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Effect of Construction Project Performance on Economic Development of Nigeria

Samuel Olusola, Olatunji Ayodeji Emmanuel, Oke Douglas Omoregie, Aghimien*
Seidu, Sakiru Adeyemi
Department of Quantity Surveying, Federal University of Technology, P.M.B. 704, Akure, Nigeria

Abstract
Construction projects located in Nigeria suffer from many problems and complex issues and this ultimately impact on the country's economic development. Consequently, the aim of this paper is to assess the effect of construction performance on economic development of Nigeria with a view to providing better construction project performance and improving economic development in the process. Using a survey design, a total of 74 construction professionals were sampled and data were analyzed using related descriptive tools. The study revealed that the major factors affecting project performance include; project design cost, cost of reworks, unavailability of resources, average delay in regular payment, quality of equipment and raw materials and unavailability of competent staffs to handle construction process. Also findings revealed that the areas where construction project performance have more effect on economic development are; improvement in technology, extension of infrastructures, increase in employment opportunities and government expenditure. The study further recommends that human resources in the construction industry should be developed through proper and continuous training programs about construction projects performance. Also elements required for better performance in construction have to be fully integrated into every construction projects in Nigeria.
Keywords: Construction, Economic development, Performance, Nigeria,

1. Introduction

Success has always been the ultimate goal of every activity, and construction project is no exception. Due to the ambiguous definition of project success and the different perceptions of participants towards this concept, it may be difficult to tell whether a project is successful as there is a lack of consensus. Time, cost, human resources and materials to be used for construction project have long been the success criteria used to evaluate the performance of any construction project (Collins, 1996). The failure of any construction project is mostly related to the performance problems and there are many reasons and factors which are attributed to such problems. Project performance can be measured and evaluated using a large number of performance indicators that could be related to various dimensions (groups) such as time, cost, quality, client satisfaction, client changes, business performance, health and safety (cheung *et al*., 2004; DETR, 2000).

The construction industry is vital for the development of any nation. In many ways, the pace of the economic growth of any nation can be measured by the development of physical infrastructures, such as buildings, roads and bridges. According to Wang (1994), as construction is becoming more complex, a more sophisticated approach is necessary to deal with initiating, planning, financing, designing, approving, implementing and completing a project. According to Navon (2005) the construction industry is complex in its nature because it comprises large numbers of parties as owners (clients), contractors, consultants, stakeholders, and regulators. Despite this complexity, the industry plays a major role in the development and achievement of society's goals. It is one of the largest industries and contributes 10% of the gross national product (GNP) in industrialized countries. Nigeria is no exception; the local construction industry is one of the main economic engine sectors, supporting the Nigeria national economy. However, many local construction projects report poor performance due to many evidential project-specific causes such as: unavailability of materials, excessive amendments of design and drawings, poor coordination among participants, ineffective monitoring and feedback, and lack of project leadership skills (UNRWA, 2006).

The building construction industry in Nigeria is a fast growing sector of the economy which recorded a growth rate of more than 20% between 2006 and 2007. This growth however is not equal when compared to the growth of Nigeria's total GDP as the overall contribution of the construction sector to the country's GDP remains very low at 1.83% in 2008. Key factors that have contributed to the growth in the construction and property sector include high demand for buildings across all sectors of the economy; the focus on infrastructure development by state and federal governments; the adoption of privatization and commercialization as instruments of federal government policy and attempts at controlling regulations relating to how the constructions business is carried out in the country (Trade Invest Nigeria, 2012).

Oke and Abiola-Falemu (2009) revealed that the quality of materials and workmanship in Nigeria building industry is not satisfactory and that the problem lies in the use of inappropriate materials supplied to site and inefficient use of workmen. The effective management of human resources is the key towards achieving the higher construction workforce productivity thus accomplishing the construction projects within their predefined

limits. Kim *et al.,* (2008), stated that international construction projects performance is affected by more complex and dynamic factors than domestic projects; frequently being exposed to serious external uncertainties such as political economical social and cultural risks, as well as internal risks from within the project. Generally, performance dimensions may have one or more indicators, and could be influenced by various project characteristics. As such, this study appraised the adherence to good performance standard in construction projects in Nigeria, assessed the factors affecting this performance and how it affects the economic development of Nigeria.

