Effect of High Cost of Building Materials on Property Development in Makurdi Metropolis, Benue State, Nigeria

Adamu Garba

In-Text Citation: (Adamu, 2022)
To cite this article: Adamu, G. (2022). Effect of High Cost of Building Materials on Property Development in Makurdi Metropolis, Benue State, Nigeria. *International Journal of Environmental Science and Property Management Review,* 1(6):1-17.

Effect of High Cost of Building Materials on Property Development in Makurdi Metropolis, Benue State, Nigeria

Adamu Garba

Nigerian Army College of Environmental Science and Technology (NACEST), Department of Estate Management and Valuation, Makurdi, Benue State, Nigeria.

ABSTRACT

This research work examined the Effect of High Cost of Building Materials on Property Development in Makurdi Metropolis, Benue State, Nigeria. The survey research design was used with a population of 362 and a sample of 190 respondents. Data was collected using questionnaire and analyzed using inferential statistics. The variables of the study were analyzed using simple linear regression while the hypotheses were tested using the probability value of the regression estimate. The result of the regression analysis shows that high cost of building materials (HCBM) has a positive effect on property quality in Makurdi Metropolis, Benue State, Nigeria and the effect is statistically significant ($p<0.05$) but the effect is not in line with a priori expectation. This means that a unit increases in high cost of building materials (HCBM) will result to a corresponding increase in property quality in Makurdi Metropolis, Benue State, Nigeria by a margin of 42.0 percent. Also, high cost of building materials (HCBM) has a negative effect on time of delivery (TODL) of developed property in Makurdi Metropolis, Benue State, Nigeria and the effect is statistically significant ($p<0.05$) and the effect is in line with a priori expectation. This means that a unit increases in high cost of building materials (HCBM) will result to a corresponding decrease in time of property delivery (TODL) in Makurdi Metropolis Benue State, Nigeria by a margin of 35.7 percent. It was concluded that the construction industry contributes significantly in terms of scale and share in the development process for both developed and developing countries. It was recommended among others that in order to help the construction industry, government can improve the exchange rate of the Naira through concerted effort in fiscal and monetary policies which target broad range of issues ranging from activities that encourages local production of some of the building material to reduce over dependence on import.
Keywords: *Building Material, Cost, Property Development, Delivery time, Benue, Nigeria.*

I   INTRODUCTION
Background to the Study

Property development, also known as real estate development, is the process of improving the use-value of buildings or land. It is a multi-faceted business that can encompass any of the following: Buying land and building property on it; Renovating, expanding, or enhancing a structure. Property development is one of the most dynamic businesses, risky and challenging. Property development in urban areas play a major role in achieving sustainable development and providing the much needed housing gap for several people who need shelter. Thus, the property development sector contributes to the development of sustainable cities. However, for this to occur, an integrated approach to sustainable development needs to be incorporated in the property development process (Abdul-Rahman, Wang & Yap, 2015). In this way, the property development process is not only regarded as the physical and technical process of producing and delivering buildings, but also a social process governed by economic, social, environmental and political interests. In an attempt to understand such provision, it is important to understand factors which influence property development within which the urban property development projects operate. The **construction** sector is also a big sector that supports property development. Construction companies also construct factories and infrastructures such as bridges, roads, railways and ports. Due to it being a vibrant sector, many professional services

for construction have flourished in recent years such as services of architects, engineers and surveyors. Besides this, suppliers of building materials and quarries have also thrived. The supply side of the construction industry is at the heart of the high cost of building materials which dictates the pace at which other activities of the property development is managed.

Building materials plays a vital role in the construction industry as they are those materials put together in erecting buildings. Construction project is not feasible without the inclusion of building materials. Previous studies in the building industry have indicated that building materials account for between 50 percent to 60 percent of the total construction input (Adedeji, 2012). Building materials constitute the largest single input in building construction, of which housing is one part. It seems that the high cost of building materials is one of the major factors prohibiting successful quality public housing delivery. High cost of building material is at the epicenter of sustainable property development (Akanni, Oke & Omotilewa, 2014). This is because the time of delivery and quality of property being developed is at the mercy of material cost. The spiral inflation, low productive capacity of the nation, the import dependence of most of housing equipment is at the heart of the high cost of building materials in the study area and Nigeria at large.

