

Seasonal price variation of building materials and construction project performance in Nigeria

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Abstract

This study investigates the seasonal price variation of building materials and its impact on construction project performance in the Nigerian construction industry. The study specifically evaluates how the prevalence of seasonal price variation of building materials within the construction industry influence construction project performance in Nigeria. A survey research design was adopted, utilizing a structured questionnaire administered to 145 construction contractors across three major Nigerian cities: Lagos, Abuja, and Port Harcourt. Data collected were analysed using descriptive and inferential statistics. The study findings indicate that exchange rate fluctuations emerged as the most dominant factor driving seasonal price variation of building materials, with a mean score (MS) of 4.714. This was followed by inflation and monetary policy (MS = 4.619) and energy and fuel cost dynamics (MS = 4.333), ranked as the second and third factors respectively. Further analysis revealed that seasonal price variations significantly affected project cost and schedule delivery time, while their impact on quality performance was not statistically significant (Spearman ρ correlation coefficient = 0.000, $p > 0.05$). The study concludes that seasonal price variation of building materials in Nigeria is less a seasonal anomaly and more a structural economic phenomenon, which undermines cost and in performance in construction project delivery. The study recommends a construction cost stabilization framework that will enhance cost predictability, improve schedule stability, and strengthen resilience against price shocks. Implementing such measures would support more sustainable construction project performance and value delivery in Nigeria.

Keywords: Building materials, Construction project performance, Seasonal price variation, Structural economic phenomenon, and Nigeria.

1. Introduction

The construction industry remains a critical pillar of national development due to its central role in infrastructure provision, employment generation, and economic growth. Globally, the sector contributes significantly to gross domestic product (GDP) and stimulates activities across allied industries such as manufacturing, transportation, and finance. Recent estimates indicate that global construction output was valued at approximately US\$9.7 trillion in 2022 and is projected to increase substantially in the coming decades, reflecting the sector's expanding economic relevance (Sweet, 2021; Economic Consulting Team, 2024). These trends underscore the strategic importance of ensuring efficiency and performance in construction project delivery. In Nigeria, the construction industry occupies a central position in socio-economic development, particularly in addressing infrastructure deficits in housing, transportation, energy, and public utilities. The sector consistently ranks among the leading contributors to non-oil GDP and exhibits strong backward and forward linkages with other sectors of the economy (Oke *et al.*,

2019). Despite its significance, project delivery in Nigeria continues to be constrained by persistent challenges, including cost overruns, schedule delays, and quality shortfalls. A major underlying factor contributing to these challenges is the instability in the prices of building materials.

Building materials typically constitute a substantial portion of total construction costs, particularly in developing economies (Adu *et al.*, 2020; Nnadi & Najjobyo, 2025). Caldas *et al.* (2015) reported that material inputs may account for up to 80% of overall construction expenditure. Given this high-cost share, material price volatility is a leading contributor to cost overruns, with most projects experiencing budget deviations, particularly in developing countries (Chapman & Quang, 2021). Fluctuations in material prices also directly influence project feasibility, budgeting accuracy, and performance outcomes. Empirical studies from Malaysia, Oman, India, Botswana, and Egypt indicate that material price volatility has led to project delays and cost overruns in both public and private construction projects (Al Amri & Marey-Perez, 2021; Adeyemi *et al.*, 2019). In

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Nigeria, the situation is particularly acute, with material prices experiencing uncontrollable and unprecedented increases, largely due to currency devaluation and liberalization of exchange rates (Olatunde *et al.*, 2025). Major construction materials such as cement, steel, and roofing components recorded price increases exceeding 200% between January 2024 and January 2026.

While construction economics literature has extensively discussed price volatility, most studies emphasize macroeconomic drivers such as inflation, exchange-rate fluctuations, and supply-chain disruptions, with limited attention to seasonality as a distinct and systematic source of variation. Seasonal price variation refers to predictable, cyclical changes in material prices associated with weather conditions, demand fluctuations, production constraints, and transportation challenges (Oginni *et al.*, 2014). In Nigeria, construction activity typically intensifies during the dry season, when weather conditions favor material production, transportation, and site operations. Conversely, the rainy season constrains quarrying, timber processing, logistics, and site productivity, resulting in supply shortages and increased distribution costs (Usman *et al.*, 2024). These seasonal dynamics exert upward pressure on the prices of key construction materials, including cement, aggregates, timber, and steel.

