.694	0.634	0.760	0.799	0.825	0.802	0.951
fSWE2	0.644	0.601	0.541	0.564	0.654	0.602	0.725	0.766	0.818	0.785	0.960
fSWE3	0.635	0.606	0.543	0.601	0.650	0.600	0.751	0.774	0.815	0.795	0.951
fSWE4	0.621	0.617	0.565	0.604	0.638	0.624	0.746	0.793	0.829	0.788	0.954

Source: Researcher's Data Analysis (2026)

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Table 4: Fornell-Larcker criterion for Conventional Construction Procurement Method and Property Development Practices

	bCN	bCR	bLS	bMC	bTC	bTST	fEP	fEvP	fINN	fQU	fSWE
bCN	0.898										
bCR	0.727	0.866									
bLS	0.622	0.638	0.845								
bMC	0.707	0.734	0.693	0.874							
bTC	0.756	0.723	0.607	0.679	0.887						
bTST	0.755	0.729	0.655	0.703	0.772	0.910					
fEP	0.689	0.603	0.610	0.617	0.666	0.622	0.931				
fEvP	0.685	0.665	0.558	0.625	0.675	0.656	0.853	0.954			
fINN	0.675	0.679	0.572	0.617	0.700	0.640	0.786	0.824	0.962		
fQU	0.711	0.663	0.564	0.608	0.688	0.645	0.829	0.839	0.852	0.937	
fSWE	0.679	0.648	0.575	0.628	0.692	0.645	0.782	0.821	0.861	0.831	0.954

Source: Researcher's Data Analysis (2026)

Structural Path Analysis for Conventional Construction Procurement Methods and Property Development Practices

This sub section evaluates the structural model for the specific objective of the study, which assessed the effect of conventional construction procurement methods on property development practices in Southwest Nigeria. Having confirmed acceptable measurement model quality in the preceding section using the reliability and validity results presented in Tables 2 to 5 and the measurement model depicted in Figure 1, the study proceeded to structural model evaluation using Partial Least Squares Structural Equation Modelling.

The analysis follows the conventional PLS SEM standards following Hair et al. (2017); Hair & Alamer (2022) and Adepoju et al. (2023; 2025). Statistical significance is judged at the ninety-five per cent confidence level where T values are greater than 1.96 and p values are less than or equal to 0.05. Marginal significance is also recognised where T values exceed 1.65 and p values are less than or equal to 0.10.

Table 5: Heterotrait-monotrait ratio (HTMT) for Conventional Construction Procurement Method and Property Development Practices

	bCN	bCR	Bls	bMC	bTC	bTST	fEP	fEvP	fINN	fQU	fSWE
bCN											
bCR	0.806										
bLS	0.697	0.727									
bMC	0.777	0.821	0.781								
bTC	0.827	0.804	0.682	0.749							
bTST	0.815	0.803	0.730	0.768	0.838						
fEP	0.735	0.654	0.671	0.663	0.715	0.658					

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	bCN	bCR	Bls	bMC	bTC	bTST	fEP	fEvP	fINN	fQU	fSWE
fEvP	0.725	0.718	0.608	0.667	0.718	0.690	0.889				
fINN	0.712	0.731	0.622	0.657	0.742	0.672	0.815	0.849			
fQU	0.757	0.719	0.616	0.654	0.736	0.681	0.870	0.875	0.885		
fSWE	0.719	0.700	0.627	0.671	0.736	0.679	0.814	0.849	0.887	0.865	

Source: Researcher's Data Analysis (2026)