Statement of Problem
Cost of building houses is increasing every day and it is becoming difficult for an average civil servant to build their own

houses unless government embarks on massive construction of low cost housing estate. Thus, for the delivery of a sound and affordable house, it is crucial to consider the implications of cost of material from the housing design stage to construction stage in order to ensure adequate building materials utilization. Resolving the housing delivery problem entails a holistic approach towards building houses that are not only affordable but equally sustainable to both the present and future users. Hence there is a need to investigate the effects of cost of building materials on housing delivery. Over the years, the researcher has noticed that high cost of material could be one of the major reasons affecting property development in the study area. Even though the State is home to Dangote Cement Company, the price of the commodity is so high that majority of the citizens cannot afford to buy cement at such a high price. Due to the high exchange rate, other imported building materials are outside the reach of the common man. This has led to high building collapse and the use of substandard materials in project development. It is in the light of the above that this study examines the effect of high cost of building materials on property development in Makurdi Metropolis, Benue State, Nigeria.

Objectives of the Study

The main objective of the study is to examine the Effect of High Cost of Building Materials on Property Development in Makurdi Metropolis, Benue State, Nigeria. The specific objective of the study are to:

i. Examine the effect of high cost of building materials on property quality in Makurdi Metropolis, Benue State, Nigeria.

ii. Determine the effect of high cost of building materials on time of delivery in Makurdi Metropolis, Benue State, Nigeria.

iii. Examine the challenges of high cost of building materials on property development in Makurdi Metropolis, Benue State, Nigeria.

Hypotheses of the Study

i. High cost of building materials has no significant effect on property quality in Makurdi Metropolis, Benue State, Nigeria,

ii. High cost of building materials has no significant effect on time of delivery in Makurdi Metropolis, Benue State, Nigeria.

2.0   LITERATURE REVIEW

Concept of Property Development

Property development can be generally described as an industrial production process that involves the combination of various inputs such as land, labour, materials and finance to achieve an output or product such as the change of land use, building use or a new building over a considerable time frame, building type and location, and constant public attention (Wilkinson & Reed, 2008). The stages in the property development process are project initiation, scoping, site selection/feasibility, planning and programming, schematic design, design

development, procurement, construction, post-occupancy evaluation and retrofit (Wilkinson & Sayce, 2015a). This sequence does, however, vary and stages often overlap and repeat as they are conditioned to time and space and external conditions (Healey, 1992). In practice, property development is a complex, multi-faceted process that encompasses technical, physical, legal, regulatory, economic, social, political and environmental concerns (Guy & Henneberry, 2002; Deakin, 2005).

In addition, complex property development projects have long life cycles, involve peoples' homes, jobs and future lives (Dixon, 2007). This complex characterization of the development process has resulted in studies of the property development process from different and often contested perspectives from a wide range of disciplines (e.g. economists, urban theorists, geographers, social and institutional theorists) and theoretical perspectives (e.g. economic, political, social and institutional) (Drane, 2013). Each of these disciplines and theoretical perspectives have contributed to the understanding of the complexity of property development. Even so, each of these individualist perspectives tends to view property development through the lens of its own discipline.

Instead, Guy & Henneberry (2002) stress the need to take a challenging analytical path to property development that takes into account the many perspectives, theories and methodologies from different disciplines to enhance understanding of the property development process (Guy & Henneberry, 2002). This research adopts

the conceptualization of property development as a social process, according to Healey & Barrett (1990). This conceptualization provides an understanding of the relationship between the property quality and time of delivery.

Dimensions of Property Development

a)   Property Quality
Satisfactory time and cost performance is of little value if the project delivers inferior quality. The concept of quality is closely related to customer satisfaction, which has gradually been elevated in importance in the construction industry (Latham, 2014). According to Forsythe (2017), customer satisfaction is commonly described as a comparison between the customer's pre-purchase expectations and their post-purchase perceptions. Hence, it involves the customer's final feelings about whether the outcome provided a satisfying or dissatisfying experience. Since construction industry products are highly customized and co-created during the construction process, the concept of quality regards both the final product and the process through which it is created. Consequently, the quality of an end product is the users' satisfaction with the finished construction and this is a critical success factor. Quality management systems can contribute to the mitigation and elimination of rework/non-conformance; enhance client satisfaction; performance, and provide the catalyst for the synergy relative to the project parameters such as client satisfaction, cost, quality, and time. Establishing the project requirement for quality begins at

project inception (Yasamis *et al.,* 2012). A careful balance between the owners requirement of the project costs and schedule, desired operating characteristics, materials of construction and the design professionals' needs for adequate time and budget to meet those requirements during the design process is essential.