Unlike general inflationary trends, seasonal price variation is relatively predictable. However, when not anticipated or managed, it can adversely affect project performance. Escalating material costs disrupt cash flows, complicate procurement planning, and increase the likelihood of cost overruns. Delays in material procurement often lead to schedule slippages and extended project durations. In some cases, rising material costs necessitate contract renegotiations, claims, or disputes between stakeholders (Anireddy, 2024). Moreover, attempts to mitigate price escalation through material substitution or scope adjustments may compromise construction quality and long-term asset performance. Consequently, seasonal price variation can negatively affect the three core dimensions of project performance in terms of cost, time, and quality, thereby undermining value delivery and stakeholder satisfaction (Abdelalim *et al.*, 2025).

In Nigeria, most studies on construction cost overruns and material price instability have focused on inflation and exchange-rate volatility, with limited attention to seasonality as a distinct driver of price variation (Adegbenbo & Adeniyi, 2015). There is also a paucity of research linking seasonal price variation to multidimensional project performance outcomes in terms of cost, time, and quality. Against this backdrop, the present study examines seasonal price variation of building materials and its implications for construction project performance in Nigeria. Specifically, it assesses the prevalence of seasonal price variation and evaluates

its influence on project performance, providing empirical insights into the interaction between seasonal price dynamics and project outcomes.

2. Literature Review

2.1. Seasonal Price Variation of Building Materials

The construction industry is widely recognized as one of the most cost-sensitive and volatility-prone sectors of the economy, primarily because building materials account for a substantial portion of total project costs (Adu *et al.*, 2020; Malkanthi *et al.*, 2023; Anireddy, 2024). While material price volatility has been extensively studied in construction economics, the explicit and systematic investigation of seasonal price variation remains limited. Emerging evidence, however, suggests that construction material prices exhibit cyclical patterns that cannot be fully explained by inflation or broader macroeconomic volatility alone. Seasonal price variation refers to recurring, time-dependent fluctuations in material prices, driven by periodic changes in construction demand, supply logistics, and environmental conditions. Time-series analyses increasingly reveal seasonal components embedded in construction material price data. For example, Maqsoom *et al.* (2024) demonstrated that material price fluctuations persist even after controlling for inflation and exchange-rate movements, indicating the influence of cyclical forces. Similarly, forecasting studies using decomposition and autoregressive models show that prices of key materials, including cement and steel, fluctuate in alignment with seasonal construction activity (Passek & Nubel, 2025).

Climatic and weather-related conditions are central drivers of seasonal variation in construction activity and material prices. Empirical studies indicate that precipitation, temperature, and humidity significantly affect construction productivity, material handling, and site operations (Oruc *et al.*, 2024). These environmental factors indirectly influence procurement timing, demand intensity, and logistics efficiency, reinforcing cyclical price movements. In climate-dependent construction environments, seasonal constraints on production and transportation often result in temporary supply shortages and price escalations. Econometric evidence from Scopus-indexed studies further confirms that seasonality contributes substantially to short-term construction material price volatility. Time-series decomposition analyses show that seasonal components account for a significant share of observed price fluctuations, particularly in regions with pronounced wet–dry seasonal cycles (Banaś & Kozuch, 2019; Liu *et al.*, 2024). These findings challenge the notion that price instability is driven primarily by macroeconomic shocks and highlight the need for season-sensitive cost forecasting models.

In developing economies such as Nigeria, seasonal price effects are amplified by structural supply-side constraints. Fragmented supply chains, inadequate transport infrastructure, limited storage capacity, and heavy reliance on road logistics heighten vulnerability to seasonal disruptions. Empirical studies link rising transportation costs, delivery delays, and reduced material availability to increased procurement costs and negative project performance outcomes (Awaad *et al.*, 2024). During the rainy season, reduced quarry output, poor road conditions, and port congestion constrain supply, whereas dry seasons often coincide with intensified construction demand, reinforcing cyclical price escalation. Market structures and supplier behaviours further exacerbate seasonal price variation. High market concentration, supply scarcity, weak regulatory oversight, and limited price transparency enable suppliers to exploit periods of high demand, limiting effective price stabilization (Gunduz, 2025). Although inflation explains long-term upward price trends, evidence indicates that seasonality drives short-term deviations around inflation-adjusted price paths (Maqsoom *et al.*, 2024). Failure to account for these dynamics in cost estimation is associated with budget underestimation and elevated risk of cost overruns (Musarat *et al.*, 2024). Despite growing recognition of these trends, the literature remains fragmented, with few studies treating seasonality as a primary explanatory variable or directly linking it to construction project performance in Nigeria (Gunduz *et al.*, 2025; Timothy, 2025). This gap underscores the need for empirical research that integrates seasonal price dynamics into construction cost management and performance analysis. The seasonal price variation factors considered in this study are summarized in Table 1. These factors were further examined during

the pilot survey, resulting in the adoption of 13 variables for the main study.