2. Literature Review

2.1Factors Affecting the Construction Project Performance

Many previous researches had studied the performance of construction projects. A typical construction project undergoes three stages; pre-construction, construction and post construction stages. Along these stages, there are numerous activities performed to achieve the output and objectives specified by the owner. Therefore, it is crucial for the construction project team, at some extent, to measure its performance on the activities or sub-processes performed throughout the construction project, Love (2002). Performance of a project can be considered as a result of the process as well as the presence of the process. Dissanayaka and Kumaraswamy (1999) remarked that one of the principle reasons for the construction industry's poor performance has been attributed to the inappropriateness of the chosen procurement system. The main performance criteria of construction projects as financial stability, progress of work, standard of quality, health and safety, resources, relationship with clients, relationship with consultants, claim and contractual disputes, relationship with subcontractors, reputation and amount of subcontracting.

Chan and Kumaraswamy (2002) stated that construction time is increasingly important because it often serves as a crucial benchmarking for assessing the performance of a project and the efficiency of the project organization. Chan and Kumaraswamy (2002) identified project performance categories such as people, cost, time, quality, safety and health, environment, client satisfaction, and communication and a control system is an important element to identify factors affecting construction project effort. For each of the project goals, one or more Project Performance Indicators (PPI) is needed, both Early Contractor Involvement (ECI) and Early Supplier Involvement (ESI) would minimize constructability-related performance problems including costs associated with delays, claims, wastages and rework, etc. It is obtained by Stewart (1967) that human factors played an important role in determining the performance of a project. The most important practices relating to scope management as obtained by are controlling the quality of the contract document, quality of response to perceived variations and extent of changes to the contract.

2.1.1 Cost Factors

This has traditionally been seen as one of the most important areas – if the economy of the project is off, the project can seldom be seen as a success. Overall project cost, i.e. the overall cost that a project incurs from inception to completion, is of major interest as it shows the resource usage in economic terms. Another important aspect regards cost predictability, that is, whether the final overall cost is in line with the initial cost estimate. Cost overruns can be a source for problems for an otherwise successful project as contractors are criticized for the common occurrence of cost overruns (sometimes labelled cost growth) in construction project, (Chan and Chan, 2004). This cost factors can be seen in areas such as; profit rate of project, project design cost, waste rate of material, cost of variation orders, and cost of rework (Alarcon and Ashley, 1999; Love *et al.,* 2005).

2.1.2 Time Factors

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 and Kumaraswamy, 1996). 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 and Phatak, 2004; Aibinu and Odeyinka, 2006; Assaf and Al-Hejji, 2006).

2.1.3 Quality Factors

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, 2004). According to Forsythe (2007), 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 during which is created. Therefore,

we see two main aspects of quality. First, quality of end product has to do with the users' satisfaction with the finished construction and it is a critical success factor.

Quality management systems can contribute to the mitigation and elimination of rework/non-conformances; 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, Arditi and Mohammadi (2002). 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. According to (Smallwood and Rossouw, 2008), the owner will come closest to its desired quality by selecting firm based on the totality of the firm's quality performance including the quality of its corporate service, project service and constructed facility. The contractor is responsible for the means, methods, techniques, sequences and procedure of construction as well as safety precautions and programmes during the construction.

2.2Indices of Economic Development

The Nigerian construction industry continues to occupy an important position in the nation's economy even though it contributes less than the manufacturing or other service industries, (Aibinu and Jagboro, 2002). The contribution of the construction industry to national economic growth necessitates improved efficiency in the industry by means of cost effectiveness and timeliness, and would certainly contribute to cost savings for the country as a whole. Below are the indices of economic development;

2.2.1. Increase in Employment Opportunity

Employment is one of the most important social and economic issues in every country. As a result, measures of utilization and non-utilization of labour are usually of considerable concern to researchers and policy makers, (Jodie and Ogunrinola, 2011). Iyoha (1998) opined that employment generation is a significant drive of the growth rate of GDP in Nigeria. However, in the Nigerian economy, most employment is in the informal sector. A large proportion of these people are under self-employment with very low income, (Jodie and Ogunrinola, 2011).