b)   Delivery time

The increasing importance of time in our globalized society has affected the construction industry in form of shortened project schedules. Project duration is simply the number of days/weeks/months from start to completion of the project. Since time can be a critical issue for many clients, project duration is often of prime interest. However, schedule overruns may be an even more important issue. Completing projects in a predictable manner, on time (within schedule) is an important indicator of project success, and the construction industry is frequently criticized for project delays (Chan & Kumaraswamy, 2016). Schedule overruns (sometimes labeled time growth) are often very negative since they hinder the client to start using the end product as planned. This time factors can be seen in areas such as; planned time for completion, average delay in regular payments, time needed to rectify defects (Choudhury & Phatak, 2014; Aibinu & Odeyinka, 2016; Assaf & Al-Hejji, 2016). Construction delay is considered one of the most frequent problems in the construction industry and delays have an adverse impact on project success in terms of time, cost, quality and safety (Assaf & Al-Hejji, 2016).

High Cost of Materials

The factors responsible for increases in the cost of building materials have been categorized as economic related factors, human related factors, stakeholders related factors and external factors. The prices of building materials increase on a daily basis, due to instability of the Naira to the Dollar and general inflationary trends in the country. The fluctuation in the price of dollar to naira poses a great challenge to the construction industry as costing of materials are always being adjusted to accommodate the spiral price increase in the market. The prime purpose of material costing is to ensure that purchases do not exceed the planned distribution of budgeted expenditure for the project (Akanni, Oke & Omotilewa, 2014). The procurement of material is based on the material schedule already prepared during pre-contract planning so that any shortfall or excess can easily be determined during the project execution (Assaf & Al-Hejji, 2016). All these are to ensure good financial discipline and proper material cost control.

Property Development Challenges

One of the major concern and priority of a property developer is to accomplish the development of the property in good time. One of the major development challenge faced by developers is the high cost of building materials. The causes of high cost of building materials include:

First, high demand for building materials arising from post civil war reconstruction, creation of states and the oil boom. Second, inefficient distribution system aggravated by middlemen and high

transportation costs. Third, inflation situation in the country where the cost of building materials tends to rise almost every month. Fourth, delay in processing application for building plans is another major constraint to the activities of the property developers (Ihuah *et al.,* 2014). Building plan approval takes a very long procedure to acquire thereby causing unnecessary delay in the commencement of building activities. The process is lengthy, tortuous and full of bottlenecks. Fifth, lack of incentives to foster their production function is another constraint to their activities. Government does not provide any incentives to developers in areas of land registration, tax relief and subsidy in respect of building materials.

Theoretical Framework

Theory of Cost

Historically, the best-known proponent of the theory is probably Adam Smith. Piero Sraffa, in his introduction to the first volume of the "Collected Works of David Ricardo", referred to Smith's "adding-up" theory. Smith contrasted natural prices with market price. The determination of the price for a product or service is not easy. Several other factors govern it. The theory of cost definition states that the costs of a business highly determine its supply and spending. The modern theory of cost in Economics looks into the concepts of cost, short-run total and average cost, long-run cost along with economy scales. The cost function varies concerning factors such as operation scale, output size, price of production, and more. The theory of cost needs to be understood in detail by economists to run their company and increase its profit and

productivity. The concept of cost is central to business decision making. To make effective business decisions, the business manager needs to be aware of a number of cost concepts and their respective uses.

Empirical Review

Onyejiaka *et al.* (2018), carried out the analysis of the effects of high cost of building materials on public housing delivery in Awka, Anambra State, Nigeria. Thus, to achieve this aim, a total of One Hundred and Ten (110) was sampled from the total population using simple random sampling method. A well-structured questionnaire and oral interview were used as the major instruments for data collection. Data collected were presented in tables and analyzed using simple percentages and mean. Correlation analysis was employed for testing the research hypotheses. The result of the hypotheses test indicated that the calculated value was higher than the critical value. Hence, the null hypothesis was rejected while the alternative was accepted. This implies that the increase in the prices of building material has significant effect on the delivery of public housing in Awka, Anambra State. It was discovered that Economic related factors, Human related factors, Stakeholder related factors and External factors are significant factors responsible for increase in the cost of building materials.