2.2. Impacts of Seasonal Price Variation of Building Materials on Construction Project Performance

Seasonal price variation of building materials is increasingly recognized as a critical determinant of construction project performance. Among the key performance dimensions, cost performance is particularly vulnerable, as materials typically constitute a substantial portion of total project expenditure. Recent studies in construction economics indicate that material price volatility complicates cost forecasting and contributes to budget deviations. For example, Anireddy (2024) observed that fluctuations in material prices are strongly associated with budget increases and reduced predictability of project costs. Similarly, Xiong *et al.* (2025) argue that material price dynamics go beyond general inflationary trends, as seasonal price spikes introduce additional uncertainty that undermines both budgeting accuracy and project viability. Such volatility complicates procurement planning, often resulting in significant disparities between planned and actual project budgets (Anireddy, 2024).

Time performance is also significantly affected by seasonal price dynamics, particularly where procurement planning is poorly aligned with cyclical market conditions. Empirical evidence from developing construction markets demonstrates that material price volatility poses a major challenge to timely project delivery. Nnadi and Najjobyo (2025) highlight that rising and unstable material prices constrain contractor cash flow, leading to postponed purchasing decisions and delayed material

Table 1: Seasonal Price Variation Influencing Building Materials Prices

Factors	Sources
Exchange Rate Fluctuations	Olatunde <i>et al.</i> , 2025; Passek and Nubel, 2025
Inflation	Maqsoom <i>et al.</i> , 2024; Gunduz, 2025
Energy and Fuel Cost	Adu <i>et al.</i> , 2020
Logistics Variability	Awaad <i>et al.</i> , 2024
Supply Chain Disruptions	Passek and Nubel, 2025; Awaad <i>et al.</i> , 2024
Demand-Driven Cycles	Nnadi and Najjobyo, 2025
Raw Material Fluctuations	Maqsoom <i>et al.</i> , 2024
Industrial Capacity	Nnadi and Najjobyo, 2025
Market Structure	Banaś and Kozuch, 2019
Transportation Cost	Awaad <i>et al.</i> , 2024
Procurement Timing	Maqsoom <i>et al.</i> , 2024; Timothy, 2025
Weather Conditions	Oruc <i>et al.</i> , 2024
Labour Cost	Adu <i>et al.</i> , 2020
Global and Geopolitical Events	Anireddy, 2024
Monetary Policy	Adegbembo and Adeniyi, 2015; Anireddy, 2024
Construction Activity Patterns	Maqsoom <i>et al.</i> , 2024
Production Constraints	Nnadi and Najjobyo, 2025
Fuel Cost	Adegbembo and Adeniyi, 2015
Commodity Market Fluctuations	Maqsoom <i>et al.</i> , 2024

procurement, which directly affect project schedules. These disruptions reduce material availability and slow site operations, increasing the likelihood of schedule overruns. Similarly, Mekonen *et al.* (2025), in a study of Ethiopian construction projects, report that rapid material price changes and shortages are significant contributors to project delays, particularly in contexts with persistent supply chain and logistical challenges. In Nigeria, Timothy (2025) confirms that material cost fluctuations prolong project delivery timelines, highlighting the adverse effects of unstable pricing and procurement conditions on time performance.

Quality performance is indirectly influenced through the cost and schedule pressures induced by seasonal price variation. Escalating material costs often compel contractors to adopt cost-driven strategies such as material substitutions, deferred procurement, or reduced material specifications. While direct empirical evidence linking seasonal price variation to quality outcomes is limited, existing research demonstrates a strong relationship between procurement and material management practices, often shaped by financial constraints and construction quality. Yıldız *et al.* (2024) confirm that ineffective material management arising from cost pressures adversely affects construction quality outcomes. Consequently, inadequate responses to seasonal price volatility can compromise workmanship, material durability, and long-term asset performance. Based on the forgoing, the literature confirms that seasonal material price variation exerts interconnected effects on cost, time, and quality performance.

