

FACTORS AFFECTING CONSTRUCTION COST OF HOUSING PROJECTS IN NIGERIA

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ABSTRACT

The aim of this paper is to discuss the main factors that affect construction cost of housing project in Nigeria using Bauchi and Gombe as case study. A survey of 37 Property developers/Landlords, 22 Estate Surveyors and Valuers, 20 Quantity Surveyors and Builders was carried out. Use is made up of 10 different factors affecting construction cost of housing project in Nigeria and their degree of importance. The severity of those factors was measured by the level of their importance and was ranked accordingly by the respondents. There is agreement by each group and the overall participants. It was found out that cost of building materials, land and equipments, urbanisation, and cost of labour are the factors with relatively high overall rank. The paper has provided a forum for considering all factors affecting housing projects cost in Nigeria and the interplay between them. This will provide a guide to the focus area to be considered in policy development aiming at improving conditions in the construction industry for affordable housing projects.

Keywords *cost, construction industry, building materials*

Introduction

Housing construction of any type is usually capital intensive and beyond the reach of the low income and medium income earners in Nigeria. This was attributed to the high cost of construction; these are costs of labour and materials. This problem has been discussed by many authors and the way to develop alternative building materials and other solutions to produce cheaper, durable, and sustainable housing projects. It is no longer news that housing construction cost have been on the increase in cities like Bauchi and Gombe and indeed the whole of Nigeria. It is alleged by Udegbe (2005) that most people are not able to afford accommodation of their own due to the high cost of production. According to him, the charges of labour force such as masons, painters, carpenters, plumbers, electricians, site labourers etc that are involved in the construction industry are quite high. This makes it very difficult for the prospective home owners to afford. He also said that, these labour cost have drastically reduced the number of available housing. The combined problem of lack of finance, rising cost of building materials and low housing investments have created a wide gap between demand and supply of housing units. Hence, this has resulted into high prices of housing units and rents. Jinadu (2004) asserted that it is necessary to appraise the factors that affect housing construction cost in Nigeria. The knowledge of these factors would help to established measures that could be taken to stabilize or bring down the high cost of housing development. This is important because, not only is there a shortage of housing stock but, also the low and middle

income earners are being priced out of the housing market for home ownership all over Nigeria, so argued (Windapo, 2004). Now, that the problem of high cost of construction is complicated and out of control, finding the solution can not be easy or quick. Taking more time to apply the right solution will allow the problem to get even more difficult. So, accurate research is preferable to the slower process of blind trial and error in this situation.

Literature Review

Cost is the amount of money, which must be given to or is needed in order to acquire, produce, or affect something. Raftery (1991) in Adamu (2008) stated that cost of housing is the amount of money that must be paid or is needed in order to rent, acquire, or build it. It is said to be the sum paid for the factors of production. The major costs associated with construction are cost of land, labour, materials, plants, and machineries. El-Rufai (1993) in Adamu (2008) said that capital costs for development of property includes land and acquisition cost, cost of construction, indirect cost also known as soft costs among others. Ferry (1992) defined cost of building “as the amount which the client, the builder will have to pay the contractor to build it for him”. He further said that the contractors’ costs are made up of the prime costs which consist of wages (cost of labour), cost of materials together with cost of plant and machinery, overheads these include salaries and office administration expenses. There are many factors identified that caused increase in construction cost, Ikedianya (1992) supported that rapid increase in the rate of depreciation of naira to US dollars, high rate of inflation paved way for rise in construction cost. Nwuba (1994) pointed out that government policy (implementation of structural adjustment programme 1986) was one of the causes of the increase. This was supported by Ajenlekoko (1990) and FOS (1996) who blamed the Structural Adjustment Programme for the escalating cost of construction in Nigeria. Achuen and Gundiri (1998) alleged that almost all projects are completed at sums higher than the initial contract sums and client can hardly rely upon this initial contract sum. Onibokun (1990) and Nwuba (1982) reported that the high cost has affected the rate of housing supply and gave rise to serious competition for housing. It also, leads to time over runs and often abandonment of projects (Kolawale et al, 2005).

The Building Construction Industry

Raftery (1991) said that the construction industry exists because the users and the business people need shelter in which to carry on their activities. Building construction industry is, the sector that is given the responsibilities of planning, designing, procuring, constructing, and delivery of building, civil engineering, and public works Abimbola (2000). Also, Obasi (1990) stated that the Nigerian construction industry is made up of the building and the civil engineering industry and also said that the construction industry involves professionals, who he described as construction team and /or the design team. The organisation of construction industry was categorised in to group of professionals, trades, and unions together with public sector organisation to include professional bodies in the industry, suppliers of building materials, building research establishments,

universities, and colleges including government departments involved in construction (Gruneberg, 1997, in Nwunba, 2002). The construction industry is also categorised as firms ranging from large, medium, and small. Their capital base and degree of activities have influence on their contractual involvement and utilization of the major resource inputs in the industry (Ujene, 2004, in Achuene and Ujene, 2006).