In spite of the very high-sounding electioneering promises of political leaders in many poor nations of the world, the achievement of impressive growth and decent employment remains a mirage. Jodie and Ogunrinola (2011) stated that high rate of unemployment, unimpressive growth rates and poverty among other miseries of the populace, are the order of the day. In spite of its importance, the implementation of policies on employment creation in many developing nations has not yielded much impact as there is a wide gap between the jobs available and the number of job seekers actively seeking work in most poor nations.

2.2.2 Government Expenditure

The relationship between government expenditure and economic growth has continued to generate series of controversies among scholars in economic literature. According to Keynesian (2006) macro-economic thought, public spending can contribute positively to economic growth. Hence, an increase in the government spending is likely to lead to an increase in employment, profitability and investment through multiplier effects on aggregate demand. As a result, government spending augments the aggregate demand which provokes an increased output depending on the expenditure multipliers. The opponents of this approach stipulates that government consumption crowds out private investment, hampers economic growth in the short run and diminishes capital accumulation in the long run (Diamond, 2006). It also facilitates the connection among the different parts of the country and enhances their integration. In addition, the rehabilitation of electricity and the establishment of efficient projects for energy will reduce costs and have positive impact on economic growth (Barro, 1999). Barro (1999) asserts that expenditure on investment and productive activities is expected to contribute positively to economic growth, while government consumption spending is expected to be growth retarding.

2.2.3 Extension of Infrastructure

Infrastructure is basic essential services that should be put in place to enable development to occur, (Jodie and Ogunrinola, 2011). Economic development of Nigeria can be facilitated and accelerated by the presence of infrastructure. If these facilities and services are not in place, development will be very difficult and in fact can be likened to a very scarce commodity that can only be secured at a very high price and cost. The provision and development of infrastructures has been the subject of much theoretical analysis and empirical studies. The relationship between infrastructural development and economic growth has, in recent years become one of the most important economic topics in both academic and policy cycle, (Roller and Waverman 2009).

Economic growth implies increase in per-capital Gross Domestic Product hereafter written as GDP. The source of economic growth has therefore ranked amongst the most significant issues the economist have examined (Roller and Waverman 2009). The role of infrastructures has renewed attention over the years. According to Calderon and Serven (2004) and Estache *et al.* (2005), from the policy point of view, the renewed concern with infrastructure can be traced to the world-wide developments that took place over the last two

decades.

2.3 Effect of Construction Project Performance on the Economic Development of Nigeria

Construction is a term that covers a wide range of activities in civil engineering and building which includes both new workers, repairs and maintenance (Oladapo, 2004). Ogunpola (2004) has also said that the construction industry could be divided into two main branches, namely building and civil engineering. He went further to say that though a close structural relationship exists between the two branches, they are so sufficiently distinguished that the building component can be successfully and usefully studied independently of civil engineering branch of the industry.

The construction industry is an important part of the economical backbone in many countries, often accounting for between 7-10 percent of the Gross Domestic Product, (Winch, 1996; Voordijk *et al.,* 2000). Furthermore, construction products and processes have a large impact on safety, health and environmental aspects, (Bayliss *et al.,* 2004). Since all human beings in modern societies are directly affected by its processes and/or products, the importance of a well-functioning construction industry is beyond doubt (Cheung et al., 2004; Eriksson, 2007). In many countries the construction industry has, however, attracted criticism for inefficiencies in outcomes such as time and cost overruns, low productivity, poor quality and inadequate customer satisfaction, Latham (2004). Practitioners, researchers and society at large have, therefore, called for a change in attitudes, behaviors and procedures in order to increase the chances for construction projects to be successful and result in improved end products (Dubois and Gadde, 2002).

Both developing and developed nations have realized and understand the significance of construction sector -in socio-economic and sustainable development of a country. Construction activities are closely linked with the various phases of economic development of a country. This has been discussed for several years at macroeconomic level. Historically construction activities have been associated with the process of industrial and urban development since the dawn of Industrial Revolution, (Rostow, 2003). Construction is an industry that involves complex and dynamic processes. It consists of successful coordination of multiple discrete business entities such as professionals, tradesmen, manufacturers, trade unions, investors, local authorities, specialists, trade contractors and others.