Gehner & Gert-Joost (2019) examined Real Estate Development Strategies and their Impact on the Risk Profile of a Project. Using content analysis, the researcher presents a real estate development framework that enables us

to describe the complexity of the real estate development process realistically. The framework is fundamentally different from current theories on real estate development and is developed making use of empirical analysis of development projects and investment decision making processes in three Dutch real estate development companies. By making use of the framework five development strategies are distinguished as to how a project is delivered to the market. In addition this paper explores the relevance of the framework from a risk management perspective. The main risks in real estate development are categorized according to seven development aspects founding the framework and insight is given into the relative sensitivity of the development strategies to these risk categories.

Graeme & Mark (2006) carried out an Assessment of the Importance of Property Development Risk Factors. From a survey of leading property developers in Australia, the importance of 34 property development risk factors is assessed. Property development makes a significant contribution to the Australian property industry and economy. However, property development is inherently risky, with a number of risks evident throughout the property development process. The most important property development risk factors identified were environmental risk, time delay risk and land cost risk.

Andreas & Viktor (2013) examined Real estate development: Organisational structure and conceptualisation of ideas. According to the study, the most critical factor when performing real estate development is the ability of finding ideas for new profitable projects. There are several established ways of coming up with ideas but not one generally adopted. Ideas can emerge quite randomly and it is therefore necessary to provide an organisation able to seize opportunities whenever they arise. Ideas were found to arise quite sporadically and it is an essential having an organisation with the ability of operating and adapting flexibly to contextual circumstances. It was found that most actors performing real estate development are therefore utilizing a flat structuring of their organisations. It was concluded that in order to be successful on a highly competitive market, real estate companies have to join consortiums to be able to split risks and commence larger projects. Consortiums provide experience and knowledge exchange when finding lucrative ways of providing high quality products to end customers with enlarged profitability.

Adebakin & Ipaye (2016) studied Project Delivery Delay: The Nigeria Experience. The main objective of this study is to identify the major causes of delays in construction projects in the Nigeria Construction Industry through a survey. This survey was conducted among 10 owners/developers, 40 contractors and 50 consultants in Lagos State, Nigeria. A questionnaire survey was conducted to solicit the causes of delay from clients, consultants and contractors' viewpoint. The study used trend analysis to establish the relationship between the variables of the study. The result of the study identified 41 important causes of delay. Project delivery delay, with its negative ripple effects, is one of the major problems

face in the construction industry of developing countries. It was found the predominant causes of delay are decision during development stage or changes in drawing, drawing approval, delayed payment, market conditions, financial process difficulties or money disbursement, subsurface soil condition, excessive changes in quantities and specifications, design errors or incomplete supply of drawings. The paper forecasts some future trends and suggests certain areas in which future research on construction projects could focus on, the findings of construction management problems are common to developing countries.

Okoye *et al.* (2015) carried out an evaluation of management challenges facing construction practice in Nigeria. The study adopted a survey research method, where questionnaire was distributed to the construction practitioners (contractors and professionals) within the South East Nigeria, through stratified random sampling. A total of 136 questionnaires were distributed to the respondents, while 97 were duly completed, returned and found suitable for analysis. Data obtained were analyzed and ranked using Relative Importance Index (RII). The result was subjected to further statistical analyses using Spearman's ranking correlation to ascertain the correlation of the ranking between the two groups of respondents. Subsequently, correlation was tested for its statistical significance using t- test statistic at 5% significance level. The result revealed that Time (Scheduling) Management (0.932), Quality

Management (0.932), Cost Management (0.924), and Safety Management (0.922) were the top management challenges facing construction practice in Nigeria. The study also identified technical skills and other management skills and strategies required for tackling the challenges. It also established that a statistically significance strong positive correlation exist between the rankings of the contractors and professionals.

According to Abdelnaser *et al.* (2012) carried out an assessment of factors that enhance performance of the projects, as well as the factors that lead to the delay of projects in Sudan. A total of 75 designed structured questionnaires were distributed randomly, 52 questionnaires were completed and returned. The relative importance index (RII) was used to rank the factors that influence project performance. The Spearman's Correlation Coefficient, showed the strength of relation between the most important factors. While, the Kruskal-Wallis test, showed that there were comparison and differences in opinions between the respondents. The results revealed that the most important five factors influence project performance were project team leader experience, planning effort, adequacy of design and specification, cost progress monitoring and leadership skill of leader.

III   RESEARCH METHODOLOGY
Research Design
This study adopted the survey research design in examining the subject matter under study. It is a quantitative research method used for collecting data from a set

of panel or respondent. Survey is important because it allow researchers to collect a large amount of data in a relatively short period.