Housing Provision

Housing or shelter for man is a basic need that is second only to food and clothing. It affects the very life style of man, his health, productivity, and well being. The worlds over huge resources have been geared towards meeting the high demand for housing. The Federal Ministry of Works and Housing (2002) defined housing as the process of providing a large number of residential buildings, a permanent basic need with adequate physical infrastructure and social amenities in planned, decent, safe and sanitary neighbourhoods to meet the basic and special needs of the population (Kuroshi and Bala, 2005). Housing is more than a mere shelter, it encompasses the provision of services and infrastructural facilities such as electricity, water, sewerage, environmental safety and cleanness. According to Lanrewaju (2012) housing is an issue that touches on the life of individuals as well as that of the nation, a great importance is therefore, ascribed to the role it plays in engendering human comfort by both nature and society.

Housing provision has been the main problem of man over the years. In the past housing has been provided in various forms and or structures. In the olden days the primitive man lived in the caves and later translated to live in permanent house. Hence, he thought of developing his physical environment through technological advancement which led to various types of buildings. Augustine (2005) stated that “despite man’s progress in industry, education and sciences, the simple affordable privacy and protection against the forces of nature is still beyond the reach of most members of the human race especially the poor and the disadvantaged. Government in Nigeria have in a bid to solve this housing situation introduced various policies towards the provision of mass housing for mainly low income earners. Temet (1962) alleged that housing supply is a conventional method by which houses are constructed through normal institutional channels and are used by owners or offered for sale or rent in open market by government organisation and private individuals.

Factors affecting the cost of housing construction projects

The cost of housing projects can be broken down into land acquisition, building materials, labour plants and machinery.

Building Material Cost

The cost of building materials in a project is influenced by the requirements of the design and the specifications. The quality of building materials and their cost implication is determine by the design specifications. The cost of building material is one of the major cost component in a building project. According to Bamisile (2004), building materials account for approxi 60% of building project. The specific brand and quality of building

materials you choose to put in your home will dramatically affect the price. Building materials components of a building vary from electrical fittings, plumbing materials, floor finishes, doors and windows etc, the quality and standard of these materials determine their prices. The choice of an owner will determine the eventual cost of a building.

Cost of Land

Land means the physical surface of the earth, it can also be seen as the part of the earth terrain in which men and animals live on. It can be made up of the total earth crust and the total inner substances that are under the earth, it also includes the sea, river, air and space (Bala, Ileko and Ali, 2014). Land is the solid part of the earth surface upon which we build our houses, it is often referred to as a plot.

The cost of land is determined by its purchase price, and can include any other related initial costs spent to put the land into use.

Exactly how much a plot of land will cost depends on several factors such as location, size, proximity to transport links and whether it benefits from any planning permission.

Land values are usually determined by the general state of the property market. There has been an upward trend in land values in Gombe in the past few years.

Labour Cost

Labour for the building industry is made up of professionals and tradesmen (artisans & craftsmen). Professionals include Architects, Land surveyors, Builders, Quantity Surveyors, Estate Surveyors & Valuers, Town planners and Engineers.

Artisans and craftsmen in the construction industry are equally as important as the professionals. According to Bamisile (2004). In spite of advancement in technology, plant and equipment and in particular robotics, the construction industry is one of the few that relies heavily on individual skill of a tradesman. There will always be the need for the following tradesmen in the construction industry: Bricklayers, Plumbers, Carpenters, Electricians, Painters, Masons, Tilers etc.

Labour cost in building projects are usually fixed. Next to building materials, it constitutes one of the major cost components in a building.