3. Research Methodology

This study investigates the seasonal price variation of building materials and its influence on project performance in the Nigerian construction industry. A descriptive survey research design was employed, utilizing a structured questionnaire to collect data from industry professionals. The questionnaire method adopted helps to facilitate the efficient collection of standardized data from a relatively large number of respondents and supports quantitative analysis of the study variables. The study variables were derived from a comprehensive literature review focusing on empirical studies related to seasonal price variation of building materials. To ensure the questionnaire captured relevant insights, a pilot study was conducted involving semi-structured interviews with eight academic and industry experts. Data were collected through structured questionnaires administered to 145 construction companies listed in the Federation of Construction Industry (FCI), Nigeria, domiciled in three strategic cities: Lagos, Abuja, and Port Harcourt. The data collection exercise lasted six weeks, which was considered sufficient to obtain responses from the target population. Targeted respondents included project managers, procurement officers, and registered

quantity surveyors directly involved in material procurement, project planning, cost control, and construction execution. The questionnaire employed a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) and was structured into three sections: Section A captured respondents' demographic information; Section B assessed the prevalence of seasonal price variation factors; Section C examined the influence of these factors on three key project performance indicators: cost effectiveness, timely project delivery, and quality of completed projects.

Out of 145 administered questionnaires (distributed via face-to-face interactions and email), 122 were returned. Four were deemed invalid due to incomplete responses, leaving 118 valid questionnaires, representing a response rate of 81%, which is sufficient for statistical analysis. For analysis, Mean Score (MS) was employed to determine the extent of the prevalence of seasonal price variation of building materials and its perceived influence on construction project performance by ranking respondents' assessments based on their level of agreement. Significance levels were classified following Kazaz *et al.* (2008). Furthermore, Spearman's Rank Correlation (Spearman's rho) was adopted to examine the strength and direction of the relationship between the prevalence of seasonal price variation of building materials and the three selected construction project performance indicators in Nigeria. The technique is suitable because the study data were derived from ordinal (Likert-scale) responses and Spearman's rho effectively measures the degree of association between variables without requiring a normal distribution of the data.

4. Findings and Discussion

4.1. Characteristics of Respondents Used for the Study

The demographic characteristics of the respondents were analysed using descriptive statistics. The results indicate that 41% of the participants were based in Lagos, 33% in Abuja, and 26% in Port Harcourt. This distribution reflects a reasonable representation of the three major construction hubs selected for the study. In terms of professional background, quantity surveyors constituted the largest proportion of respondents (48%), followed by project managers (29%) and procurement officers (13%). With respect to professional experience, the findings show that over 61% of the respondents possess more than 20 years of relevant industry experience, and all respondents hold at least a first degree or its equivalent. The data obtained from the respondents can be considered credible and suitable for informed analysis and decision-making.

4.2. Analysis of Prevalence of Seasonal Price Variation Factors of Building Materials

To determine the most prevalent factors influencing seasonal price variation of building materials in the Nigerian construction industry, a ranking analysis based on Mean Scores (MS) was conducted. This involved the evaluation of responses to the 13 factors included in the questionnaire. The results comprising Mean Score (MS), standard deviation (SD), rank, and corresponding remarks are presented in Table 2.

monetary policy (MS = 4.619, SD = 0.539), energy and fuel cost dynamics (MS = 4.333, SD = 0.612), transportation and logistics cost variability (MS = 4.238, SD = 0.692), and supply chain disruptions (MS = 4.119, SD = 0.670).

These findings highlight the dominant role of both macroeconomic variables and supply-chain-related factors in shaping seasonal price behaviour in Nigerian construction industry.

Table 2: Results of analysis of seasonal price variation factors of building materials

Seasonal price variation factors	Mean	SD	Rank	Remarks
Exchange Rate Fluctuations	4.714	0.508	1	VHS
Inflation and Monetary Policy	4.619	0.539	2	VHS
Energy and Fuel Cost Dynamics	4.333	0.612	3	HS
Transportation and Logistics Cost Variability	4.238	0.692	4	HS
Supply Chain Disruptions	4.119	0.670	5	HS
Demand-Driven Cycles and Construction Activity Patterns	4.024	0.604	6	HS
Raw Material and Commodity Market Fluctuations	3.857	0.683	7	HS
Industrial Capacity and Production Constraints	3.738	0.701	8	HS
Market Structure and Industry Competition	3.381	0.731	9	MS
Policy, Regulation, and Procurement Timing	3.238	0.692	10	MS
Climatic and Weather-Related Factors	3.048	0.854	11	MS
Labour Cost and Industrial Workforce Dynamics	2.571	0.630	12	LS
Global Economic and Geopolitical Events	2.405	0.734	13	LS

Note: LS = Low Significance, MS = Moderate Significance, HS = High Significance, VHS = Very High Significance