The Study Population
The populations used for this study comprise estate property managers and landlords in Makurdi Metropolis, Benue State Nigeria. There are about 37 registered estate and property managers

in Makurdi Metropolis. The managers of each of these estate agencies were studied thus giving a population of 37 residential managers and 325 landlords drawn from High Level, Wurukum, Wadata, North Bank and Fiidi with a population of 65 landlords in each of these five location in the study area. Hence, the total population used for the study is five hundred and ten (510).

Table 1: Sample Frame List

S/No	Location	Residential Property Manager	Landlord	**Grand Total**
1	High Level	19	65	
2	Wurukum	7	65	
3	Wadata	3	65	
4	North Bank	6	65	
5	Fiidi	2	65	
	Total	**37**	**325**	**362**

Source: Researcher's Computation using SPSS 23.0, 2022.

Sample and Sampling Technique
The researcher adopted a multistage sampling, at the first stage; census sampling was used to count all the 37 registered estate and property managers in Makurdi Metropolis to form respondents to this study. At the second stage, simple random sampling was used to select 65 landlords from High Level, Wurukum, Wadata, North Bank and Fiidi formed the population of this study. When the population of the study is not too

large, it can equally be taken as the sample of the study. Hence, the sample size for the study is three hundred and sixty two (362).

Instruments for Data Collection
Content and construct validity was used for this study. The content validity was carried out by experts contributions in terms of wording and rewording of the items in the questionnaire while construct validity was carried out using exploratory factor analysis as shown in Table 1.

Table 2: Kaiser-Meyer-Olkin and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.926
	Approx. Chi-Square	3.705
Bartlett's Test of Sphericity	df	3
	Sig.	.030

Source: Researcher's Computation using SPSS 23.0, 2022

As shown by the result of the exploratory factor analysis Kaiser-Meyer-Olkin (KMO) measure for the study variable item is 0.926 with Barlett's Test of Sphericity (BTS) value to be 3 at a level of significance $p = 0.030$. The KMO result in this analysis surpasses the threshold value

of 0.50 as recommended in literature. Therefore, we are confident that our sample and data are adequate for this study.

Methods of Data Collection
Data for this study was collected using structured questionnaire which is based on four point Likert scale of strongly agreed, agreed, disagreed and strongly disagreed. Due to the nature of the study, primary data was mainly used for obtaining the data for the study.

Table 3: Total Variance Explained

Compon ent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulati ve %	Total	% of Variance	Cumulati ve %	Total	% of Variance	Cumulative %
1	1.402	46.738	46.738	1.402	46.738	46.738	1.402	46.724	46.724
2	1.115	37.173	83.911	1.115	37.173	83.911	1.116	37.187	83.911
3	.483	16.089	100.000						

Extraction Method: Principal Component Analysis.
Source: Researcher's Computation using SPSS 23.0, 2022

The Total Variance Explained table shows how the variance is divided among the three possible factors. Two factors have eigenvalues (a measure of explained variance) greater than 1.0, which is a common criterion for a factor to be useful. When the Eigenvalue is less than 1.0 the factor explains less information than a single item would have explained. Table 2 shows that the eigenvalues for the first and second components are 1.402 and 1.115.

These are greater than 1. Component one gave a variance of 46.724 and component two produced a variance of 37.187. As shown by Table 2 above on the rotated sum of squared loadings section, indicate that component 1 and 2 accounts for 83.911 percent of the variance of the whole variables of the study. This shows that the instrument have a strong construct validity.

Reliability of Instrument
Table 4: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.928	.989	3

Source: Researcher's Computation using SPSS 23.0, 2022

Table 3 shows the reliability statistics which indicates that the Cronbach Alpha value is 0.928. Reliability Cronbach Alpha statistics of 0.70 is considered adequate and reliable for social science research, hence the questionnaire for our study is reliable.

Model Specification
The model specification is given by the implicit and the explicit relationships that exist between the variables of the study in the function specified below:
PROQ = 	f (HCBM)	[i]
TODL = 	f (HCBM)	[ii]

Where,
PROQ = 	Property quality

TODL = Time of delivery
HCBM = High cost of building materials
The explicit form of the model can be stated as follows.

PROQ = $\alpha_0 + \alpha_1 HCBM + \varepsilon_t$ [iii]
TODL = $\beta_0 + \beta_1 HCBM + U_t$ [iv]

Where,
α_0 & β_0 = Constant or intercept
α_1 & β_1 = Regression coefficient
ε_t & U_t = Error terms
A priori expectation
High cost of building materials is expected to have a negative effect on property development in Makurdi Metropolis, Benue State, Nigeria. There is no theoretical and empirical consensus on the sign and magnitude, but we expect a greater than 50 percent effect.