Construction projects impact on a nation's economy. Successful completion of construction projects leads to wealth creation; socio-economic growth and improved standards of living. Nations are evaluated as "developed", "developing" and "underdeveloped" based on the quantity and quality of completed construction projects in their domain. The key role of construction sector in aggregate economy has been widely highlighted in the literature. It is stated that there is a direct relationship between construction output and national output. It is also pointed out that the construction output grows more rapidly than national output when economy grows and vice versa, Wells (2006). This implies that the construction sector is highly integrated with other sectors of the economy through both backward and forward linkages and strongly linked with many economic activities. These linkages are stems for the sector through which it generate higher multiplier effect in the economy. So that any change in the construction sector must affect other sectors of the economy and finally impact goes to national income (Ofori, 2000).

Hence the construction industry is often considered as an engine of economic growth specifically in developing economies. The industry can activate and successfully- consume locally produced material and manpower in the construction and maintenance of buildings and infrastructures to motivate local employment and improve economic efficiency (Anaman, 2007). Construction sector thus has a great impact on socio-economic development of a country.

3.Research Methodology

This study set out to assess the effect of construction project performance on the economic development of Nigeria. The study employed a survey design approach in which a total of 134 construction professionals (Architects, Builders, Engineers and Quantity surveyors) in contracting firms, consulting firms and government parastatals in Lagos State were sampled. Lagos State was chosen base on the premise that it is Nigeria's commercial capital city and more than any other location in Nigeria, this city host a vast majority of Nigerian construction contractors and construction works (Aje, Makanjuola and Olatunji, 2015).

A total of 133 questionnaires were distributed randomly to the identified construction professionals and a total of 74 were returned and found fit for analysis. Data gathered were analyzed using frequency, percentage and Mean Item Score (MIS).

4. Findings and Discussions

4.1General information of Respondents

Result showed that most of the professionals sampled are Quantity surveyors and Engineers with about 32% and 30% respectively. This is followed by Architects and Builders with 27% and 11% respectively. About 42% work

in various government parastatals responsible for delivering construction projects within the state, while about 41% and 17% work in contracting and consulting firms respectively. The average years of working experience of the respondents is 12 years in which, 18.9% ranging between 1-5years, 17.6% between 6-10years, 12.2% between 11-15years, 29.7% between 16-20 years, 9.5% between 21-30years and 12.2% above 30 years of experience. This vast years of experience shows that the respondents are adequately equipped to give answers to the research questions set for this study.

4.2Factors Affecting Construction Project Performance

Table 1 shows the major factors affecting construction project performance as identified from the review of selected literatures. Under the cost factors, project design cost and the cost of reworks are seen as the two major cost factors affecting the performance of construction projects with a mean score of 4.3 and 4.1 respectively. This is understandable as the cost of construction is absolutely dependent on the type of design. The more complex/bigger a design is, the more the cost of construction and vice versa. In similar vein, rework in construction is bound to lead to increase in the initial estimated cost for constructing such buildings. Cost of variation order ranked the least with a mean score of 3.4. Although this factor is ranked as the least, it still had a mean score that is well above average of 2.5 meaning it is also important, though not as much as the rest factors.

Under the time factors, unavailability of resources and average delay in regular payment are seen as the two major time factors that can affect the performance of construction projects. They both have a mean score of 4.8 and 4.0 respectively, which implies a high significance. Thus, for good performance to be attained, availability of resources is very important and prompt payment of work done by contractor is crucial, as this will aid contractor's cash flow and ensure work is not disrupted. The planned time for construction is ranked as the least factor on the table with a mean score of 3.5. Although this factor is ranked as the least, it still had a mean score that is well above average of 2.5, meaning it is also significant.

In terms of quality measure, the Quality of equipment and raw materials and Unavailability of competent staffs to handle construction process are the two most significant factors affecting the performance of construction projects. This two factors had a high mean score of 4.9 and 4.6 respectively. Quality assessment system of the organization was ranked as the least quality factor with a mean score of 2.5.