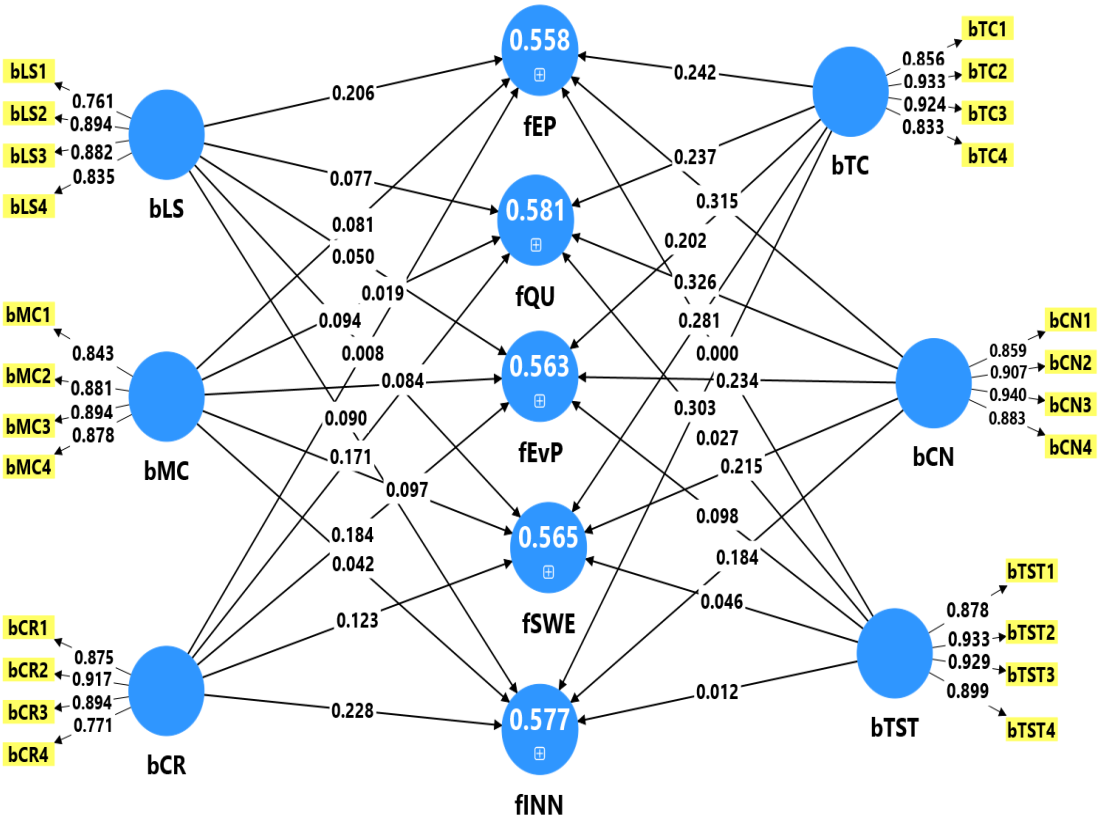


Figure 1: Measurement Model for the Conventional Construction Procurement Method and Property Development Practices

Source: Researcher's Data Analysis (2026)

The coefficient of determination is interpreted using Cohen's thresholds in which 0.26 represents substantial explanatory power, 0.13 indicates moderate explanatory power, and 0.02 indicates weak explanatory power. Effect size is interpreted using Cohen's benchmarks where 0.02 indicates a small effect, 0.15 indicates a medium effect, and 0.35 indicates a large effect. The results are presented in Table 6 and illustrated in Figure 2.

Before analysing the relationships, collinearity was assessed using the Variance Inflation Factor values reported in Table 4.6. The VIF values ranged from 2.217 to 3.416. These values indicate that multicollinearity is not severe and is unlikely to bias the stability of the

estimated path coefficients. Although some values are slightly above the conservative benchmark of 3.0, the values remain within commonly accepted limits used in structural modelling and therefore do not invalidate interpretation of the model.

The path coefficients reported in Table 4.6 show the magnitude, direction and significance of the effect of each conventional procurement method on property development practices. Competitive negotiation demonstrates a positive and statistically significant influence on property development practices, with a beta coefficient of 0.274, a T statistic of 4.264 and a p value of 0.000. This indicates that greater reliance on competitive negotiation is associated with improved property development practices in the study area and that this relationship is highly significant at the ninety five per cent confidence level.

Target cost procurement also exhibits a positive and statistically significant relationship with property development practices. The beta coefficient is 0.273, the T statistic is 4.855 and the p value is 0.000. The magnitude is nearly identical to that of competitive negotiation, suggesting that target cost contracting is similarly influential in shaping property development practices among developers in the study area. Cost reimbursement procurement further shows a positive and statistically significant effect, with a beta coefficient of 0.154, a T statistic of 2.422 and a p value of 0.015.

Although the effect is smaller than those observed for competitive negotiation and target cost, it remains significant, implying that cost reimbursement arrangements contribute meaningfully to property development practices within the conventional procurement landscape.

Lump sum procurement displays a positive relationship with property development practices, but the effect is only marginally significant. The beta coefficient is 0.111 with a T statistic of 1.860 and a p value of 0.063. While this does not satisfy the strict ninety five per cent confidence criterion, it meets the threshold for marginal significance and therefore suggests that lump sum contracts may contribute to property development practices, although the strength and consistency of the influence are weaker when compared with competitive negotiation and target cost.

Measurement contracting shows a positive but statistically non significant relationship with property development practices. The beta coefficient is 0.070, the T statistic is 1.293 and the p value is 0.196. This indicates that measurement contracting does not provide sufficient evidence of an effect on property development practices within the current model when other conventional procurement methods are considered simultaneously.

Two stage tendering has the weakest relationship and is also statistically non significant, with a beta coefficient of 0.039, a T statistic of 0.608 and a p value of 0.543. This suggests that two stage tendering does not significantly predict property development practices for the sampled developers under the current specification.

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The explanatory power of the model is assessed using the coefficient of determination reported in Table 6. Property development practices recorded an R square value of 0.655, indicating that the conventional procurement methods jointly explain sixty five point five per cent of the variance in property development practices. Based on Cohen's guideline, this represents substantial explanatory power. This implies that the set of conventional procurement methods included in the model is strongly associated with variations in property development practices among developers in the study area.