Method of Data Analysis
In this study, the simple linear regression analysis is used as a method of data analysis. The probability value of the regression estimates from the two models of the study will be used to test the hypotheses of the study at five (5) percent level of significance. The decision rule is: using the probability value of the estimate of model one, we reject the null hypothesis. That is, we accept that the estimate b_1 is statistically significant ($p<0.05$) at the 5 percent level of significance.

IV   RESULT AND DISCUSSION

Figure 1: Regression Standardized Residual
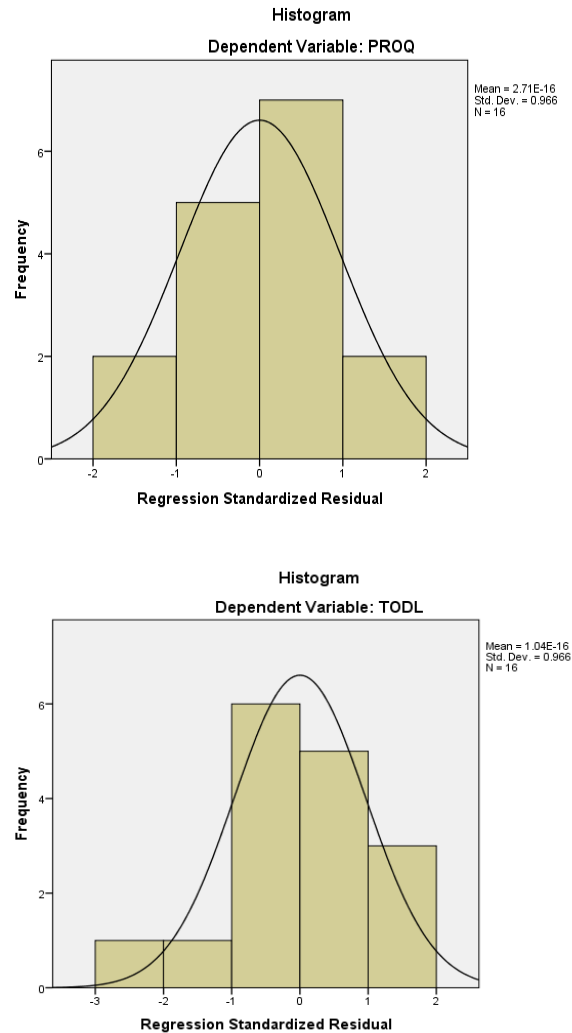
Source: SPSS 20.0 Result Output, 2022

The figures above show a histogram of the residuals with a normal curve superimposed. The residuals look close to normal, implying a normal distribution of data. Here is a plot of the residuals versus predicted dependent variables of Property quality (PROQ) and Time of delivery (TODL). The pattern shown above indicates no problems with the assumption that the residuals are normally distributed at each level of the

dependent variable and constant in variance across levels of Y.

Table 5: Statistical Significance of the model

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.872	1	16.872	.468	.051[b]
	Residual	504.878	14	36.063		
	Total	521.750	15			
2	Regression	150.773	1	150.773	2.696	.012[b]
	Residual	782.977	14	55.927		
	Total	933.750	15			

a. Dependent Variable: TODL, PROQ

b. Predictors: (Constant), HCBM
Source: SPSS 20.0 Result Output, 2022

The F-ratio in the ANOVA table above tests whether the overall regression model is a good fit for the data. The table 4 shows that the independent variable statistically significantly predicts the dependent variables $F_{(1, 14)} = 0.468$ & 2.696; $p <0.051^b$ & 0.012^b (i.e., the regression model is a good fit of the data).

The coefficient of determination R^2 for the three models of the study are 0.707, 0.764 and 0.797. This indicates that 70.70%, 76.40% and 79.7% of the variations in the model can be explained by the explanatory variables of the model while 29.30%, 23.6% and 20.30% of the variation can be attributed to unexplained variation captured by the stochastic error term.