Table1. Factors affecting construction project performance

Factors	Mean score	Rank
Cost factors		
Project design cost	4.3	1
Cost of rework	4.1	2
Waste rate of materials	3.9	3
Profit rate of project	3.7	4
Cost of variation order	3.4	5
Time factors		
Unavailability of resources	4.8	1
Average delay in regular payment	4.0	2
Time needed to rectify defects	3.8	3
Planned time for construction	3.5	4
Quality factors		
Quality of equipment and raw materials	4.9	1
Unavailability of competent staffs	4.6	2
Conformance to specification	3.8	3
Quality assessment system in organization	2.5	4

4.3Effect of Construction Project Performance on Economic Development of Nigeria

Following the areas of economic development identified from the review of literatures, Table 2 shows the areas mostly affected by construction project performance. From the table it is evident that the areas where construction project performance have more effect in economic development are improvement in technology and extension of infrastructures with a mean score of 4.4 and 4.3 respectively. This is followed by increase in employment opportunities and government expenditure with a mean score of 3.8 and 3.7 respectively. Thus, if improvement in technology, extension of infrastructures, increase in employment opportunities and reasonable government expenditure is to be attained through the construction sector, then proper consideration must be given to the performance of construction projects. The least areas affected are; trade diversification and human rights with a mean score of 2.5 and 2.2 respectively. This implies that respondents does not see the performance of construction projects having any real effect on these areas of economic development.

Table 2. Effect of Construction Project Performance on Economic Development

Factor	Mean score	Rank
Improvement in technology	4.4	1
Extension of infrastructures	4.3	2
Increase in employment opportunities	3.8	3
Government expenditure	3.7	4
Urbanization	3.5	5
Increase in export of finished goods	3.4	6
Utilization of natural resources	3.3	7
Increase in entrepreneur	3.2	8
Trade diversification	2.5	9
Human rights	2.2	10

4.4Discussion of Findings

In cost performance factors, we have statistical reasons to conclude that project design cost is actually the most effective factors that affect cost performance of projects. This is followed by cost of rework and waste rate of materials. The result obtained agrees with what was obtained by Arditi (2003) and Caldeira (2007) that cost of rework and waste rate of materials is one of the most essential elements to be considered when achieving cost performance. This however is in contrast with Abu-Shaban (2008) findings, where project design cost was ranked as the 17th important cost factor, with price escalation being the most important cost factor affecting project performance in the Gaza strip.

In similar vein, the results gotten from time factor shows that unavailability of resources and average delay in payment were considered by the professionals to be the actual factors that affects time performance of construction projects. This result is in line with that of Ugwu and Haupt (2007) that unavailability of resources directly affects the project performance such as time. If resources are not available as planned through project duration, the project will experience poor time performance. The result is also in agreement with Abu-Shaban (2008) findings which showed that materials shortage and average delay in payment from owner to contractor are some of the major time related factors affecting the performance of construction projects in the Gaza strip.

The results gotten for quality factor reveals that quality of equipment and raw materials is the major factor affecting quality factor of a project. This was followed by unavailability of competent staff. This finding is in agreement with Abu Shaban (2008) and Iyer and Jha (2005) findings which showed that quality of equipment and raw materials and the presence of competent and experienced staffs are important factors that can affect the quality of a construction project.

From the results gotten, it is evident that most of the respondents are of the opinion that construction project performance can affect certain areas of economic development within Nigeria. These areas include; improvement in technology, extension of infrastructures, increase in employment opportunities and Government expenditure. Anaman (2007) and Ofori (2000) submitted that effective construction projects brings about extension of infrastructure, improvement in technology, increase in employment opportunities and urbanization, and all these enhance rapid growth in economic development of a country.

5. Conclusion and Recommendation

This study set out to assess the effect of construction project performance on the economic development of Nigeria. Using a survey design with construction professionals sampled, the study has been able to ascertain the factors affecting the performance of construction projects in Nigeria, and the areas in economic development that is affected by construction project performance.

Project design cost, cost of reworks, unavailability of resources, average delay in regular payment quality of equipment and raw materials and unavailability of competent staffs to handle construction process are the most significant factors affecting the performance of construction projects under the cost, time and quality factors. Also, the areas where construction project performance have more effect in economic development are; improvement in technology, extension of infrastructures, increase in employment opportunities and government expenditure. Human resources in the construction industry should therefore be developed through proper and continuous training programs about construction projects performance. These programs can update participants' knowledge and can assist them to be more familiar with project management techniques and processes. Also there is a hierarchy of relative importance concerning elements required for measuring construction project performances, all these elements have to be fully integrated for an effective construction project performance.

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