Effect sizes reported in Table 6 provide further insight into the practical contribution of each procurement method. Competitive negotiation has an f square value of 0.068, indicating a small effect size. Target cost has an f square value of 0.067, also indicating a small effect size. Cost reimbursement has an f square value of 0.023, which is small and only slightly above the minimum threshold. Lump sum has an f square value of 0.016, which falls below the small effect threshold and may be considered weak or negligible. Measurement contracting has an f square value of 0.005 and two stage tendering has an f square value of 0.001, both of which indicate negligible effects.

These results show that although competitive negotiation and target cost are statistically strong predictors, each method contributes incrementally to the overall explained variance, while the combined model still achieves substantial explanatory power as reflected by the R square value.

Figure 2 further highlights the comparative importance of the predictors by showing that competitive negotiation has the largest structural weight with a loading of 0.274, closely followed by target cost with a loading of 0.273. This indicates that, within conventional procurement options, approaches that emphasise competitive bargaining and negotiated pricing discipline, as well as structured cost incentives and cost control mechanisms, are the most influential in shaping property development practices in the study area.

Table 6: Structural Model for the Conventional Construction Procurement Method and Property Development Practices

Path	Beta	STD	T stat	P values	f-Square	VIF	R-Square
bCN -> Prop Dev_Practices	0.274	0.064	4.264	0.000	0.068	3.208	0.655
bCR -> Prop Dev_Practices	0.154	0.064	2.422	0.015	0.023	3.061	
bLS -> Prop Dev_Practices	0.111	0.060	1.860	0.063	0.016	2.217	
bMC -> Prop Dev_Practices	0.070	0.054	1.293	0.196	0.005	2.971	
bTC -> Prop Dev_Practices	0.273	0.056	4.855	0.000	0.067	3.219	
bTST -> Prop Dev_Practices	0.039	0.064	0.608	0.543	0.001	3.416	

Source: Researcher's Data Analysis (2026)

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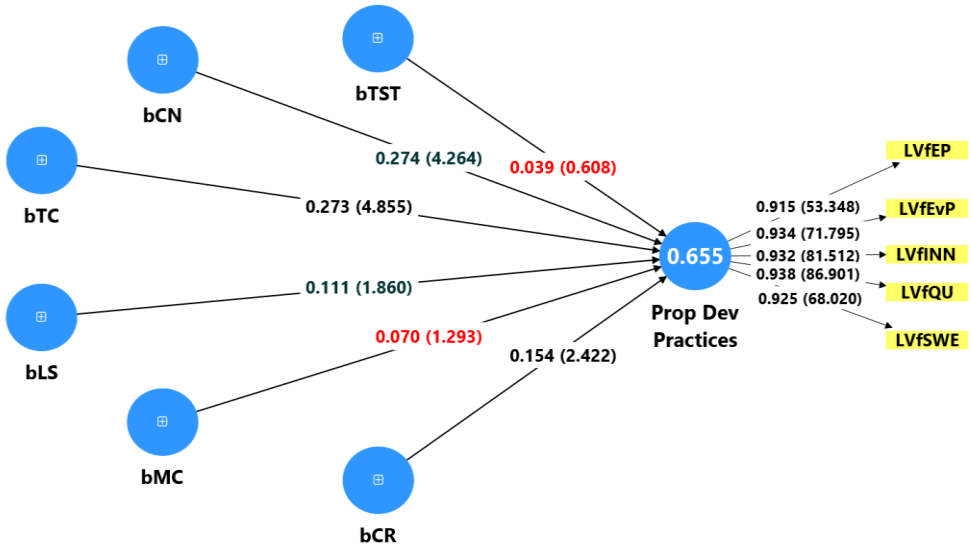


Figure 2: Structural Model for the Conventional Construction Procurement Method and Property Development Practices

Source: Researcher's Data Analysis (2026)

Implication of Findings

The implication of these findings is that improving property development practices among developers in Southwest Nigeria is most likely to be achieved by strengthening the systems and professional capacity that support competitive negotiation and target cost procurement within conventional procurement frameworks. Given that competitive negotiation and target cost show the strongest and most statistically reliable positive effects, policy guidance and professional practice should focus on improving transparency, competence and procedural clarity in negotiation processes, and on strengthening target setting, monitoring and incentive structures in target cost arrangements, so that their benefits can be more consistently realised in property development delivery.

Conclusion

This study examined the effect of conventional construction procurement methods on property development practices in Southwest, Nigeria. Based on the findings, the study concludes that conventional construction procurement methods have varying degrees of influence on property development practices. Certain conventional methods demonstrate meaningful positive effects on property development performance, while others do not significantly enhance outcomes. This indicates that the effectiveness of conventional procurement systems is not uniform and depends on the specific type of method adopted. Although conventional procurement approaches remain relevant, their

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impact on improving development practices is not consistently strong across all categories.

Recommendations

In view of the outcome of this study and the conclusion, the following recommendations are thereby proffered:

- Professional practice standards should be strengthened to improve transparency, competence and procedural clarity in negotiation processes.
- Developers should enhance target setting mechanisms, monitoring systems and incentive structures within target cost arrangements to ensure cost discipline and performance accountability.
- Additionally, regulatory and professional institutions should develop clearer procedural guidelines to enable these conventional methods to consistently deliver improved property development outcomes.

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