Table 6: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.983[a]	.965	.878	6.00522
2	.840[a]	.706	.610	7.47843

a. Predictors: (Constant), HCBM
b. Dependent Variable: TODL, PROQ

Table 7: Regression coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	34.428	5.760		5.978	.000
	HCBM	.420	.175	.180	2.400	.010
2	(Constant)	40.744	7.172		5.681	.000
	HCBM	-.357	.177	-.402	-2.017	.012

a. Dependent Variable: PROQ,TODL
Source: SPSS 20.0 Result Output, 2022

Discussion of findings

The result of the simple linear regression for property quality model as shown in Table 6 indicate that the high cost of building materials (HCBM) has a positive effect on property quality in Makurdi Metropolis, Benue State, Nigeria and the effect is statistically significant ($p<0.05$) but the effect is not in line with *a priori* expectation. This means that a unit increases in high cost of building materials (HCBM) will result to a corresponding increase in property quality in Makurdi Metropolis, Benue State, Nigeria by a margin of 42.0%. Using the probability value of the estimate of model one, we reject the null hypothesis. That is, we accept that the estimate b_1 is statistically significant (*p<0.05*) at the 5% level of significance. This implies that high cost of building materials has a significant effect on property quality in Makurdi Metropolis, Benue State, Nigeria. The negative effect of high cost of building materials is expected as high and changing cost affects price quotation, budgeting and schedule forecast. The delay in delivering of completed building.

This finding could be as a result of clients and actors in the property development sector of the economy rises up to challenges of high cost. This they do by translating the cost of property development to the end users who are made to pay exorbitant fee in terms of rent for the use of such property within the time under the lease agreement. This find is in line with that of Onyejiaka *et al.,* (2018) who carried out the analysis of the effects of high cost of building materials on public housing delivery in Awka, Anambra State Nigeria and found that the increase in the prices of building material has significant effect on the delivery of public housing in Awka, Anambra State.

High cost of building materials (HCBM) has a negative effect on time of delivery (TODL) of developed property in Makurdi Metropolis Benue State, Nigeria and the effect is statistically significant ($p<0.05$) and the effect is in line with *a priori* expectation. This means that a unit increases in high cost of building materials (HCBM) will result to a corresponding decrease in time of property delivery (TODL) in Makurdi Metropolis Benue State, Nigeria by a margin of 35.7%. Using the probability value of the estimate of model two, we reject the null hypothesis. That is, we accept that the estimate b_2 is statistically significant (*p<0.05*) at the 5% level of significance. This implies that high cost of building materials has a significant effect on time of property delivery in Makurdi Metropolis Benue State, Nigeria. This result is expected as construction delay has been linked with the challenges of property development. According to Assaf & Al-Hejji (2016), construction delay is considered one of the most frequent problems in the construction industry and delays have an adverse impact on project success in terms of time, cost, quality and safety. Also, Graeme & Mark (2006) who carried out an assessment of the importance of property development risk factors from a survey of leading property developers in Australia found time delay risk and land cost risk are among the

most significant factors affecting property development.

IV   CONCLUSIONS AND RECOMMENDATIONS

Conclusion
This study examine the effect of high cost of building materials on property development in Makurdi Metropolis, Benue State, Nigeria. The construction industry contributes significantly in terms of scale and share in the development process for both developed and developing countries. The construction products provide the necessary public infrastructure and private physical structures for many productive activities such as services, commerce, utilities and other industries. The study has shown that whereas high cost of building materials have a positive and significant effect on property quality in Makurdi Metropolis, Benue State, Nigeria against *a priori* expectation, high cost of building materials has a negative effect on time of property delivery in the study area.

Recommendations
Based on the findings of this study, the following recommendations are made:

1. In order to help the construction industry, government can improve the exchange rate of the Naira through concerted effort in fiscal and monetary policies of government which target broad range of issues ranging from activities that encourages local production of some of the building material to reduce over dependence on import.

2. Due to the fluctuation in the exchange rate market, budgeting and cost estimation for building material should be made with a certain percentage allocated to uncertainty that may arise in the event of increase in the price of already approved amount for the purchase of building materials. That way, the delay that might arise from price change can be curtailed. Also, by having a timetable for the project development, the delay in delivering completed project can be minimized.

REFERENCES

Abdelnaser O., Salma, A. and Abdul, H. K. P. (2012). Project Performance in Sudan Construction Industry: A Case Study. *Academic Research Journals (India), 1(1):55-78.*

Abdul-Rahman, H., Wang, C. & Yap, J.B.H. (2015). Impacts of design changes on construction project performance: Insights from a literature review. In 14th Management in Construction Research Association (MiCRA 2015) Annual Conference and General Meeting.