The findings indicate that among all factors, exchange rate fluctuations ranked highest (MS = 4.714, SD = 0.508). This prominence can be attributed to its extensive and immediate impact on a wide range of construction inputs, particularly in an import-dependent industry. Its influence is more pervasive compared to other factors, thereby positioning it as the most dominant driver of seasonal price variation. Conversely, the least ranked factors are labour cost and industrial workforce dynamics (MS = 2.571, SD = 0.630) and global economic and geopolitical events (MS = 2.405, SD = 0.734). The top five most significant factors identified in the analysis are: exchange rate fluctuations (MS = 4.714, SD = 0.508), inflation and

4.3. Analysis of Influence of Seasonal Price Variation of Building Materials on Project Performance

This subsection examines the influence of seasonal price variation of building materials on project performance. To achieve this, a null hypothesis was formulated, which states that there is no significant correlation between seasonal price variation of building materials and project performance. The decision rule adopted for the analysis is to reject the null hypothesis when the p-value is less than 0.05 and to accept it when the p-value is greater than 0.05. The top five ranked factors were correlated with three key project performance indicators: cost, time, and quality, using Spearman's rank correlation, as presented in Table 3.

Table 3: Results of correlation analysis between prevalence of seasonal price variation of building materials and project performance

Variables	R-value	P-value	Decision
Exchange rate fluctuations			
Budget increases and inaccurate cost prediction	-0.149	0.348	Reject
Schedule delay and overruns	-0.164	0.301	Reject
Compromise to workmanship and material durability	0.636	0	Accept
Inflationary and monetary policy			
Budget increases and inaccurate cost prediction	0.04	0.799	Reject
Schedule delay and overruns	0.194	0.217	Reject
Compromise to workmanship and material durability	-0.35	0.023	Accept
Energy and fuel cost dynamics			
Budget increases and inaccurate cost prediction	-0.023	0.886	Reject
Schedule delay and overruns	0.111	0.484	Reject
Compromise to workmanship and material durability	0.409	0.007	Accept
Note: R-value = correlation coefficient; p-value is significant @ $p \geq 0.05$			

The results in Table 3, indicate that the p-values associated with cost and time performance are below the 0.05 significance level. Consequently, the null hypothesis is rejected for these two indicators. This finding suggests that seasonal price variation of building materials has a statistically significant influence on both project cost and schedule performance. For example, exchange rate fluctuations show a positive association with budget increases and inaccurate cost prediction (p-value = 0.348) and schedule delay and overruns (p-value = 0.301). Although these relationships indicate a degree of association, they are not statistically significant at the 5% level. In contrast, the relationship between seasonal price variation and project quality is not statistically significant at the 5% level (p-value = 0.000). Therefore, the null hypothesis is accepted for quality performance. Similar trends were observed for the remaining factors examined in the study. This suggests that, despite cost pressures, construction stakeholders maintain adherence to required technical standards and specifications.

4.4. Discussion of Findings

4.4.1. Prevalence of Seasonal Price Variation of Building Materials in the Nigerian Construction Industry

The findings of this study indicate that exchange rate fluctuations, inflation and monetary policy, energy and fuel cost dynamics, transportation and logistics cost variability, and supply chain disruptions are the most prevalent drivers of seasonal price variation in the Nigerian construction industry. These results underscore the combined influence of macroeconomic conditions and operational supply-chain factors on the price behaviour of construction inputs. Exchange rate fluctuations emerged as a dominant determinant of seasonal price variation. This reflects the Nigerian construction industry's heavy reliance on imported materials, including steel products, finishing materials, and mechanical equipment. Depreciation of the domestic currency increases import costs, which in turn leads to periodic spikes in material prices. Empirical evidence further suggests that exchange rate volatility disrupts supply chain stability and increases procurement costs, particularly in import-dependent developing economies. Inflation and monetary policy were also identified as critical drivers. Inflation raises the general price level of goods and services, including construction materials, thereby contributing to persistent price fluctuations. The findings of Musarat *et al.* (2020) demonstrate a statistically significant relationship between inflation and construction material price behaviour, identifying inflation as a major contributor to project cost overruns. This implies that inflationary pressures directly increase procurement costs, especially during periods of macroeconomic instability.