Methodology

Primary data for the study were obtained from Estate Surveyors and Valuers, Builders and Quantity Surveyors firms and Property developers/Landlords in the study area. A total of 124 questionnaires were administered (22 to Estate Surveyors and Valuers, 37 to Quantity Surveyors and Builders, 65 to Property developers/Landlords). A total of 78 (18 Estate Surveyors and Valuers, 15 Quantity Surveyors/Builders and 45 Property developers/Landlords) questionnaires were returned out of the 124 administered, which represents 62.9% effective response rate. The respondents were asked to rank the factors on a scale of 1 (not important) to 5 (very important). The responses were tabulated and analysed individually using relative importance index scale. This calculation puts the factors in rank order and indicates how much the highest ranked is more important than

the next and so on. The 5 point ranking scale was transformed to relative importance indices for each factor, using the above method to determine the ranks of the different factors. The relative importance index (RII) was evaluated using the following expression;

$$\text{Relative importance index (RII)} = \frac{\text{SUMMATION } w}{(A \times N)} \text{ ----, } (0 < \text{index} < 1)$$

Where w = weighting given to each factor by the respondents and ranges from 1 – 5 where 1 is not significant and 5 is extremely significant A = highest weight and N =total number of respondents.

Findings and Discussions

4.3.1 Factors Affecting Cost of Housing Construction in the Study Area

Table 12: Ranking of Factors Responsible for Rising Cost in Housing Construction

Rising cost	5	4	3	2	1	Rank sum(5) Enw	R.I $\frac{S}{X(N)}$	Rank order	Percentage
(a) Cost of building materials	6	3	0	1	0	44	0.88	1 st	88
(b) Cost of labour	4	5	1	0	0	35	0.70	5 th	70
(c) Cost of equipment	1	6	1	2	0	36	0.72	3 rd	72
(d) cost of land	5	3	1	0	1	41	0.82	2 nd	82
(e) Urbanization (Rural urban migration)	5	1	3	1	0	36	0.72	3 rd	72

The table (12) above showed that cost of building materials ranked 1st with index of 0.88 which agreed with Adamu(2008) in trends in cost of construction followed by cost of land which ranked 2nd with index of 0.82, cost of equipment and urbanization ranked 3rd with indexes of 0.72 for two respectively while cost of labour ranked 5th with index of 0.70.

4.3.2 Achieving Stability in Cost of Production of Building

Table 13: Achieving Stability in Cost of Production of Building: Ranking of Suggestion Solution for Achieving Stability in the Cost of Production of Building

Suggestion/solution	5	4	3	2	1	Rank sum(5)	R.I	Rank order	Percentage
(a) Security of land	5	1	3	0	1	39	0.78	2 nd	78

tenure

(b) Govt. policy subsidy	3	5	0	2	0	39	0.78	2 nd	78
- Owner/occupation	2	3	3	2	0	35	0.70	5 th	70
- Monetization	2	2	2	2	2	30	0.60	7 th	60
- Good governance	3	2	1	4	0	34	0.68	6 th	68
(c) Research and development into local building materials	6	2	2	0	0	44	0.88	1 st	88
(d) urbanization –urban rural drift	1	2	3	4	0	30	0.60	7 th	60
- Supply of infrastructure	2	2	3	3	0	33	0.66	7 th	66
- Supply of utilities	3	2	3	2	0	36	0.72	4 th	
(e) Economic of browsing interest rate	3	1	1	3	2	30	0.60	7 th	60

The data in the above table (13) is aimed at arriving at solutions for achieving stability in the production cost of building. Based on the results, research and development into local building materials ranked 1st with relative index of 0.88 security of land tenure and government policy/subsidy ranked 2nd with relative index of 0.78 supply of utility ranked 4th with relative index at 0.72 owner occupation ranked 5th with relative index of 0.70. Good governance ranked 6th with relative index of 0.68 and monetization, urbanisation, supply of infrastructure and borrowing of browsing interest rate ranked 7th with relative index of 0.60. From the above analysis

Conclusion

This research assessed the factors affecting the construction cost of housing project in Bauchi and Gombe states of Nigeria and gave an account of and reasons for the high cost of construction of housing project. As mentioned earlier in the introduction, the purpose of this study was to determine the factors affecting in construction cost in the study area, to appraise the factors responsible for the increase in cost of construction in the study area.

It was perceived that cost of building materials was the most dominant factor affecting construction cost followed by cost of land and cost of equipment and urbanization found as third major factors affecting cost of construction of housing projects.

Recommendations

Following the summary, it is recommended that:

1. Government policy and housing delivery should not be limited to provision of housing for rental purposes only, the individual should be encouraged to, as alternative to buy or build their own houses.
2. Research and development into local building materials should be encouraged by the government, fund should be provided for such research in the fiscal budget. The findings should be implemented
3. Integrated Rural Development by the Government, which is to pursue radical development of the rural economy. It will help to eliminate unemployment, slum formation, and perpetual increases in demand for housing and stress on urban infrastructure. It will also check rural – urban migration
4. Housing Education: More housing programme should be run by our education institutions. This will go a long way to provide expertise and direction needed for it.

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