Adedeji, Y.M.D. (2012). Sustainable housing provision: preference for the use of interlocking masonry in housing delivery in Nigeria. *Architecture Research*, 2(5):81-86.

Aibinu, A. A. & Jagboro, G. O. (2010). The Effects of Construction Delays on Project Delivery in Nigerian Construction Industry. *Journal of Project Management*, 20(8):593-599.

Akanni, P.O., Oke, A. E. and Omotilewa, O.J., (2014). Implications of Rising Cost of Building Materials in Lagos State Nigeria. *SAGE Open*, 4(4), p.215.

Andreas L. & Viktor T. (2013). Real estate development: Organisational structure and conceptualisation of ideas. Master of Science Thesis in the Master's Programme Design and Construction Project Management. Department of Civil and Environmental Engineering Division of Construction Management Chalmers University of Technology Göteborg, Sweden.

Chan D. W. M. and Kumaraswamy, M. M., (2016). An evaluation of construction time performance in the building industry, *Journal of Building and Environment*, 31(6):569-578

Choudhury, I. and Phatak, O. (2014). Correlates of time Overrun in Commercial Construction. *ASC Proceedings of the 40th Annual Conference.* Brigham Young University, Provo, Utah, April 8-10.

Deakin, M. (2005). *Urban Property Development.* In Curwell, S., Deakin, M., Symes, M., (ed.) Sustainable Urban Development Volume 1: The Framework and Protocols for Environmental Assessment. Routledge; New Ed edition, London, United Kingdom

Dixon, T. (2007) The Property Development Industry and Sustainable Urban Bownfield Regeneration in England: An Analysis of Case Studies in Thames Gateway and Greater Manchester. *Urban Studies*, 44(12), 2379-2400

Drane, J. (2013). *The State of Contemporary Property Development Theory.* 19th Annual Pacific-Rim Real Estate Society Conference, Melbourne, Australia, 13-16 January 2013.

Forsythe, P. (2017). A Conceptual Framework for Studying Customer Satisfaction in Residential Construction. *Journal of Construction Management and Economics,* 25 (2):171-182

Gehner, E. and Gert-Joost, P. (2019). Real Estate Development Strategies and their Impact on the Risk Profile of a Project. Online @ https://www.irbnet.de/daten/iconda/CIB16206.pdf

Graeme N. and Mark, S. (2006). Assessing the Importance of Property Development Risk Factors. *Pacific Rim Property Research Journal*, 12(1). 22 -37.

Guy, S. and Henneberyy, J. (2002). *Conclusions: Interpreting Development.* In Guy, S. and Henneberry, J. (ed.) Development & Developers. Blackwell Publishing, Oxford, United Kingdom.

Healey, P. and Barrett, S.M. (1990) Structure and Agency in Land and Property Development Processes: Some Ideas for Research. *Urban Studies*, 27(1), 1990, 89-104

Healey, P., 1992. An institutional model of the development process. *Journal of property research*, pp. 9,33-44

Ihuah, P.W., Kakulu, I.I. & Eaton, D. (2014). A review of Critical Project Management Success Factors (CPMSF) for sustainable social housing in Nigeria. *International Journal of Sustainable Built Environment*, 3(1), 62-71, https://doi.org/10.1016/j.ijsbe.2014.08.001.

Latham, M. (1994) *Constructing the Team,* HMSO, (2nd edn.), London: McGraw-Hill Press, 45-48.

Okoye, P. U., Ngwu, C. and Ugochukwu, S. C. (2015). Evaluation of Management Challenges Facing Construction Practice in Nigeria. *International Journal of Application or Innovation in Engineering & Management* (IJAIEM), Online @ www.ijaiem.org Email: editor@ijaiem.org, 4(1):356-373

Onyejiaka, J. C. Nwoke, V. O. Udobi, A. N. (2018). Analysis of the effects of high cost of building materials on public housing delivery in Awka, Anambra State Nigeria. *Tropical Built Environment Journal*, 6(2). 96 - 106.

Reed, M.S. (2008) Stakeholder participation for environmental management: a literature review. *Biological Conservation*, 141, 2417-2431.

Wilkinson, S.J. and Sayce, S. L. (2015a). *Site feasibility*. In Wilkinson, S.J., Sayce, S.J. and Christensen, P.H. (ed.) Developing Property Sustainably. Routledge, London, United Kingdom

Yasamis, F., Arditi, D., and Mohammadi, J. (2002). Assessing contractor quality performance. *Journal of Construction Management and Economics, 20(3):211-223.*