Energy and fuel cost dynamics constitute another key factor influencing seasonal price fluctuations. The construction industry depends heavily on energy-intensive processes, such as cement manufacturing, steel production, and material transportation. Consequently, increases in diesel and petrol prices often translate into higher material costs. Prior studies show that energy price volatility significantly affects the prices of key materials, including steel, bitumen, and cement (Gunduz *et al.*, 2025). Recent increases in fuel pump prices have further exacerbated cost pressures within the Nigerian construction sector. Transportation and logistics cost variability also plays a significant role. Inadequate transport infrastructure, combined with seasonal challenges such as heavy rainfall, flooding, and road deterioration, increases logistics costs and disrupts material distribution. These disruptions often result in temporary supply shortages and consequent price increases. Empirical evidence identifies transportation costs as one of the highest-ranked contributors to construction material price volatility in Nigeria (Nnadi & Najjobyo, 2025).

The findings of this study are consistent with existing literature on construction material price volatility in developing economies. Ikechukwu (2021) identified inflation, exchange rates, and demand–supply dynamics as key determinants of material price fluctuations in Nigeria. Similarly, Adegbenbo and Adeniyi (2015) reported a positive correlation between macroeconomic indicators—such as inflation, exchange rates, and interest rates and building material prices. Further evidence from Musarat *et al.* (2020) and Samsir *et al.* (2023) confirms a strong relationship between inflation and construction material price volatility, particularly for cement and steel, in Pakistan and the Johor construction industry, respectively. In addition, studies from Qatar highlight the role of energy costs, transportation expenses, and supply chain disruptions in driving material price volatility and project delays (Gunduz *et al.*, 2025). These parallels suggest that the drivers of seasonal price variation in Nigeria align with global trends. However, their effects are often more pronounced in developing economies due to structural challenges, including infrastructural deficits and macroeconomic instability.

4.4.2. Influence of Seasonal Price Variation of Building Materials on Project Performance

The significant influence of seasonal price variation on project cost can be attributed to the fact that building materials constitute a substantial proportion of total construction expenditure (Caldas *et al.*, 2015; Nnadi & Najjobyo, 2025). Fluctuations in the prices of essential materials such as cement, steel, and aggregates often driven by macroeconomic conditions, result in unexpected increases in procurement costs for contractors. This finding aligns with previous studies, which identify inflation, exchange rates, and transportation costs as key drivers of material price

volatility and major contributors to poor cost performance and budget overruns (Nnadi & Najjobyo, 2025; Musarat *et al.*, 2020; Musarat *et al.*, 2021). The observed impact on project time (schedule performance) is largely linked to disruptions in material availability and procurement delays arising from supply chain constraints and logistical challenges. Rapid price increases or material shortages often compel contractors to delay procurement, renegotiate contracts, or seek alternative suppliers. These responses disrupt planned workflows and ultimately lead to schedule overruns and extended project durations. In contrast, seasonal price variation does not appear to significantly influence project quality. This suggests that, despite cost pressures, construction stakeholders maintain adherence to required technical standards and specifications. This finding differs from some studies that associate cost constraints with reduced quality performance. A plausible explanation is that projects represented in this study were subject to strict contractual requirements and effective professional supervision, which limited the likelihood of quality compromise. Consequently, rather than reducing quality, contractors tend to absorb additional costs, renegotiate budgets, or adjust project timelines to ensure compliance with established standards.

5. Conclusion and Further Research

This study establishes that seasonal price variation of building materials in Nigeria is largely driven by the interaction of macroeconomic forces and supply-chain inefficiencies. Key drivers include exchange rate volatility, inflationary pressures, energy cost dynamics, logistics variability, and supply disruptions. These factors operate in a mutually reinforcing manner, producing cyclical and often unpredictable price movements. The findings further suggest that such

instability extends beyond mere seasonality and reflects deeper structural weaknesses within the construction economy, particularly its reliance on imported inputs and inadequate logistical systems. The study also reveals that the effects of price variation are most evident in project cost and time performance. In contrast, project quality appears largely unaffected. This outcome indicates that regulatory frameworks, professional standards, and contractual provisions effectively safeguard quality. It is concluded that construction price volatility is not merely a seasonal occurrence in the climatic sense, but a structurally embedded economic phenomenon that undermines cost predictability and schedule reliability. The study therefore recommends that, firstly, there is a need to institutionalize a comprehensive construction cost stabilization framework. This should include the adoption of fluctuation clauses and real-time price indexation in construction contracts through collaboration among government, industry stakeholders, and professional bodies such as the Nigerian Institute of Quantity Surveyors. Secondly, government intervention is required to address underlying structural challenges. Efforts should focus on stabilizing key macroeconomic variables, promoting local production of construction materials, and improving transport infrastructure

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